Mathematica 11.3 Integration Test Results

Test results for the 499 problems in "4.3.7 (d trig)^m (a+b (c tan)^n)^p.m"

Problem 33: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x] \left(a+b \text{Tan}[e+f x]^2\right) \, dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$-\frac{a \text{ArcTanh}[\text{Cos}[e+f x]]}{f}+\frac{b \text{Sec}[e+f x]}{f}$$

Result (type 3, 51 leaves):

$$-\frac{a \text{Log}\left[\text{Cos}\left[\frac{e}{2}+\frac{f x}{2}\right]\right]}{f}+\frac{a \text{Log}\left[\text{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]\right]}{f}+\frac{b \text{Sec}[e+f x]}{f}$$

Problem 34: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^3 \left(a+b \text{Tan}[e+f x]^2\right) \, dx$$

Optimal (type 3, 51 leaves, 4 steps):

$$-\frac{(a+2 b) \text{ArcTanh}[\text{Cos}[e+f x]]}{2 f}-\frac{a \text{Cot}[e+f x] \text{Csc}[e+f x]}{2 f}+\frac{b \text{Sec}[e+f x]}{f}$$

Result (type 3, 123 leaves):

$$-\frac{a \text{Csc}\left[\frac{1}{2} (e+f x)\right]^2}{8 f}-\frac{a \text{Log}\left[\text{Cos}\left[\frac{1}{2} (e+f x)\right]\right]}{2 f}-\frac{b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (e+f x)\right]\right]}{f}+\frac{a \text{Log}\left[\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right]}{2 f}+\frac{b \text{Log}\left[\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right]}{f}+\frac{a \text{Sec}\left[\frac{1}{2} (e+f x)\right]^2}{8 f}+\frac{b \text{Sec}[e+f x]}{f}$$

Problem 35: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^5 \left(a+b \text{Tan}[e+f x]^2\right) \, dx$$

Optimal (type 3, 79 leaves, 5 steps):

$$-\frac{3\,(a+4\,b)\,\text{ArcTanh}[\text{Cos}[e+f\,x]]}{8\,f}-\frac{(5\,a+4\,b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]}{8\,f}-\frac{a\,\text{Cot}[e+f\,x]^3\,\text{Csc}[e+f\,x]}{4\,f}+\frac{b\,\text{Sec}[e+f\,x]}{f}$$

Result (type 3, 276 leaves):

$$-\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{32\,f}-\frac{b\,\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{8\,f}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^4}{64\,f}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]\right]}{8\,f}-\frac{3\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]\right]}{2\,f}+\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]}{8\,f}+\frac{3\,b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]}{2\,f}+\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{32\,f}+\frac{b\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{8\,f}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}{64\,f}+\frac{b\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{b\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}$$

Problem 47: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^2\,dx$$

Optimal (type 3, 82 leaves, 5 steps):

$$-\frac{a\,(a+4\,b)\,\text{ArcTanh}[\text{Cos}[e+f\,x]]}{2\,f}+\frac{a\,(a+4\,b)\,\text{Sec}[e+f\,x]}{2\,f}-\frac{a^2\,\text{Csc}[e+f\,x]^2\,\text{Sec}[e+f\,x]}{2\,f}+\frac{b^2\,\text{Sec}[e+f\,x]^3}{3\,f}$$

Result (type 3, 376 leaves):

$$-\frac{a^2\,\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{8\,f}+\frac{\left(-a^2-4\,a\,b\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]\right]}{2\,f}+\frac{\left(a^2+4\,a\,b\right)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]}{2\,f}+\frac{a^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{8\,f}+\frac{b^2}{12\,f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}+\frac{b^2\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{6\,f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^3}-\frac{b^2\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{6\,f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^3}+\frac{b^2}{12\,f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}+\frac{-12\,a\,b\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]-b^2\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{6\,f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}+\frac{12\,a\,b\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]+b^2\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{6\,f\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}$$

Problem 48: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^5 \left(a+b \text{Tan}[e+f x]^2\right)^2 \, dx$$

Optimal (type 3, 123 leaves, 6 steps):

$$-\frac{\left(3 a^2+24 a b+8 b^2\right) \text{ArcTanh}[\text{Cos}[e+f x]]}{8 f}-\frac{a (a+8 b) \text{Cot}[e+f x] \text{Csc}[e+f x]}{8 f}+\frac{\left(a^2+8 a b+4 b^2\right) \text{Sec}[e+f x]}{4 f}-\frac{a^2 \text{Csc}[e+f x]^4 \text{Sec}[e+f x]}{4 f}+\frac{b^2 \text{Sec}[e+f x]^3}{3 f}$$

Result (type 3, 447 leaves):

$$\frac{\left(-3 a^2-8 a b\right) \text{Csc}\left[\frac{1}{2} (e+f x)\right]^2}{32 f}-\frac{a^2 \text{Csc}\left[\frac{1}{2} (e+f x)\right]^4}{64 f}+\frac{\left(-3 a^2-24 a b-8 b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (e+f x)\right]\right]}{8 f}+\frac{\left(3 a^2+24 a b+8 b^2\right) \text{Log}\left[\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right]}{8 f}+\frac{\left(3 a^2+8 a b\right) \text{Sec}\left[\frac{1}{2} (e+f x)\right]^2}{32 f}+\frac{a^2 \text{Sec}\left[\frac{1}{2} (e+f x)\right]^4}{64 f}+\frac{b^2}{12 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^2}+\frac{b^2 \text{Sin}\left[\frac{1}{2} (e+f x)\right]}{6 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^3}-\frac{b^2 \text{Sin}\left[\frac{1}{2} (e+f x)\right]}{6 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^3}+\frac{b^2}{12 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^2}+\frac{-12 a b \text{Sin}\left[\frac{1}{2} (e+f x)\right]-7 b^2 \text{Sin}\left[\frac{1}{2} (e+f x)\right]}{6 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)}+\frac{12 a b \text{Sin}\left[\frac{1}{2} (e+f x)\right]+7 b^2 \text{Sin}\left[\frac{1}{2} (e+f x)\right]}{6 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)}$$

Problem 57: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 60 leaves, 3 steps):

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

Result (type 3, 121 leaves):

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

Problem 58: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]}{a+b\ \text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 60 leaves, 4 steps):

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

Result (type 3, 144 leaves):

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

Problem 59: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 89 leaves, 5 steps):

$$-\frac{\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{b}\ \text{Sec}[e+f x]}{\sqrt{a-b}}\right]}{a^2 f}-\frac{(a-2 b)\ \text{ArcTanh}[\text{Cos}[e+f x]]}{2 a^2 f}-\frac{\text{Cot}[e+f x]\ \text{Csc}[e+f x]}{2 a f}$$

Result (type 3, 195 leaves):

$$\frac{1}{8 a^2 f}\left(8 \sqrt{a-b} \sqrt{b} \operatorname{ArcTan}\left[\frac{\sqrt{a-b}-\sqrt{a} \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]+\right.$$
$$8 \sqrt{a-b} \sqrt{b} \operatorname{ArcTan}\left[\frac{\sqrt{a-b}+\sqrt{a} \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]-a \operatorname{Csc}\left[\frac{1}{2}(e+f x)\right]^2-$$
$$4 a \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right]+8 b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right]+$$
$$\left.4 a \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right]-8 b \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right]+a \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

Problem 60: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[e+f x]^5}{a+b \operatorname{Tan}[e+f x]^2} \, dx$$

Optimal (type 3, 130 leaves, 6 steps):

$$-\frac{(a-b)^{3/2} \sqrt{b} \operatorname{ArcTan}\left[\frac{\sqrt{b} \operatorname{Sec}[e+f x]}{\sqrt{a-b}}\right]}{a^3 f}-\frac{\left(3 a^2-12 a b+8 b^2\right) \operatorname{ArcTanh}[\operatorname{Cos}[e+f x]]}{8 a^3 f}-\frac{(5 a-4 b) \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]}{8 a^2 f}-\frac{\operatorname{Cot}[e+f x]^3 \operatorname{Csc}[e+f x]}{4 a f}$$

Result (type 3, 326 leaves):

$$\frac{(a-b)^{3/2} \sqrt{b} \operatorname{ArcTan}\left[\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b} \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\sqrt{a} \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{a^3 f}+$$
$$\frac{(a-b)^{3/2} \sqrt{b} \operatorname{ArcTan}\left[\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b} \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\sqrt{a} \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{a^3 f}+$$
$$\frac{(-3 a+4 b) \operatorname{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{32 a^2 f}-\frac{\operatorname{Csc}\left[\frac{1}{2}(e+f x)\right]^4}{64 a f}+\frac{\left(-3 a^2+12 a b-8 b^2\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right]}{8 a^3 f}+$$
$$\frac{\left(3 a^2-12 a b+8 b^2\right) \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right]}{8 a^3 f}+\frac{(3 a-4 b) \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{32 a^2 f}+\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^4}{64 a f}$$

Problem 72: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 147 leaves, 6 steps):

$$-\frac{(3a-4b)\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sec}[e+fx]}{\sqrt{a-b}}\right]}{2a^3\sqrt{a-b}\,f}-\frac{(a-4b)\,\text{ArcTanh}[\text{Cos}[e+fx]]}{2a^3f}-\frac{\text{Cot}[e+fx]\,\text{Csc}[e+fx]}{2af\left(a-b+b\,\text{Sec}[e+fx]^2\right)}-\frac{b\,\text{Sec}[e+fx]}{a^2f\left(a-b+b\,\text{Sec}[e+fx]^2\right)}$$

Result (type 3, 325 leaves):

$$-\frac{1}{2a^3(-a+b)f}(3a-4b)\sqrt{a-b}\sqrt{b}\,\text{ArcTan}\left[\frac{1}{\sqrt{b}}\text{Sec}\left[\frac{1}{2}(e+fx)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right]-\frac{1}{2a^3(-a+b)f}$$
$$(3a-4b)\sqrt{a-b}\sqrt{b}\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)}{\sqrt{b}}\right]-$$
$$\frac{b\,\text{Cos}[e+fx]}{a^2f\left(a+b+a\,\text{Cos}[2(e+fx)]-b\,\text{Cos}[2(e+fx)]\right)}-\frac{\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2}{8a^2f}+$$
$$\frac{(-a+4b)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right]}{2a^3f}+\frac{(a-4b)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right]}{2a^3f}+\frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{8a^2f}$$

Problem 84: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+fx]^3}{\left(a+b\,\text{Tan}[e+fx]^2\right)^3}\,dx$$

Optimal (type 3, 205 leaves, 7 steps):

$$-\frac{\sqrt{b}\left(15a^2-40ab+24b^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sec}[e+fx]}{\sqrt{a-b}}\right]}{8a^4(a-b)^{3/2}f}-\frac{(a-6b)\,\text{ArcTanh}[\text{Cos}[e+fx]]}{2a^4f}-\frac{\text{Cot}[e+fx]\,\text{Csc}[e+fx]}{2af\left(a-b+b\,\text{Sec}[e+fx]^2\right)^2}-\frac{3b\,\text{Sec}[e+fx]}{4a^2f\left(a-b+b\,\text{Sec}[e+fx]^2\right)^2}-\frac{(11a-12b)\,b\,\text{Sec}[e+fx]}{8a^3(a-b)f\left(a-b+b\,\text{Sec}[e+fx]^2\right)}$$

Result (type 3, 414 leaves):

$$\frac{1}{8 a^4 (-a+b)^2 f}\sqrt{a-b}\,\sqrt{b}\,\left(15 a^2-40 a b+24 b^2\right) \text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]+$$

$$\frac{1}{8 a^4 (-a+b)^2 f}\sqrt{a-b}\,\sqrt{b}\,\left(15 a^2-40 a b+24 b^2\right) \text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]+$$

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

$$\frac{-9 a b\,\text{Cos}[e+f x]+8 b^2\,\text{Cos}[e+f x]}{4 a^3 (a-b) f \left(a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]\right)}-\frac{\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{8 a^3 f}+$$

$$\frac{(-a+6 b)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right]}{2 a^4 f}+\frac{(a-6 b)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right]}{2 a^4 f}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{8 a^3 f}$$

Problem 92: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 161 leaves, 6 steps):

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

$$\frac{2(5 a-4 b)\,\text{Cos}[e+f x]^3\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}{15 (a-b)^2 f}-\frac{\text{Cos}[e+f x]^5\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}{5 (a-b) f}$$

Result (type 3, 1022 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\frac{(7 a-8 b)\,\text{Cos}[e+f x]}{60 (a-b)}+\frac{(25 a-29 b)\,\text{Cos}[3(e+f x)]}{240 (a-b)}-\frac{1}{80}\text{Cos}[5(e+f x)]\right)+$$

$$\frac{1}{240 (a-b) f}\left(-\left(\left(\left(89 a^2+226 a b-331 b^2\right)(1+\text{Cos}[2(e+f x)])\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\right.\right.\right.$$

$$\sqrt{2 b+a(1+\text{Cos}[2(e+f x)])-b(1+\text{Cos}[2(e+f x)])}\left(\text{Log}\left[\sqrt{1+\text{Cos}[2(e+f x)]}\right]-\right.$$

$$\left.\left.\text{Log}\left[2 b+\sqrt{2}\sqrt{b}\sqrt{(2 b+a(1+\text{Cos}[2(e+f x)])-b(1+\text{Cos}[2(e+f x)]))}\right]\right)\right)\text{Sin}[$$

$$e+f x]\,\mathrm{Sin}[2\,(e+f x)]\Big)\Big/\Big(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f x)])\,(1+\mathrm{Cos}[2\,(e+f x)])}$$

$$(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\sqrt{1-\mathrm{Cos}[2\,(e+f x)]^2}\Big)\Big)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}}\,3\,(89\,a^2-254\,a\,b+149\,b^2)\,\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}$$

$$\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}{1+\mathrm{Cos}[2\,(e+f x)]}}$$

$$\Big(\Big(\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f x)])-b\,(1+\mathrm{Cos}[2\,(e+f x)])}$$

$$\Big(\mathrm{Log}\Big[\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\Big]-\mathrm{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}$$

$$\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f x)])-b\,(1+\mathrm{Cos}[2\,(e+f x)]))}\Big]\Big)\,\mathrm{Sin}[e+f x]$$

$$\mathrm{Sin}[2\,(e+f x)]\Big)\Big/\Big(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f x)])\,(1+\mathrm{Cos}[2\,(e+f x)])}$$

$$\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}\,\sqrt{1-\mathrm{Cos}[2\,(e+f x)]^2}\Big)-$$

$$\Big(4\,\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f x)])-b\,(1+\mathrm{Cos}[2\,(e+f x)])}$$

$$\Big(\sqrt{b}\,(b\,(-1+\mathrm{Cos}[2\,(e+f x)])-a\,(1+\mathrm{Cos}[2\,(e+f x)]))+(a-b)\,\sqrt{(-2\,b\,(-1+}$$

$$\mathrm{Cos}[2\,(e+f x)])+2\,a\,(1+\mathrm{Cos}[2\,(e+f x)]))}\,\mathrm{Log}\Big[\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\Big]+$$

$$(-a+b)\,\sqrt{(-2\,b\,(-1+\mathrm{Cos}[2\,(e+f x)])+2\,a\,(1+\mathrm{Cos}[2\,(e+f x)]))}$$

$$\mathrm{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f x)])-b\,(1+\mathrm{Cos}[2\,(e+f x)]))}\Big]\Big)$$

$$\mathrm{Sin}[e+f x]^3\,\mathrm{Sin}[2\,(e+f x)]\Big)\Big/\Big(3\,(a-b)\,\sqrt{b}\,(1-\mathrm{Cos}[2\,(e+f x)])$$

$$\sqrt{-(-1+\mathrm{Cos}[2\,(e+f x)])\,(1+\mathrm{Cos}[2\,(e+f x)])}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}$$

$$\sqrt{1-\mathrm{Cos}[2\,(e+f x)]^2}\,\sqrt{-b\,(-1+\mathrm{Cos}[2\,(e+f x)])+a\,(1+\mathrm{Cos}[2\,(e+f x)])}\Big)\Big)\Big)$$

Problem 93: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 113 leaves, 5 steps):

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

Result (type 3, 367 leaves):

$$\frac{1}{12\sqrt{2}\,(a-b)\,f\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Sec}[e+f x]^2}}\Big(-9 a^2+2 a b+15 b^2-8\,(a^2-3 a b+2 b^2)\,\text{Cos}[2\,(e+f x)]+a^2\,\text{Cos}[4\,(e+f x)]-2 a b\,\text{Cos}[4\,(e+f x)]+b^2\,\text{Cos}[4\,(e+f x)]-12\sqrt{2}\,a\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\,\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f x)]}\right]+12\sqrt{2}\,b^{3/2}\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\,\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f x)]}\right]+12\sqrt{2}\,a\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\,\text{Log}\left[2 b+\sqrt{2}\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right]-12\sqrt{2}\,b^{3/2}\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\,\text{Log}\left[2 b+\sqrt{2}\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right]\Big)\,\text{Sec}[e+f x]$$

Problem 94: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 72 leaves, 4 steps):

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

Result (type 3, 166 leaves):

$$-\Bigg(\bigg(\text{Csc}[e+f x]\,\Big(\sqrt{2}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}+2\sqrt{b}\,\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f x)]}\right]-2\sqrt{b}\,\text{Log}\left[2 b+\sqrt{2}\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right]\Big)\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Sec}[e+f x]^2}\,\text{Sin}[2\,(e+f x)]\bigg)\Big/\left(4 f\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right)\Bigg)$$

Problem 95: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\,dx$$

Optimal (type 3, 84 leaves, 6 steps):

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

Result (type 3, 503 leaves):

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

Problem 96: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 127 leaves, 7 steps):

$$-\frac{(a+b)\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{2\sqrt{a}\,f}+\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{f}-\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]\,\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}{2 f}$$

Result (type 3, 1100 leaves):

$$-\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\,\text{Cot}[e+f x]\,\text{Csc}[e+f x]}{2 f}+$$

$$\frac{1}{2 f}\Bigg(\Bigg((a-b)\,(1+\text{Cos}[e+f x])\,\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

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

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

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

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

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

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

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

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

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

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

$$\left((a+3\,b)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

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

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\right.$$

$$\left.\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]-\frac{1}{\sqrt{b}}2\,\mathrm{Log}\left[\right.$$

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

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

$$\left.\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

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

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

Problem 97: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[e+f\,x]^5\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 187 leaves, 8 steps):

$$-\frac{\left(3 a^2+6 a b-b^2\right) \text{ArcTanh}\left[\frac{\sqrt{a} \text{ Sec}[e+f x]}{\sqrt{a-b+b \text{ Sec}[e+f x]^2}}\right]}{8 a^{3/2} f}+\frac{\sqrt{b} \text{ ArcTanh}\left[\frac{\sqrt{b} \text{ Sec}[e+f x]}{\sqrt{a-b+b \text{ Sec}[e+f x]^2}}\right]}{f}-\frac{(3 a+b) \text{ Cot}[e+f x] \text{ Csc}[e+f x] \sqrt{a-b+b \text{ Sec}[e+f x]^2}}{8 a f}-\frac{\text{Cot}[e+f x] \text{ Csc}[e+f x]^3 \sqrt{a-b+b \text{ Sec}[e+f x]^2}}{4 f}$$

Result (type 3, 1161 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a \text{ Cos}[2 (e+f x)]-b \text{ Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(\frac{(-3 a \text{ Cos}[e+f x]-b \text{ Cos}[e+f x]) \text{ Csc}[e+f x]^2}{8 a}-\frac{1}{4} \text{Cot}[e+f x] \text{ Csc}[e+f x]^3\right)+\frac{1}{8 a f}$$
$$\left(\left(\left(3 a^2-2 a b-b^2\right) (1+\text{Cos}[e+f x]) \sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}} \sqrt{\frac{a+b+(a-b) \text{ Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\right.\right.$$
$$\left(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]}{\sqrt{a}}-\frac{2 \text{ Log}\left[1-\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\text{Log}\left[a-a \text{ Tan}\left[\frac{1}{2} (e+f x)\right]^2+\right.\right.$$
$$\left.2 b \text{ Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{a} \sqrt{4 b \text{ Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]+$$
$$\frac{1}{\sqrt{a}}\text{Log}\left[2 b+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\right.$$
$$\left.\sqrt{a} \sqrt{4 b \text{ Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]+\frac{1}{\sqrt{b}}2 \text{ Log}\left[\right.$$
$$\left.\left.b+b \text{ Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{b} \sqrt{4 b \text{ Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]\right)$$
$$\text{Tan}\left[\frac{1}{2} (e+f x)\right] \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)$$
$$\left.\sqrt{4 b \text{ Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right) \Big/$$
$$\left(4 \sqrt{a+b+(a-b) \text{ Cos}[2 (e+f x)]} \sqrt{\left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right.$$

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

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

$$\left((3 a^2+14 a b-b^2)\,(1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\right.$$

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

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

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

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

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

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

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

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

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

Problem 98: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sin}[e+f x]^4 \sqrt{a+b\,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 189 leaves, 8 steps):

$$\frac{\left(3 a^2-12 a b+8 b^2\right) \text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{8 (a-b)^{3/2} f}+\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{(3 a-4 b) \text{Cos}[e+f x] \text{Sin}[e+f x] \sqrt{a+b\,\text{Tan}[e+f x]^2}}{8 (a-b) f}-\frac{\text{Cos}[e+f x] \text{Sin}[e+f x]^3 \sqrt{a+b\,\text{Tan}[e+f x]^2}}{4 f}$$

Result (type 4, 771 leaves):

$$\frac{1}{8 (a-b) f}\left(-\left(\left(b \left(3 a^2+4 a b-8 b^2\right) \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \text{Csc}[2 (e+f x)] \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right] \text{Sin}[e+f x]^4\right)\Big/\left(a (a+b+(a-b) \text{Cos}[2 (e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]}}\right.$$

$$4 b \left(3 a^2-12 a b+8 b^2\right) \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\ \text{Csc}[2\,(e+f\,x)]$$

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

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

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\ \text{Csc}[2\,(e+f\,x)]$$

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{(4\,a-5\,b)\,\text{Sin}[2\,(e+f\,x)]}{16\,(a-b)}+\right.$$

$$\left.\frac{1}{32}\,\text{Sin}[4\,(e+f\,x)]\right)$$

Problem 99: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 128 leaves, 7 steps):

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

Result (type 4, 716 leaves):

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

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

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

$$\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

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

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)-$$

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

Problem 100: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 85 leaves, 6 steps):

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

Result (type 3, 203 leaves):

$$\frac{1}{2 f}\left(-i \sqrt{a-b}\ \text{Log}\left[-\frac{4 i \left(a-i b \text{Tan}[e+f x]+\sqrt{a-b} \sqrt{a+b \text{Tan}[e+f x]^2}\right)}{(a-b)^{3/2} \left(i+\text{Tan}[e+f x]\right)}\right]+\right.$$

$$i \sqrt{a-b}\ \text{Log}\left[\frac{4 i \left(a+i b \text{Tan}[e+f x]+\sqrt{a-b} \sqrt{a+b \text{Tan}[e+f x]^2}\right)}{(a-b)^{3/2} \left(-i+\text{Tan}[e+f x]\right)}\right]+$$

$$\left. 2 \sqrt{b}\ \text{Log}\left[b \text{Tan}[e+f x]+\sqrt{b} \sqrt{a+b \text{Tan}[e+f x]^2}\right]\right)$$

Problem 101: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^2 \sqrt{a+b \text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 66 leaves, 4 steps):

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

Result (type 4, 156 leaves):

$$-\left(\left(\left(\left((a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2-\right.\right.\right.\right.$$

$$\sqrt{2}\ b \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}$$

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

$$\left.\left(\sqrt{2}\ f \sqrt{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Sec}[e+f x]^2}\right)\right)$$

Problem 102: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^4 \sqrt{a+b\,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 100 leaves, 5 steps):

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

Result (type 4, 298 leaves):

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

Problem 103: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^6 \sqrt{a+b\,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 141 leaves, 6 steps):

$$\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\text{Cot}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{f}-\frac{2(5a-b)\,\text{Cot}[e+f x]^3\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}{15a^2 f}-\frac{\text{Cot}[e+f x]^5\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}{5 a f}$$

Result (type 4, 346 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(\frac{1}{15a^2}\left(-8a^2\,\text{Cos}[e+f x]-9ab\,\text{Cos}[e+f x]+2b^2\,\text{Cos}[e+f x]\right)\text{Csc}[e+f x]+\frac{\left(-4a\,\text{Cos}[e+f x]-b\,\text{Cos}[e+f x]\right)\text{Csc}[e+f x]^3}{15a}-\frac{1}{5}\text{Cot}[e+f x]\,\text{Csc}[e+f x]^4\right)-\left(2b^2\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2(e+f x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(a f\left(a+b+(a-b)\,\text{Cos}[2(e+f x)]\right)\right)$$

Problem 104: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 227 leaves, 7 steps):

$$\frac{(3a-7b)\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{2f}+\frac{(3a-7b)\,b\,\text{Sec}[e+f x]\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}{2(a-b)f}-\frac{(3a-7b)\,\text{Cos}[e+f x]\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}{3(a-b)f}+\frac{2\,\text{Cos}[e+f x]^3\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{5/2}}{3(a-b)f}-\frac{\text{Cos}[e+f x]^5\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{5/2}}{5(a-b)f}$$

Result (type 3, 1017 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{1}{60}\,(7\,a-13\,b)\,\text{Cos}[e+f\,x]+\frac{1}{240}\,(25\,a-49\,b)\,\text{Cos}[3\,(e+f\,x)]-\frac{1}{80}\,(a-b)\,\text{Cos}[5\,(e+f\,x)]+\frac{1}{2}\,b\,\text{Sec}[e+f\,x]\right)+$$

$$\frac{1}{240\,f}\left(-\left(\left(\left(89\,a^2+246\,a\,b-1271\,b^2\right)\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\left(\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]-\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right]\right)\,\text{Sin}[e+f\,x]\,\text{Sin}[2\,(e+f\,x)]\right)\bigg/\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)\right)-\right.$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,\left(89\,a^2-474\,a\,b+409\,b^2\right)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\left(\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]-\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right]\right)\,\text{Sin}[e+f\,x]\,\text{Sin}[2\,(e+f\,x)]\right)\bigg/\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)-\right.$$

$$\left(4\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\left(\sqrt{b}\,(b\,(-1+\text{Cos}[2\,(e+f\,x)])-a\,(1+\text{Cos}[2\,(e+f\,x)]))+(a-b)\,\sqrt{(-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]+(-a+b)\,\sqrt{(-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right]\right)\right.$$

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

Problem 105: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 186 leaves, 6 steps):

$$\frac{(3a-5b)\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{2f}+\frac{(3a-5b)\,b\,\text{Sec}[e+f x]\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}{2(a-b)f}-\frac{(3a-5b)\,\text{Cos}[e+f x]\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}{3(a-b)f}+\frac{\text{Cos}[e+f x]^3\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{5/2}}{3(a-b)f}$$

Result (type 3, 996 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(\frac{1}{12}(a-b)\text{Cos}[e+f x]+\frac{1}{12}(a-b)\text{Cos}[3(e+f x)]+\frac{1}{2}b\,\text{Sec}[e+f x]\right)+$$

$$\frac{1}{12f}\Bigg(-\Bigg(\Bigg(\left(5a^2+18ab-47b^2\right)(1+\text{Cos}[2(e+f x)])\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\sqrt{2b+a(1+\text{Cos}[2(e+f x)])-b(1+\text{Cos}[2(e+f x)])}\Big(\text{Log}\left[\sqrt{1+\text{Cos}[2(e+f x)]}\right]-\text{Log}\left[2b+\sqrt{2}\sqrt{b}\sqrt{(2b+a(1+\text{Cos}[2(e+f x)])-b(1+\text{Cos}[2(e+f x)]))}\right]\Big)\text{Sin}[e+f x]\,\text{Sin}[2(e+f x)]\Bigg)\Bigg/\Bigg(\sqrt{2}\sqrt{b}\sqrt{-(-1+\text{Cos}[2(e+f x)])(1+\text{Cos}[2(e+f x)])}\,(a+b+(a-b)\text{Cos}[2(e+f x)])\sqrt{1-\text{Cos}[2(e+f x)]^2}\Bigg)\Bigg)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}}3\left(5a^2-18ab+13b^2\right)\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right.\right.$$

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

$$\left.\text{Sin}[2\,(e+f\,x)]\right)\Big/\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\right.$$

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

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

$$\left(\sqrt{b}\,(b\,(-1+\text{Cos}[2\,(e+f\,x)])-a\,(1+\text{Cos}[2\,(e+f\,x)]))+(a-b)\,\sqrt{(-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]+\right.$$

$$(-a+b)\,\sqrt{(-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)]))}$$

$$\left.\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right]\right)$$

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

$$\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}$$

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

Problem 106: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 113 leaves, 5 steps):

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

Result (type 3, 478 leaves):

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

Problem 107: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 127 leaves, 7 steps):

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

Result (type 3, 1113 leaves):

$$\frac{b\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\text{Sec}[e+f\,x]}{2\,f}+\frac{1}{2\,f}\Bigg(\Bigg(\Big(2\,a^2-3\,a\,b+b^2\Big)\left(1+\text{Cos}[e+f\,x]\right)\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{\left(1+\text{Cos}[e+f\,x]\right)^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\text{Log}\Big[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\Big]+\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\right.$$

$$\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Big]+\frac{1}{\sqrt{b}}2\,\mathrm{Log}\Big[$$

$$b+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Big]\Bigg)$$

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

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

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

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

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

$$\Bigg(\left(2\,a^2+3\,a\,b-b^2\right)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\mathrm{Log}\Big[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+$$

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

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[2\,b+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$

$$\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Big]-\frac{1}{\sqrt{b}}2\,\mathrm{Log}\Big[$$

$$b+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Big]\Bigg)$$

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

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

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

$$\left.\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right)\Bigg)$$

Problem 108: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 167 leaves, 8 steps):

$$-\frac{\sqrt{a}\,(a+3\,b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Sec}[e+f\,x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}\right]}{2\,f}+\frac{\sqrt{b}\,(3\,a+b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Sec}[e+f\,x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}\right]}{2\,f}+$$

$$\frac{b\,\mathrm{Sec}[e+f\,x]\,\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}{f}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]\,\left(a-b+b\,\mathrm{Sec}[e+f\,x]^2\right)^{3/2}}{2\,f}$$

Result (type 3, 1124 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(-\frac{1}{2}\,a\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]+\frac{1}{2}\,b\,\mathrm{Sec}[e+f\,x]\right)+$$

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

$$\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

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

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\right.$$

$$\left.\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+\frac{1}{\sqrt{b}}2\,\mathrm{Log}\Big[$$

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

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

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

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

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

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

$$\Bigg(\left(a^2+6\,a\,b+b^2\right)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

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

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

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

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

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

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

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

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

Problem 109: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[e+f\,x]^5\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 223 leaves, 9 steps):

$$-\frac{3\,(a^2+6\,a\,b+b^2)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Sec}[e+f\,x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}\right]}{8\,\sqrt{a}\,f}+\frac{3\,\sqrt{b}\,(a+b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Sec}[e+f\,x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}\right]}{2\,f}+\frac{3\,(a+3\,b)\,\mathrm{Sec}[e+f\,x]\,\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}{8\,f}-\frac{3\,(a+b)\,\mathrm{Csc}[e+f\,x]^2\,\mathrm{Sec}[e+f\,x]\,\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}{8\,f}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^3\,\left(a-b+b\,\mathrm{Sec}[e+f\,x]^2\right)^{3/2}}{4\,f}$$

Result (type 3, 1163 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(\frac{1}{8}\,(-3\,a\,\mathrm{Cos}[e+f\,x]-5\,b\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}[e+f\,x]^2-\frac{1}{4}\,a\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^3+\frac{1}{2}\,b\,\mathrm{Sec}[e+f\,x]\right)+$$

$$\frac{1}{8\,f}\,3\left(\left((a^2+2\,a\,b-3\,b^2)\,(1+\mathrm{Cos}[e+f\,x])\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.\right.\right.$$

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

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

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

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

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

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

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

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

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

$$\Bigg(\left(a^2+10\,a\,b+5\,b^2\right)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

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

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

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

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

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

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

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

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

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

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

Problem 110: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sin}[e+f\,x]^4\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 222 leaves, 9 steps):

$$\frac{3\,\left(a^2-8\,a\,b+8\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{8\,\sqrt{a-b}\,f}+$$

$$\frac{3\,(a-2\,b)\,\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{2\,f}-\frac{3\,(a-4\,b)\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{8\,f}+$$

$$\frac{3\,(a-2\,b)\,\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{8\,f}-$$

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

Result (type 4, 765 leaves):

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

$$\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

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

$$4\,b\,\left(a^2-8\,a\,b+8\,b^2\right)\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

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

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{1}{16}(4\,a-9\,b)\,\text{Sin}[2\,(e+f\,x)]+\frac{1}{32}(a-b)\,\text{Sin}[4\,(e+f\,x)]+\frac{1}{2}b\,\text{Tan}[e+f\,x]\right)$$

Problem 111: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 165 leaves, 8 steps):

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

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

Result (type 4, 749 leaves):

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

$$\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

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

$$4\,b\left(a^2-5\,a\,b+4\,b^2\right)\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

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

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

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

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{1}{4}\,(a-b)\right.$$

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

Problem 112: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 125 leaves, 7 steps):

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

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

Result (type 3, 233 leaves):

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

$$i (a-b)^{3/2} \operatorname{Log}\left[\frac{4 i \left(a+i b \operatorname{Tan}[e+f x]+\sqrt{a-b} \sqrt{a+b \operatorname{Tan}[e+f x]^2}\right)}{(a-b)^{5/2} (-i+\operatorname{Tan}[e+f x])}\right]+$$

$$\left.(3 a-2 b) \sqrt{b} \operatorname{Log}\left[b \operatorname{Tan}[e+f x]+\sqrt{b} \sqrt{a+b \operatorname{Tan}[e+f x]^2}\right]+b \operatorname{Tan}[e+f x] \sqrt{a+b \operatorname{Tan}[e+f x]^2}\right)$$

Problem 113: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[e+f x]^2 \left(a+b \operatorname{Tan}[e+f x]^2\right)^{3/2} dx$$

Optimal (type 3, 100 leaves, 5 steps):

$$\frac{3 a \sqrt{b} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \operatorname{Tan}[e+f x]}{\sqrt{a+b \operatorname{Tan}[e+f x]^2}}\right]}{2 f}+$$

$$\frac{3 b \operatorname{Tan}[e+f x] \sqrt{a+b \operatorname{Tan}[e+f x]^2}}{2 f}-\frac{\operatorname{Cot}[e+f x] \left(a+b \operatorname{Tan}[e+f x]^2\right)^{3/2}}{f}$$

Result (type 4, 220 leaves):

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

Problem 114: Result unnecessarily involves higher level functions.

$$\int \text{Csc}[e+f x]^4\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 162 leaves, 6 steps):

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

Result (type 4, 177 leaves):

$$\frac{1}{6\sqrt{2}\,f}\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}$$

$$\left(-4\,(a+2\,b)\,\text{Cot}[e+f\,x]-2\,a\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2+\right.$$

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

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

Problem 115: Result unnecessarily involves higher level functions.

$$\int \text{Csc}[e+f\,x]^6\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 196 leaves, 7 steps):

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

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

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

Result (type 4, 213 leaves):

$$\frac{1}{30\sqrt{2}\,f}\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}\,\left(-\frac{2\,(8\,a^2+34\,a\,b+3\,b^2)\,\text{Cot}[e+f\,x]}{a}-4\,(2\,a+3\,b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2-6\,a\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^4+\left(15\sqrt{2}\,(3\,a+4\,b)\,\text{Cot}[e+f\,x]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\right)\Big/\left(\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right)+15\,b\,\text{Tan}[e+f\,x]\right)$$

Problem 119: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 42 leaves, 3 steps):

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

Result (type 3, 251 leaves):

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

Problem 120: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 91 leaves, 5 steps):

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

Result (type 3, 1101 leaves):

$$-\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f x)]-b\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\,\text{Cot}[e+f x]\,\text{Csc}[e+f x]}{2\,a\,f}+$$

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

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

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

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

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

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

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

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

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

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

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

$$\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.$$

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

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]-\frac{1}{\sqrt{b}}2\,\mathrm{Log}\left[\right.$$

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

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

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

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

Problem 121: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 143 leaves, 6 steps):

$$-\frac{3\,(a-b)^2\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{8\,a^{5/2}\,f}-\frac{(5\,a-3\,b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{8\,a^2\,f}-\frac{\text{Cot}[e+f\,x]^3\,\text{Csc}[e+f\,x]\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{4\,a\,f}$$

Result (type 3, 1140 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{3\,(a\,\text{Cos}[e+f\,x]-b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]^2}{8\,a^2}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^3}{4\,a}\right)+$$

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

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

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

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

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

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

$$b+b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{b}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\;\Bigg]\Bigg)$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\left.\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\;\right)\Bigg/$$

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

$$\left(\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^3\right)$$

$$\left.\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\;\right)+$$

$$\Bigg((1+\mathrm{Cos}[e+f x])\sqrt{\frac{1+\mathrm{Cos}[2(e+f x)]}{(1+\mathrm{Cos}[e+f x])^2}}\;\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}$$

$$\Bigg(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[a-a\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+$$

$$\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\;\Big]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\;\Big]-\frac{1}{\sqrt{b}}2\,\mathrm{Log}\Big[$$

$$b+b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{b}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\;\Big]\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

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

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

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

Problem 122: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sin}[e+f\,x]^4}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 146 leaves, 6 steps):

$$\frac{3\,a^2\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{8\,(a-b)^{5/2}\,f}-\frac{(5\,a-2\,b)\,\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{8\,(a-b)^2\,f}+$$

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

Result (type 4, 751 leaves):

$$\frac{1}{8\,(a-b)^2\,f}\,3\,a^2\left(-\left(\left(b\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Bigg/$$

$$\left.\left(a\left(a+b+(a-b)\operatorname{Cos}[2(e+fx)]\right)\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}}$$

$$4\,b\sqrt{1+\operatorname{Cos}[2(e+fx)]}\sqrt{\frac{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}{1+\operatorname{Cos}[2(e+fx)]}}$$

$$\left(\left(\sqrt{-\frac{a\operatorname{Cot}[e+fx]^2}{b}}\sqrt{-\frac{a\left(1+\operatorname{Cos}[2(e+fx)]\right)\operatorname{Csc}[e+fx]^2}{b}}\right.\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\operatorname{Cos}[2(e+fx)]\right)\operatorname{Csc}[e+fx]^2}{b}}\operatorname{Csc}[2(e+fx)]$$

$$\left.\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\operatorname{Cos}[2(e+fx)])\operatorname{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]\operatorname{Sin}[e+fx]^4\right)\Big/$$

$$\left(4\,a\sqrt{1+\operatorname{Cos}[2(e+fx)]}\sqrt{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}\right)-$$

$$\left(\sqrt{-\frac{a\operatorname{Cot}[e+fx]^2}{b}}\sqrt{-\frac{a\left(1+\operatorname{Cos}[2(e+fx)]\right)\operatorname{Csc}[e+fx]^2}{b}}\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\operatorname{Cos}[2(e+fx)]\right)\operatorname{Csc}[e+fx]^2}{b}}\operatorname{Csc}[2(e+fx)]$$

$$\left.\operatorname{EllipticPi}\left[-\frac{b}{a-b},\operatorname{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\operatorname{Cos}[2(e+fx)])\operatorname{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]\operatorname{Sin}[e+fx]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\sqrt{1+\operatorname{Cos}[2(e+fx)]}\sqrt{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}\right)\right)\right)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{(4\,a-b)\,\text{Sin}[2\,(e+f\,x)]}{16\,(a-b)^2}+\frac{\text{Sin}[4\,(e+f\,x)]}{32\,(a-b)}\right)}{f}$$

Problem 123: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 93 leaves, 5 steps):

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

Result (type 4, 721 leaves):

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

$$4\,b\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

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

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

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

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

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

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

$$\left.\left.\left(2\,\left(a-b\right)\,\sqrt{1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]}\;\sqrt{a+b+\left(a-b\right)\,\text{Cos}\left[2\,\left(e+f\,x\right)\right]}\right)\right)\right)-$$

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

Problem 124: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 46 leaves, 3 steps):

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

Result (type 3, 151 leaves):

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

Problem 131: Result more than twice size of optimal antiderivative.

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

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

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

Result (type 3, 309 leaves):

$$-\frac{\sqrt{2}\ b\ \text{Sec}[e+f x]}{a\ (a-b)\ f\ \sqrt{(a+b+(a-b)\ \text{Cos}[2\ (e+f x)])\ \text{Sec}[e+f x]^2}}+$$

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

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

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

$$\text{Log}\left[2\ b+a\ \left(-1+\text{Tan}\left[\frac{1}{2}\ (e+f x)\right]^2\right)+\right.$$

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

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

Problem 132: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 127 leaves, 6 steps):

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

Result (type 3, 1141 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\ \text{Cos}[2\ (e+f x)]-b\ \text{Cos}[2\ (e+f x)]}{1+\text{Cos}[2\ (e+f x)]}}$$

$$\left(-\frac{2\ b\ \text{Cos}[e+f x]}{a^2\ (a+b+a\ \text{Cos}[2\ (e+f x)]-b\ \text{Cos}[2\ (e+f x)])}-\frac{\text{Cot}[e+f x]\ \text{Csc}[e+f x]}{2\ a^2}\right)+$$

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

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

$$\frac{1}{\sqrt{a}}\text{Log}\Big[a-a\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+$$

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

$$\frac{1}{\sqrt{a}}\text{Log}\Big[2\,b+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+$$

$$\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+\frac{1}{\sqrt{b}}2\,\text{Log}\Big[$$

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

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

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

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

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

$$\sqrt{\frac{4\,b\,\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}{\big(1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}}\,\Big)+$$

$$\Big((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Big(-\frac{\text{Log}\big[\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{a}}+\frac{2\,\text{Log}\big[1-\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\text{Log}\Big[a-a\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+$$

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

$$\frac{1}{\sqrt{a}}\text{Log}\Big[2\,b+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+$$

$$\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\;\Bigg]-\frac{1}{\sqrt{b}}2\,\mathrm{Log}\Bigg[$$

$$b+b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{b}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\;\Bigg]\Bigg)$$

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

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

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

$$\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\;\Bigg)\Bigg)$$

Problem 133: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 187 leaves, 7 steps):

$$-\frac{3\,(a-5\,b)\,(a-b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Sec}[e+f\,x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}\right]}{8\,a^{7/2}\,f}-\frac{5\,(a-b)\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]}{8\,a^2\,f\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}-$$

$$\frac{\mathrm{Cot}[e+f\,x]^3\,\mathrm{Csc}[e+f\,x]}{4\,a\,f\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}-\frac{(13\,a-15\,b)\,b\,\mathrm{Sec}[e+f\,x]}{8\,a^3\,f\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}$$

Result (type 3, 1196 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\frac{2\,\left(a\,b\,\mathrm{Cos}[e+f\,x]-b^2\,\mathrm{Cos}[e+f\,x]\right)}{a^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}+$$

$$\frac{(-3\,a\,\mathrm{Cos}[e+f\,x]+7\,b\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}[e+f\,x]^2}{8\,a^3}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^3}{4\,a^2}\Bigg)+$$

$$\frac{1}{8 a^3 f} 3 (a-5 b) (a-b) \left(\left((1+\text{Cos}[e+f x]) \sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]}{\sqrt{a}}-\frac{2 \text{Log}\left[1-\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\text{Log}\left[a-a \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+2 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]+\frac{1}{\sqrt{a}}\text{Log}\left[2 b+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]+\frac{1}{\sqrt{b}}2 \text{Log}\left[b+b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{b} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]\right) \text{Tan}\left[\frac{1}{2} (e+f x)\right] \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right)\Big/ \left(4 \sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]} \sqrt{\left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2} \left(\text{Tan}\left[\frac{1}{2} (e+f x)\right]+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^3\right) \sqrt{\frac{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right)+ \left((1+\text{Cos}[e+f x]) \sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\right.\right.$$

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

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

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

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

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

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

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

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

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

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

Problem 134: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 187 leaves, 7 steps):

$$\frac{3\,a\,(a+4\,b)\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{8\,(a-b)^{7/2}\,f}-\frac{5\,a\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]}{8\,(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}+\frac{\text{Cos}[e+f\,x]^3\,\text{Sin}[e+f\,x]}{4\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}-\frac{b\,(13\,a+2\,b)\,\text{Tan}[e+f\,x]}{8\,(a-b)^3\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 799 leaves) :

$$\frac{1}{8\,(a-b)^3\,f}\,3\,a\,(a+4\,b)\left(-\left(\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\right.\right.$$

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

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

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

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

$$\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\Bigg)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{(4\,a+3\,b)\,\text{Sin}[2\,(e+f\,x)]}{16\,(a-b)^3}-\frac{a\,b\,\text{Sin}[2\,(e+f\,x)]}{(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}+\frac{\text{Sin}[4\,(e+f\,x)]}{32\,(a-b)^2}\right)$$

Problem 135: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 134 leaves, 6 steps):

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

Result (type 4, 282 leaves):

$$-\frac{1}{4\sqrt{2}\,(a-b)^3\,f\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Sec}[e+f x]^2}}\left((a-b)\,(a+5b+(a-b)\,\text{Cos}[2\,(e+f x)])-\sqrt{2}\,(a^2+a b-2b^2)\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]+\sqrt{2}\,a\,(a+2b)\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\right)\text{Sec}[e+f x]^2\,\text{Sin}[2\,(e+f x)]$$

Problem 136: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 85 leaves, 4 steps):

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

Result (type 3, 189 leaves):

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

Problem 140: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 248 leaves, 6 steps):

$$-\frac{\left(5 a^2+10 a b+b^2\right) \text{Cos}[e+f x]}{5 (a-b)^3 f \left(a-b+b \text{Sec}[e+f x]^2\right)^{3/2}}+\frac{2 (5 a-b) \text{Cos}[e+f x]^3}{15 (a-b)^2 f \left(a-b+b \text{Sec}[e+f x]^2\right)^{3/2}}-\frac{\text{Cos}[e+f x]^5}{5 (a-b) f \left(a-b+b \text{Sec}[e+f x]^2\right)^{3/2}}-\frac{4 b \left(5 a^2+10 a b+b^2\right) \text{Sec}[e+f x]}{15 (a-b)^4 f \left(a-b+b \text{Sec}[e+f x]^2\right)^{3/2}}-\frac{8 b \left(5 a^2+10 a b+b^2\right) \text{Sec}[e+f x]}{15 (a-b)^5 f \sqrt{a-b+b \text{Sec}[e+f x]^2}}$$

Result (type 3, 1117 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\left(\frac{7 (a+b) \text{Cos}[e+f x]}{60 (a-b)^4}+\frac{4 a^2 b^2 \text{Cos}[e+f x]}{3 (a-b)^5 \left(a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)]\right)^2}-\frac{4 \left(a^2 b \text{Cos}[e+f x]+a b^2 \text{Cos}[e+f x]\right)}{(a-b)^5 \left(a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)]\right)}+\frac{(25 a+31 b) \text{Cos}[3 (e+f x)]}{240 (a-b)^4}-\frac{\text{Cos}[5 (e+f x)]}{80 (a-b)^3}\right)+$$

$$\frac{1}{240 (a-b)^4 f}\left(89 a^2+406 a b+89 b^2\right)\left(-\left(\left(\left(1+\text{Cos}[2 (e+f x)]\right)\sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\right.\right.\right.$$

$$\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\Bigg(\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]-$$

$$\text{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big]\Bigg)\,\text{Sin}[$$

$$e+f\,x]\,\text{Sin}[2\,(e+f\,x)]\Bigg)\Bigg/\Bigg(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Bigg)\Bigg)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\Bigg(\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]-\text{Log}\Big[2\,b+$$

$$\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big]\Bigg)\,\text{Sin}[e+f\,x]$$

$$\text{Sin}[2\,(e+f\,x)]\Bigg)\Bigg/\Bigg(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Bigg)-$$

$$\Bigg(4\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\Bigg(\sqrt{b}\,(b\,(-1+\text{Cos}[2\,(e+f\,x)])-a\,(1+\text{Cos}[2\,(e+f\,x)]))+(a-b)\,\sqrt{(-2\,b\,(-1+}$$

$$\overline{\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]+$$

$$(-a+b)\,\sqrt{(-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Log}\Big[$$

$$2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big]\Bigg)$$

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

$$\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\,\sqrt{-b\,(-1+\text{Cos}[2\,(e+f\,x)])+a\,(1+\text{Cos}[2\,(e+f\,x)])}\Bigg)\Bigg)\Bigg)$$

Problem 143: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 136 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{a^{5/2} f}-\frac{b\,\text{Sec}[e+f x]}{3 a (a-b) f \left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}-\frac{(5 a-3 b)\, b\,\text{Sec}[e+f x]}{3 a^2 (a-b)^2 f \sqrt{a-b+b\,\text{Sec}[e+f x]^2}}$$

Result (type 3, 330 leaves):

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

Problem 144: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 177 leaves, 7 steps):

$$-\frac{(a-5 b)\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{2 a^{7/2} f}-\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]}{2 a f\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}-\frac{5 b\,\text{Sec}[e+f x]}{6 a^2 f\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}-\frac{(13 a-15 b)\, b\,\text{Sec}[e+f x]}{6 a^3 (a-b) f\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}$$

Result (type 3, 1190 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\frac{4\,b^2\,\mathrm{Cos}[e+f\,x]}{3\,a^2\,(a-b)\,\left(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]\right)^2}-\frac{4\,b\,\mathrm{Cos}[e+f\,x]}{a^3\,\left(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]\right)}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]}{2\,a^3}\right)+$$

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

$$\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.$$

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

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\right.$$

$$\left.\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+\frac{1}{\sqrt{b}}2\,\mathrm{Log}\left[\right.$$

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

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

$$\left.\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Big/$$

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

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

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

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

Problem 145: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 237 leaves, 8 steps):

$$-\frac{\left(3\,a^2-30\,a\,b+35\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{8\,a^{9/2}\,f}-$$

$$\frac{(5\,a-7\,b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]}{8\,a^2\,f\,\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{3/2}}-\frac{\text{Cot}[e+f\,x]^3\,\text{Csc}[e+f\,x]}{4\,a\,f\,\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{3/2}}-$$

$$\frac{(23\,a-35\,b)\,b\,\text{Sec}[e+f\,x]}{24\,a^3\,f\,\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{3/2}}-\frac{5\,(11\,a-21\,b)\,b\,\text{Sec}[e+f\,x]}{24\,a^4\,f\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}$$

Result (type 3, 1244 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{4\,b^2\,\text{Cos}[e+f\,x]}{3\,a^3\,\left(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]\right)^2}-\right.$$

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

$$\left.\frac{\left(-3\,a\,\text{Cos}[e+f\,x]+11\,b\,\text{Cos}[e+f\,x]\right)\,\text{Csc}[e+f\,x]^2}{8\,a^4}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^3}{4\,a^3}\right)+$$

$$\frac{1}{8\,a^4\,f}\left(3\,a^2-30\,a\,b+35\,b^2\right)\left(\left(\left(1+\text{Cos}[e+f\,x]\right)\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{\left(1+\text{Cos}[e+f\,x]\right)^2}}\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 146: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Sin}[e+f\,x]^4}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 246 leaves, 8 steps):

$$\frac{\left(3\,a^2+24\,a\,b+8\,b^2\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{8\,(a-b)^{9/2}\,f}-\frac{(5\,a+2\,b)\,\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]}{8\,(a-b)^2\,f\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}+\frac{\mathrm{Cos}[e+f\,x]^3\,\mathrm{Sin}[e+f\,x]}{4\,(a-b)\,f\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{b\,(23\,a+12\,b)\,\mathrm{Tan}[e+f\,x]}{24\,(a-b)^3\,f\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{5\,b\,(11\,a+10\,b)\,\mathrm{Tan}[e+f\,x]}{24\,(a-b)^4\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}$$

Result (type 4, 875 leaves):

$$\frac{1}{8\,(a-b)^4\,f}\left(3\,a^2+24\,a\,b+8\,b^2\right)\left(-\left(\left(b\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],1\Big]\,\mathrm{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\Big(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\Big)-$$

$$\Bigg(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\mathrm{EllipticPi}\Big[-\frac{b}{a-b},\mathrm{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],1\Big]\,\mathrm{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\Big(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\Big)\Bigg)\Bigg)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\frac{(4\,a+7\,b)\,\mathrm{Sin}[2\,(e+f\,x)]}{16\,(a-b)^4}+$$

$$\frac{2\,a\,b^2\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^4\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}-\frac{2\,(3\,a\,b\,\text{Sin}[2\,(e+f\,x)]+2\,b^2\,\text{Sin}[2\,(e+f\,x)])}{3\,(a-b)^4\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}+\left.\frac{\text{Sin}[4\,(e+f\,x)]}{32\,(a-b)^3}\right)$$

Problem 147: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 181 leaves, 7 steps):

$$\frac{(a+4\,b)\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{2\,(a-b)^{7/2}\,f}-\frac{\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]}{2\,(a-b)\,f\,(a+b\,\text{Tan}[e+f\,x]^2)^{3/2}}-\frac{5\,b\,\text{Tan}[e+f\,x]}{6\,(a-b)^2\,f\,(a+b\,\text{Tan}[e+f\,x]^2)^{3/2}}-\frac{b\,(13\,a+2\,b)\,\text{Tan}[e+f\,x]}{6\,a\,(a-b)^3\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 841 leaves):

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

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

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,\left(1+\mathrm{Cos}\left[2\,(e+f\,x)\right]\right)\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\mathrm{Cos}\left[2\,(e+f\,x)\right]\right)\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}\left[2\,(e+f\,x)\right]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}\left[2\,(e+f\,x)\right]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}\left[2\,(e+f\,x)\right]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,\left(1+\mathrm{Cos}\left[2\,(e+f\,x)\right]\right)\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\mathrm{Cos}\left[2\,(e+f\,x)\right]\right)\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}\left[2\,(e+f\,x)\right]$$

$$\left.\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}\left[2\,(e+f\,x)\right]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}\left[2\,(e+f\,x)\right]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}\left[2\,(e+f\,x)\right]-b\,\mathrm{Cos}\left[2\,(e+f\,x)\right]}{1+\mathrm{Cos}\left[2\,(e+f\,x)\right]}}$$

$$\left(-\frac{\mathrm{Sin}\left[2\,(e+f\,x)\right]}{4\,(a-b)^3}+\right.$$

$$\frac{2\,b^2\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+\frac{-6\,a\,b\,\text{Sin}[2\,(e+f\,x)]-b^2\,\text{Sin}[2\,(e+f\,x)]}{3\,a\,(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\Bigg)$$

Problem 148: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 134 leaves, 6 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{b\,\text{Tan}[e+f\,x]}{3\,a\,(a-b)\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{(5\,a-2\,b)\,b\,\text{Tan}[e+f\,x]}{3\,a^2\,(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 381 leaves):

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

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

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

Problem 152: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (d\,\text{Sin}[e+f\,x])^m\,\left(b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 5, 92 leaves, 3 steps):

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

Result (type 6, 2363 leaves):

$$\Bigg((3+m+2p)\,\text{AppellF1}\Big[\tfrac{1}{2}(1+m+2p),2p,1+m,\tfrac{1}{2}(3+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]\,\text{Sin}[e+fx]^{1+m}\,(d\,\text{Sin}[e+fx])^m\,\text{Tan}[e+fx]^{2p}\,\big(b\,\text{Tan}[e+fx]^2\big)^p\Bigg)\Bigg/\Bigg(f\,(1+m+2p)\,\Bigg((3+m+2p)\,\text{AppellF1}\Big[\tfrac{1}{2}(1+m+2p),2p,1+m,\tfrac{1}{2}(3+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]-2\Big((1+m)\,\text{AppellF1}\Big[\tfrac{1}{2}(3+m+2p),2p,2+m,\tfrac{1}{2}(5+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]-2p\,\text{AppellF1}\Big[\tfrac{1}{2}(3+m+2p),1+2p,1+m,\tfrac{1}{2}(5+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]\Big)\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Bigg)$$

$$\Bigg(\bigg((1+m)(3+m+2p)\,\text{AppellF1}\Big[\tfrac{1}{2}(1+m+2p),2p,1+m,\tfrac{1}{2}(3+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]\,\text{Cos}[e+fx]\,\text{Sin}[e+fx]^m\,\text{Tan}[e+fx]^{2p}\bigg)\bigg/\bigg((1+m+2p)\Big((3+m+2p)\,\text{AppellF1}\Big[\tfrac{1}{2}(1+m+2p),2p,1+m,\tfrac{1}{2}(3+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]-2\Big((1+m)\,\text{AppellF1}\Big[\tfrac{1}{2}(3+m+2p),2p,2+m,\tfrac{1}{2}(5+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]-2p\,\text{AppellF1}\Big[\tfrac{1}{2}(3+m+2p),1+2p,1+m,\tfrac{1}{2}(5+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]\Big)\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big)\bigg)+$$

$$\bigg((3+m+2p)\,\text{Sin}[e+fx]^{1+m}\Big(-\frac{1}{3+m+2p}(1+m)(1+m+2p)\,\text{AppellF1}\Big[1+\tfrac{1}{2}(1+m+2p),2p,2+m,1+\tfrac{1}{2}(3+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]\,\text{Sec}\big[\tfrac{1}{2}(e+fx)\big]^2\,\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]+\frac{1}{3+m+2p}2p(1+m+2p)\,\text{AppellF1}\Big[1+\tfrac{1}{2}(1+m+2p),1+2p,1+m,1+\tfrac{1}{2}(3+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]\,\text{Sec}\big[\tfrac{1}{2}(e+fx)\big]^2\,\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]\Big)\text{Tan}[e+fx]^{2p}\bigg)\bigg/$$

$$\bigg((1+m+2p)\Big((3+m+2p)\,\text{AppellF1}\Big[\tfrac{1}{2}(1+m+2p),2p,1+m,\tfrac{1}{2}(3+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]-2\Big((1+m)\,\text{AppellF1}\Big[\tfrac{1}{2}(3+m+2p),2p,2+m,\tfrac{1}{2}(5+m+2p),\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(e+fx)\big]^2\Big]-2p\,\text{AppellF1}\Big[\tfrac{1}{2}(3+m+2p),1+2p,1+m,\tfrac{1}{2}$$

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

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

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\ \text{Sin}[e+f x]^{1+m}$$

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

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

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

$$(3+m+2p)\ \Big(-\frac{1}{3+m+2p}(1+m)\ (1+m+2p)\ \text{AppellF1}\Big[1+\frac{1}{2}(1+m+2p),$$

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

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

$$2p\ (1+m+2p)\ \text{AppellF1}\Big[1+\frac{1}{2}(1+m+2p),\ 1+2p,\ 1+m,\ 1+\frac{1}{2}(3+m+2p),$$

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

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

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

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

$$2p\ (3+m+2p)\ \text{AppellF1}\Big[1+\frac{1}{2}(3+m+2p),\ 1+2p,\ 2+m,\ 1+\frac{1}{2}(5+m+2p),$$

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

$$2p\ \Big(-\frac{1}{5+m+2p}(1+m)\ (3+m+2p)\ \text{AppellF1}\Big[1+\frac{1}{2}(3+m+2p),\ 1+2p,$$

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

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

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

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

$$\Big((1+m+2p)\ \Big((3+m+2p)\ \text{AppellF1}\Big[\frac{1}{2}(1+m+2p),\ 2p,\ 1+m,\ \frac{1}{2}(3+m+2p),$$

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

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

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

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

Problem 153: Result more than twice size of optimal antiderivative.

$$\int (d\,\text{Sin}[e+fx])^m\left(a+b\,\text{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$\frac{1}{f(1+m)}\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+fx]^2,-\frac{b\,\text{Tan}[e+fx]^2}{a}\right]\left(\text{Sec}[e+fx]^2\right)^{m/2}(d\,\text{Sin}[e+fx])^m\,\text{Tan}[e+fx]\left(a+b\,\text{Tan}[e+fx]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+fx]^2}{a}\right)^{-p}$$

Result (type 6, 2810 leaves):

$$\Bigg(a(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+fx]^2,-\frac{b\,\text{Tan}[e+fx]^2}{a}\right]\text{Cos}[e+fx]\,\text{Sin}[e+fx]\,(d\,\text{Sin}[e+fx])^m\left(\frac{\text{Tan}[e+fx]}{\sqrt{\text{Sec}[e+fx]^2}}\right)^m\left(a+b\,\text{Tan}[e+fx]^2\right)^{2p}\Bigg)\Bigg/$$

$$\Bigg(f(1+m)\Bigg(a(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+fx]^2,-\frac{b\,\text{Tan}[e+fx]^2}{a}\right]+\Bigg(2bp\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+fx]^2,-\frac{b\,\text{Tan}[e+fx]^2}{a}\right]-a(2+m)$$

$$\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Big)\ \text{Tan}[e+f x]^2\Big)$$

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

$$\text{Tan}[e+f x]^2\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\Bigg)\Big/$$

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

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

$$a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Bigg)$$

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

$$\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Cos}[e+f x]^2\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Bigg)\Big/$$

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

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

$$a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Bigg)$$

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

$$\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sin}[e+f x]^2\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Bigg)\Big/$$

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

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

$$a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\Bigg)+\Bigg(a\,(3+m)\,\text{Cos}[e+f x]\,\text{Sin}[e+f x]\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m$$

$$\left(\frac{1}{a\,(3+m)}2\,b\,(1+m)\,p\,\text{AppellF1}\left[1+\frac{1+m}{2},\frac{2+m}{2},1-p,1+\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{1}{3+m}(1+m)\,(2+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1+\frac{2+m}{2},-p,1+\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Bigg/$$

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

$$\Bigg(a\,m\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\left(\frac{\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^{-1+m}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(\sqrt{\text{Sec}[e+f\,x]^2}-\frac{\text{Tan}[e+f\,x]^2}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)\Bigg)\Bigg/$$

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

$$\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\left(\frac{\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^m\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p$$

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

$$a\ (2+m)\ \text{AppellF1}\Big[\frac{3+m}{2},\ \frac{4+m}{2},\ -p,\ \frac{5+m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\Big)\Big)$$

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

$$1-p,\ 1+\frac{3+m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]-$$

$$\frac{1}{3+m}(1+m)\ (2+m)\ \text{AppellF1}\Big[1+\frac{1+m}{2},\ 1+\frac{2+m}{2},\ -p,\ 1+\frac{3+m}{2},$$

$$-\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\Big)+$$

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

$$2-p,\ 1+\frac{5+m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]-$$

$$\frac{1}{5+m}(2+m)\ (3+m)\ \text{AppellF1}\Big[1+\frac{3+m}{2},\ 1+\frac{2+m}{2},\ 1-p,\ 1+\frac{5+m}{2},$$

$$-\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\Big)-$$

$$a\ (2+m)\ \Big(\frac{1}{a\ (5+m)} 2\ b\ (3+m)\ p\ \text{AppellF1}\Big[1+\frac{3+m}{2},\ \frac{4+m}{2},\ 1-p,\ 1+\frac{5+m}{2},$$

$$-\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]-$$

$$\frac{1}{5+m}(3+m)\ (4+m)\ \text{AppellF1}\Big[1+\frac{3+m}{2},\ 1+\frac{4+m}{2},\ -p,\ 1+\frac{5+m}{2},$$

$$-\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\Big)\Big)\Big)\Big)\Big/$$

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

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

$$(2+m)\ \text{AppellF1}\Big[\frac{3+m}{2},\ \frac{4+m}{2},\ -p,\ \frac{5+m}{2},$$

$$-\text{Tan}[e+f x]^2,\ -\frac{b\ \text{Tan}[e+f x]^2}{a}\Big]\Big)\ \text{Tan}[e+f x]^2\Big)^2\Big)\Big)$$

Problem 157: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]\ \left(a+b\ \text{Tan}[e+f x]^2\right)^p\, dx$$

Optimal (type 6, 88 leaves, 3 steps):

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

Result (type 6, 4030 leaves):

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

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

$$-\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]-b\,\mathrm{AppellF1}\Big[\frac{1}{2}-p,\ \frac{1}{2},\ -p,\ \frac{3}{2}-p,$$

$$-\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]+b\,(-1+2 p)\,\mathrm{AppellF1}\Big[-\frac{1}{2}-p,$$

$$-\frac{1}{2},\ -p,\ \frac{1}{2}-p,\ -\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]\,\mathrm{Tan}[e+f x]^2\Big)\Big)\Big)-$$

$$\frac{1}{\left(1+\mathrm{Tan}[e+f x]^2\right)^{3/2}}\,\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]^3\,\left(a+b\,\mathrm{Tan}[e+f x]^2\right)^p$$

$$\Big(-\Big(\Big(2 a\,\mathrm{AppellF1}\Big[1,\ \frac{1}{2},\ -p,\ 2,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]\Big)\Big/$$

$$\Big(4 a\,\mathrm{AppellF1}\Big[1,\ \frac{1}{2},\ -p,\ 2,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]+$$

$$\Big(2 b p\,\mathrm{AppellF1}\Big[2,\ \frac{1}{2},\ 1-p,\ 3,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]-$$

$$a\,\mathrm{AppellF1}\Big[2,\ \frac{3}{2},\ -p,\ 3,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]\Big)\,\mathrm{Tan}[e+f x]^2\Big)\Big)+$$

$$\Big(b\,(-1+2 p)\,\mathrm{AppellF1}\Big[-\frac{1}{2}-p,\ -\frac{1}{2},\ -p,\ \frac{1}{2}-p,\ -\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]$$

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

$$-\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]-b\,\mathrm{AppellF1}\Big[\frac{1}{2}-p,\ \frac{1}{2},\ -p,\ \frac{3}{2}-p,$$

$$-\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]+b\,(-1+2 p)\,\mathrm{AppellF1}\Big[-\frac{1}{2}-p,$$

$$-\frac{1}{2},\ -p,\ \frac{1}{2}-p,\ -\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]\,\mathrm{Tan}[e+f x]^2\Big)\Big)\Big)+$$

$$\frac{1}{\sqrt{1+\mathrm{Tan}[e+f x]^2}}\,2\,\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]\,\left(a+b\,\mathrm{Tan}[e+f x]^2\right)^p$$

$$\Big(-\Big(\Big(2 a\,\mathrm{AppellF1}\Big[1,\ \frac{1}{2},\ -p,\ 2,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]\Big)\Big/$$

$$\Big(4 a\,\mathrm{AppellF1}\Big[1,\ \frac{1}{2},\ -p,\ 2,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]+$$

$$\Big(2 b p\,\mathrm{AppellF1}\Big[2,\ \frac{1}{2},\ 1-p,\ 3,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]-$$

$$a\,\mathrm{AppellF1}\Big[2,\ \frac{3}{2},\ -p,\ 3,\ -\mathrm{Tan}[e+f x]^2,\ -\frac{b\,\mathrm{Tan}[e+f x]^2}{a}\Big]\Big)\,\mathrm{Tan}[e+f x]^2\Big)\Big)+$$

$$\Big(b\,(-1+2 p)\,\mathrm{AppellF1}\Big[-\frac{1}{2}-p,\ -\frac{1}{2},\ -p,\ \frac{1}{2}-p,\ -\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]$$

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

$$-\mathrm{Cot}[e+f x]^2,\ -\frac{a\,\mathrm{Cot}[e+f x]^2}{b}\Big]-b\,\mathrm{AppellF1}\Big[\frac{1}{2}-p,\ \frac{1}{2},\ -p,\ \frac{3}{2}-p,$$

$$-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+b\,(-1+2p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Tan}[e+f x]^2\Big)\Big)\Big)+$$

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

$$\Bigg(-\Bigg(\Bigg(2a\left(\frac{1}{a}b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\right.$$

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

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

$$\Bigg(4a\,\text{AppellF1}\Big[1,\frac{1}{2},-p,2,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]+$$

$$\Bigg(2b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-$$

$$a\,\text{AppellF1}\Big[2,\frac{3}{2},-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Bigg)\,\text{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(2b\,(-1+2p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\Big/\Bigg((1+2p)\,\Bigg(-2a\,p\,\text{AppellF1}\Big[\frac{1}{2}-p,-\frac{1}{2},1-p,$$

$$\frac{3}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]-b\,\text{AppellF1}\Big[\frac{1}{2}-p,\frac{1}{2},-p,$$

$$\frac{3}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+b\,(-1+2p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,$$

$$-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(b\,(-1+2p)\,\Bigg(-\frac{1}{b\left(\frac{1}{2}-p\right)}2a\left(-\frac{1}{2}-p\right)p\,\text{AppellF1}\Big[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,$$

$$-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2-$$

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

$$-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2\Bigg)\left(1+\text{Tan}[e+f x]^2\right)\Bigg)\Big/$$

$$\Bigg((1+2p)\,\Bigg(-2a\,p\,\text{AppellF1}\Big[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]-$$

$$b\,\text{AppellF1}\Big[\frac{1}{2}-p,\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+$$

$$b\,(-1+2p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,\right.$$

$$\left.\left.\left.-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Tan}[e+fx]^2\right)\right)-$$

$$\left(b\,(-1+2p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\right.$$

$$\left(1+\text{Tan}[e+fx]^2\right)\left(-2ap\left(\frac{1}{b\left(\frac{3}{2}-p\right)}2a\left(\frac{1}{2}-p\right)(1-p)\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},2-p,\right.\right.\right.$$

$$\left.\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2-\frac{1}{\frac{3}{2}-p}$$

$$\left(\frac{1}{2}-p\right)\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]$$

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

$$\left.1-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2+$$

$$\frac{1}{\frac{3}{2}-p}\left(\frac{1}{2}-p\right)\text{AppellF1}\left[\frac{3}{2}-p,\frac{3}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]$$

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

$$\left.\frac{1}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]+$$

$$b\,(-1+2p)\left(-\frac{1}{b\left(\frac{1}{2}-p\right)}2a\left(-\frac{1}{2}-p\right)p\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,\right.\right.$$

$$\left.-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2-$$

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

$$\left.\left.\left.\left.-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2\right)\text{Tan}[e+fx]^2\right)\right)\Big/$$

$$\left((1+2p)\left(-2ap\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]-\right.\right.$$

$$b\,\text{AppellF1}\left[\frac{1}{2}-p,\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]+$$

$$b\,(-1+2p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,\right.$$

$$-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Tan}[e+f x]^2\Big)^2\Big)+$$

$$\Big(2\,a\,\text{AppellF1}\Big[1,\frac{1}{2},-p,2,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$

$$\Big(2\,\Big(2\,b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-a\,\text{AppellF1}\Big[2,$$

$$\frac{3}{2},-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+$$

$$4\,a\,\Big(\frac{1}{a}b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$

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

$$-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)+$$

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

$$-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{2}{3}\,\text{AppellF1}\Big[3,\frac{3}{2},1-p,$$

$$4,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)-$$

$$a\,\Big(\frac{1}{3\,a}4\,b\,p\,\text{AppellF1}\Big[3,\frac{3}{2},1-p,4,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-2\,\text{AppellF1}\Big[3,\frac{5}{2},-p,4,$$

$$-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(4\,a\,\text{AppellF1}\Big[1,\frac{1}{2},-p,2,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]+$$

$$\Big(2\,b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-$$

$$a\,\text{AppellF1}\Big[2,\frac{3}{2},-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\,\text{Tan}[e+f x]^2\Big)^2\Big)\Big)\Big)$$

Problem 158: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^3\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 92 leaves, 3 steps):

$$\frac{1}{3\,f}\text{AppellF1}\Big[\frac{3}{2},2,-p,\frac{5}{2},\text{Sec}[e+f x]^2,-\frac{b\,\text{Sec}[e+f x]^2}{a-b}\Big]$$

$$\text{Sec}[e+f x]^3\,\left(a-b+b\,\text{Sec}[e+f x]^2\right)^p\,\left(1+\frac{b\,\text{Sec}[e+f x]^2}{a-b}\right)^{-p}$$

Result (type 6, 1962 leaves) :

$$-\left(\left(b\,(-3+2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\right.\right.$$
$$\left.\text{Csc}[e+fx]^3\sqrt{\text{Sec}[e+fx]^2}\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{2p}\right)\Big/$$
$$\left(f\,(-1+2p)\,\left(2\,a\,p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]+\right.\right.$$
$$b\left(\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]+(3-2p)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Tan}[e+fx]^2\right)\right)$$
$$\left(-\left(\left(2\,b^2\,p\,(-3+2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\right.\right.\right.$$
$$\left.\left(\text{Sec}[e+fx]^2\right)^{3/2}\text{Tan}[e+fx]\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{-1+p}\right)\Big/\left((-1+2p)\,\left(2\,a\,p\,\text{AppellF1}\left[\right.\right.\right.$$
$$\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\Big]+b\left(\text{AppellF1}\left[\frac{3}{2}-p,\right.\right.$$
$$\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\Big]+(3-2p)\,\text{AppellF1}\left[\frac{1}{2}-p,\right.$$
$$\left.\left.\left.\left.-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Tan}[e+fx]^2\right)\right)\right)\right)-$$
$$\left(b\,(-3+2p)\,\left(-\frac{1}{b\left(\frac{3}{2}-p\right)}2\,a\left(\frac{1}{2}-p\right)p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,\right.\right.\right.$$
$$-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\Big]\,\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2-\frac{1}{\frac{3}{2}-p}$$
$$\left(\frac{1}{2}-p\right)\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]$$
$$\left.\left.\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2\right)\sqrt{\text{Sec}[e+fx]^2}\,\left(a+b\,\text{Tan}[e+fx]^2\right)^p\right)\Big/$$
$$\left((-1+2p)\,\left(2\,a\,p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]+\right.\right.$$
$$b\left(\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,\right.\right.$$
$$-\frac{a\,\text{Cot}[e+fx]^2}{b}\Big]+(3-2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\right.$$
$$\left.\left.\left.\left.\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Tan}[e+fx]^2\right)\right)\right)-$$

$$\left(b\,(-3+2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\sqrt{\text{Sec}[e+fx]^2}\,\text{Tan}[e+fx]\,\left(a+b\,\text{Tan}[e+fx]^2\right)^p\right)\Big/$$

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

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

$$\sqrt{\text{Sec}[e+fx]^2}\,\left(a+b\,\text{Tan}[e+fx]^2\right)^p$$

$$\left(2\,a\,p\left(\frac{1}{b\left(\frac{5}{2}-p\right)}2\,a\,(1-p)\left(\frac{3}{2}-p\right)\text{AppellF1}\left[\frac{5}{2}-p,-\frac{1}{2},2-p,\frac{7}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2-\frac{1}{\frac{5}{2}-p}\left(\frac{3}{2}-p\right)\text{AppellF1}\left[\frac{5}{2}-p,\frac{1}{2},1-p,\frac{7}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2\right)+\right.$$

$$b\left(-\frac{1}{b\left(\frac{5}{2}-p\right)}2\,a\left(\frac{3}{2}-p\right)p\,\text{AppellF1}\left[\frac{5}{2}-p,\frac{1}{2},1-p,\frac{7}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2+\frac{1}{\frac{5}{2}-p}\left(\frac{3}{2}-p\right)\text{AppellF1}\left[\frac{5}{2}-p,\frac{3}{2},-p,\frac{7}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2+2\right.$$

$$(3-2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]$$

$$\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]+(3-2p)\left(-\frac{1}{b\left(\frac{3}{2}-p\right)}2\,a\left(\frac{1}{2}-p\right)p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+fx]^2,-\frac{a\,\text{Cot}[e+fx]^2}{b}\right]\text{Cot}[e+fx]\right.$$

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

$$-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\Big]\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2\Big)\,\text{Tan}[e+f\,x]^2\Big)\Big)\Big)\Big/$$

$$\Big(\big(-1+2\,p\big)\,\Big(2\,a\,p\,\text{AppellF1}\Big[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\Big]+$$

$$b\,\Big(\text{AppellF1}\Big[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\Big]+$$

$$\big(3-2\,p\big)\,\text{AppellF1}\Big[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,$$

$$-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\Big]\,\text{Tan}[e+f\,x]^2\Big)\Big)^2\Big)\Big)\Big)$$

Problem 159: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{3\,f}\text{AppellF1}\Big[\frac{3}{2},2,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]$$

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

Result (type 6, 3698 leaves):

$$\Big(3\,a\,\text{Cos}[e+f\,x]^3\,\text{Sin}[e+f\,x]\,\big(a+b\,\text{Tan}[e+f\,x]^2\big)^p$$

$$\Big(\text{AppellF1}\Big[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,a\,\text{AppellF1}\Big[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)+$$

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

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\Big)$$

$$\left(-\frac{1}{4}\operatorname{Cos}[2(e+fx)]^3\left(a+b\operatorname{Tan}[e+fx]^2\right)^p+\frac{1}{4}\,i\operatorname{Sin}[2(e+fx)]\left(a+b\operatorname{Tan}[e+fx]^2\right)^p+\frac{1}{2}\operatorname{Sin}[2(e+fx)]^2\left(a+b\operatorname{Tan}[e+fx]^2\right)^p-\frac{1}{4}\,i\operatorname{Sin}[2(e+fx)]^3\left(a+b\operatorname{Tan}[e+fx]^2\right)^p+\operatorname{Cos}[2(e+fx)]^2\left(\frac{1}{2}\left(a+b\operatorname{Tan}[e+fx]^2\right)^p-\frac{1}{4}\,i\operatorname{Sin}[2(e+fx)]\left(a+b\operatorname{Tan}[e+fx]^2\right)^p\right)+\operatorname{Cos}[2(e+fx)]\left(-\frac{1}{4}\left(a+b\operatorname{Tan}[e+fx]^2\right)^p-\frac{1}{4}\operatorname{Sin}[2(e+fx)]^2\left(a+b\operatorname{Tan}[e+fx]^2\right)^p\right)\right)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(f\Bigg(6\,a\,b\,p\operatorname{Sin}[e+fx]^2\left(a+b\operatorname{Tan}[e+fx]^2\right)^{-1+p}\Bigg(\operatorname{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]\Bigg/\Bigg(-3\,a\operatorname{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]-2\left(b\,p\operatorname{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]-2\,a\operatorname{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]\right)\operatorname{Tan}[e+fx]^2\Bigg)+$$

$$\left(\operatorname{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]\operatorname{Sec}[e+fx]^2\right)\Bigg/\Bigg(3\,a\operatorname{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]+2\left(b\,p\operatorname{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]-a\operatorname{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]\right)\operatorname{Tan}[e+fx]^2\Bigg)\Bigg)+$$

$$3\,a\operatorname{Cos}[e+fx]^4\left(a+b\operatorname{Tan}[e+fx]^2\right)^p\Bigg(\operatorname{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]\Bigg/\Bigg(-3\,a\operatorname{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]-2\left(b\,p\operatorname{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]-2\,a\operatorname{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\operatorname{Tan}[e+fx]^2,-\frac{b\operatorname{Tan}[e+fx]^2}{a}\right]\right)\operatorname{Tan}[e+fx]^2\Bigg)+$$

$$\left(\operatorname{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]\operatorname{Sec}[e+fx]^2\right)\Bigg/\Bigg(3\,a\operatorname{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]+2\left(b\,p\operatorname{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]-a\operatorname{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\operatorname{Tan}[e+fx]^2}{a},-\operatorname{Tan}[e+fx]^2\right]\right)\operatorname{Tan}[e+fx]^2\Bigg)\Bigg)-$$

$$9\,a\operatorname{Cos}[e+fx]^2\operatorname{Sin}[e+fx]^2\left(a+b\operatorname{Tan}[e+fx]^2\right)^p\Bigg(\operatorname{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\operatorname{Tan}[e+fx]^2,\right.$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big/\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,a\,\text{AppellF1}\Big[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)+$$

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

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\Big)+$$

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

$$\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{4}{3}\,\text{AppellF1}\Big[$$

$$\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,a\,\text{AppellF1}\Big[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)+$$

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

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)+$$

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

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)\Big)\Big/$$

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+$$

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

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

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

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

$$\left.\left.3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-3\,a$$

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

$$\text{Tan}[e+f\,x]-\frac{4}{3}\,\text{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]$$

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

$$2,2-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-$$

$$\frac{12}{5}\,\text{AppellF1}\left[\frac{5}{2},3,1-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2$$

$$\left.\text{Tan}[e+f\,x]\right)-2\,a\left(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},3,1-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,\right.\right.$$

$$\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{18}{5}\,\text{AppellF1}\left[\frac{5}{2},4,-p,\right.$$

$$\left.\left.\left.\left.\left.\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

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

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

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

$$\left(\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\right.$$

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

$$\left.\left.-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

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

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

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)+$$

$$2\,\text{Tan}[e+f\,x]^2\,\Bigg(b\,p\,\Bigg(-\frac{6}{5}\,\text{AppellF1}\Big[\frac{5}{2},\,1-p,\,2,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},$$

$$-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\Big[\frac{5}{2},$$

$$2-p,\,1,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)-$$

$$a\,\Bigg(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\Big[\frac{5}{2},\,1-p,\,2,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{12}{5}\,\text{AppellF1}\Big[\frac{5}{2},\,-p,\,3,\,\frac{7}{2},$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(3\,a\,\text{AppellF1}\Big[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+$$

$$2\,\Bigg(b\,p\,\text{AppellF1}\Big[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)^2\Bigg)\Bigg)\Bigg)$$

Problem 160: Result more than twice size of optimal antiderivative.

$$\int\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 78 leaves, 3 steps):

$$\frac{1}{f}\text{AppellF1}\Big[\frac{1}{2},\,1,\,-p,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]$$

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

Result (type 6, 192 leaves):

$$\Bigg(3\,a\,\text{AppellF1}\Big[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sin}[2\,(e+f\,x)]$$

$$\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Bigg/\Bigg(6\,a\,f\,\text{AppellF1}\Big[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+$$

$$4\,f\,\Bigg(b\,p\,\text{AppellF1}\Big[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)$$

Problem 164: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

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

Optimal (type 5, 98 leaves, 3 steps):

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

Result (type 6, 2372 leaves):

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

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

$$\Big(\big(1+m+n p\big)\,\Big(\big(3+m+n p\big)\,\mathrm{AppellF1}\Big[\frac{1}{2}(1+m+n p),\,n p,\,1+m,\,\frac{1}{2}(3+m+n p),$$

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

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

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

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

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

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

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

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

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

$$\big(3+m+n p\big)\,\Big(-\frac{1}{3+m+n p}\big(1+m\big)\,\big(1+m+n p\big)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(1+m+n p),$$

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

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

$$n p\,\big(1+m+n p\big)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(1+m+n p),\,1+n p,\,1+m,\,1+\frac{1}{2}(3+m+n p),$$

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

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

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

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

$$n p\,\big(3+m+n p\big)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(3+m+n p),\,1+n p,\,2+m,\,1+\frac{1}{2}(5+m+n p),$$

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

$$n p\,\Big(-\frac{1}{5+m+n p}\big(1+m\big)\,\big(3+m+n p\big)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(3+m+n p),\,1+n p,$$

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

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

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

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

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

Problem 165: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sin}[e+f x]^2\left(b\left(c\,\text{Tan}[e+f x]\right)^n\right)^p\,dx$$

Optimal (type 5, 63 leaves, 3 steps):

$$\frac{1}{f(3+n p)}\text{Hypergeometric2F1}\left[2,\frac{1}{2}(3+n p),\frac{1}{2}(5+n p),-\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^3\left(b\left(c\,\text{Tan}[e+f x]\right)^n\right)^p$$

Result (type 6, 5192 leaves):

$$\Big(8\,(3+n\,p)\,\text{Cos}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^5\,\text{Sin}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]$$

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

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

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

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

$$n\,p\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3+n\,p),\,1+n\,p,\,2,\,\tfrac{1}{2}\,(5+n\,p),$$

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

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

$$\Big((3+n\,p)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1+n\,p),\,n\,p,\,3,$$

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

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

$$n\,p\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\tfrac{1}{2}\,(5+n\,p),$$

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

$$(b\,(c\,\text{Tan}[e+f\,x])^n)^p\,\Big(-\tfrac{1}{4}\,\text{Cos}[2\,(e+f\,x)]^3\,\text{Tan}[e+f\,x]^{n\,p}+$$

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

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

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

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

$$\text{Cos}[2\,(e+f\,x)]\,\Big(-\tfrac{1}{4}\,\text{Tan}[e+f\,x]^{n\,p}-\tfrac{1}{4}\,\text{Sin}[2\,(e+f\,x)]^2\,\text{Tan}[e+f\,x]^{n\,p}\Big)\Big)\Big)\Big/$$

$$\Big(f\,(1+n\,p)\,\Big(\frac{1}{1+n\,p}4\,(3+n\,p)\,\text{Cos}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^6\,\Big(\Big(\text{AppellF1}\Big[\tfrac{1}{2}\,(1+n\,p),\,n\,p,\,2,$$

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

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

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

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

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

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

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

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

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

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

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

$$\Big(\Big(\text{AppellF1}\Big[\frac{1}{2}\left(1+n\,p\right),n\,p,2,\frac{1}{2}\left(3+n\,p\right),$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\text{Tan}[e+fx]^{np} + \frac{1}{1+np} 8 np (3+np) \text{Cos}\left[\frac{1}{2}(e+fx)\right]^5 \text{Sec}[e+fx]^2$$

$$\text{Sin}\left[\frac{1}{2}(e+fx)\right]$$

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

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

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

Problem 170: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 5, 93 leaves, 3 steps):

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

Result (type 6, 5464 leaves):

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

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

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

$$\left.\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)\,\left(b\,\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p$$

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

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

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

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

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

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

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

$$\frac{3}{8}\,\mathbb{i}\,\text{Sin}[2\,(e+f\,x)]\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\text{Cos}[3\,(e+f\,x)]$$

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

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

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

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

$$\left(f\,(2+n\,p)\,\left(\frac{1}{2+n\,p}16\,(4+n\,p)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^7\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right.\right.$$

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{2+n\,p}48\,(4+n\,p)\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^5\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]^3\left(\left(\text{AppellF1}\left[1+\frac{n\,p}{2},n\,p,\right.\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\text{Sin}\left[\frac{1}{2}(e+f x)\right]^2$$

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

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

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

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

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

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

Problem 171: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 5, 91 leaves, 3 steps):

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

Result (type 6, 2111 leaves):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3+\frac{np}{2}}$$

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

$$-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg)\Bigg)\operatorname{Tan}[e+fx]^{np}\Bigg)\Bigg/$$

$$\Bigg((2+np)\Bigg((4+np)\operatorname{AppellF1}\Big[1+\frac{np}{2},np,2,2+\frac{np}{2},\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,$$

$$-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\Bigg(-2\operatorname{AppellF1}\Big[2+\frac{np}{2},np,3,3+\frac{np}{2},\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,$$

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

$$\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Bigg)\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)^2\Bigg)+$$

$$\Bigg(np(4+np)\operatorname{AppellF1}\Big[1+\frac{np}{2},np,2,2+\frac{np}{2},\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]$$

$$\operatorname{Tan}[e+fx]^{1+np}\Bigg)\Bigg/\Bigg((2+np)$$

$$\Bigg((4+np)\operatorname{AppellF1}\Big[1+\frac{np}{2},np,2,2+\frac{np}{2},\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+$$

$$2\Bigg(-2\operatorname{AppellF1}\Big[2+\frac{np}{2},np,3,3+\frac{np}{2},\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+$$

$$np\operatorname{AppellF1}\Big[2+\frac{np}{2},1+np,2,3+\frac{np}{2},\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,$$

$$-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Bigg)\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)\Bigg)\Bigg)$$

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

$$\int \operatorname{Csc}[e+fx]^3\left(b\left(c\operatorname{Tan}[e+fx]\right)^n\right)^p\,dx$$

Optimal (type 5, 92 leaves, 3 steps):

$$-\frac{1}{f(2-np)}\left(\operatorname{Cos}[e+fx]^2\right)^{\frac{1}{2}(1+np)}\operatorname{Csc}[e+fx]^2\operatorname{Hypergeometric2F1}\Big[$$

$$\frac{1}{2}(-2+np),\frac{1}{2}(1+np),\frac{np}{2},\operatorname{Sin}[e+fx]^2\Big]\operatorname{Sec}[e+fx]\left(b\left(c\operatorname{Tan}[e+fx]\right)^n\right)^p$$

Result (type 5, 217 leaves):

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

Problem 176: Result more than twice size of optimal antiderivative.

$$\int (d \text{Cos}[e+f x])^m \left(a+b \text{Tan}[e+f x]^2\right)^p dx$$

Optimal (type 6, 108 leaves, 4 steps):

$$\frac{1}{f} \text{AppellF1}\left[\frac{1}{2}, \frac{2+m}{2}, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] (d \text{Cos}[e+f x])^m$$
$$\left(\text{Sec}[e+f x]^2\right)^{m/2} \text{Tan}[e+f x] \left(a+b \text{Tan}[e+f x]^2\right)^p \left(1+\frac{b \text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 2033 leaves):

$$\Bigg(3 a \text{AppellF1}\left[\frac{1}{2}, \frac{2+m}{2}, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right]$$
$$(d \text{Cos}[e+f x])^m \left(\text{Sec}[e+f x]^2\right)^{-1-\frac{m}{2}} \text{Tan}[e+f x] \left(a+b \text{Tan}[e+f x]^2\right)^{2 p}\Bigg) \Big/$$
$$\Bigg(f \Bigg(3 a \text{AppellF1}\left[\frac{1}{2}, \frac{2+m}{2}, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] +$$
$$\left(2 b p \text{AppellF1}\left[\frac{3}{2}, \frac{2+m}{2}, 1-p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] -\right.$$
$$\left.a (2+m) \text{AppellF1}\left[\frac{3}{2}, \frac{4+m}{2}, -p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right]\right) \text{Tan}[e+f x]^2\Bigg)$$
$$\Bigg(\Bigg(6 a b p \text{AppellF1}\left[\frac{1}{2}, \frac{2+m}{2}, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right]$$
$$\left(\text{Sec}[e+f x]^2\right)^{-m/2} \text{Tan}[e+f x]^2 \left(a+b \text{Tan}[e+f x]^2\right)^{-1+p}\Bigg) \Big/$$
$$\Bigg(3 a \text{AppellF1}\left[\frac{1}{2}, \frac{2+m}{2}, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] +$$
$$\left(2 b p \text{AppellF1}\left[\frac{3}{2}, \frac{2+m}{2}, 1-p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] - a (2+m)\right.$$
$$\left.\text{AppellF1}\left[\frac{3}{2}, \frac{4+m}{2}, -p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right]\right) \text{Tan}[e+f x]^2\Bigg) +$$
$$\Bigg(3 a \text{AppellF1}\left[\frac{1}{2}, \frac{2+m}{2}, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right]$$

$$\left(\text{Sec}[e+f x]^2\right)^{-m/2} \left(a+b \,\text{Tan}[e+f x]^2\right)^p\Bigg) \Bigg/$$

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

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

$$\left.\left.\text{AppellF1}\left[\frac{3}{2}, \frac{4+m}{2}, -p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \,\text{Tan}[e+f x]^2}{a}\right]\right) \text{Tan}[e+f x]^2\right) +$$

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

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

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

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

$$\left.\left.\text{AppellF1}\left[\frac{3}{2}, \frac{4+m}{2}, -p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \,\text{Tan}[e+f x]^2}{a}\right]\right) \text{Tan}[e+f x]^2\right) +$$

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

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

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

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

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

$$\left.\left.\text{AppellF1}\left[\frac{3}{2}, \frac{4+m}{2}, -p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \,\text{Tan}[e+f x]^2}{a}\right]\right) \text{Tan}[e+f x]^2\right) -$$

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

$$\left(\text{Sec}[e+f x]^2\right)^{-1-\frac{m}{2}} \text{Tan}[e+f x] \left(a+b \,\text{Tan}[e+f x]^2\right)^p$$

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

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

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

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

$$\left.\left.\frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \,\text{Tan}[e+f x]^2}{a}\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]\right) + \text{Tan}[e+f x]^2$$

$$\left(2 b p \left(-\frac{1}{5 a} 6 b (1-p) \text{AppellF1}\left[\frac{5}{2}, \frac{2+m}{2}, 2-p, \frac{7}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{3}{5} (2+m) \text{AppellF1}\left[\frac{5}{2}, 1+\frac{2+m}{2}, 1-p, \frac{7}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) - a (2+m) \left(\frac{1}{5 a} 6 b p \text{AppellF1}\left[\frac{5}{2}, \frac{4+m}{2}, 1-p, \frac{7}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{3}{5} (4+m) \text{AppellF1}\left[\frac{5}{2}, 1+\frac{4+m}{2}, -p, \frac{7}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)\right)\right)\Bigg) \Bigg/ \left(3 a \text{AppellF1}\left[\frac{1}{2}, \frac{2+m}{2}, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] + \left(2 b p \text{AppellF1}\left[\frac{3}{2}, \frac{2+m}{2}, 1-p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right] - a (2+m) \text{AppellF1}\left[\frac{3}{2}, \frac{4+m}{2}, -p, \frac{5}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\right]\right) \text{Tan}[e+f x]^2\right)^2\Bigg)\Bigg)$$

Problem 204: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[e+f x]^6 \left(a+b \text{Tan}[e+f x]^2\right)^2 \, dx$$

Optimal (type 3, 113 leaves, 4 steps):

$$-(a-b)^2 x + \frac{(a-b)^2 \text{Tan}[e+f x]}{f} - \frac{(a-b)^2 \text{Tan}[e+f x]^3}{3 f} + \frac{(a-b)^2 \text{Tan}[e+f x]^5}{5 f} + \frac{(2 a-b) b \text{Tan}[e+f x]^7}{7 f} + \frac{b^2 \text{Tan}[e+f x]^9}{9 f}$$

Result (type 3, 278 leaves):

$$-a^2 x + 2 a b x - b^2 x + \frac{23 a^2 \text{Tan}[e+f x]}{15 f} - \frac{352 a b \text{Tan}[e+f x]}{105 f} + \frac{563 b^2 \text{Tan}[e+f x]}{315 f} - \frac{11 a^2 \text{Sec}[e+f x]^2 \text{Tan}[e+f x]}{15 f} + \frac{244 a b \text{Sec}[e+f x]^2 \text{Tan}[e+f x]}{105 f} - \frac{506 b^2 \text{Sec}[e+f x]^2 \text{Tan}[e+f x]}{315 f} + \frac{a^2 \text{Sec}[e+f x]^4 \text{Tan}[e+f x]}{5 f} - \frac{44 a b \text{Sec}[e+f x]^4 \text{Tan}[e+f x]}{35 f} + \frac{136 b^2 \text{Sec}[e+f x]^4 \text{Tan}[e+f x]}{105 f} + \frac{2 a b \text{Sec}[e+f x]^6 \text{Tan}[e+f x]}{7 f} - \frac{37 b^2 \text{Sec}[e+f x]^6 \text{Tan}[e+f x]}{63 f} + \frac{b^2 \text{Sec}[e+f x]^8 \text{Tan}[e+f x]}{9 f}$$

Problem 205: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[e+f x]^4 \left(a+b\,\text{Tan}[e+f x]^2\right)^2 \,dx$$

Optimal (type 3, 91 leaves, 4 steps):

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

Result (type 3, 205 leaves):

$$a^2 x-2 a b x+b^2 x-\frac{4 a^2 \text{Tan}[e+f x]}{3 f}+\frac{46 a b\,\text{Tan}[e+f x]}{15 f}-\frac{176 b^2 \text{Tan}[e+f x]}{105 f}+\frac{a^2 \text{Sec}[e+f x]^2 \text{Tan}[e+f x]}{3 f}-\frac{22 a b\,\text{Sec}[e+f x]^2 \text{Tan}[e+f x]}{15 f}+\frac{122 b^2 \text{Sec}[e+f x]^2 \text{Tan}[e+f x]}{105 f}+\frac{2 a b\,\text{Sec}[e+f x]^4 \text{Tan}[e+f x]}{5 f}-\frac{22 b^2 \text{Sec}[e+f x]^4 \text{Tan}[e+f x]}{35 f}+\frac{b^2 \text{Sec}[e+f x]^6 \text{Tan}[e+f x]}{7 f}$$

Problem 249: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f x]^6}{\left(a+b\,\text{Tan}[e+f x]^2\right)^3}\,dx$$

Optimal (type 3, 297 leaves, 9 steps):

$$-\frac{x}{(a-b)^3}+\frac{b^{7/2}\left(99 a^2-154 a b+63 b^2\right) \text{ArcTan}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a}}\right]}{8 a^{11/2} (a-b)^3 f}-\frac{\left(8 a^4+8 a^3 b+8 a^2 b^2-91 a b^3+63 b^4\right) \text{Cot}[e+f x]}{8 a^5 (a-b)^2 f}+\frac{\left(8 a^3+8 a^2 b-91 a b^2+63 b^3\right) \text{Cot}[e+f x]^3}{24 a^4 (a-b)^2 f}-\frac{\left(8 a^2-91 a b+63 b^2\right) \text{Cot}[e+f x]^5}{40 a^3 (a-b)^2 f}-\frac{b\,\text{Cot}[e+f x]^5}{4 a (a-b) f \left(a+b\,\text{Tan}[e+f x]^2\right)^2}-\frac{(13 a-9 b)\, b\,\text{Cot}[e+f x]^5}{8 a^2 (a-b)^2 f \left(a+b\,\text{Tan}[e+f x]^2\right)}$$

Result (type 3, 949 leaves):

$$\frac{b^{7/2}\left(99 a^2-154 a b+63 b^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a}}\right]}{8 a^{11/2}(a-b)^3 f}+$$

$$\frac{1}{7680 a^5 (a-b)^3 f \left(a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)]\right)^2}$$
$$\text{Csc}[e+f x]^5 \left(-3184 a^7 \text{Cos}[e+f x]+7440 a^6 b \text{Cos}[e+f x]-12000 a^5 b^2 \text{Cos}[e+f x]+\right.$$
$$10240 a^4 b^3 \text{Cos}[e+f x]+6450 a^3 b^4 \text{Cos}[e+f x]+714 a^2 b^5 \text{Cos}[e+f x]-$$
$$22890 a b^6 \text{Cos}[e+f x]+13230 b^7 \text{Cos}[e+f x]-1536 a^7 \text{Cos}[3 (e+f x)]+$$
$$7648 a^6 b \text{Cos}[3 (e+f x)]-2912 a^5 b^2 \text{Cos}[3 (e+f x)]-1152 a^4 b^3 \text{Cos}[3 (e+f x)]-$$
$$14872 a^3 b^4 \text{Cos}[3 (e+f x)]-12796 a^2 b^5 \text{Cos}[3 (e+f x)]+52080 a b^6 \text{Cos}[3 (e+f x)]-$$
$$26460 b^7 \text{Cos}[3 (e+f x)]-704 a^7 \text{Cos}[5 (e+f x)]+2656 a^6 b \text{Cos}[5 (e+f x)]-$$
$$4128 a^5 b^2 \text{Cos}[5 (e+f x)]-3712 a^4 b^3 \text{Cos}[5 (e+f x)]+5504 a^3 b^4 \text{Cos}[5 (e+f x)]+$$
$$27684 a^2 b^5 \text{Cos}[5 (e+f x)]-46200 a b^6 \text{Cos}[5 (e+f x)]+18900 b^7 \text{Cos}[5 (e+f x)]-$$
$$536 a^7 \text{Cos}[7 (e+f x)]+248 a^6 b \text{Cos}[7 (e+f x)]+768 a^5 b^2 \text{Cos}[7 (e+f x)]+$$
$$128 a^4 b^3 \text{Cos}[7 (e+f x)]+6553 a^3 b^4 \text{Cos}[7 (e+f x)]-21441 a^2 b^5 \text{Cos}[7 (e+f x)]+$$
$$20895 a b^6 \text{Cos}[7 (e+f x)]-6615 b^7 \text{Cos}[7 (e+f x)]-184 a^7 \text{Cos}[9 (e+f x)]+$$
$$440 a^6 b \text{Cos}[9 (e+f x)]-160 a^5 b^2 \text{Cos}[9 (e+f x)]+640 a^4 b^3 \text{Cos}[9 (e+f x)]-$$
$$3635 a^3 b^4 \text{Cos}[9 (e+f x)]+5839 a^2 b^5 \text{Cos}[9 (e+f x)]-3885 a b^6 \text{Cos}[9 (e+f x)]+$$
$$945 b^7 \text{Cos}[9 (e+f x)]-720 a^7 (e+f x) \text{Sin}[e+f x]-3360 a^6 b (e+f x) \text{Sin}[e+f x]-$$
$$15120 a^5 b^2 (e+f x) \text{Sin}[e+f x]-480 a^7 (e+f x) \text{Sin}[3 (e+f x)]+$$
$$10080 a^5 b^2 (e+f x) \text{Sin}[3 (e+f x)]+480 a^7 (e+f x) \text{Sin}[5 (e+f x)]+$$
$$1920 a^6 b (e+f x) \text{Sin}[5 (e+f x)]-4320 a^5 b^2 (e+f x) \text{Sin}[5 (e+f x)]+$$
$$120 a^7 (e+f x) \text{Sin}[7 (e+f x)]-1200 a^6 b (e+f x) \text{Sin}[7 (e+f x)]+$$
$$1080 a^5 b^2 (e+f x) \text{Sin}[7 (e+f x)]-120 a^7 (e+f x) \text{Sin}[9 (e+f x)]+$$
$$\left.240 a^6 b (e+f x) \text{Sin}[9 (e+f x)]-120 a^5 b^2 (e+f x) \text{Sin}[9 (e+f x)]\right)$$

Problem 265: Result more than twice size of optimal antiderivative.

$$\int \sqrt{a+a \text{Tan}[c+d x]^2}\, dx$$

Optimal (type 3, 36 leaves, 4 steps):

$$\frac{\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Tan}[c+d x]}{\sqrt{a \text{Sec}[c+d x]^2}}\right]}{d}$$

Result (type 3, 74 leaves):

$$-\frac{1}{d}\frac{\text{Cos}[c+d x]\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)}{\sqrt{a \text{Sec}[c+d x]^2}}$$

Problem 270: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[x]^2 \left(a + a\,\text{Tan}[x]^2\right)^{3/2} dx$$

Optimal (type 3, 33 leaves, 5 steps):

$$a\,\text{ArcTanh}[\text{Sin}[x]]\,\text{Cos}[x]\,\sqrt{a\,\text{Sec}[x]^2} - a\,\text{Cot}[x]\,\sqrt{a\,\text{Sec}[x]^2}$$

Result (type 3, 67 leaves):

$$-\frac{1}{2}\,a\,\text{Cos}[x]\,\text{Csc}\left[\frac{x}{2}\right]\,\text{Sec}\left[\frac{x}{2}\right]\,\sqrt{a\,\text{Sec}[x]^2}\left(1 + \left(\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] - \text{Sin}\left[\frac{x}{2}\right]\right] - \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right]\right)\text{Sin}[x]\right)$$

Problem 287: Result more than twice size of optimal antiderivative.

$$\int \left(1 + \text{Tan}[x]^2\right)^{3/2} dx$$

Optimal (type 3, 22 leaves, 4 steps):

$$\frac{1}{2}\,\text{ArcSinh}[\text{Tan}[x]] + \frac{1}{2}\,\sqrt{\text{Sec}[x]^2}\,\text{Tan}[x]$$

Result (type 3, 52 leaves):

$$\frac{1}{2}\,\text{Cos}[x]\,\sqrt{\text{Sec}[x]^2}\left(-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] - \text{Sin}\left[\frac{x}{2}\right]\right] + \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right] + \text{Sec}[x]\,\text{Tan}[x]\right)$$

Problem 288: Result more than twice size of optimal antiderivative.

$$\int \sqrt{1 + \text{Tan}[x]^2}\, dx$$

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

$$\text{ArcSinh}[\text{Tan}[x]]$$

Result (type 3, 44 leaves):

$$\text{Cos}[x]\left(-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] - \text{Sin}\left[\frac{x}{2}\right]\right] + \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right]\right)\sqrt{\text{Sec}[x]^2}$$

Problem 290: Result more than twice size of optimal antiderivative.

$$\int \left(-1 - \text{Tan}[x]^2\right)^{3/2} dx$$

Optimal (type 3, 35 leaves, 5 steps):

$$\frac{1}{2}\,\text{ArcTan}\left[\frac{\text{Tan}[x]}{\sqrt{-\text{Sec}[x]^2}}\right] - \frac{1}{2}\,\sqrt{-\text{Sec}[x]^2}\,\text{Tan}[x]$$

Result (type 3, 72 leaves):

$$\frac{1}{4}\operatorname{Cos}[x]\sqrt{-\operatorname{Sec}[x]^2}\left(2\operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right]-\operatorname{Sin}\left[\frac{x}{2}\right]\right]-2\operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right]+\operatorname{Sin}\left[\frac{x}{2}\right]\right]+\frac{1}{\left(\operatorname{Cos}\left[\frac{x}{2}\right]+\operatorname{Sin}\left[\frac{x}{2}\right]\right)^2}+\frac{1}{-1+\operatorname{Sin}[x]}\right)$$

Problem 291: Result more than twice size of optimal antiderivative.

$$\int\sqrt{-1-\operatorname{Tan}[x]^2}\,dx$$

Optimal (type 3, 16 leaves, 4 steps):

$$-\operatorname{ArcTan}\left[\frac{\operatorname{Tan}[x]}{\sqrt{-\operatorname{Sec}[x]^2}}\right]$$

Result (type 3, 46 leaves):

$$\operatorname{Cos}[x]\left(-\operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right]-\operatorname{Sin}\left[\frac{x}{2}\right]\right]+\operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right]+\operatorname{Sin}\left[\frac{x}{2}\right]\right]\right)\sqrt{-\operatorname{Sec}[x]^2}$$

Problem 293: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 117 leaves, 7 steps):

$$-\frac{\sqrt{a-b}\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{f}+\frac{\sqrt{a+b\operatorname{Tan}[e+f x]^2}}{f}-\frac{(a+b)\left(a+b\operatorname{Tan}[e+f x]^2\right)^{3/2}}{3 b^2 f}+\frac{\left(a+b\operatorname{Tan}[e+f x]^2\right)^{5/2}}{5 b^2 f}$$

Result (type 3, 445 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{-2\,a^2-6\,a\,b+23\,b^2}{15\,b^2}+\frac{(a-11\,b)\,\text{Sec}[e+f\,x]^2}{15\,b}+\frac{1}{5}\,\text{Sec}[e+f\,x]^4\right)-$$

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

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

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

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

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

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

Problem 294: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 88 leaves, 6 steps):

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

Result (type 3, 414 leaves):

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

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

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

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

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

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

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

Problem 295: Result more than twice size of optimal antiderivative.

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

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

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

Result (type 3, 199 leaves):

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

Problem 296: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\,dx$$

Optimal (type 3, 74 leaves, 7 steps):

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

Result (type 3, 531 leaves):

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

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

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

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

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

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

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

$$\left.\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{\frac{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right) \Bigg/$$

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

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

Problem 297: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 115 leaves, 8 steps):

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

Result (type 3, 1217 leaves):

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

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

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

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

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

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

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

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

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

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\left(\left(4 \cos[e+f x]^2 \left(1-\cos[2 (e+f x)]\right) \sqrt{2 b+a \left(1+\cos[2 (e+f x)]\right)-b \left(1+\cos[2 (e+f x)]\right)} \cot[e+f x] \left(\sqrt{a-b}\, \text{ArcTanh}\left[\left(\sqrt{a} \sqrt{1+\cos[2 (e+f x)]}\right) \Big/ \left(\sqrt{2 b+a \left(1+\cos[2 (e+f x)]\right)-b \left(1+\cos[2 (e+f x)]\right)}\right)\right]-\sqrt{a}\, \text{Log}\left[a \sqrt{1+\cos[2 (e+f x)]}-b \sqrt{1+\cos[2 (e+f x)]}+\sqrt{a-b} \sqrt{2 b+a \left(1+\cos[2 (e+f x)]\right)-b \left(1+\cos[2 (e+f x)]\right)}\right]\right) \sin[2 (e+f x)]\right) \Big/ \left(3 \sqrt{a} \sqrt{a-b} \left(1+\cos[2 (e+f x)]\right) \sqrt{-\left(-1+\cos[2 (e+f x)]\right) \left(1+\cos[2 (e+f x)]\right)} \sqrt{a+b+(a-b) \cos[2 (e+f x)]} \sqrt{1-\cos[2 (e+f x)]^2}\right)\right)+\left(\left(1+\cos[e+f x]\right) \sqrt{\frac{1+\cos[2 (e+f x)]}{\left(1+\cos[e+f x]\right)^2}} \left(\text{Log}\left[\tan\left[\frac{1}{2} (e+f x)\right]^2\right]-\text{Log}\left[a-a \tan\left[\frac{1}{2} (e+f x)\right]^2+2 b \tan\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{a} \sqrt{\left(4 b \tan\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right)^2\right)}\right]+\text{Log}\left[2 b+a \left(-1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right)+\sqrt{a} \sqrt{\left(4 b \tan\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right)^2\right)}\right]\right) \left(-1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right) \left(1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{\frac{4 b \tan\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right) \Big/ \left(4 \sqrt{a} \sqrt{1+\cos[2 (e+f x)]} \sqrt{\left(-1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right)^2} \sqrt{4 b \tan\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\tan\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right)\right)$$

Problem 298: Result more than twice size of optimal antiderivative.

$$\int \cot[e+f x]^5 \sqrt{a+b \tan[e+f x]^2}\, dx$$

Optimal (type 3, 163 leaves, 9 steps):

$$-\frac{\left(8 a^2-4 a b-b^2\right) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{8 a^{3/2} f}+\frac{\sqrt{a-b} \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{f}+\frac{(4 a-b) \text{Cot}[e+f x]^2 \sqrt{a+b \text{Tan}[e+f x]^2}}{8 a f}-\frac{\text{Cot}[e+f x]^4 \sqrt{a+b \text{Tan}[e+f x]^2}}{4 f}$$

Result (type 3, 1266 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\left(-\frac{6 a-b}{8 a}+\frac{(8 a-b) \text{Csc}[e+f x]^2}{8 a}-\frac{1}{4} \text{Csc}[e+f x]^4\right)+$$

$$\frac{1}{4 a f}\left(-\left(\left(\left(6 a^2-2 a b-b^2\right) (1+\text{Cos}[e+f x]) \sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}}\right.\right.\right.$$

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

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

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

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

$$\left.\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{\frac{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right)\Bigg/$$

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

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

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

$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Cot}[e+f\,x]\,\Bigg(\sqrt{a-b}\,\text{ArcTanh}\Big[\Big(\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big)\Big/\Big(\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big)\Big]-\sqrt{a}\,\text{Log}\Big[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}-b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big]\Bigg)\,\text{Sin}[2\,(e+f\,x)]\Bigg)\Big/$$

$$\Bigg(3\,\sqrt{a}\,\sqrt{a-b}\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\Bigg(\text{Log}\Big[\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]-\text{Log}\Big[a-a\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{\Big(4\,b\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)}\Big]+\text{Log}\Big[2\,b+a\,\Big(-1+\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}\,\sqrt{\Big(4\,b\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)}\Big]\Bigg)$$

$$\Big(-1+\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\Big(1+\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\sqrt{\frac{4\,b\,\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}{\big(1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}}\Bigg)\Big/$$

$$\Bigg(4\,\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\Big(-1+\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\sqrt{4\,b\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\Bigg)\Bigg)\Bigg)$$

Problem 299: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Tan}[e+f x]^6 \sqrt{a+b\,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 222 leaves, 9 steps):

$$-\frac{\sqrt{a-b}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}+\frac{\left(a^3+2 a^2 b+8 a b^2-16 b^3\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{16 b^{5/2} f}-\frac{(a-2 b)(a+4 b)\,\text{Tan}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{16 b^2 f}+\frac{(a-6 b)\,\text{Tan}[e+f x]^3\sqrt{a+b\,\text{Tan}[e+f x]^2}}{24 b f}+\frac{\text{Tan}[e+f x]^5\sqrt{a+b\,\text{Tan}[e+f x]^2}}{6 f}$$

Result (type 4, 823 leaves):

$$\frac{1}{8 b^2 f}\left(-\left(\left(b\left(a^3+2 a^2 b-8 b^3\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2(e+f x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2(e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}\right.$$

$$4 b\left(-8 a b^2+8 b^3\right)\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2\,(e+f x)]$$

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

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

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2\,(e+f x)]$$

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f x)]-b\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}$$

$$\left(\frac{\text{Sec}[e+f x]^3\,(a\,\text{Sin}[e+f x]-14\,b\,\text{Sin}[e+f x])}{24\,b}+\right.$$

$$\frac{1}{48\,b^2}\,\text{Sec}[e+f x]\,\left(-3\,a^2\,\text{Sin}[e+f x]-8\,a\,b\,\text{Sin}[e+f x]+44\,b^2\,\text{Sin}[e+f x]\right)+$$

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

Problem 300: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Tan}[e+f x]^4\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\;dx$$

Optimal (type 3, 169 leaves, 8 steps):

$$\frac{\sqrt{a-b}\;\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\left(a^2+4 a b-8 b^2\right)\text{ArcTanh}\left[\frac{\sqrt{b}\;\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{8 b^{3/2} f}+$$

$$\frac{(a-4 b)\,\text{Tan}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{8 b f}+\frac{\text{Tan}[e+f x]^3\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{4 f}$$

Result (type 4, 767 leaves):

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

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

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

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

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

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

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

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

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{\text{Sec}[e+f\,x]\,(a\,\text{Sin}[e+f\,x]-6\,b\,\text{Sin}[e+f\,x])}{8\,b}+\right.$$

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

Problem 301: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 123 leaves, 7 steps):

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

Result (type 4, 708 leaves):

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

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

$$4\,(a-b)\,b\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2(e+f x)]$$

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

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

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

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

$$\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)+$$

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

Problem 302: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 85 leaves, 6 steps):

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

Result (type 3, 203 leaves):

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

Problem 303: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]^2 \sqrt{a+b \,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 75 leaves, 5 steps):

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

Result (type 4, 705 leaves):

$$-\frac{\sqrt{\frac{a+b+a \,\text{Cos}[2 (e+f x)]-b \,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\, \text{Cot}[e+f x]}{f}-$$

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

$$\left.\left(a\left(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]\right)\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)$$

Problem 304: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]^4 \sqrt{a+b\,\text{Tan}[e+f x]^2}\,dx$$

Optimal (type 3, 117 leaves, 6 steps):

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

Result (type 4, 748 leaves):

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

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

$$4\,b\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)$$

Problem 305: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[e+f\,x]^6\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

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

$$-\frac{\sqrt{a-b}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\left(15 a^2-5 a b-2 b^2\right)\text{Cot}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a^2 f}+\frac{(5 a-b)\,\text{Cot}[e+f x]^3\sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a f}-\frac{\text{Cot}[e+f x]^5\sqrt{a+b\,\text{Tan}[e+f x]^2}}{5 f}$$

Result (type 4, 797 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2 (e+f x)]-b\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\left(\frac{1}{15 a^2}\left(-23 a^2\,\text{Cos}[e+f x]+6 a b\,\text{Cos}[e+f x]+2 b^2\,\text{Cos}[e+f x]\right)\text{Csc}[e+f x]+\frac{(11 a\,\text{Cos}[e+f x]-b\,\text{Cos}[e+f x])\,\text{Csc}[e+f x]^3}{15 a}-\frac{1}{5}\text{Cot}[e+f x]\,\text{Csc}[e+f x]^4\right)-$$

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

$$\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2 (e+f x)]$$

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

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

$$4 b\sqrt{1+\text{Cos}[2 (e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

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

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\bigg/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)$$

Problem 306: Result more than twice size of optimal antiderivative.

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

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

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

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

Result (type 3, 483 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{2\,(3\,a^3+12\,a^2\,b-103\,a\,b^2+88\,b^3)}{105\,b^2}+\frac{(3\,a^2-90\,a\,b+122\,b^2)\,\text{Sec}[e+f\,x]^2}{105\,b}+\frac{2}{35}\,(4\,a-11\,b)\,\text{Sec}[e+f\,x]^4+\frac{1}{7}\,b\,\text{Sec}[e+f\,x]^6\right)-$$

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

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

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

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

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

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

Problem 307: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 116 leaves, 7 steps):

$$\frac{(a-b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}-\frac{(a-b)\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{f}-\frac{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}{3\,f}+\frac{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}{5\,b\,f}$$

Result (type 3, 444 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{3\,a^2-26\,a\,b+23\,b^2}{15\,b}+\frac{1}{15}\,(6\,a-11\,b)\,\text{Sec}[e+f\,x]^2+\frac{1}{5}\,b\,\text{Sec}[e+f\,x]^4\right)+$$

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

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

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

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

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

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

Problem 308: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 90 leaves, 6 steps):

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

Result (type 3, 413 leaves):

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

$$\Bigg((a-b)^{3/2}\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\mathrm{Log}\Big[1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]-\mathrm{Log}\Big[a-b-a\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+$$

$$\sqrt{a-b}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]\Bigg)\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)$$

$$\Big(1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\Big(-1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\Big)^2}{\Big(1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\Big)^2}}\Bigg)\Bigg/$$

$$\Bigg(f\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}$$

$$\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Bigg)$$

Problem 309: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[e+f\,x]\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 95 leaves, 8 steps):

$$-\frac{a^{3/2}\,\mathrm{ArcTanh}\Big[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a}}\Big]}{f}+\frac{(a-b)^{3/2}\,\mathrm{ArcTanh}\Big[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\Big]}{f}+\frac{b\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{f}$$

Result (type 3, 1216 leaves):

$$\frac{b\,\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}}{f}+$$

$$\frac{1}{2\,f}\Bigg(-\Bigg(\Bigg(\Big(3\,a^2+2\,a\,b-b^2\Big)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}$$

$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\;\Bigg(\text{Log}\Big[\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]-\text{Log}\Big[a-a\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+$$

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

$$\text{Log}\Big[2\,b+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}$$

$$\sqrt{4\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]\Bigg)\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)$$

$$\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\sqrt{\frac{4\,b\,\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}{\big(1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}}\Bigg)\Bigg/$$

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

$$\sqrt{4\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Bigg)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,\big(a^2-2\,a\,b+b^2\big)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[}$$

$$2\,(e+f\,x)]))}\,\text{Cot}[e+f\,x]\,\Bigg(\sqrt{a-b}\,\text{ArcTanh}\Big[\Big(\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big)\Big/$$

$$\Big(\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big)\Big]-\sqrt{a}$$

$$\text{Log}\Big[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}-b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+}$$

$$\overline{a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big]\Bigg)\,\text{Sin}[2\,(e+f\,x)]\Bigg)\Bigg/$$

$$\Bigg(3\,\sqrt{a}\,\sqrt{a-b}\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\,\Bigg)\Bigg)+$$

$$\left((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.$$

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

$$\left.\left.a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\right]+\text{Log}\left[2 b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\right.$$

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

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

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

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

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

Problem 310: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 116 leaves, 8 steps):

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

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

Result (type 3, 1234 leaves):

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

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

$$\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]-\text{Log}\left[a-a \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+2 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\right.\right.$$

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

$$\text{Log}\left[2 b+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\right.$$

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

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

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

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

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

$$\sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

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

$$2 (e+f x)]))} \text{Cot}[e+f x] \left(\sqrt{a-b} \text{ArcTanh}\left[\left(\sqrt{a} \sqrt{1+\text{Cos}[2 (e+f x)]}\right)\Big/\right.\right.$$

$$\left.\left(\sqrt{(2 b+a (1+\text{Cos}[2 (e+f x)])-b (1+\text{Cos}[2 (e+f x)]))}\right)\right]-\sqrt{a}$$

$$\text{Log}\left[a \sqrt{1+\text{Cos}[2 (e+f x)]}-b \sqrt{1+\text{Cos}[2 (e+f x)]}+\sqrt{a-b} \sqrt{(2 b+\right.$$

$$\left.\left.a (1+\text{Cos}[2 (e+f x)])-b (1+\text{Cos}[2 (e+f x)]))}\right]\right) \text{Sin}[2 (e+f x)]\Big)\Big/$$

$$\left(3\sqrt{a}\,\sqrt{a-b}\,\left(1+\text{Cos}\left[2\,(e+f\,x)\right]\right)\sqrt{-\left(-1+\text{Cos}\left[2\,(e+f\,x)\right]\right)\left(1+\text{Cos}\left[2\,(e+f\,x)\right]\right)}\right.$$

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

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

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

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

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

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

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

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

Problem 311: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 161 leaves, 9 steps):

$$-\frac{\left(8\,a^2-12\,a\,b+3\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{8\sqrt{a}\,f}+\frac{(a-b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}+$$

$$\frac{(4\,a-5\,b)\,\text{Cot}[e+f\,x]^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{8\,f}-\frac{a\,\text{Cot}[e+f\,x]^4\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{4\,f}$$

Result (type 3, 1261 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{1}{8}\,(-6\,a+5\,b)+\frac{1}{8}\,(8\,a-5\,b)\,\text{Csc}[e+f\,x]^2-\frac{1}{4}\,a\,\text{Csc}[e+f\,x]^4\right)+$$

$$\frac{1}{4\,f}\left(-\left(\left(\left(6\,a^2-8\,a\,b+b^2\right)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\right.\right.\right.$$

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

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

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

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

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

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

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

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

$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

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

$$2\,(e+f\,x)]))}\,\text{Cot}[e+f\,x]\,\left(\sqrt{a-b}\,\text{ArcTanh}\left[\left(\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right)\Big/\right.\right.$$

$$\left(\sqrt{\left(2\,b+a\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)-b\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\right)}\right)\Big]-\sqrt{a}\;\text{Log}\Big[a\,\sqrt{1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]}-b\,\sqrt{1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]}+\sqrt{a-b}\,\sqrt{\left(2\,b+a\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)-b\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\right)}\Big]\Bigg)\,\text{Sin}\left[2\,\left(e+f\,x\right)\right]\Bigg)\Bigg/$$

$$\left(3\,\sqrt{a}\,\sqrt{a-b}\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\,\sqrt{-\left(-1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)}\;\sqrt{a+b+\left(a-b\right)\,\text{Cos}\left[2\,\left(e+f\,x\right)\right]}\;\sqrt{1-\text{Cos}\left[2\,\left(e+f\,x\right)\right]^2}\right)\Bigg)+$$

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

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

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

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

Problem 312: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Tan}\left[e+f\,x\right]^6\,\left(a+b\,\text{Tan}\left[e+f\,x\right]^2\right)^{3/2}\,dx$$

Optimal (type 3, 294 leaves, 10 steps):

$$-\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}+\frac{\left(3 a^4+8 a^3 b+48 a^2 b^2-192 a b^3+128 b^4\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{128\, b^{5/2} f}-\frac{\left(3 a^3+8 a^2 b-80 a b^2+64 b^3\right)\text{Tan}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{128\, b^2 f}+\frac{\left(3 a^2-56 a b+48 b^2\right)\text{Tan}[e+f x]^3\sqrt{a+b\,\text{Tan}[e+f x]^2}}{192\, b f}+\frac{(9 a-8 b)\,\text{Tan}[e+f x]^5\sqrt{a+b\,\text{Tan}[e+f x]^2}}{48 f}+\frac{b\,\text{Tan}[e+f x]^7\sqrt{a+b\,\text{Tan}[e+f x]^2}}{8 f}$$

Result (type 4, 908 leaves):

$$\frac{1}{64 b^2 f}\left(-\left(\left(b\left(3 a^4+8 a^3 b-16 a^2 b^2-64 a b^3+64 b^4\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2(e+f x)]$$

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

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

$$4 b\left(-64 a^2 b^2+128 a b^3-64 b^4\right)\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

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

$$\sqrt{\frac{\left(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]\right)\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]\right)\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{1}{48}\right.$$
$$\mathrm{Sec}[e+f\,x]^5$$
$$\left(9\,a\,\mathrm{Sin}[e+f\,x]-26\,b\,\mathrm{Sin}[e+f\,x]\right)+\frac{1}{192\,b}$$
$$\mathrm{Sec}[e+f\,x]^3\left(3\,a^2\,\mathrm{Sin}[e+f\,x]-128\,a\,b\,\mathrm{Sin}[e+f\,x]+184\,b^2\,\mathrm{Sin}[e+f\,x]\right)+$$
$$\frac{1}{384\,b^2}$$
$$\mathrm{Sec}[e+f\,x]$$
$$\left(-9\,a^3\,\mathrm{Sin}[e+f\,x]-30\,a^2\,b\,\mathrm{Sin}[e+f\,x]+424\,a\,b^2\,\mathrm{Sin}[e+f\,x]-400\,b^3\,\mathrm{Sin}[e+f\,x]\right)+$$
$$\left.\frac{1}{8}\,b\,\mathrm{Sec}[e+f\,x]^6\,\mathrm{Tan}[e+f\,x]\right)$$

Problem 313: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[e+f x]^4 \left(a+b\,\mathrm{Tan}[e+f x]^2\right)^{3/2} dx$$

Optimal (type 3, 224 leaves, 9 steps):

$$\frac{(a-b)^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f x]}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\right]}{f}-\frac{\left(a^3+6 a^2 b-24 a b^2+16 b^3\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[e+f x]}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\right]}{16 b^{3/2} f}+\frac{\left(a^2-10 a b+8 b^2\right)\mathrm{Tan}[e+f x]\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{16 b f}+\frac{(7 a-6 b)\,\mathrm{Tan}[e+f x]^3\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{24 f}+\frac{b\,\mathrm{Tan}[e+f x]^5\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{6 f}$$

Result (type 4, 833 leaves):

$$-\frac{1}{8 b f}\left(-\left(\left(b\left(a^3-2 a^2 b-8 a b^2+8 b^3\right)\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}\right.\right.\right.$$
$$\sqrt{-\frac{a\,\mathrm{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}$$
$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\;\mathrm{Csc}[2(e+f x)]$$
$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f x]^4\right)\Bigg/$$
$$\left.\left(a\,(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}}$$
$$4 b\left(-8 a^2 b+16 a b^2-8 b^3\right)\sqrt{1+\mathrm{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\,\mathrm{Csc}[2\,(e+f x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f x]^4\right)\Big/\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\,\mathrm{Csc}[2\,(e+f x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f x)]-b\,\mathrm{Cos}[2\,(e+f x)]}{1+\mathrm{Cos}[2\,(e+f x)]}}\left(\frac{7}{24}\,\mathrm{Sec}[e+f x]^3\,(a\,\mathrm{Sin}[e+f x]-2\,b\,\mathrm{Sin}[e+f x])+\frac{1}{48\,b}\,\mathrm{Sec}[e+f x]\,\left(3\,a^2\,\mathrm{Sin}[e+f x]-44\,a\,b\,\mathrm{Sin}[e+f x]+44\,b^2\,\mathrm{Sin}[e+f x]\right)+\frac{1}{6}\,b\,\mathrm{Sec}[e+f x]^4\right.$$

$$\text{Tan}[e+f x]\Big)$$

Problem 314: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 172 leaves, 8 steps):

$$-\frac{(a-b)^{3/2} \text{ArcTan}\left[\frac{\sqrt{a-b} \text{Tan}[e+f x]}{\sqrt{a+b \text{Tan}[e+f x]^2}}\right]}{f}+\frac{\left(3 a^2-12 a b+8 b^2\right) \text{ArcTanh}\left[\frac{\sqrt{b} \text{Tan}[e+f x]}{\sqrt{a+b \text{Tan}[e+f x]^2}}\right]}{8 \sqrt{b} f}+\frac{(5 a-4 b) \text{Tan}[e+f x] \sqrt{a+b \text{Tan}[e+f x]^2}}{8 f}+\frac{b \text{Tan}[e+f x]^3 \sqrt{a+b \text{Tan}[e+f x]^2}}{4 f}$$

Result (type 4, 771 leaves):

$$\frac{1}{4 f}\left(\left(\left(b \left(a^2+4 a b-4 b^2\right) \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \sqrt{-\frac{a \text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \text{Csc}[2 (e+f x)] \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right] \text{Sin}[e+f x]^4\right) \Big/ \left(a (a+b+(a-b) \text{Cos}[2 (e+f x)])\right)\right)+\frac{1}{\sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]}} 4 b \left(4 a^2-8 a b+4 b^2\right) \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(\left(\sqrt{-\frac{a \text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \text{Csc}[2 (e+f x)]\right.\right.$$

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

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

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$
$$\left(\frac{1}{8}\,\text{Sec}[e+f\,x]\,(5\,a\,\text{Sin}[e+f\,x]-6\,b\,\text{Sin}[e+f\,x])+\frac{1}{4}\,b\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)$$

Problem 315: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 125 leaves, 7 steps):

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

Result (type 3, 233 leaves):

$$\frac{1}{2 f}\left(-\mathrm{i}\,(a-b)^{3/2}\,\text{Log}\left[-\frac{4\,\mathrm{i}\left(a-\mathrm{i}\,b\,\text{Tan}[e+f x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\right)}{(a-b)^{5/2}\,(\mathrm{i}+\text{Tan}[e+f x])}\right]+\right.$$
$$\mathrm{i}\,(a-b)^{3/2}\,\text{Log}\left[\frac{4\,\mathrm{i}\left(a+\mathrm{i}\,b\,\text{Tan}[e+f x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\right)}{(a-b)^{5/2}\,(-\mathrm{i}+\text{Tan}[e+f x])}\right]+$$
$$\left.(3 a-2 b)\,\sqrt{b}\,\text{Log}\left[b\,\text{Tan}[e+f x]+\sqrt{b}\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\right]+b\,\text{Tan}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\right)$$

Problem 316: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 114 leaves, 7 steps):

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

Result (type 4, 724 leaves):

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

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

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

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

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

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

$$\sqrt{\frac{\left(a+b+(a-b)\text{Cos}[2(e+f x)]\right)\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2(e+f x)]$$

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

$$\left(4 a\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}\right)-$$

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

$$\sqrt{\frac{\left(a+b+(a-b)\text{Cos}[2(e+f x)]\right)\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2(e+f x)]$$

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

$$\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)$$

Problem 317: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f\,x]^4\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 115 leaves, 6 steps):

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

Result (type 4, 747 leaves):

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

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

$$\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

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

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

$$4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

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

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

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)$$

Problem 318: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]^6 \left(a+b \,\text{Tan}[e+f x]^2\right)^{3/2} dx$$

Optimal (type 3, 165 leaves, 7 steps):

$$-\frac{(a-b)^{3/2} \,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\left(15 a^2-20 a b+3 b^2\right) \text{Cot}[e+f x] \sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a f}+\frac{(5 a-6 b) \,\text{Cot}[e+f x]^3 \sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 f}-\frac{a \,\text{Cot}[e+f x]^5 \sqrt{a+b\,\text{Tan}[e+f x]^2}}{5 f}$$

Result (type 4, 797 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a \,\text{Cos}[2 (e+f x)]-b \,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(\frac{1}{15 a}\left(-23 a^2 \,\text{Cos}[e+f x]+26 a b \,\text{Cos}[e+f x]-3 b^2 \,\text{Cos}[e+f x]\right) \text{Csc}[e+f x]+\frac{1}{15}(11 a \,\text{Cos}[e+f x]-6 b \,\text{Cos}[e+f x]) \,\text{Csc}[e+f x]^3-\frac{1}{5} a \,\text{Cot}[e+f x] \,\text{Csc}[e+f x]^4\right)-$$

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

$$4 b \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2\,(e+f x)]$$

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

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

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2\,(e+f x)]$$

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

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right)\right)\right)$$

Problem 319: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 170 leaves, 8 steps):

$$\frac{(a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[c+d\,x]}{\sqrt{a+b\,\text{Tan}[c+d\,x]^2}}\right]}{d}+\frac{\sqrt{b}\,\left(15\,a^2-20\,a\,b+8\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\;\text{Tan}[c+d\,x]}{\sqrt{a+b\,\text{Tan}[c+d\,x]^2}}\right]}{8\,d}+$$
$$\frac{(7\,a-4\,b)\,b\,\text{Tan}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]^2}}{8\,d}+\frac{b\,\text{Tan}[c+d\,x]\,\left(a+b\,\text{Tan}[c+d\,x]^2\right)^{3/2}}{4\,d}$$

Result (type 3, 259 leaves):

$$\frac{1}{8\,d}\left(-4\,i\,(a-b)^{5/2}\,\text{Log}\left[-\frac{4\,i\,\left(a-i\,b\,\text{Tan}[c+d\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[c+d\,x]^2}\right)}{(a-b)^{7/2}\,(i+\text{Tan}[c+d\,x])}\right]+\right.$$
$$4\,i\,(a-b)^{5/2}\,\text{Log}\left[\frac{4\,i\,\left(a+i\,b\,\text{Tan}[c+d\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[c+d\,x]^2}\right)}{(a-b)^{7/2}\,(-i+\text{Tan}[c+d\,x])}\right]+$$
$$\sqrt{b}\,\left(15\,a^2-20\,a\,b+8\,b^2\right)\,\text{Log}\left[b\,\text{Tan}[c+d\,x]+\sqrt{b}\,\sqrt{a+b\,\text{Tan}[c+d\,x]^2}\right]+$$
$$\left.b\,\text{Tan}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]^2}\,\left(9\,a-4\,b+2\,b\,\text{Tan}[c+d\,x]^2\right)\right)$$

Problem 320: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 95 leaves, 6 steps):

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

Result (type 3, 418 leaves):

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

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

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

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

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

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

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

Problem 321: Result more than twice size of optimal antiderivative.

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

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

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

Result (type 3, 392 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}}{b\,f}+$$

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

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

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

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

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

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

Problem 322: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 41 leaves, 4 steps):

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

Result (type 3, 186 leaves):

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

Problem 323: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\,dx$$

Optimal (type 3, 74 leaves, 7 steps):

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

Result (type 3, 207 leaves):

$$\left(\sqrt{\text{Cos}[e+f x]^2}\left(-\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\sqrt{1+\text{Cos}[2(e+f x)]}}{\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}}\right]+\sqrt{a}\,\text{Log}\left[a\sqrt{1+\text{Cos}[2(e+f x)]}-b\sqrt{1+\text{Cos}[2(e+f x)]}+\sqrt{a-b}\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}\right]\right)\sqrt{\left(a+b+(a-b)\text{Cos}[2(e+f x)]\right)\text{Sec}[e+f x]^2}\right)\Big/\left(\sqrt{a}\sqrt{a-b}\, f\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}\right)$$

Problem 324: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 116 leaves, 8 steps):

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

Result (type 3, 1223 leaves):

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

$$\frac{1}{2 a f}\Bigg(-\Bigg(\Bigg((3 a+2 b)\,(1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

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

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

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

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

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

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

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

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,3\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\mathrm{Cos}[e+f\,x]^2\,(1-\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\,\mathrm{Cot}[e+f\,x]\,\Bigg(\sqrt{a-b}\,\mathrm{ArcTanh}\Big[\Big(\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\Big)\Big/\Big(\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\Big)\Big]-\sqrt{a}\,\mathrm{Log}\Big[a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}-b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\Big]\Bigg)\,\mathrm{Sin}[2\,(e+f\,x)]\Bigg)\Bigg/$$

$$\Bigg(3\,\sqrt{a}\,\sqrt{a-b}\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f\,x)])\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\mathrm{Cos}[2\,(e+f\,x)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\Bigg(\mathrm{Log}\Big[\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]-\mathrm{Log}\Big[a-a\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{\Big(4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)}\Big]+\mathrm{Log}\Big[2\,b+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}\,\sqrt{\Big(4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)}\Big]\Bigg)$$

$$\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\Big(1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}{\big(1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}}\Bigg)\Bigg/$$

$$\Bigg(4\,\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}$$

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

Problem 325: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 166 leaves, 9 steps):

$$-\frac{\left(8\,a^2+4\,a\,b+3\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{8\,a^{5/2}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{\sqrt{a-b}\,f}+\frac{(4\,a+3\,b)\,\text{Cot}[e+f\,x]^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{8\,a^2\,f}-\frac{\text{Cot}[e+f\,x]^4\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{4\,a\,f}$$

Result (type 3, 1260 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{3\,(2\,a+b)}{8\,a^2}+\frac{(8\,a+3\,b)\,\text{Csc}[e+f\,x]^2}{8\,a^2}-\frac{\text{Csc}[e+f\,x]^4}{4\,a}\right)+$$

$$\frac{1}{4\,a^2\,f}\left(-\left(\left(\left(6\,a^2+4\,a\,b+3\,b^2\right)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\right.\right.\right.$$

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

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

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

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

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

$$\left(4\sqrt{a}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,6\,a^2\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\left(\left(4\,\mathrm{Cos}[e+f\,x]^2\,(1-\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\,\mathrm{Cot}[e+f\,x]\left(\sqrt{a-b}\,\mathrm{ArcTanh}\left[\left(\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\right)\Big/\left(\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\right)\right]-\sqrt{a}\,\mathrm{Log}\left[a\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}-b\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\right]\right)\mathrm{Sin}[2\,(e+f\,x)]\right)\Big/\right.\right.$$

$$\left(3\sqrt{a}\,\sqrt{a-b}\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f\,x)])\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\mathrm{Cos}[2\,(e+f\,x)]^2}\right)\right)+$$

$$\left((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\left(\mathrm{Log}\left[\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right]-\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{\left(4\,b\,\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right)^2\right)}\right]+\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{\left(4\,b\,\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right)^2\right)}\right]\right)\right.$$

$$\left(-1+\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\mathrm{Tan}\left[\tfrac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

$$\left(4\sqrt{a}\sqrt{1+\text{Cos}[2(e+fx)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right.$$
$$\left.\left.\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)\right)$$

Problem 326: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+fx]^6}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\,dx$$

Optimal (type 3, 177 leaves, 8 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{\sqrt{a-b}\,f}+\frac{\left(3a^2+4ab+8b^2\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{8\,b^{5/2}\,f}-$$
$$\frac{(3a+4b)\,\text{Tan}[e+fx]\sqrt{a+b\,\text{Tan}[e+fx]^2}}{8\,b^2\,f}+\frac{\text{Tan}[e+fx]^3\sqrt{a+b\,\text{Tan}[e+fx]^2}}{4\,b\,f}$$

Result (type 4, 768 leaves):

$$\frac{1}{4\,b^2\,f}\left(-\left(\left(b\left(3a^2+4ab+4b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}\right.\right.\right.$$
$$\sqrt{-\frac{a\,\text{Cot}[e+fx]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+fx)])\,\text{Csc}[e+fx]^2}{b}}$$
$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+fx)])\,\text{Csc}[e+fx]^2}{b}}\;\text{Csc}[2(e+fx)]$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+fx)])\,\text{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+fx]^4\right)\Big/$$
$$\left.\left.\left(a\,(a+b+(a-b)\,\text{Cos}[2(e+fx)])\right)\right)+\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+fx)]}}\right.$$

$$16\,b^3\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Bigg],1\Bigg]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\Big(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big)-$$

$$\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\Bigg[-\frac{b}{a-b},\text{ArcSin}\Bigg[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Bigg],1\Bigg]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\Big(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big)\Bigg)\Bigg)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\frac{3\,\text{Sec}[e+f\,x]\,(a\,\text{Sin}[e+f\,x]+2\,b\,\text{Sin}[e+f\,x])}{8\,b^2}+$$

$$\frac{\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{4\,b}\Bigg)$$

Problem 327: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[e+f x]^4}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\,dx$$

Optimal (type 3, 125 leaves, 7 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{\sqrt{a-b}\,f}-\frac{(a+2 b)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{2 b^{3/2} f}+\frac{\text{Tan}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{2 b f}$$

Result (type 4, 713 leaves):

$$-\frac{1}{b f}\left(-\left(\left(b\,(a+b)\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2\,(e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left.\left.(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f x)]))\right)\right)+\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}}$$

$$4 b^2\,\sqrt{1+\text{Cos}[2\,(e+f x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]\right)\text{Csc}[e+f\,x]^2}{b}}\ \text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]\right)\text{Csc}[e+f\,x]^2}{b}}\ \text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\ \text{Tan}[e+f\,x]}{2\,b\,f}$$

Problem 328: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Tan}[e+f\,x]^2}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 86 leaves, 6 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\ f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\ \text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{b}\ f}$$

Result (type 4, 149 leaves):

$$\left(a\,\mathrm{Csc}[e+f\,x]^2\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\right.$$

$$\left.\sqrt{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Sec}[e+f\,x]^2}\;\mathrm{Sin}[2\,(e+f\,x)]\right)\Big/$$

$$\left(2\,(a-b)\,b\,f\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right)$$

Problem 329: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 46 leaves, 3 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}$$

Result (type 3, 151 leaves):

$$\frac{1}{2\,\sqrt{a-b}\,f}\,i\left(-\mathrm{Log}\left[-\frac{4\,i\left(a-i\,b\,\mathrm{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\right)}{\sqrt{a-b}\,(i+\mathrm{Tan}[e+f\,x])}\right]+\right.$$

$$\left.\mathrm{Log}\left[\frac{4\,i\left(a+i\,b\,\mathrm{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\right)}{\sqrt{a-b}\,(-i+\mathrm{Tan}[e+f\,x])}\right]\right)$$

Problem 330: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cot}[e+f\,x]^2}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 78 leaves, 5 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{\sqrt{a-b}\ f}-\frac{\text{Cot}[e+f x]\ \sqrt{a+b\,\text{Tan}[e+f x]^2}}{a f}$$

Result (type 4, 702 leaves):

$$-\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2 (e+f x)]-b\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\ \text{Cot}[e+f x]}{a f}+$$

$$\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\ \sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left(a f\,(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\right)+\frac{1}{f\sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}}$$

$$4 b\sqrt{1+\text{Cos}[2 (e+f x)]}\ \sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left(4 a\sqrt{1+\text{Cos}[2 (e+f x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)$$

Problem 331: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f\,x]^4}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 120 leaves, 6 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}+\frac{(3\,a+2\,b)\,\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a^2\,f}-\frac{\text{Cot}[e+f\,x]^3\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a\,f}$$

Result (type 4, 746 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{2\,(2\,a\,\text{Cos}[e+f\,x]+b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]}{3\,a^2}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2}{3\,a}\right)-$$

$$\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]\right)\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(a\,f\,\left(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]\right)\right)-\frac{1}{f\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]\right)\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]\right)\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)$$

Problem 332: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f\,x]^6}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 170 leaves, 7 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}-\frac{\left(15\,a^2+10\,a\,b+8\,b^2\right)\,\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{15\,a^3\,f}+\frac{(5\,a+4\,b)\,\text{Cot}[e+f\,x]^3\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{15\,a^2\,f}-\frac{\text{Cot}[e+f\,x]^5\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{5\,a\,f}$$

Result (type 4, 794 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{1}{15\,a^3}\left(-23\,a^2\,\text{Cos}[e+f\,x]-14\,a\,b\,\text{Cos}[e+f\,x]-8\,b^2\,\text{Cos}[e+f\,x]\right)\text{Csc}[e+f\,x]+\frac{(11\,a\,\text{Cos}[e+f\,x]+4\,b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]^3}{15\,a^2}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^4}{5\,a}\right)+$$

$$\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$(a\,f\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))+\frac{1}{f\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],\,1\Big]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\Big[-\frac{b}{a-b},\,\text{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],\,1\Big]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)$$

Problem 333: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[e+f\,x]^5}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 98 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}+\frac{a^2}{(a-b)\,b^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}+\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{b^2\,f}$$

Result (type 3, 456 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{2\,a^2-2\,a\,b+b^2}{(a-b)^2\,b^2}-\frac{2\,a^2}{(a-b)^2\,b\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)-$$
$$\left((1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$
$$\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\right.\right.$$
$$\left.\left.\sqrt{a-b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$
$$\left((a-b)^{3/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right.$$
$$\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)$$

Problem 334: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+f\,x]^3}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 73 leaves, 5 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}-\frac{a}{(a-b)\,b\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 439 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{a}{(a-b)^2\,b}+\frac{2\,a}{(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)+$$

$$\left((1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\right.\right.$$

$$\left.\left.\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left((a-b)^{3/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right.$$

$$\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)$$

Problem 335: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+f\,x]}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 69 leaves, 5 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}+\frac{1}{(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 434 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$
$$\left(\frac{1}{(a-b)^2}-\frac{2\,b}{(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)-$$
$$\left((1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$
$$\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$
$$\left.\left.\sqrt{a-b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$
$$\left((a-b)^{3/2}\,f\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right.$$
$$\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

Problem 336: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[e+f\,x]}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 106 leaves, 8 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{a^{3/2}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}-\frac{b}{a\,(a-b)\,f\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 1262 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$
$$\left(-\frac{b}{a\,(a-b)^2}+\frac{2\,b^2}{a\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)+$$

$$\frac{1}{2\,a\,(a-b)\,f}\left(-\left(\left(\left((3\,a-4\,b)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\right.\right.\right.\right.$$

$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

$$2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Bigg]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\right.$$

$$\left.\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right.$$

$$\left.\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\left(\left(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[\right.\right.\right.$$

$$2\,(e+f\,x)]))}\,\text{Cot}[e+f\,x]\,\left(\sqrt{a-b}\,\text{ArcTanh}\left[\left(\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right)\Big/\right.\right.$$

$$\left.\left(\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right)\right]-\sqrt{a}$$

$$\text{Log}\left[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}-b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+}\right.$$

$$\left.\left.\left.\overline{a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right]\right)\text{Sin}[2\,(e+f\,x)]\right)\Bigg/$$

$$\left(3\,\sqrt{a}\,\sqrt{a-b}\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\right.$$

$$\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\Bigg(\text{Log}\Big[\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]-$$

$$\text{Log}\Big[a-a\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{\Big(4\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+}$$

$$a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)}\Big]+\text{Log}\Big[2\,b+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+$$

$$\sqrt{a}\,\sqrt{\Big(4\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)}\Big]\Bigg)$$

$$\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)$$

$$\sqrt{\frac{4\,b\,\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}{\big(1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}}\Bigg)\Bigg/$$

$$\Bigg(4\,\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}$$

$$\sqrt{4\,b\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\Bigg)\Bigg)\Bigg)$$

Problem 337: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f\,x]^3}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 157 leaves, 9 steps):

$$\frac{(2\,a+3\,b)\,\text{ArcTanh}\Big[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\Big]}{2\,a^{5/2}\,f}-\frac{\text{ArcTanh}\Big[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\Big]}{(a-b)^{3/2}\,f}-$$

$$\frac{(a-3\,b)\,b}{2\,a^2\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}-\frac{\text{Cot}[e+f\,x]^2}{2\,a\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 1301 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{a^2-2\,a\,b+3\,b^2}{2\,a^2\,(a-b)^2}-\frac{2\,b^3}{a^2\,(a-b)^2\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}-\frac{\mathrm{Csc}[e+f\,x]^2}{2\,a^2}\right)-$$

$$\frac{1}{2\,a^2\,(a-b)\,f}\left(-\left(\left(\left(3\,a^2+2\,a\,b-6\,b^2\right)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\right.\right.\right.$$

$$\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

$$\left.2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\mathrm{Log}\left[2\,b+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\right.$$

$$\left.\left.\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\left.\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\,\right)\Big/$$

$$\left(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right.$$

$$\left.\left.\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,3\,a^2\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\left(\left(4\,\mathrm{Cos}[e+f\,x]^2\,(1-\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[\right.\right.\right.$$

$$2\,(e+f\,x)]))}\,\mathrm{Cot}[e+f\,x]\,\left(\sqrt{a-b}\,\mathrm{ArcTanh}\left[\left(\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\right)\Big/\right.\right.$$

$$\left.\left(\sqrt{(2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\right)\right]-\sqrt{a}$$

$$\mathrm{Log}\left[a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}-b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+\right.$$

$$\left.\left.a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)]))}\,\right]\right)\,\mathrm{Sin}[2\,(e+f\,x)]\Big)\Big/$$

$$\left(3\sqrt{a}\sqrt{a-b}\left(1+\text{Cos}[2(e+fx)]\right)\sqrt{-(-1+\text{Cos}[2(e+fx)])(1+\text{Cos}[2(e+fx)])}\right.$$

$$\left.\left.\sqrt{a+b+(a-b)\text{Cos}[2(e+fx)]}\sqrt{1-\text{Cos}[2(e+fx)]^2}\right)\right)+$$

$$\left((1+\text{Cos}[e+fx])\sqrt{\frac{1+\text{Cos}[2(e+fx)]}{(1+\text{Cos}[e+fx])^2}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\right.\right.$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+2b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{\left(4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\right.}\right.$$

$$\left.\left.a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)\right]+\text{Log}\left[2b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\right.$$

$$\left.\left.\sqrt{a}\sqrt{\left(4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)$$

$$\left.\sqrt{\frac{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\right)\Bigg/$$

$$\left(4\sqrt{a}\sqrt{1+\text{Cos}[2(e+fx)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right.$$

$$\left.\left.\left.\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)\right)$$

Problem 338: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+fx]^5}{\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 215 leaves, 10 steps):

$$-\frac{\left(8a^2+12ab+15b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+fx]^2}}{\sqrt{a}}\right]}{8a^{7/2}f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+fx]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}f}+$$

$$\frac{b\left(4a^2+3ab-15b^2\right)}{8a^3(a-b)f\sqrt{a+b\,\text{Tan}[e+fx]^2}}+\frac{(4a+5b)\text{Cot}[e+fx]^2}{8a^2f\sqrt{a+b\,\text{Tan}[e+fx]^2}}-\frac{\text{Cot}[e+fx]^4}{4af\sqrt{a+b\,\text{Tan}[e+fx]^2}}$$

Result (type 3, 1341 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{6\,a^3-5\,a^2\,b-8\,a\,b^2+15\,b^3}{8\,a^3\,(a-b)^2}+\frac{2\,b^4}{a^3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}+\frac{(8\,a+7\,b)\,\text{Csc}[e+f\,x]^2}{8\,a^3}-\frac{\text{Csc}[e+f\,x]^4}{4\,a^2}\right)+$$

$$\frac{1}{4\,a^3\,(a-b)\,f}\left(-\left(\left((6\,a^3+4\,a^2\,b+3\,a\,b^2-15\,b^3)\,(1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]+\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/\left(4\sqrt{a}\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,6\,a^3\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Cot}[e+f\,x]\left(\sqrt{a-b}\,\text{ArcTanh}\left[\left(\sqrt{a}\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right)\Big/\right.\right.$$

$$\left(\sqrt{\left(2\,b+a\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)-b\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\right)}\right)\right]-\sqrt{a}$$

$$\text{Log}\left[a\,\sqrt{1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]}-b\,\sqrt{1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]}+\sqrt{a-b}\,\sqrt{\left(2\,b+\right.}\right.$$

$$\left.\left.\left.a\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)-b\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\right)\right]\right)\,\text{Sin}\left[2\,\left(e+f\,x\right)\right]\Big)\Big/$$

$$\Big(3\,\sqrt{a}\,\sqrt{a-b}\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\,\sqrt{-\left(-1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)\,\left(1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]\right)}$$

$$\sqrt{a+b+\left(a-b\right)\,\text{Cos}\left[2\,\left(e+f\,x\right)\right]}\,\sqrt{1-\text{Cos}\left[2\,\left(e+f\,x\right)\right]^2}\Big)\Big)+$$

$$\Big(\left(1+\text{Cos}\left[e+f\,x\right]\right)\,\sqrt{\frac{1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]}{\left(1+\text{Cos}\left[e+f\,x\right]\right)^2}}\,\Big(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right]-$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2+\sqrt{a}\,\sqrt{\left(4\,b\,\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2+\right.}\right.$$

$$\left.\left.a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)^2\right)\right]+\text{Log}\left[2\,b+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)+\right.$$

$$\left.\sqrt{a}\,\sqrt{\left(4\,b\,\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)^2\right)}\right]\Big)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)$$

$$\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\Bigg(4\,\sqrt{a}\,\sqrt{1+\text{Cos}\left[2\,\left(e+f\,x\right)\right]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)^2}$$

$$\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\right)^2}\Bigg)\Bigg)\Bigg)$$

Problem 339: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}\left[e+f\,x\right]^6}{\left(a+b\,\text{Tan}\left[e+f\,x\right]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 182 leaves, 8 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{3/2} f}-\frac{(3 a+2 b)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{2 b^{5/2} f}-\frac{a\,\text{Tan}[e+f x]^3}{(a-b)\, b f \sqrt{a+b\,\text{Tan}[e+f x]^2}}+\frac{(3 a-b)\,\text{Tan}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{2 (a-b)\, b^2 f}$$

Result (type 4, 787 leaves):

$$-\frac{1}{(a-b)\, b^2 f}\left(-\left(\left(b\left(3 a^2-a b-b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2 (e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left.\left.(a\,(a+b+(a-b)\,\text{Cos}[2 (e+f x)]))\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}}$$

$$4 b^3\sqrt{1+\text{Cos}[2 (e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2 (e+f x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg/$$

$$\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\Bigg)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{a^2\,\text{Sin}[2\,(e+f\,x)]}{(a-b)\,b^2\,(-a-b-a\,\text{Cos}[2\,(e+f\,x)]+b\,\text{Cos}[2\,(e+f\,x)])}+\frac{\text{Tan}[e+f\,x]}{2\,b^2}\right)$$

Problem 340: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 123 leaves, 7 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{3/2} f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{b^{3/2} f}-\frac{a\,\text{Tan}[e+f x]}{(a-b)\, b f \sqrt{a+b\,\text{Tan}[e+f x]^2}}$$

Result (type 4, 757 leaves):

$$\frac{1}{(a-b)\, b f}\left(-\left(\left((2 a-b)\, b \sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left.\left(a\,(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}}$$

$$4 b^2\sqrt{1+\text{Cos}[2 (e+f x)]}\ \sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left(4 a\sqrt{1+\text{Cos}[2 (e+f x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]\;\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\,\text{Sin}[e+f\,x]^4\right)\bigg/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg) -$$

$$\frac{a\,\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\;\text{Sin}[2\,(e+f\,x)]}{(a-b)\,b\,f\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}$$

Problem 341: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[e+f\,x]^2}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 81 leaves, 4 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{3/2}\,f}+\frac{\text{Tan}[e+f\,x]}{(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 741 leaves):

$$-\frac{1}{(a-b)\,f}\left(-\left(\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\left.\text{EllipticPi}\left[-\frac{b}{a-b},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\ 1\right]\,\text{Sin}[e+f\,x]^4\right)\right/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\text{Sin}[2\,(e+f\,x)]}{(a-b)\,f\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}$$

Problem 342: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 85 leaves, 4 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{3/2}\,f}-\frac{b\,\text{Tan}[e+f\,x]}{a\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 189 leaves):

$$-\frac{1}{2\,f}\left(\frac{1}{(a-b)^{3/2}}\,i\,\left(\text{Log}\left[\right.\right.\right.$$

$$\left.\left.-\left(\left(4\,i\,\sqrt{a-b}\,\left(a-i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)\right)\middle/\left(i+\text{Tan}[e+f\,x]\right)\right)\right]-$$

$$\left.\text{Log}\left[\frac{4\,i\,\sqrt{a-b}\,\left(a+i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{-i+\text{Tan}[e+f\,x]}\right]\right)+$$

$$\left.\frac{2\,b\,\text{Tan}[e+f\,x]}{a\,(a-b)\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right)$$

Problem 343: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f x]^2}{\left(a+b \text{Tan}[e+f x]^2\right)^{3/2}} \, dx$$

Optimal (type 3, 128 leaves, 6 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f x]}{\sqrt{a+b \text{Tan}[e+f x]^2}}\right]}{(a-b)^{3/2} f}-\frac{b \text{Cot}[e+f x]}{a (a-b) f \sqrt{a+b \text{Tan}[e+f x]^2}}-\frac{(a-2 b) \text{Cot}[e+f x] \sqrt{a+b \text{Tan}[e+f x]^2}}{a^2 (a-b) f}$$

Result (type 4, 760 leaves):

$$-\frac{1}{(a-b) f}\left(-\left(\left(b \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \sqrt{-\frac{a \text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \text{Csc}[2 (e+f x)] \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right] \text{Sin}[e+f x]^4\right) \Big/ \left(a (a+b+(a-b) \text{Cos}[2 (e+f x)])\right)\right)\right) - \frac{1}{\sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]}}$$

$$4 b \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a \text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{\text{Cot}[e+f\,x]}{a^2}+\right.$$

$$\left.\frac{b^2\,\text{Sin}[2\,(e+f\,x)]}{a^2\,(a-b)\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 344: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 184 leaves, 7 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{3/2} f}-\frac{b\,\text{Cot}[e+f x]^3}{a\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}+\frac{(3 a-4 b)\,(a+2 b)\,\text{Cot}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{3 a^3\,(a-b)\,f}-\frac{(a-4 b)\,\text{Cot}[e+f x]^3\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{3 a^2\,(a-b)\,f}$$

Result (type 4, 802 leaves):

$$\frac{1}{(a-b)\,f}\left(-\left(\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2\,(e+f x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}}\,4 b\sqrt{1+\text{Cos}[2\,(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2\,(e+f x)]\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{(4\,a\,\text{Cos}[e+f\,x]+5\,b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]}{3\,a^3}-\right.$$

$$\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2}{3\,a^2}-$$

$$\left.\frac{b^3\,\text{Sin}[2\,(e+f\,x)]}{a^3\,(a-b)\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 345: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[e+f\,x]^6}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 252 leaves, 8 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{3/2}\,f}-\frac{b\,\text{Cot}[e+f x]^5}{a\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}-$$

$$\frac{\left(15\,a^3+10\,a^2\,b+8\,a\,b^2-48\,b^3\right)\,\text{Cot}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{15\,a^4\,(a-b)\,f}+$$

$$\frac{\left(5\,a^2+4\,a\,b-24\,b^2\right)\,\text{Cot}[e+f x]^3\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{15\,a^3\,(a-b)\,f}-\frac{(a-6\,b)\,\text{Cot}[e+f x]^5\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{5\,a^2\,(a-b)\,f}$$

Result (type 4, 850 leaves):

$$-\frac{1}{(a-b)\,f}\left(-\left(\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2\,(e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f x]^4\right)\Bigg/$$

$$\left.\left.\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}}$$

$$4\,b\,\sqrt{1+\text{Cos}[2\,(e+f x)]}\;\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2\,(e+f x)]$$

$$\left.\text{EllipticF}\left(\text{ArcSin}\left(\frac{\sqrt{\frac{(a+b+(a-b)\cos(2(e+f x)))\csc(e+f x)^2}{b}}}{\sqrt{2}}\right),1\right)\sin(e+f x)^4\right)\Big/$$

$$\left(4 a\sqrt{1+\cos(2(e+f x))}\sqrt{a+b+(a-b)\cos(2(e+f x))}\right)-$$

$$\left(\sqrt{-\frac{a\cot(e+f x)^2}{b}}\sqrt{-\frac{a(1+\cos(2(e+f x)))\csc(e+f x)^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\cos(2(e+f x)))\csc(e+f x)^2}{b}}\csc(2(e+f x))$$

$$\left.\text{EllipticPi}\left(-\frac{b}{a-b},\text{ArcSin}\left(\frac{\sqrt{\frac{(a+b+(a-b)\cos(2(e+f x)))\csc(e+f x)^2}{b}}}{\sqrt{2}}\right),1\right)\sin(e+f x)^4\right)\Big/$$

$$\left.\left.\left(2(a-b)\sqrt{1+\cos(2(e+f x))}\sqrt{a+b+(a-b)\cos(2(e+f x))}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\cos(2(e+f x))-b\cos(2(e+f x))}{1+\cos(2(e+f x))}}$$

$$\left(\frac{1}{15 a^4}\left(-23 a^2\cos(e+f x)-34 a b\cos(e+f x)-33 b^2\cos(e+f x)\right)\csc(e+f x)+\right.$$

$$\frac{(11 a\cos(e+f x)+9 b\cos(e+f x))\csc(e+f x)^3}{15 a^3}-\frac{\cot(e+f x)\csc(e+f x)^4}{5 a^2}+$$

$$\left.\frac{b^4\sin(2(e+f x))}{a^4(a-b)\left(a+b+a\cos(2(e+f x))-b\cos(2(e+f x))\right)}\right)$$

Problem 346: Result more than twice size of optimal antiderivative.

$$\int\frac{\tan(e+f x)^5}{\left(a+b\tan(e+f x)^2\right)^{5/2}}\,dx$$

Optimal (type 3, 115 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2} f}+\frac{a^2}{3 (a-b) b^2 f \left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}-\frac{a (a-2 b)}{(a-b)^2 b^2 f \sqrt{a+b\,\text{Tan}[e+f x]^2}}$$

Result (type 3, 497 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2 (e+f x)]-b\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\left(-\frac{2 a (a-3 b)}{3 (a-b)^3 b^2}+\frac{4 a^2}{3 (a-b)^3 \left(a+b+a\,\text{Cos}[2 (e+f x)]-b\,\text{Cos}[2 (e+f x)]\right)^2}+\frac{2 a (a-6 b)}{3 (a-b)^3 b \left(a+b+a\,\text{Cos}[2 (e+f x)]-b\,\text{Cos}[2 (e+f x)]\right)}\right)-$$

$$\left((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a-b}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\right)\Bigg/\left((a-b)^{5/2} f\sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)$$

Problem 347: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+f x]^3}{\left(a+b\,\text{Tan}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 103 leaves, 6 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}\,f}-\frac{a}{3\,(a-b)\,b\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{1}{(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 492 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{a+3\,b}{3\,(a-b)^3\,b}-\frac{4\,a\,b}{3\,(a-b)^3\,\left(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]\right)^2}+\frac{2\,(2\,a+3\,b)}{3\,(a-b)^3\,\left(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]\right)}\right)+$$

$$\left((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

$$\left.\left.\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left((a-b)^{5/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right.$$

$$\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

Problem 348: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+f\,x]}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 99 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}\,f}+\frac{1}{3\,(a-b)\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}+\frac{1}{(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 480 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{4}{3\,(a-b)^3}+\frac{4\,b^2}{3\,(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}-\frac{10\,b}{3\,(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)-$$

$$\left((1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$

$$\left.\left.\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left((a-b)^{5/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right.$$

$$\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

Problem 349: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[e+f\,x]}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 147 leaves, 9 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{a^{5/2}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}\,f}-\frac{b}{3\,a\,(a-b)\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{(2\,a-b)\,b}{a^2\,(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 1333 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{(7\,a-3\,b)\,b}{3\,a^2\,(a-b)^3}-\frac{4\,b^3}{3\,a\,(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+\frac{2\,(8\,a-3\,b)\,b^2}{3\,a^2\,(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)+$$

$$\frac{1}{2\,a^2\,(a-b)^2\,f}\left(-\left(\left(\left(3\,a^2-8\,a\,b+4\,b^2\right)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\right.\right.\right.$$
$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\right.\right.$$
$$\left.2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$
$$\text{Log}\left[2\,b+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\right.$$
$$\left.\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$
$$\left(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right.$$
$$\left.\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,a^2\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\left(\left(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\,\text{Cot}[e+f\,x]\left(\sqrt{a-b}\,\text{ArcTanh}\left[\left(\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right)\Big/\left(\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right)\right]-\sqrt{a}\,\text{Log}\left[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}-b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\right]\right)\text{Sin}[2\,(e+f\,x)]\right)\Big/\left(3\,\sqrt{a}\,\sqrt{a-b}\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)\right)+\left((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{\left(4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)}\right]+\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{\left(4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\right)\Big/\left(4\,\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\right)$$

Problem 350: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f x]^3}{\left(a+b \text{Tan}[e+f x]^2\right)^{5/2}} \, dx$$

Optimal (type 3, 206 leaves, 10 steps):

$$\frac{(2 a+5 b) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{2 a^{7/2} f}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2} f}-\frac{(3 a-5 b) b}{6 a^2 (a-b) f \left(a+b \text{Tan}[e+f x]^2\right)^{3/2}}-\frac{\text{Cot}[e+f x]^2}{2 a f \left(a+b \text{Tan}[e+f x]^2\right)^{3/2}}-\frac{b \left(a^2-8 a b+5 b^2\right)}{2 a^3 (a-b)^2 f \sqrt{a+b \text{Tan}[e+f x]^2}}$$

Result (type 3, 1371 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(\frac{3 a^3-9 a^2 b+29 a b^2-15 b^3}{6 a^3 (a-b)^3}+\frac{4 b^4}{3 a^2 (a-b)^3 (a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)])^2}-\frac{2 (11 a-6 b) b^3}{3 a^3 (a-b)^3 (a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)])}-\frac{\text{Csc}[e+f x]^2}{2 a^3}\right)-\frac{1}{2 a^3 (a-b)^2 f}\left(-\left(\left(\left(3 a^3+2 a^2 b-16 a b^2+10 b^3\right) (1+\text{Cos}[e+f x]) \sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(\text{Log}\left[\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]-\text{Log}\left[a-a \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+2 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]+\text{Log}\left[2 b+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]\right) \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{\frac{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right) \Big/$$

$$\left(4\sqrt{a}\sqrt{a+b+(a-b)\cos[2(e+fx)]}\sqrt{\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right.$$

$$\left.\left.\sqrt{4b\tan\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\cos[2(e+fx)]}}3a^3\sqrt{1+\cos[2(e+fx)]}\sqrt{\frac{a+b+(a-b)\cos[2(e+fx)]}{1+\cos[2(e+fx)]}}$$

$$\left(-\left(\left(4\cos[e+fx]^2(1-\cos[2(e+fx)])\sqrt{(2b+a(1+\cos[2(e+fx)])-b(1+\cos[\right.\right.\right.$$

$$2(e+fx)]))}\cot[e+fx]\left(\sqrt{a-b}\,\text{ArcTanh}\left[\left(\sqrt{a}\sqrt{1+\cos[2(e+fx)]}\right)\right/\right.$$

$$\left(\sqrt{(2b+a(1+\cos[2(e+fx)])-b(1+\cos[2(e+fx)]))}\right)\Big]-\sqrt{a}$$

$$\text{Log}\Big[a\sqrt{1+\cos[2(e+fx)]}-b\sqrt{1+\cos[2(e+fx)]}+\sqrt{a-b}\sqrt{(2b+}$$

$$\left.a(1+\cos[2(e+fx)])-b(1+\cos[2(e+fx)]))}\Big]\right)\sin[2(e+fx)]\Big)\Big/$$

$$\left(3\sqrt{a}\sqrt{a-b}(1+\cos[2(e+fx)])\sqrt{-(-1+\cos[2(e+fx)])(1+\cos[2(e+fx)])}\right.$$

$$\left.\left.\sqrt{a+b+(a-b)\cos[2(e+fx)]}\sqrt{1-\cos[2(e+fx)]^2}\right)\right)+\Big((1+\cos[e+fx])$$

$$\sqrt{\frac{1+\cos[2(e+fx)]}{(1+\cos[e+fx])^2}}\left(\text{Log}\left[\tan\left[\frac{1}{2}(e+fx)\right]^2\right]-\text{Log}\Big[a-a\tan\left[\frac{1}{2}(e+fx)\right]^2+2b\right.$$

$$\tan\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{\left(4b\tan\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)}\Big]+$$

$$\text{Log}\Big[2b+a\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{\left(4b\tan\left[\frac{1}{2}(e+fx)\right]^2+\right.}$$

$$\left.\left.a\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)\Big]\right)\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)$$

$$\left(1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4b\tan\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\tan\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg)\Big/$$

$$\left(4\sqrt{a}\sqrt{1+\text{Cos}[2(e+fx)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right.$$
$$\left.\left.\left.\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)\right)$$

Problem 351: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+fx]^5}{\left(a+b\,\text{Tan}[e+fx]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 272 leaves, 11 steps):

$$-\frac{\left(8a^2+20ab+35b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+fx]^2}}{\sqrt{a}}\right]}{8a^{9/2}f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+fx]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}f}+$$
$$\frac{b\left(12a^2+15ab-35b^2\right)}{24a^3(a-b)f\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}}+\frac{(4a+7b)\,\text{Cot}[e+fx]^2}{8a^2f\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}}-$$
$$\frac{\text{Cot}[e+fx]^4}{4af\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}}+\frac{b\left(4a^3+3a^2b-50ab^2+35b^3\right)}{8a^4(a-b)^2f\sqrt{a+b\,\text{Tan}[e+fx]^2}}$$

Result (type 3, 1409 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+fx)]-b\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}\left(-\frac{18a^4-21a^3b-45a^2b^2+185ab^3-105b^4}{24a^4(a-b)^3}-\right.$$
$$\frac{4b^5}{3a^3(a-b)^3\left(a+b+a\,\text{Cos}[2(e+fx)]-b\,\text{Cos}[2(e+fx)]\right)^2}+$$
$$\frac{2(14a-9b)\,b^4}{3a^4(a-b)^3\left(a+b+a\,\text{Cos}[2(e+fx)]-b\,\text{Cos}[2(e+fx)]\right)}+$$
$$\left.\frac{(8a+11b)\,\text{Csc}[e+fx]^2}{8a^4}-\frac{\text{Csc}[e+fx]^4}{4a^3}\right)+$$
$$\frac{1}{4a^4(a-b)^2f}\left(-\left(\left(\left(6a^4+4a^3b+3a^2b^2-50ab^3+35b^4\right)(1+\text{Cos}[e+fx])\sqrt{\frac{1+\text{Cos}[2(e+fx)]}{(1+\text{Cos}[e+fx])^2}}\right.\right.\right.$$
$$\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\right.\right.$$

$$2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Bigg]+$$

$$\text{Log}\Bigg[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}$$

$$\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Bigg]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\Bigg(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}$$

$$\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Bigg)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,6\,a^4\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[}$$

$$2\,(e+f\,x)]))}\,\text{Cot}[e+f\,x]\,\Bigg(\sqrt{a-b}\,\text{ArcTanh}\Big[\Big(\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big)\Big/$$

$$\Big(\sqrt{(2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big)\Big]-\sqrt{a}$$

$$\text{Log}\Big[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}-b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{(2\,b+}$$

$$a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)]))}\Big]\Bigg)\,\text{Sin}[2\,(e+f\,x)]\Bigg)\Bigg/$$

$$\Bigg(3\,\sqrt{a}\,\sqrt{a-b}\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Bigg)\Bigg)+\Bigg((1+\text{Cos}[e+f\,x])$$

$$\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\Big[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{\left(4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)}\Bigg]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{\left(4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)}\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a}\sqrt{1+\text{Cos}[2(e+fx)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

Problem 352: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+fx]^6}{\left(a+b\,\text{Tan}[e+fx]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 171 leaves, 8 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{(a-b)^{5/2}f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{b^{5/2}f}-\frac{a\,\text{Tan}[e+fx]^3}{3(a-b)\,b\,f\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}}-\frac{a(a-2b)\,\text{Tan}[e+fx]}{(a-b)^2b^2f\sqrt{a+b\,\text{Tan}[e+fx]^2}}$$

Result (type 4, 835 leaves):

$$\frac{1}{(a-b)^2b^2f}\Bigg(-\Bigg(\Bigg(b\left(2a^2-4ab+b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}$$

$$\sqrt{-\frac{a\,\text{Cot}[e+fx]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+fx)])\,\text{Csc}[e+fx]^2}{b}}$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]\right)\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left(a\,\left(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]\right)\right)\right)+\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}$$

$$4\,b^3\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]\right)\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{\left(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]\right)\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\left[-\frac{b}{a-b},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\ 1\right]\,\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{2\,a^2\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,b\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+\frac{-3\,a^2\,\text{Sin}[2\,(e+f\,x)]+7\,a\,b\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,b^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 353: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 131 leaves, 6 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{a\,\text{Tan}[e+f\,x]}{3\,(a-b)\,b\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}+\frac{(a-4\,b)\,\text{Tan}[e+f\,x]}{3\,(a-b)^2\,b\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 791 leaves):

$$\frac{1}{(a-b)^2\,f}\left(-\left(\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left(a\,\left(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]\right)\right)\Bigg)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$
$$\left(\frac{2\,a\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}-\frac{4\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 354: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+f\,x]^2}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 128 leaves, 6 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}+\frac{\text{Tan}[e+f\,x]}{3\,(a-b)\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}+\frac{(2\,a+b)\,\text{Tan}[e+f\,x]}{3\,a\,(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 809 leaves):

$$-\frac{1}{(a-b)^2\,f}\left(-\left(\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.\right.\right.$$
$$\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$
$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{2\,b\,\mathrm{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])^2}+\frac{3\,a\,\mathrm{Sin}[2\,(e+f\,x)]+b\,\mathrm{Sin}[2\,(e+f\,x)]}{3\,a\,(a-b)^2\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}\right)$$

Problem 355: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,\mathrm{Tan}[e+f\,x]^2)^{5/2}}\,dx$$

Optimal (type 3, 134 leaves, 6 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{b\,\mathrm{Tan}[e+f\,x]}{3\,a\,(a-b)\,f\,(a+b\,\mathrm{Tan}[e+f\,x]^2)^{3/2}}-\frac{(5\,a-2\,b)\,b\,\mathrm{Tan}[e+f\,x]}{3\,a^2\,(a-b)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}$$

Result (type 3, 381 leaves):

$$\frac{1}{2\,(a-b)^{5/2}\,f}\,i\,\mathrm{Log}\left[\left(4\,(i\,a^3-2\,i\,a^2\,b+i\,a\,b^2-a^2\,b\,\mathrm{Tan}[e+f\,x]+2\,a\,b^2\,\mathrm{Tan}[e+f\,x]-b^3\,\mathrm{Tan}[e+f\,x])\right)\Big/\left(\sqrt{a-b}\,(-i+\mathrm{Tan}[e+f\,x])\right)+\frac{4\,i\,(a-b)^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{-i+\mathrm{Tan}[e+f\,x]}\right]-\frac{1}{2\,(a-b)^{5/2}\,f}$$
$$i\,\mathrm{Log}\left[\left(4\,(-i\,a^3+2\,i\,a^2\,b-i\,a\,b^2-a^2\,b\,\mathrm{Tan}[e+f\,x]+2\,a\,b^2\,\mathrm{Tan}[e+f\,x]-b^3\,\mathrm{Tan}[e+f\,x])\right)\Big/\left(\sqrt{a-b}\,(i+\mathrm{Tan}[e+f\,x])\right)-\frac{4\,i\,(a-b)^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{i+\mathrm{Tan}[e+f\,x]}\right]+\frac{1}{f}$$
$$\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\left(-\frac{b\,\mathrm{Tan}[e+f\,x]}{3\,a\,(a-b)\,(a+b\,\mathrm{Tan}[e+f\,x]^2)^2}-\frac{(5\,a-2\,b)\,b\,\mathrm{Tan}[e+f\,x]}{3\,a^2\,(a-b)^2\,(a+b\,\mathrm{Tan}[e+f\,x]^2)}\right)$$

Problem 356: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cot}[e+f\,x]^2}{(a+b\,\mathrm{Tan}[e+f\,x]^2)^{5/2}}\,dx$$

Optimal (type 3, 186 leaves, 7 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{5/2} f}-\frac{b\,\text{Cot}[e+f x]}{3 a (a-b) f \left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}-\frac{(7 a-4 b)\, b\,\text{Cot}[e+f x]}{3 a^2 (a-b)^2 f \sqrt{a+b\,\text{Tan}[e+f x]^2}}-\frac{(a-4 b)(3 a-2 b)\,\text{Cot}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{3 a^3 (a-b)^2 f}$$

Result (type 4, 831 leaves):

$$-\frac{1}{(a-b)^2 f}\left(-\left(\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\right)\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}}$$

$$4 b\sqrt{1+\text{Cos}[2 (e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{\text{Cot}[e+f\,x]}{a^3}-\right.$$

$$\frac{2\,b^3\,\text{Sin}[2\,(e+f\,x)]}{3\,a^2\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+$$

$$\left.\frac{9\,a\,b^2\,\text{Sin}[2\,(e+f\,x)]-5\,b^3\,\text{Sin}[2\,(e+f\,x)]}{3\,a^3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 357: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 249 leaves, 8 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{5/2} f}-\frac{b\,\text{Cot}[e+f x]^3}{3 a (a-b) f \left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}-\frac{(3 a-2 b) b\,\text{Cot}[e+f x]^3}{a^2 (a-b)^2 f \sqrt{a+b\,\text{Tan}[e+f x]^2}}+\frac{(a-2 b)\left(3 a^2+8 a b-8 b^2\right)\text{Cot}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{3 a^4 (a-b)^2 f}-\frac{\left(a^2-12 a b+8 b^2\right)\text{Cot}[e+f x]^3\sqrt{a+b\,\text{Tan}[e+f x]^2}}{3 a^3 (a-b)^2 f}$$

Result (type 4, 871 leaves):

$$\frac{1}{(a-b)^2 f}\left(-\left(\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2(e+f x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\middle/\left(a\,(a+b+(a-b)\,\text{Cos}[2(e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}\right.$$

$$4 b\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2(e+f x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{4\,(a\,\text{Cos}[e+f\,x]+2\,b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]}{3\,a^4}-\right.$$

$$\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2}{3\,a^3}+$$

$$\frac{2\,b^4\,\text{Sin}[2\,(e+f\,x)]}{3\,a^3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}-$$

$$\left.\frac{4\,(3\,a\,b^3\,\text{Sin}[2\,(e+f\,x)]-2\,b^4\,\text{Sin}[2\,(e+f\,x)])}{3\,a^4\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 358: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[e+f\,x]^6}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 327 leaves, 9 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{5/2} f}-\frac{b\,\text{Cot}[e+f x]^5}{3 a (a-b) f \left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}-\frac{(11 a-8 b)\, b\,\text{Cot}[e+f x]^5}{3 a^2 (a-b)^2 f \sqrt{a+b\,\text{Tan}[e+f x]^2}}-\frac{1}{15 a^5 (a-b)^2 f}\left(15 a^4+10 a^3 b+8 a^2 b^2-176 a b^3+128 b^4\right) \text{Cot}[e+f x] \sqrt{a+b\,\text{Tan}[e+f x]^2}+\frac{\left(5 a^3+4 a^2 b-88 a b^2+64 b^3\right) \text{Cot}[e+f x]^3 \sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a^4 (a-b)^2 f}-\frac{\left(a^2-22 a b+16 b^2\right) \text{Cot}[e+f x]^5 \sqrt{a+b\,\text{Tan}[e+f x]^2}}{5 a^3 (a-b)^2 f}$$

Result (type 4, 921 leaves):

$$-\frac{1}{(a-b)^2 f}\left(-\left(\left(b \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right] \text{Sin}[e+f x]^4\right)\Big/\left(a (a+b+(a-b) \text{Cos}[2 (e+f x)])\right)\right)-\frac{1}{\sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]}}\right.$$

$$4 b \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\ \sqrt{-\frac{a\left(1+\text{Cos}[2\,(e+f x)]\right)\text{Csc}[e+f x]^2}{b}}\ \sqrt{\frac{\left(a+b+(a-b)\,\text{Cos}[2\,(e+f x)]\right)\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2\,(e+f x)]\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(4\,a\sqrt{1+\text{Cos}[2\,(e+f x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\ \sqrt{-\frac{a\left(1+\text{Cos}[2\,(e+f x)]\right)\text{Csc}[e+f x]^2}{b}}\ \sqrt{\frac{\left(a+b+(a-b)\,\text{Cos}[2\,(e+f x)]\right)\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2\,(e+f x)]\ \text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(2\,(a-b)\sqrt{1+\text{Cos}[2\,(e+f x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f x)]-b\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\left(\frac{1}{15\,a^5}\left(-23\,a^2\,\text{Cos}[e+f x]-54\,a\,b\,\text{Cos}[e+f x]-73\,b^2\,\text{Cos}[e+f x]\right)\text{Csc}[e+f x]+\frac{\left(11\,a\,\text{Cos}[e+f x]+14\,b\,\text{Cos}[e+f x]\right)\text{Csc}[e+f x]^3}{15\,a^4}-\right.$$

$$\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]^4}{5\,a^3}-\frac{2\,b^5\,\text{Sin}[2\,(e+f x)]}{3\,a^4\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f x)]-b\,\text{Cos}[2\,(e+f x)])^2}+\frac{15\,a\,b^4\,\text{Sin}[2\,(e+f x)]-11\,b^5\,\text{Sin}[2\,(e+f x)]}{3\,a^5\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f x)]-b\,\text{Cos}[2\,(e+f x)])}\Bigg)$$

Problem 360: Result more than twice size of optimal antiderivative.

$$\int (d\,\text{Tan}[e+f x])^m\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 100 leaves, 3 steps):

$$\frac{1}{d\,f\,(1+m)}\text{AppellF1}\left[\frac{1+m}{2},1,-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\,(d\,\text{Tan}[e+f x])^{1+m}\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 247 leaves):

$$\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},-p,1,\frac{3+m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\,\text{Sin}[2\,(e+f x)]\,(d\,\text{Tan}[e+f x])^m\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\right)\Big/$$
$$\left(2\,f\,(1+m)\,\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},-p,1,\frac{3+m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\,\left(b\,p\,\text{AppellF1}\left[\frac{3+m}{2},1-p,1,\frac{5+m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]-a\,\text{AppellF1}\left[\frac{3+m}{2},-p,2,\frac{5+m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\,\text{Tan}[e+f x]^2\right)\right)$$

Problem 364: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 5, 118 leaves, 5 steps):

$$\left(\text{Hypergeometric2F1}\left[1,1+p,2+p,\frac{a+b\,\text{Tan}[e+f x]^2}{a-b}\right]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^{1+p}\right)\Big/\left(2\,(a-b)\,f\,(1+p)\right)-\frac{1}{2\,a\,f\,(1+p)}\text{Hypergeometric2F1}\left[1,1+p,2+p,1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^{1+p}$$

Result (type 6, 1625 leaves):

$$\Big(\text{Cot}[e+f x]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^{2p}\Big(\frac{1}{p}\left(1+\frac{a\,\text{Cot}[e+f x]^2}{b}\right)^{-p}\text{Hypergeometric2F1}\Big[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+\left(2\,a\,\text{AppellF1}\Big[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sin}[e+f x]^2\right)\Big/\left(-2\,a\,\text{AppellF1}\Big[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+\left(-b\,p\,\text{AppellF1}\Big[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+a\,\text{AppellF1}\Big[2,-p,2,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\right)\text{Tan}[e+f x]^2\right)\Big)\Big)\Big/$$

$$\Big(2 f\,\Big(b\,p\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\Big(\frac{1}{p}\left(1+\frac{a\,\text{Cot}[e+f x]^2}{b}\right)^{-p}\text{Hypergeometric2F1}\Big[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+\left(2\,a\,\text{AppellF1}\Big[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sin}[e+f x]^2\right)\Big/\left(-2\,a\,\text{AppellF1}\Big[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+\left(-b\,p\,\text{AppellF1}\Big[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+a\,\text{AppellF1}\Big[2,-p,2,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\right)\text{Tan}[e+f x]^2\right)\Big)+$$

$$\frac{1}{2}\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Big(\frac{1}{b}2\,a\,\text{Cot}[e+f x]\left(1+\frac{a\,\text{Cot}[e+f x]^2}{b}\right)^{-1-p}\text{Csc}[e+f x]^2\,\text{Hypergeometric2F1}\Big[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+2\left(1+\frac{a\,\text{Cot}[e+f x]^2}{b}\right)^{-p}\text{Csc}[e+f x]\left(\left(1+\frac{a\,\text{Cot}[e+f x]^2}{b}\right)^{p}-\text{Hypergeometric2F1}\Big[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\right)\text{Sec}[e+f x]+$$

$$\left(4\,a\,\text{AppellF1}\Big[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Cos}[e+f x]\,\text{Sin}[e+f x]\right)\Big/\left(-2\,a\,\text{AppellF1}\Big[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+\left(-b\,p\,\text{AppellF1}\Big[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+a\,\text{AppellF1}\Big[2,-p,2,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\right)\text{Tan}[e+f x]^2\right)+$$

$$\begin{aligned}
&\Bigg(2\,a\,\text{Sin}[e+f\,x]^2\,\Bigg(\frac{1}{a}b\,p\,\text{AppellF1}\Big[2,\,1-p,\,1,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\\
&\quad\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\text{AppellF1}\Big[2,\,-p,\,2,\,3,\\
&\quad-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Bigg)\Big/\\
&\Bigg(-2\,a\,\text{AppellF1}\Big[1,\,-p,\,1,\,2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+\\
&\quad\Bigg(-b\,p\,\text{AppellF1}\Big[2,\,1-p,\,1,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+\\
&\quad a\,\text{AppellF1}\Big[2,\,-p,\,2,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)-\\
&\Bigg(2\,a\,\text{AppellF1}\Big[1,\,-p,\,1,\,2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sin}[e+f\,x]^2\\
&\quad\Bigg(2\,\Bigg(-b\,p\,\text{AppellF1}\Big[2,\,1-p,\,1,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+a\,\text{AppellF1}\Big[2,\\
&\quad-p,\,2,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\Bigg)\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\\
&\quad 2\,a\,\Bigg(\frac{1}{a}b\,p\,\text{AppellF1}\Big[2,\,1-p,\,1,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\\
&\quad\text{Tan}[e+f\,x]-\text{AppellF1}\Big[2,\,-p,\,2,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\\
&\quad\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)+\text{Tan}[e+f\,x]^2\,\Bigg(-b\,p\,\Bigg(-\frac{4}{3}\,\text{AppellF1}\Big[3,\,1-p,\,2,\,4,\\
&\quad-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{1}{3\,a}4\,b\,(1-p)\\
&\quad\text{AppellF1}\Big[3,\,2-p,\,1,\,4,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\\
&\quad\text{Tan}[e+f\,x]\Bigg)+a\,\Bigg(\frac{1}{3\,a}4\,b\,p\,\text{AppellF1}\Big[3,\,1-p,\,2,\,4,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\\
&\quad-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{8}{3}\,\text{AppellF1}\Big[3,\,-p,\,3,\,4,\\
&\quad-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Bigg)\Bigg)\Bigg)\Big/\\
&\Bigg(-2\,a\,\text{AppellF1}\Big[1,\,-p,\,1,\,2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+\\
&\quad\Bigg(-b\,p\,\text{AppellF1}\Big[2,\,1-p,\,1,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+\\
&\quad a\,\text{AppellF1}\Big[2,\,-p,\,2,\,3,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)^2\Bigg)\Bigg)\Bigg)
\end{aligned}$$

Problem 365: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]^3 \left(a+b \,\text{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 5, 158 leaves, 6 steps):

$$-\frac{\text{Cot}[e+f x]^2 \left(a+b \,\text{Tan}[e+f x]^2\right)^{1+p}}{2 a f}-\left(\text{Hypergeometric2F1}\left[1,1+p,2+p,\frac{a+b \,\text{Tan}[e+f x]^2}{a-b}\right] \left(a+b \,\text{Tan}[e+f x]^2\right)^{1+p}\right) \Big/ \left(2 (a-b) f (1+p)\right)+\frac{1}{2 a^2 f (1+p)} (a-b p) \,\text{Hypergeometric2F1}\left[1,1+p,2+p,1+\frac{b \,\text{Tan}[e+f x]^2}{a}\right] \left(a+b \,\text{Tan}[e+f x]^2\right)^{1+p}$$

Result (type 6, 1903 leaves):

$$\left(\text{Cot}[e+f x]^3 \left(a+b \,\text{Tan}[e+f x]^2\right)^{2 p} \left(\frac{1}{(-1+p) p}\left(1+\frac{a \,\text{Cot}[e+f x]^2}{b}\right)^{-p} \left(p \,\text{Cot}[e+f x]^2 \,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a \,\text{Cot}[e+f x]^2}{b}\right]-(-1+p) \,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a \,\text{Cot}[e+f x]^2}{b}\right]\right)+\left(2 a \,\text{AppellF1}\left[1,-p,1,2,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right] \text{Sin}[e+f x]^2\right) \Big/ \left(2 a \,\text{AppellF1}\left[1,-p,1,2,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\left(b p \,\text{AppellF1}\left[2,1-p,1,3,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]-a \,\text{AppellF1}\left[2,-p,2,3,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)\right)\right) \Big/$$

$$\left(2 f \left(b p \,\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] \left(a+b \,\text{Tan}[e+f x]^2\right)^{-1+p} \left(\frac{1}{(-1+p) p}\left(1+\frac{a \,\text{Cot}[e+f x]^2}{b}\right)^{-p} \left(p \,\text{Cot}[e+f x]^2 \,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a \,\text{Cot}[e+f x]^2}{b}\right]-(-1+p) \,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a \,\text{Cot}[e+f x]^2}{b}\right]\right)+\left(2 a \,\text{AppellF1}\left[1,-p,1,2,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right] \text{Sin}[e+f x]^2\right) \Big/ \left(2 a \,\text{AppellF1}\left[1,-p,1,2,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\left(b p \,\text{AppellF1}\left[2,1-p,1,3,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]-a \,\text{AppellF1}\left[2,-p,2,3,-\frac{b \,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)\right)+\right.\right.$$

$$\frac{1}{2}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(\frac{1}{b\,(-1+p)}2\,a\,\text{Cot}[e+f\,x]\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-1-p}\right.$$

$$\text{Csc}[e+f\,x]^2\left(p\,\text{Cot}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]-\right.$$

$$\left.(-1+p)\,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)+$$

$$\frac{1}{(-1+p)\,p}\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-p}\left(-2\,(1-p)\,p\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2\right.$$

$$\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)-$$

$$2\,p\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]-$$

$$2\,(-1+p)\,p\,\text{Csc}[e+f\,x]\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[\right.\right.$$

$$\left.\left.\left.-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)\text{Sec}[e+f\,x]\right)+$$

$$\left(4\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\right)\Big/$$

$$\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left(b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$

$$\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(2\,a\,\text{Sin}[e+f\,x]^2\left(\frac{1}{a}b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right.\right.$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\text{AppellF1}[2,-p,2,3,$$

$$\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left(b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$

$$\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)-$$

$$\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\right.$$

$$\left(2\left(b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[2,\right.\right.\right.$$

$$\left.\left.-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$2 a \left(\frac{1}{a} b p \, \text{AppellF1}\left[2, 1-p, 1, 3, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \text{AppellF1}\left[2, -p, 2, 3, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) + \text{Tan}[e+f x]^2 \left(b p \left(-\frac{4}{3} \text{AppellF1}\left[3, 1-p, 2, 4, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{1}{3 a} 4 b (1-p) \, \text{AppellF1}\left[3, 2-p, 1, 4, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) - a \left(\frac{1}{3 a} 4 b p \, \text{AppellF1}\left[3, 1-p, 2, 4, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{8}{3} \text{AppellF1}\left[3, -p, 3, 4, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)\right)\Bigg)\Bigg) \Bigg/ \left(2 a \, \text{AppellF1}\left[1, -p, 1, 2, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] + \left(b p \, \text{AppellF1}\left[2, 1-p, 1, 3, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] - a \, \text{AppellF1}\left[2, -p, 2, 3, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)^2\Bigg)\Bigg)$$

Problem 366: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]^5 \left(a+b \, \text{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 5, 217 leaves, 7 steps):

$$\frac{(2 a+b-b p) \, \text{Cot}[e+f x]^2 \left(a+b \, \text{Tan}[e+f x]^2\right)^{1+p}}{4 a^2 f} - \frac{\text{Cot}[e+f x]^4 \left(a+b \, \text{Tan}[e+f x]^2\right)^{1+p}}{4 a f} + \left(\text{Hypergeometric2F1}\left[1, 1+p, 2+p, \frac{a+b \, \text{Tan}[e+f x]^2}{a-b}\right] \left(a+b \, \text{Tan}[e+f x]^2\right)^{1+p}\right) \Big/ \left(2 (a-b) f (1+p)\right) - \frac{1}{4 a^3 f (1+p)} \left(2 a^2 - 2 a b p - b^2 (1-p) p\right) \text{Hypergeometric2F1}\left[1, 1+p, 2+p, 1+\frac{b \, \text{Tan}[e+f x]^2}{a}\right] \left(a+b \, \text{Tan}[e+f x]^2\right)^{1+p}$$

Result (type 6, 2624 leaves):

$$\Bigg(\text{Cot}[e+f x]^5 \left(a+b \, \text{Tan}[e+f x]^2\right)^{2 p} \left(\left(2 a \, \text{AppellF1}\left[1, -p, 1, 2, -\frac{b \, \text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Tan}[e+f x]^2\right) \Big/\right.$$

$$\left(\left(1+\text{Tan}[e+f x]^2\right)\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)+$$

$$\left(\text{Cot}[e+f x]^4\left(1+\frac{a\,\text{Cot}[e+f x]^2}{b}\right)^{-p}\left(-(-2+p)\,p\,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\right]\text{Tan}[e+f x]^2+(-1+p)\left(p\,\text{Hypergeometric2F1}\left[2-p,-p,3-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\right]+(-2+p)\,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\right]\text{Tan}[e+f x]^4\right)\right)\right)\Big/$$

$$\left((-2+p)(-1+p)\,p\right)\Big)\Big)\Big/\left(2 f\left(b\,p\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\right.\right.$$

$$\left(\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^2\right)\Big/\right.$$

$$\left(\left(1+\text{Tan}[e+f x]^2\right)\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)+$$

$$\left(\text{Cot}[e+f x]^4\left(1+\frac{a\,\text{Cot}[e+f x]^2}{b}\right)^{-p}\left(-(-2+p)\,p\,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\right]\text{Tan}[e+f x]^2+(-1+p)\left(p\,\text{Hypergeometric2F1}\left[2-p,-p,3-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\right]+(-2+p)\,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f x]^2}{b}\right]\text{Tan}[e+f x]^4\right)\right)\right)\Big/\left((-2+p)(-1+p)\,p\right)\Big)+$$

$$\frac{1}{2}\left(a+b\,\text{Tan}[e+f x]^2\right)^p\left(-\left(\left(4\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^3\right)\Big/\right.\right.$$

$$\left(\left(1+\text{Tan}[e+f x]^2\right)^2\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)\Big)+$$

$$\left(4\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\Big/$$
$$\left(\left(1+\text{Tan}[e+f\,x]^2\right)\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$
$$\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$
$$\left(2\,a\,\text{Tan}[e+f\,x]^2\left(\frac{1}{a}b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right.\right.$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\text{AppellF1}\left[2,-p,2,3,\right.$$
$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$
$$\left(\left(1+\text{Tan}[e+f\,x]^2\right)\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$
$$\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$
$$\frac{1}{(-2+p)\,(-1+p)\,p}\text{Cot}[e+f\,x]^4\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-p}\left(2\,(1-p)\,(-2+p)\,p\right.$$
$$\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-2\,(-2+p)\,p$$
$$\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$
$$(-1+p)\left(-2\,(2-p)\,p\,\text{Csc}[e+f\,x]\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[\right.\right.\right.$$
$$\left.\left.2-p,-p,3-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)\text{Sec}[e+f\,x]+2\,(-2+p)\,p$$
$$\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^3+4\,(-2+p)\,\text{Hypergeometric2F1}\left[-p,\right.$$
$$\left.\left.\left.-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^3\right)\right)+$$
$$\left(2\,a\,\text{Cot}[e+f\,x]^5\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-1-p}\text{Csc}[e+f\,x]^2\right.$$
$$\left(-(-2+p)\,p\,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Tan}[e+f\,x]^2+\right.$$
$$(-1+p)\left(p\,\text{Hypergeometric2F1}\left[2-p,-p,3-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+\right.$$

$$
\begin{array}{l}
\quad (-2+p)\ \text{Hypergeometric2F1}\left[-p,\ -p,\ 1-p,\ -\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right] \text{Tan}[e+f\,x]^4 \Big)\Big)\Big) \Big/ \\
(b\ (-2+p)\ (-1+p)) - \Big(4\,\text{Cot}[e+f\,x]^3 \left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-p} \text{Csc}[e+f\,x]^2 \\
\quad \Big(-(-2+p)\ p\,\text{Hypergeometric2F1}\left[1-p,\ -p,\ 2-p,\ -\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right] \text{Tan}[e+f\,x]^2 + \\
\quad (-1+p)\ \Big(p\,\text{Hypergeometric2F1}\left[2-p,\ -p,\ 3-p,\ -\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right] + \\
\quad (-2+p)\ \text{Hypergeometric2F1}\left[-p,\ -p,\ 1-p,\ -\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right] \text{Tan}[e+f\,x]^4 \Big)\Big)\Big) \Big/ \\
((-2+p)\ (-1+p)\ p) - \Big(2\,a\,\text{AppellF1}\left[1,\ -p,\ 1,\ 2,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right] \\
\quad \text{Tan}[e+f\,x]^2 \Big(2\,\Big(-b\,p\,\text{AppellF1}\left[2,\ 1-p,\ 1,\ 3,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right] + \\
\quad a\,\text{AppellF1}\left[2,\ -p,\ 2,\ 3,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right]\Big)\ \text{Sec}[e+f\,x]^2 \\
\quad \text{Tan}[e+f\,x] - 2\,a\,\Big(\frac{1}{a} b\,p\,\text{AppellF1}\left[2,\ 1-p,\ 1,\ 3,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right. \\
\quad \left. -\text{Tan}[e+f\,x]^2\right]\ \text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x] - \text{AppellF1}\left[2,\ -p,\ 2,\right. \\
\quad \left. 3,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right]\ \text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big) + \\
\quad \text{Tan}[e+f\,x]^2 \Big(-b\,p\,\Big(-\frac{4}{3}\,\text{AppellF1}\left[3,\ 1-p,\ 2,\ 4,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right. \\
\quad \left. -\text{Tan}[e+f\,x]^2\right]\ \text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x] - \frac{1}{3\,a} 4\,b\,(1-p)\ \text{AppellF1}\left[3,\right. \\
\quad \left. 2-p,\ 1,\ 4,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right]\ \text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big) + \\
\quad a\,\Big(\frac{1}{3\,a} 4\,b\,p\,\text{AppellF1}\left[3,\ 1-p,\ 2,\ 4,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right] \\
\quad \text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x] - \frac{8}{3}\,\text{AppellF1}\left[3,\ -p,\ 3,\ 4,\right. \\
\quad \left. -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right]\ \text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)\Big)\Big)\Big)\Big) \Big/ \\
\Big(\left(1+\text{Tan}[e+f\,x]^2\right) \Big(-2\,a\,\text{AppellF1}\left[1,\ -p,\ 1,\ 2,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right] + \\
\quad \Big(-b\,p\,\text{AppellF1}\left[2,\ 1-p,\ 1,\ 3,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right] + a\,\text{AppellF1}\left[\right. \\
\quad \left. 2,\ -p,\ 2,\ 3,\ -\frac{b\,\text{Tan}[e+f\,x]^2}{a},\ -\text{Tan}[e+f\,x]^2\right]\Big)\ \text{Tan}[e+f\,x]^2\Big)^2\Big)\Big)\Big)\Big)
\end{array}
$$

Problem 367: Unable to integrate problem.

$$\int \text{Tan}[e+f x]^6 \left(a+b\,\text{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{7 f}\text{AppellF1}\left[\frac{7}{2}, 1, -p, \frac{9}{2}, -\text{Tan}[e+f x]^2, -\frac{b\,\text{Tan}[e+f x]^2}{a}\right] \text{Tan}[e+f x]^7 \left(a+b\,\text{Tan}[e+f x]^2\right)^p \left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \text{Tan}[e+f x]^6 \left(a+b\,\text{Tan}[e+f x]^2\right)^p \, dx$$

Problem 368: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[e+f x]^4 \left(a+b\,\text{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{5 f}\text{AppellF1}\left[\frac{5}{2}, 1, -p, \frac{7}{2}, -\text{Tan}[e+f x]^2, -\frac{b\,\text{Tan}[e+f x]^2}{a}\right] \text{Tan}[e+f x]^5 \left(a+b\,\text{Tan}[e+f x]^2\right)^p \left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 2250 leaves):

$$\Bigg(\text{Tan}[e+f x]^5 \left(a+b\,\text{Tan}[e+f x]^2\right)^{2p}$$
$$\Bigg(\Bigg(9 a\,\text{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Cos}[e+f x]^2\Bigg) \Big/$$
$$\Bigg(3 a\,\text{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] +$$
$$2 \Bigg(b\,p\,\text{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] -$$
$$a\,\text{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right]\Bigg) \text{Tan}[e+f x]^2\Bigg) +$$
$$\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p} \Bigg(-3\,\text{Hypergeometric2F1}\left[\frac{1}{2}, -p, \frac{3}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}\right] +$$
$$\text{Hypergeometric2F1}\left[\frac{3}{2}, -p, \frac{5}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}\right] \text{Tan}[e+f x]^2\Bigg)\Bigg)\Bigg) \Big/$$
$$\Bigg(3 f \Bigg(\frac{2}{3} b\,p\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^2 \left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}$$
$$\Bigg(\Bigg(9 a\,\text{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Cos}[e+f x]^2\Bigg) \Big/$$
$$\Bigg(3 a\,\text{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b\,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] +$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\Bigg)+$$

$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(-3\,\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)\Bigg)+\frac{1}{3}\,\text{Sec}[e+f\,x]^2$$

$$\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg(\Bigg(\left(9\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]^2\right)\Bigg/\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\Bigg)+$$

$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(-3\,\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)\Bigg)+$$

$$\frac{1}{3}\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg(-\Bigg(\Bigg(18\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\Bigg)\Bigg/$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(9\,a\,\text{Cos}[e+f\,x]^2\left(\frac{1}{3\,a}2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\Bigg)\Bigg/$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\Bigg)-$$

$$\frac{1}{a}2\,b\,p\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\,\left(1+\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right)^{-1-p}$$
$$\left(-3\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right]+\right.$$
$$\left.\mathrm{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right]\mathrm{Tan}[e+f\,x]^2\right)-$$
$$\left(9\,a\,\mathrm{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Cos}[e+f\,x]^2\right.$$
$$\left(4\left(b\,p\,\mathrm{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]-a\,\mathrm{AppellF1}\left[\frac{3}{2},\right.\right.\right.$$
$$\left.\left.-p,2,\frac{5}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\right)\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]+$$
$$3\,a\left(\frac{1}{3\,a}2\,b\,p\,\mathrm{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\right.$$
$$\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-\frac{2}{3}\,\mathrm{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},\right.$$
$$\left.\left.-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)+$$
$$2\,\mathrm{Tan}[e+f\,x]^2\left(b\,p\left(-\frac{6}{5}\,\mathrm{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$
$$\left.-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-\frac{1}{5\,a}6\,b\,(1-p)\,\mathrm{AppellF1}\left[\frac{5}{2},\right.$$
$$\left.\left.2-p,1,\frac{7}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)-$$
$$a\left(\frac{1}{5\,a}6\,b\,p\,\mathrm{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\right.$$
$$\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-\frac{12}{5}\,\mathrm{AppellF1}\left[\frac{5}{2},-p,3,\frac{7}{2},\right.$$
$$\left.\left.\left.\left.\left.-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$
$$\left(3\,a\,\mathrm{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]+\right.$$
$$2\left(b\,p\,\mathrm{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]-\right.$$
$$\left.\left.a\,\mathrm{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\right)\mathrm{Tan}[e+f\,x]^2\right)^2+$$
$$\left(1+\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(2\,\mathrm{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right]\right.$$
$$\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-3\,\mathrm{Csc}[e+f\,x]\,\mathrm{Sec}[e+f\,x]\left(-\mathrm{Hypergeometric2F1}\left[\frac{1}{2},-p,\right.\right.$$
$$\left.\left.\frac{3}{2},-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right]+\left(1+\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right)^p\right)+3\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]$$

$$\left(-\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^p\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 369: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{3\,f}\text{AppellF1}\left[\frac{3}{2},1,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]$$
$$\text{Tan}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 6, 1992 leaves):

$$\Bigg(\text{Tan}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{2\,p}$$
$$\Bigg(\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}+$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]^2\right)\Bigg/$$
$$\Bigg(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+$$
$$2\,\Bigg(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+$$
$$a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\Bigg)\text{Tan}[e+f\,x]^2\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(f\,\Bigg(2\,b\,p\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}$$
$$\Bigg(\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}+$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]^2\right)\Bigg/$$
$$\Bigg(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+$$
$$2\,\Bigg(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+$$
$$a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\Bigg)\text{Tan}[e+f\,x]^2\Bigg)\Bigg)+$$
$$\text{Sec}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\Bigg(\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]$$
$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}+\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]$$

$$\mathrm{Cos}[e+f x]^2\Big) \Big/ \left(-3 a \,\mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + 2 \left(-b p \,\mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + a \,\mathrm{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right]\right) \mathrm{Tan}[e+f x]^2\right)\Big) +$$

$$\mathrm{Tan}[e+f x] \left(a+b \,\mathrm{Tan}[e+f x]^2\right)^p \Bigg(-\frac{1}{a} 2 b p \,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}, -p, \frac{3}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}\right] \mathrm{Sec}[e+f x]^2 \,\mathrm{Tan}[e+f x] \left(1+\frac{b \,\mathrm{Tan}[e+f x]^2}{a}\right)^{-1-p} -$$

$$\left(6 a \,\mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] \mathrm{Cos}[e+f x] \,\mathrm{Sin}[e+f x]\right) \Big/ \left(-3 a \,\mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + 2 \left(-b p \,\mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + a \,\mathrm{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right]\right) \mathrm{Tan}[e+f x]^2\right) +$$

$$\left(3 a \,\mathrm{Cos}[e+f x]^2 \left(\frac{1}{3 a} 2 b p \,\mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] \mathrm{Sec}[e+f x]^2 \,\mathrm{Tan}[e+f x] - \frac{2}{3} \mathrm{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] \mathrm{Sec}[e+f x]^2 \,\mathrm{Tan}[e+f x]\right)\right) \Big/$$

$$\left(-3 a \,\mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + 2 \left(-b p \,\mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + a \,\mathrm{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right]\right) \mathrm{Tan}[e+f x]^2\right) +$$

$$\mathrm{Csc}[e+f x] \,\mathrm{Sec}[e+f x] \left(1+\frac{b \,\mathrm{Tan}[e+f x]^2}{a}\right)^{-p} \left(-\mathrm{Hypergeometric2F1}\left[\frac{1}{2}, -p, \frac{3}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}\right] + \left(1+\frac{b \,\mathrm{Tan}[e+f x]^2}{a}\right)^p\right) -$$

$$\Bigg(3 a \,\mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] \mathrm{Cos}[e+f x]^2 \Bigg(4 \left(-b p \,\mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + a \,\mathrm{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right]\right) \mathrm{Sec}[e+f x]^2 \,\mathrm{Tan}[e+f x] -$$

$$3 a \left(\frac{1}{3 a} 2 b p \,\mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right]\right.$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},\right.$$
$$\left.-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$
$$2\,\text{Tan}[e+f x]^2\left(-b\,p\left(-\frac{6}{5}\,\text{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},\right.\right.\right.$$
$$\left.-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},\right.$$
$$\left.\left.2-p,1,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$
$$a\left(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right.$$
$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{12}{5}\,\text{AppellF1}\left[\frac{5}{2},-p,3,\frac{7}{2},\right.$$
$$\left.\left.\left.\left.-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\right)\Bigg)\Bigg/$$
$$\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.$$
$$2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.$$
$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)^2\Bigg)\Bigg)\Bigg)$$

Problem 370: Result more than twice size of optimal antiderivative.

$$\int\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 78 leaves, 3 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},1,-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]$$
$$\text{Tan}[e+f x]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 192 leaves):

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sin}[2\,(e+f x)]\right.$$
$$\left.\left(a+b\,\text{Tan}[e+f x]^2\right)^p\right)\Bigg/\left(6\,a\,f\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.$$
$$4\,f\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]-\right.$$
$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)$$

Problem 371: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[e+f x]^2 \left(a+b \mathrm{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 79 leaves, 3 steps):

$$-\frac{1}{f}\mathrm{AppellF1}\left[-\frac{1}{2}, 1, -p, \frac{1}{2}, -\mathrm{Tan}[e+f x]^2, -\frac{b \mathrm{Tan}[e+f x]^2}{a}\right] \mathrm{Cot}[e+f x] \left(a+b \mathrm{Tan}[e+f x]^2\right)^p \left(1+\frac{b \mathrm{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 1989 leaves):

$$\left(\mathrm{Cot}[e+f x]^3 \left(a+b \mathrm{Tan}[e+f x]^2\right)^{2 p} \left(-\mathrm{Hypergeometric2F1}\left[-\frac{1}{2}, -p, \frac{1}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}\right] \left(1+\frac{b \mathrm{Tan}[e+f x]^2}{a}\right)^{-p} + \left(3 a \mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] \mathrm{Sin}[e+f x]^2\right) \Big/ \left(-3 a \mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + 2 \left(-b p \mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + a \mathrm{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right]\right) \mathrm{Tan}[e+f x]^2\right)\right)\right) \Big/$$

$$\left(f \left(2 b p \mathrm{Sec}[e+f x]^2 \left(a+b \mathrm{Tan}[e+f x]^2\right)^{-1+p} \left(-\mathrm{Hypergeometric2F1}\left[-\frac{1}{2}, -p, \frac{1}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}\right] \left(1+\frac{b \mathrm{Tan}[e+f x]^2}{a}\right)^{-p} + \left(3 a \mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] \mathrm{Sin}[e+f x]^2\right) \Big/ \left(-3 a \mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + 2 \left(-b p \mathrm{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + a \mathrm{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right]\right) \mathrm{Tan}[e+f x]^2\right)\right) - \mathrm{Csc}[e+f x]^2 \left(a+b \mathrm{Tan}[e+f x]^2\right)^p \left(-\mathrm{Hypergeometric2F1}\left[-\frac{1}{2}, -p, \frac{1}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}\right] \left(1+\frac{b \mathrm{Tan}[e+f x]^2}{a}\right)^{-p} + \left(3 a \mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] \mathrm{Sin}[e+f x]^2\right) \Big/ \left(-3 a \mathrm{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \mathrm{Tan}[e+f x]^2}{a}, -\mathrm{Tan}[e+f x]^2\right] + \right.\right.\right.\right.$$

$$2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\Bigg)+$$
$$\text{Cot}[e+f\,x]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(\frac{1}{a}2\,b\,p\,\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right.$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-1-p}+$$
$$\left(6\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\right)\Big/$$
$$\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$
$$\left(3\,a\,\text{Sin}[e+f\,x]^2\left(\frac{1}{3\,a}2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right.\right.$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},\right.$$
$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$
$$\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)-$$
$$\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(\text{Hypergeometric2F1}\left[-\frac{1}{2},\right.\right.$$
$$\left.\left.-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^p\right)-$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\right.$$
$$\left(4\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+a\,\text{AppellF1}\left[\frac{3}{2},\right.\right.\right.$$
$$\left.\left.-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-$$
$$3\,a\left(\frac{1}{3\,a}2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right.$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},\right.$$

$$-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)+$$

$$2\,\text{Tan}[e+f x]^2\,\Big(-b\,p\,\Big(-\frac{6}{5}\,\text{AppellF1}\Big[\frac{5}{2},\,1-p,\,2,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},$$

$$-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\Big[\frac{5}{2},$$

$$2-p,\,1,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)+$$

$$a\,\Big(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\Big[\frac{5}{2},\,1-p,\,2,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{12}{5}\,\text{AppellF1}\Big[\frac{5}{2},\,-p,\,3,\,\frac{7}{2},$$

$$-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]+$$

$$2\,\Big(-b\,p\,\text{AppellF1}\Big[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]+$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]\Big)\,\text{Tan}[e+f x]^2\Big)^2\Big)\Big)\Big)$$

Problem 372: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f x]^4\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$-\frac{1}{3\,f}\text{AppellF1}\Big[-\frac{3}{2},\,1,\,-p,\,-\frac{1}{2},\,-\text{Tan}[e+f x]^2,\,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$

$$\text{Cot}[e+f x]^3\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 2468 leaves):

$$\Big(\text{Cot}[e+f x]^7\,\left(a+b\,\text{Tan}[e+f x]^2\right)^{2p}$$

$$\Big(\Big(9\,a\,\text{AppellF1}\Big[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]\,\text{Sin}[e+f x]^2\,\text{Tan}[e+f x]^2\Big)\Big/$$

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]+$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f x]^2}{a},\,-\text{Tan}[e+f x]^2\Big]\Big)\,\text{Tan}[e+f x]^2\Big)-$$

$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.$$

$$\left.\left.\left.3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)\right)\right)\Big/$$

$$\left(3\,f\left(\frac{2}{3}\,b\,p\,\text{Csc}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\right.\right.$$

$$\left(\left(9\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\right)\Big/\right.$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$

$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)-$$

$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.$$

$$\left.\left.3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)\right)-$$

$$\text{Cot}[e+f\,x]^2\,\text{Csc}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p$$

$$\left(\left(9\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\right)\Big/\right.$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$

$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)-$$

$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.$$

$$\left.\left.3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\frac{1}{3}\,\text{Cot}[e+f\,x]^3\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(\left(18\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},\right.\right.\right.$$

$$\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$

$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(18\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]^3\right)\Big/$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$
$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$
$$\left(9\,a\,\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\left(\frac{1}{3\,a}2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$
$$\left.-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\text{AppellF1}\left[\frac{3}{2},-p,2,\right.$$
$$\left.\left.\left.\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$
$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$
$$\frac{1}{a}2\,b\,p\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-1-p}$$
$$\left(\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.$$
$$\left.3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)-$$
$$\left(9\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\right.$$
$$\text{Tan}[e+f\,x]^2\left(4\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.\right.$$
$$\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Sec}[e+f\,x]^2$$
$$\text{Tan}[e+f\,x]+3\,a\left(\frac{1}{3\,a}2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.$$
$$\left.-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\text{AppellF1}\left[\frac{3}{2},-p,2,\right.$$
$$\left.\left.\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$
$$2\,\text{Tan}[e+f\,x]^2\left(b\,p\left(-\frac{6}{5}\text{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$
$$\left.-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},\right.$$

$$2-p,1,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)-$$
$$a\left(\frac{1}{5a}6\,b\,p\,\text{AppellF1}\Big[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\right.$$
$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{12}{5}\,\text{AppellF1}\Big[\frac{5}{2},-p,3,\frac{7}{2},$$
$$\left.-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+$$
$$2\left(b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]-\right.$$
$$\left.a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\right)\text{Tan}[e+f x]^2\Bigg)^2-$$
$$\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}\left(-6\,\text{Hypergeometric2F1}\Big[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\right.$$
$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-3\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\left(\text{Hypergeometric2F1}\Big[-\frac{1}{2},\right.$$
$$\left.-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^p\right)-3\,\text{Csc}[e+f x]\,\text{Sec}[e+f x]$$
$$\left.\left(-\text{Hypergeometric2F1}\Big[-\frac{3}{2},-p,-\frac{1}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]+\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^p\right)\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 373: Unable to integrate problem.

$$\int \text{Cot}[e+f x]^6\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$-\frac{1}{5f}\text{AppellF1}\Big[-\frac{5}{2},1,-p,-\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$
$$\text{Cot}[e+f x]^5\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \text{Cot}[e+f x]^6\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Problem 379: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\left(a+b\,\text{Tan}[c+d x]^3\right)^2}\,dx$$

Optimal (type 3, 558 leaves, 21 steps):

$$\frac{\left(a^2-b^2\right) x}{\left(a^2+b^2\right)^2}+\frac{b^{1/3} \left(a^2-2 a^{2/3} b^{4/3}-b^2\right) \text{ArcTan}\left[\frac{a^{1/3}-2 b^{1/3} \text{Tan}[c+d x]}{\sqrt{3} a^{1/3}}\right]}{\sqrt{3} a^{1/3} \left(a^2+b^2\right)^2 d}+$$
$$\frac{b^{1/3} \left(a^{4/3}-2 b^{4/3}\right) \text{ArcTan}\left[\frac{a^{1/3}-2 b^{1/3} \text{Tan}[c+d x]}{\sqrt{3} a^{1/3}}\right]}{3 \sqrt{3} a^{5/3} \left(a^2+b^2\right) d}-\frac{2 a b \text{Log}\left[a \text{Cos}[c+d x]^3+b \text{Sin}[c+d x]^3\right]}{3 \left(a^2+b^2\right)^2 d}+$$
$$\frac{b^{1/3} \left(a^2+2 a^{2/3} b^{4/3}-b^2\right) \text{Log}\left[a^{1/3}+b^{1/3} \text{Tan}[c+d x]\right]}{3 a^{1/3} \left(a^2+b^2\right)^2 d}+$$
$$\frac{b^{1/3} \left(a^{4/3}+2 b^{4/3}\right) \text{Log}\left[a^{1/3}+b^{1/3} \text{Tan}[c+d x]\right]}{9 a^{5/3} \left(a^2+b^2\right) d}-\frac{1}{6 a^{1/3} \left(a^2+b^2\right)^2 d}$$
$$b^{1/3} \left(a^2+2 a^{2/3} b^{4/3}-b^2\right) \text{Log}\left[a^{2/3}-a^{1/3} b^{1/3} \text{Tan}[c+d x]+b^{2/3} \text{Tan}[c+d x]^2\right]-$$
$$\left(b^{1/3} \left(a^{4/3}+2 b^{4/3}\right) \text{Log}\left[a^{2/3}-a^{1/3} b^{1/3} \text{Tan}[c+d x]+b^{2/3} \text{Tan}[c+d x]^2\right]\right) \Big/ \left(18 a^{5/3} \left(a^2+b^2\right) d\right)+$$
$$\frac{b \left(a+\text{Tan}[c+d x] \left(b-a \text{Tan}[c+d x]\right)\right)}{3 a \left(a^2+b^2\right) d \left(a+b \text{Tan}[c+d x]^3\right)}$$

Result (type 3, 490 leaves):

$$\frac{\text{ArcTan}[\text{Tan}[c+d x]]}{2 (a-i b)^2 d}+\frac{\text{ArcTan}[\text{Tan}[c+d x]]}{2 (a+i b)^2 d}-$$
$$\left(2 \left(2 a^{11/3} b-4 a^{7/3} b^{7/3}-a^{5/3} b^3-a^{1/3} b^{13/3}\right) \text{ArcTan}\left[\frac{-a^{1/3}+2 b^{1/3} \text{Tan}[c+d x]}{\sqrt{3} a^{1/3}}\right]\right) \Big/$$
$$\left(3 \sqrt{3} a^2 b^{2/3} \left(a^2+b^2\right)^2 d\right)+$$
$$\left(2 \left(2 a^{11/3} b+4 a^{7/3} b^{7/3}-a^{5/3} b^3+a^{1/3} b^{13/3}\right) \text{Log}\left[a^{1/3}+b^{1/3} \text{Tan}[c+d x]\right]\right) \Big/ \left(9 a^2 b^{2/3} \left(a^2+b^2\right)^2 d\right)-$$
$$\frac{i \text{Log}\left[1+\text{Tan}[c+d x]^2\right]}{4 (a-i b)^2 d}+\frac{i \text{Log}\left[1+\text{Tan}[c+d x]^2\right]}{4 (a+i b)^2 d}-$$
$$\left(\left(2 a^{11/3} b+4 a^{7/3} b^{7/3}-a^{5/3} b^3+a^{1/3} b^{13/3}\right) \text{Log}\left[a^{2/3}-a^{1/3} b^{1/3} \text{Tan}[c+d x]+b^{2/3} \text{Tan}[c+d x]^2\right]\right) \Big/$$
$$\left(9 a^2 b^{2/3} \left(a^2+b^2\right)^2 d\right)-\frac{2 a b \text{Log}\left[a+b \text{Tan}[c+d x]^3\right]}{3 \left(a^2+b^2\right)^2 d}+\frac{a b+b^2 \text{Tan}[c+d x]-a b \text{Tan}[c+d x]^2}{3 a \left(a^2+b^2\right) d \left(a+b \text{Tan}[c+d x]^3\right)}$$

Problem 387: Result unnecessarily involves imaginary or complex numbers.

$$\int \sqrt{a+b \text{Tan}[c+d x]^4} \, dx$$

Optimal (type 4, 650 leaves, 8 steps):

$$\frac{\sqrt{a+b}\,\text{ArcTan}\left[\frac{\sqrt{a+b}\,\text{Tan}[c+d x]}{\sqrt{a+b\,\text{Tan}[c+d x]^4}}\right]}{2 d}+\frac{\sqrt{b}\,\text{Tan}[c+d x]\,\sqrt{a+b\,\text{Tan}[c+d x]^4}}{d\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)}-$$

$$\left(a^{1/4}\,b^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[c+d x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)^2}}\right)\Big/\left(d\sqrt{a+b\,\text{Tan}[c+d x]^4}\right)+$$

$$\left(\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[c+d x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)^2}}\right)\Big/\left(2\,a^{1/4}\,d\sqrt{a+b\,\text{Tan}[c+d x]^4}\right)-$$

$$\left(b^{1/4}\,(a+b)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[c+d x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)^2}}\right)\Big/\left(2\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)d\sqrt{a+b\,\text{Tan}[c+d x]^4}\right)+$$

$$\left(\left(\sqrt{a}+\sqrt{b}\right)(a+b)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\sqrt{a}\,\sqrt{b}},2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[c+d x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\,d\sqrt{a+b\,\text{Tan}[c+d x]^4}\right)$$

Result (type 4, 219 leaves) :

$$\left(\left(\sqrt{a}\,\sqrt{b}\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathrm{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[c+d\,x]\right],-1\right]+\left(\sqrt{a}-\mathrm{i}\,\sqrt{b}\right)\left(-\sqrt{b}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathrm{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[c+d\,x]\right],-1\right]+\left(-\mathrm{i}\,\sqrt{a}+\sqrt{b}\right)\text{EllipticPi}\left[-\frac{\mathrm{i}\,\sqrt{a}}{\sqrt{b}},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathrm{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[c+d\,x]\right],-1\right]\right)\right)\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]^4}{a}}\right)\Big/\left(\sqrt{\frac{\mathrm{i}\,\sqrt{b}}{\sqrt{a}}}\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}\right)$$

Problem 388: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{a+b\,\text{Tan}[c+d\,x]^4}}\,dx$$

Optimal (type 4, 348 leaves, 4 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a+b}\,\text{Tan}[c+d\,x]}{\sqrt{a+b\,\text{Tan}[c+d\,x]^4}}\right]}{2\,\sqrt{a+b}\,d}-\left(b^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d\,x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)^2}}\right)\Big/\left(2\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}\right)+\left(\left(\sqrt{a}+\sqrt{b}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\,\sqrt{a}\,\sqrt{b}},2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d\,x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}\right)$$

Result (type 4, 106 leaves):

$$-\left(\left(\mathrm{i}\,\text{EllipticPi}\left[-\frac{\mathrm{i}\sqrt{a}}{\sqrt{b}},\ \mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathrm{i}\sqrt{b}}{\sqrt{a}}}\ \text{Tan}[c+d\,x]\right],\ -1\right]\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]^4}{a}}\right)\Big/\left(\sqrt{\frac{\mathrm{i}\sqrt{b}}{\sqrt{a}}}\ d\sqrt{a+b\,\text{Tan}[c+d\,x]^4}\right)\right)$$

Problem 389: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Tan}[x]^3\sqrt{a+b\,\text{Tan}[x]^4}\ dx$$

Optimal (type 3, 103 leaves, 8 steps):

$$\frac{(a+2\,b)\ \text{ArcTanh}\left[\frac{\sqrt{b}\ \text{Tan}[x]^2}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{4\sqrt{b}}+\frac{1}{2}\sqrt{a+b}\ \text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\ \sqrt{a+b\,\text{Tan}[x]^4}}\right]-\frac{1}{4}\left(2-\text{Tan}[x]^2\right)\sqrt{a+b\,\text{Tan}[x]^4}$$

Result (type 4, 107 023 leaves): Display of huge result suppressed!

Problem 390: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Tan}[x]\ \sqrt{a+b\,\text{Tan}[x]^4}\ dx$$

Optimal (type 3, 90 leaves, 8 steps):

$$-\frac{1}{2}\sqrt{b}\ \text{ArcTanh}\left[\frac{\sqrt{b}\ \text{Tan}[x]^2}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]-\frac{1}{2}\sqrt{a+b}\ \text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\ \sqrt{a+b\,\text{Tan}[x]^4}}\right]+\frac{1}{2}\sqrt{a+b\,\text{Tan}[x]^4}$$

Result (type 4, 84 341 leaves): Display of huge result suppressed!

Problem 392: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[x]^2\sqrt{a+b\,\text{Tan}[x]^4}\ dx$$

Optimal (type 4, 643 leaves, 12 steps):

$$-\frac{1}{2}\sqrt{a+b}\,\text{ArcTan}\left[\frac{\sqrt{a+b}\,\text{Tan}[x]}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]+$$

$$\frac{1}{3}\text{Tan}[x]\sqrt{a+b\,\text{Tan}[x]^4}-\frac{\sqrt{b}\,\text{Tan}[x]\sqrt{a+b\,\text{Tan}[x]^4}}{\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2}+\frac{1}{\sqrt{a+b\,\text{Tan}[x]^4}}$$

$$a^{1/4}b^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}+$$

$$\left(a^{3/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}\right)\Big/$$

$$\left(3\,b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}\right)-\left(\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\right.$$

$$\left.\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}\right)\Big/\left(2\,a^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}\right)+$$

$$\left(b^{1/4}\,(a+b)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}\right)\Big/\left(2\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)\sqrt{a+b\,\text{Tan}[x]^4}\right)-$$

$$\left(\left(\sqrt{a}+\sqrt{b}\right)(a+b)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\sqrt{a}\,\sqrt{b}},2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\right.$$

$$\left.\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}\right)$$

Result (type 4, 1188 leaves):

$$\sqrt{\frac{3\,a+3\,b+4\,a\,\text{Cos}[2\,x]-4\,b\,\text{Cos}[2\,x]+a\,\text{Cos}[4\,x]+b\,\text{Cos}[4\,x]}{3+4\,\text{Cos}[2\,x]+\text{Cos}[4\,x]}}\left(-\frac{1}{2}\text{Sin}[2\,x]+\frac{\text{Tan}[x]}{3}\right)-$$

$$\left(a\sqrt{\frac{3\,a+3\,b+4\,a\,\text{Cos}[2\,x]-4\,b\,\text{Cos}[2\,x]+a\,\text{Cos}[4\,x]+b\,\text{Cos}[4\,x]}{3+4\,\text{Cos}[2\,x]+\text{Cos}[4\,x]}}\right.$$

$$\left(10\,a+6\,b+13\,a\,\text{Cos}[2\,x]-3\,b\,\text{Cos}[2\,x]+6\,a\,\text{Cos}[4\,x]-6\,b\,\text{Cos}[4\,x]+\right.$$

$$3\,a\,\text{Cos}[6\,x]+3\,b\,\text{Cos}[6\,x]\Big)\,\left(1+\text{Tan}[x]^2\right)\,\sqrt{\frac{\sqrt{a}-\mathbb{i}\,\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a}}}$$

$$\sqrt{\frac{\sqrt{a}+\mathbb{i}\,\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{a+b\,\text{Tan}[x]^4}{a}}\,\left(3\,a\,\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]+3\,\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,b\,\text{Tan}[x]^5+\right.$$

$$3\,\mathbb{i}\,a\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\sqrt{a}}{\sqrt{b}},\,\mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],\,-1\right]\,\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}+$$

$$3\,\mathbb{i}\,b\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\sqrt{a}}{\sqrt{b}},\,\mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],\,-1\right]\,\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}+$$

$$3\,\mathbb{i}\,a\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\sqrt{a}}{\sqrt{b}},\,\mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],\,-1\right]\,\text{Tan}[x]^2\,\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}+$$

$$3\,\mathbb{i}\,b\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\sqrt{a}}{\sqrt{b}},\,\mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],\,-1\right]\,\text{Tan}[x]^2\,\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}-$$

$$3\,\sqrt{a}\,\sqrt{b}\,\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],\,-1\right]\,\left(1+\text{Tan}[x]^2\right)\,\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}+$$

$$\left(-2\,\mathbb{i}\,a+3\,\sqrt{a}\,\sqrt{b}-3\,\mathbb{i}\,b\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],\,-1\right]$$

$$\left.\left.\left(1+\text{Tan}[x]^2\right)\,\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}\right)\right)\Big/$$

$$\left(6\,\sqrt{\frac{\mathbb{i}\,\sqrt{b}}{\sqrt{a}}}\,\left(3\,a+3\,b+4\,a\,\text{Cos}[2\,x]-4\,b\,\text{Cos}[2\,x]+a\,\text{Cos}[4\,x]+b\,\text{Cos}[4\,x]\right)\right.$$

$$\left(a^2\,\text{Sec}[x]^2-a^2\,\text{Sec}[x]^2\,\text{Tan}[x]^2-2\,a^2\,\text{Sec}[x]^2\,\text{Tan}[x]^4+4\,a\,b\,\text{Sec}[x]^2\,\text{Tan}[x]^4+\right.$$

$$2\,a\,b\,\text{Sec}[x]^2\,\text{Tan}[x]^6-2\,a\,b\,\text{Sec}[x]^2\,\text{Tan}[x]^8+3\,b^2\,\text{Sec}[x]^2\,\text{Tan}[x]^8+3\,b^2\,\text{Sec}[x]^2\,\text{Tan}[x]^{10}-$$

$$3\,a^2\,\text{Sec}[x]^2\,\sqrt{\frac{\sqrt{a}-\mathbb{i}\,\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{\sqrt{a}+\mathbb{i}\,\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{a+b\,\text{Tan}[x]^4}{a}}+$$

$$3\,a^2\,\text{Sec}[x]^2\,\text{Tan}[x]^2\,\sqrt{\frac{\sqrt{a}-\mathbb{i}\,\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{\sqrt{a}+\mathbb{i}\,\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{a+b\,\text{Tan}[x]^4}{a}}-$$

$$9\,a\,b\,\mathrm{Sec}[x]^2\,\mathrm{Tan}[x]^4\,\sqrt{\frac{\sqrt{a}-i\sqrt{b}\,\mathrm{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{\sqrt{a}+i\sqrt{b}\,\mathrm{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{a+b\,\mathrm{Tan}[x]^4}{a}}\;-$$

$$3\,a\,b\,\mathrm{Sec}[x]^2\,\mathrm{Tan}[x]^6\,\sqrt{\frac{\sqrt{a}-i\sqrt{b}\,\mathrm{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{\sqrt{a}+i\sqrt{b}\,\mathrm{Tan}[x]^2}{\sqrt{a}}}\,\sqrt{\frac{a+b\,\mathrm{Tan}[x]^4}{a}}\Bigg)\Bigg)$$

Problem 393: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[x]^3\,\left(a+b\,\mathrm{Tan}[x]^4\right)^{3/2}\,dx$$

Optimal (type 3, 148 leaves, 9 steps):

$$\frac{\left(3\,a^2+12\,a\,b+8\,b^2\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[x]^2}{\sqrt{a+b\,\mathrm{Tan}[x]^4}}\right]}{16\,\sqrt{b}}+\frac{1}{2}\,(a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{a-b\,\mathrm{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\mathrm{Tan}[x]^4}}\right]-$$
$$\frac{1}{16}\,\left(8\,(a+b)-(3\,a+4\,b)\,\mathrm{Tan}[x]^2\right)\,\sqrt{a+b\,\mathrm{Tan}[x]^4}-\frac{1}{24}\,\left(4-3\,\mathrm{Tan}[x]^2\right)\,\left(a+b\,\mathrm{Tan}[x]^4\right)^{3/2}$$

Result (type 4, 168 354 leaves): Display of huge result suppressed!

Problem 394: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[x]\,\left(a+b\,\mathrm{Tan}[x]^4\right)^{3/2}\,dx$$

Optimal (type 3, 126 leaves, 9 steps):

$$-\frac{1}{4}\,\sqrt{b}\,(3\,a+2\,b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[x]^2}{\sqrt{a+b\,\mathrm{Tan}[x]^4}}\right]-\frac{1}{2}\,(a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{a-b\,\mathrm{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\mathrm{Tan}[x]^4}}\right]+$$
$$\frac{1}{4}\,\left(2\,(a+b)-b\,\mathrm{Tan}[x]^2\right)\,\sqrt{a+b\,\mathrm{Tan}[x]^4}+\frac{1}{6}\,\left(a+b\,\mathrm{Tan}[x]^4\right)^{3/2}$$

Result (type 4, 145 479 leaves): Display of huge result suppressed!

Problem 396: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Tan}[x]^3}{\sqrt{a+b\,\mathrm{Tan}[x]^4}}\,dx$$

Optimal (type 3, 74 leaves, 7 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{b}}+\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{a+b}}$$

Result (type 4, 60 266 leaves): Display of huge result suppressed!

Problem 397: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[x]}{\sqrt{a+b\,\text{Tan}[x]^4}}\,dx$$

Optimal (type 3, 41 leaves, 4 steps):

$$-\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{a+b}}$$

Result (type 4, 38 152 leaves): Display of huge result suppressed!

Problem 399: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Tan}[x]^2}{\sqrt{a+b\,\text{Tan}[x]^4}}\,dx$$

Optimal (type 4, 291 leaves, 4 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a+b}\,\text{Tan}[x]}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{a+b}}+$$

$$\left(a^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}\right)\Big/$$

$$\left(2\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}\right)-$$

$$\left(\left(\sqrt{a}+\sqrt{b}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\sqrt{a}\,\sqrt{b}},2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}\right)$$

Result (type 4, 122 leaves):

$$-\left(\left(\left(\mathrm{i}\left(\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathrm{i}\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],-1\right]-\text{EllipticPi}\left[-\frac{\mathrm{i}\sqrt{a}}{\sqrt{b}},\right.\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\left.\mathrm{i}\,\text{ArcSinh}\left[\sqrt{\frac{\mathrm{i}\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[x]\right],-1\right]\right)\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}\right)\Big/\left(\sqrt{\frac{\mathrm{i}\sqrt{b}}{\sqrt{a}}}\sqrt{a+b\,\text{Tan}[x]^4}\right)\right)\right)$$

Problem 400: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[x]^3}{\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}\,dx$$

Optimal (type 3, 71 leaves, 6 steps):

$$\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{3/2}}-\frac{1-\text{Tan}[x]^2}{2\,(a+b)\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 61 650 leaves): Display of huge result suppressed!

Problem 401: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[x]}{\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}\,dx$$

Optimal (type 3, 74 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{3/2}}+\frac{a+b\,\text{Tan}[x]^2}{2\,a\,(a+b)\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 61 670 leaves): Display of huge result suppressed!

Problem 403: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[x]^3}{\left(a+b\,\text{Tan}[x]^4\right)^{5/2}}\,dx$$

Optimal (type 3, 109 leaves, 7 steps):

$$\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{5/2}}-\frac{1-\text{Tan}[x]^2}{6\,(a+b)\,\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}-\frac{3\,a+(-2\,a+b)\,\text{Tan}[x]^2}{6\,a\,(a+b)^2\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 38 433 leaves): Display of huge result suppressed!

Problem 404: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[x]}{\left(a+b\,\text{Tan}[x]^4\right)^{5/2}}\,dx$$

Optimal (type 3, 117 leaves, 7 steps):

$$-\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{5/2}}+\frac{a+b\,\text{Tan}[x]^2}{6\,a\,(a+b)\,\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}+\frac{3\,a^2+b\,(5\,a+2\,b)\,\text{Tan}[x]^2}{6\,a^2\,(a+b)^2\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 38 453 leaves): Display of huge result suppressed!

Problem 408: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(d\,\text{Tan}[e+f\,x])^m}{a+b\,\sqrt{c\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 5, 460 leaves, 14 steps):

$$\left(a\,\left(a^2-b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,\text{Tan}[e+f\,x]\,(d\,\text{Tan}[e+f\,x])^m\right)\Big/\left(2\,\left(a^4+b^4\,c^2\right)\,f\,(1+m)\right)+$$
$$\left(a\,\left(a^2+b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,\text{Tan}[e+f\,x]\,(d\,\text{Tan}[e+f\,x])^m\right)\Big/\left(2\,\left(a^4+b^4\,c^2\right)\,f\,(1+m)\right)+$$
$$\left(b^4\,c^2\,\text{Hypergeometric2F1}\left[1,\,2\,(1+m),\,3+2\,m,\,-\frac{b\,\sqrt{c\,\text{Tan}[e+f\,x]}}{a}\right]\,\text{Tan}[e+f\,x]\,(d\,\text{Tan}[e+f\,x])^m\right)\Big/\left(a\,\left(a^4+b^4\,c^2\right)\,f\,(1+m)\right)-$$
$$\left(b\,\left(a^2-b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(5+2\,m),\,-\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,(c\,\text{Tan}[e+f\,x])^{3/2}\,(d\,\text{Tan}[e+f\,x])^m\right)\Big/\left(c\,\left(a^4+b^4\,c^2\right)\,f\,(3+2\,m)\right)-$$
$$\left(b\,\left(a^2+b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(5+2\,m),\,\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,(c\,\text{Tan}[e+f\,x])^{3/2}\,(d\,\text{Tan}[e+f\,x])^m\right)\Big/\left(c\,\left(a^4+b^4\,c^2\right)\,f\,(3+2\,m)\right)$$

Result (type 5, 557 leaves):

$$\frac{1}{f\left(1+2m\right)}2\,b\,\sqrt{c\,\mathrm{Tan}[e+f\,x]}\,\left(d\,\mathrm{Tan}[e+f\,x]\right)^m$$

$$\left(\frac{1}{-2\,i\,a^2-2\,b^2\,c}\mathrm{Hypergeometric2F1}\left[-\frac{1}{2}-m,\,-\frac{1}{2}-m,\,\frac{1}{2}-m,\,-\frac{i}{-i+\mathrm{Tan}[e+f\,x]}\right]\right.$$

$$\left(\frac{\mathrm{Tan}[e+f\,x]}{-i+\mathrm{Tan}[e+f\,x]}\right)^{-\frac{1}{2}-m}+\frac{1}{2\,i\,a^2-2\,b^2\,c}$$

$$\mathrm{Hypergeometric2F1}\left[-\frac{1}{2}-m,\,-\frac{1}{2}-m,\,\frac{1}{2}-m,\,\frac{i}{i+\mathrm{Tan}[e+f\,x]}\right]\left(\frac{\mathrm{Tan}[e+f\,x]}{i+\mathrm{Tan}[e+f\,x]}\right)^{-\frac{1}{2}-m}+$$

$$\frac{1}{\frac{a^4}{b^2\,c}+b^2\,c}\mathrm{Hypergeometric2F1}\left[-\frac{1}{2}-m,\,-\frac{1}{2}-m,\,\frac{1}{2}-m,\,-\frac{a^2}{b^2\,c\left(-\frac{a^2}{b^2\,c}+\mathrm{Tan}[e+f\,x]\right)}\right]$$

$$\left.\left(\frac{\mathrm{Tan}[e+f\,x]}{-\frac{a^2}{b^2\,c}+\mathrm{Tan}[e+f\,x]}\right)^{-\frac{1}{2}-m}\right)-\frac{1}{f\,m}$$

$$a\left(d\,\mathrm{Tan}[e+f\,x]\right)^m\left(\frac{\mathrm{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,-\frac{i}{-i+\mathrm{Tan}[e+f\,x]}\right]\left(\frac{\mathrm{Tan}[e+f\,x]}{-i+\mathrm{Tan}[e+f\,x]}\right)^{-m}}{-2\,i\,a^2-2\,b^2\,c}+\right.$$

$$\frac{\mathrm{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,\frac{i}{i+\mathrm{Tan}[e+f\,x]}\right]\left(\frac{\mathrm{Tan}[e+f\,x]}{i+\mathrm{Tan}[e+f\,x]}\right)^{-m}}{2\,i\,a^2-2\,b^2\,c}+\frac{1}{\frac{a^4}{b^2\,c}+b^2\,c}$$

$$\left.\mathrm{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,-\frac{a^2}{b^2\,c\left(-\frac{a^2}{b^2\,c}+\mathrm{Tan}[e+f\,x]\right)}\right]\left(\frac{\mathrm{Tan}[e+f\,x]}{-\frac{a^2}{b^2\,c}+\mathrm{Tan}[e+f\,x]}\right)^{-m}\right)$$

Problem 421: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(d\,\mathrm{Cot}[e+f\,x]\right)^m\left(b\,\mathrm{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 5, 78 leaves, 4 steps):

$$\frac{1}{f\left(1-m+2p\right)}$$

$$\left(d\,\mathrm{Cot}[e+f\,x]\right)^m\mathrm{Hypergeometric2F1}\left[1,\,\frac{1}{2}\left(1-m+2p\right),\,\frac{1}{2}\left(3-m+2p\right),\,-\mathrm{Tan}[e+f\,x]^2\right]$$

$$\mathrm{Tan}[e+f\,x]\,\left(b\,\mathrm{Tan}[e+f\,x]^2\right)^p$$

Result (type 6, 3103 leaves):

$$-\left(\left(2\,e^{2\,p\,\mathrm{Log}[\mathrm{Cot}[e+f\,x]]+2\,p\,\mathrm{Log}[\mathrm{Tan}[e+f\,x]]}\left(-3+m-2p\right)\right.\right.$$

$$\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$

$$\left.\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Cot}[e+fx]^{m-2p}(d\,\text{Cot}[e+fx])^m\left(b\,\text{Tan}[e+fx]^2\right)^p\right)\Big/$$

$$\left(f(-1+m-2p)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\right.$$

$$\left.\left.-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)$$

$$\left(\left(2(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}[e+fx]^m\,\text{Tan}[e+fx]^{2p}\right)\Big/\left((-1+m-2p)\right.$$

$$\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\right.$$

$$\left.\left.\left.\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+$$

$$\left(\left(-3+m-2p\right)\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}[e+fx]^m\,\text{Tan}[e+fx]^{2p}\right)\Big/\left((-1+m-2p)\right.$$

$$\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\right.$$

$$\left.\left.\left.\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)-$$

$$\left(2(-3+m-2p)\,\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Cot}[e+fx]^m\right.$$

$$\left(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)$$

$$(-m+2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\text{Tan}[e+fx]^{2p}\right)\Big/$$

$$\left(\left(-1+m-2p\right)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2\right.$$

$$\left.\left.\left.p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+$$

$$\left(2(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Cot}[e+fx]^m$$

$$\left(-(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2+(-3+m-2p)$$

$$\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\left(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)(-m+2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$2\left(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}2\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,\,-m+2p,\,3,\,\frac{7}{2}-\frac{m}{2}+p,\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)(-m+2p)\,\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,\,1-m+2p,\,2,\,\frac{7}{2}-\frac{m}{2}+p,\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$2(m-2p)\left(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,\,1-m+2p,\,2,\,\frac{7}{2}-\frac{m}{2}+p,\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] +$$

$$\frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)(1-m+2p)\,\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p, 2-m+2p, 1, \frac{7}{2}-\frac{m}{2}+p,\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg)$$

$$\text{Tan}[e+fx]^{2p}\Bigg) \Big/ \Bigg(\left(-1+m-2p\right)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, -m+2p, 2,\right.\right.$$

$$\frac{5}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big] +$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, 1-m+2p, 1, \frac{5}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + (-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p, -m+2p, 1,\right.$$

$$\left.\frac{3}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)^2\Bigg) -$$

$$\Bigg(4(-3+m-2p)\,p\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p, -m+2p, 1, \frac{3}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Cos}\left[\frac{1}{2}(e+fx)\right]^2 \text{Cot}\left[\frac{1}{2}(e+fx)\right]$$

$$\text{Cot}[e+fx]^m\,\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]^{-1+2p}\Bigg) \Big/ \Bigg(\left(-1+m-2p\right)$$

$$\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, -m+2p, 2, \frac{5}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] +\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, 1-m+2p, 1, \frac{5}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + (-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p, -m+2p, 1,\right.$$

$$\left.\left.\frac{3}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\Bigg) +$$

$$\Bigg(2m(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p, -m+2p, 1, \frac{3}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Cos}\left[\frac{1}{2}(e+fx)\right]^2 \text{Cot}\left[\frac{1}{2}(e+fx)\right]$$

$$\text{Cot}[e+fx]^m\,\text{Csc}[e+fx]^2\,\text{Tan}[e+fx]^{1+2p}\Bigg) \Big/ \Bigg(\left(-1+m-2p\right)$$

$$\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, -m+2p, 2, \frac{5}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] +\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, 1-m+2p, 1, \frac{5}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + (-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p, -m+2p, 1,\right.$$

$$\left.\left.\left.\left.\frac{3}{2}-\frac{m}{2}+p,\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)\right)$$

Problem 422: Result more than twice size of optimal antiderivative.

$$\int (d\,\text{Cot}[e+f x])^m \left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 107 leaves, 4 steps):

$$\frac{1}{f(1-m)}\text{AppellF1}\left[\frac{1-m}{2},1,-p,\frac{3-m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]$$
$$(d\,\text{Cot}[e+f x])^m\,\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 2256 leaves):

$$-\left(\left(\left(a(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right.\right.\right.$$
$$\left.\text{Cot}[e+f x]^{3+m}(d\,\text{Cot}[e+f x])^m\,\text{Sin}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^{2p}\right)\Big/$$
$$\left(f(-1+m)\left(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},1-p,1,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.\right.$$
$$2\,a\,\text{AppellF1}\left[\frac{3-m}{2},-p,2,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+$$
$$\left.a(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cot}[e+f x]^2\right)$$
$$\left(-\left(\left(2\,a\,b(-3+m)\,p\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right.\right.\right.$$
$$\left.\text{Cot}[e+f x]^m\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\right)\Big/\left((-1+m)\left(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},\right.\right.\right.$$
$$1-p,1,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\,a\,\text{AppellF1}\left[\frac{3-m}{2},$$
$$-p,2,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a(-3+m)\,\text{AppellF1}\left[$$
$$\left.\left.\left.\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cot}[e+f x]^2\right)\right)\right)+$$
$$\left(a(-3+m)(3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right.$$
$$\left.\text{Cot}[e+f x]^{2+m}\left(a+b\,\text{Tan}[e+f x]^2\right)^p\right)\Big/$$
$$\left((-1+m)\left(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},1-p,1,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.\right.$$
$$2\,a\,\text{AppellF1}\left[\frac{3-m}{2},-p,2,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a(-3+m)$$

$$\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cot}[e+f x]^2\Big)\Big)-$$

$$\Big(2\,a\,(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]$$

$$\text{Cos}[e+f x]\,\text{Cot}[e+f x]^{3+m}\,\text{Sin}[e+f x]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Big)\Big/$$

$$\Big((-1+m)\,\Big(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},1-p,1,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+$$

$$2\,a\,\text{AppellF1}\left[\frac{3-m}{2},-p,2,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a\,(-3+m)$$

$$\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cot}[e+f x]^2\Big)\Big)-$$

$$\Big(a\,(-3+m)\,\text{Cot}[e+f x]^{3+m}\,\text{Sin}[e+f x]^2\,\Big(\frac{1}{a\,(3-m)}2\,b\,(1-m)\,p\,\text{AppellF1}\Big[1+\frac{1-m}{2},$$

$$1-p,1,1+\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{1}{3-m}2\,(1-m)\,\text{AppellF1}\Big[1+\frac{1-m}{2},-p,2,1+\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Big)\Big/$$

$$\Big((-1+m)\,\Big(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},1-p,1,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+$$

$$2\,a\,\text{AppellF1}\left[\frac{3-m}{2},-p,2,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a\,(-3+m)$$

$$\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cot}[e+f x]^2\Big)\Big)+$$

$$\Big(a\,(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]$$

$$\text{Cot}[e+f x]^{3+m}\,\text{Sin}[e+f x]^2\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p$$

$$\Big(-2\,a\,(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]$$

$$\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2+a\,(-3+m)\,\text{Cot}[e+f x]^2$$

$$\Big(\frac{1}{a\,(3-m)}2\,b\,(1-m)\,p\,\text{AppellF1}\Big[1+\frac{1-m}{2},1-p,1,1+\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},$$

$$-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{1}{3-m}2\,(1-m)\,\text{AppellF1}\Big[1+\frac{1-m}{2},$$

$$-p,2,1+\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)-$$

$$2\,b\,p\,\Big(-\frac{1}{5-m}2\,(3-m)\,\text{AppellF1}\Big[1+\frac{3-m}{2},1-p,2,1+\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},$$

$$-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{1}{a\,(5-m)}2\,b\,(3-m)\,(1-p)$$

$$\text{AppellF1}\left[1+\frac{3-m}{2},\,2-p,\,1,\,1+\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)+2\,a\,\Bigg(\frac{1}{a\,(5-m)}2\,b\,(3-m)\,p$$
$$\text{AppellF1}\left[1+\frac{3-m}{2},\,1-p,\,2,\,1+\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{1}{5-m}4\,(3-m)\,\text{AppellF1}\left[1+\frac{3-m}{2},\,-p,\,3,\right.$$
$$\left.1+\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Bigg)\Bigg)\Big/$$
$$\Bigg((-1+m)\,\Bigg(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},\,1-p,\,1,\,\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]+$$
$$2\,a\,\text{AppellF1}\left[\frac{3-m}{2},\,-p,\,2,\,\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]+$$
$$a\,(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\right.$$
$$\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\text{Cot}[e+f\,x]^2\Bigg)^2\Bigg)\Bigg)\Bigg)$$

Problem 423: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (d\,\text{Cot}[e+f\,x])^m\,\left(b\,(c\,\text{Tan}[e+f\,x])^n\right)^p\,dx$$

Optimal (type 5, 80 leaves, 4 steps):

$$\frac{1}{f\,(1-m+n\,p)}$$
$$(d\,\text{Cot}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[1,\,\frac{1}{2}\,(1-m+n\,p),\,\frac{1}{2}\,(3-m+n\,p),\,-\text{Tan}[e+f\,x]^2\right]$$
$$\text{Tan}[e+f\,x]\,\left(b\,(c\,\text{Tan}[e+f\,x])^n\right)^p$$

Result (type 6, 3282 leaves):

$$-\Bigg(\Bigg(2\,e^{n\,p\,\text{Log}[\text{Cot}[e+f\,x]]+n\,p\,\text{Log}[\text{Tan}[e+f\,x]]}\,(-3+m-n\,p)$$
$$\text{AppellF1}\left[\frac{1}{2}\,(1-m+n\,p),\,-m+n\,p,\,1,\,\frac{1}{2}\,(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$
$$\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\,\text{Cot}[e+f\,x]^{m-n\,p}\,(d\,\text{Cot}[e+f\,x])^m\,\left(b\,(c\,\text{Tan}[e+f\,x])^n\right)^p\Bigg)\Big/$$
$$\Bigg(f\,(-1+m-n\,p)\,\Bigg(2\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n\,p),\,-m+n\,p,\,2,\,\frac{1}{2}\,(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,(m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n\,p),\,1-m+n\,p,\,1,\,\frac{1}{2}\,(5-m+n\,p),\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n\,p),\right.$$

$$-m+n p, 1, \frac{1}{2} (3-m+n p), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2\Big)$$

$$\Bigg(\Bigg(2 (-3+m-n p) \text{AppellF1}\left[\frac{1}{2} (1-m+n p), -m+n p, 1, \frac{1}{2} (3-m+n p), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cos}\left[\frac{1}{2} (e+f x)\right]^2 \text{Cot}[e+f x]^m \text{Tan}[e+f x]^{n p}\Bigg) \Big/$$

$$\Bigg((-1+m-n p) \Bigg(2 \text{AppellF1}\left[\frac{1}{2} (3-m+n p), -m+n p, 2, \frac{1}{2} (5-m+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] + 2 (m-n p) \text{AppellF1}\left[\frac{1}{2} (3-m+n p),\right.$$

$$\left.1-m+n p, 1, \frac{1}{2} (5-m+n p), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] +$$

$$(-3+m-n p) \text{AppellF1}\left[\frac{1}{2} (1-m+n p), -m+n p, 1, \frac{1}{2} (3-m+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2\Bigg)\Bigg) +$$

$$\Bigg((-3+m-n p) \text{AppellF1}\left[\frac{1}{2} (1-m+n p), -m+n p, 1, \frac{1}{2} (3-m+n p), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2 \text{Cot}[e+f x]^m \text{Tan}[e+f x]^{n p}\Bigg) \Big/$$

$$\Bigg((-1+m-n p) \Bigg(2 \text{AppellF1}\left[\frac{1}{2} (3-m+n p), -m+n p, 2, \frac{1}{2} (5-m+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] + 2 (m-n p) \text{AppellF1}\left[\frac{1}{2} (3-m+n p),\right.$$

$$\left.1-m+n p, 1, \frac{1}{2} (5-m+n p), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] +$$

$$(-3+m-n p) \text{AppellF1}\left[\frac{1}{2} (1-m+n p), -m+n p, 1, \frac{1}{2} (3-m+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2\Bigg)\Bigg) -$$

$$\Bigg(2 (-3+m-n p) \text{Cos}\left[\frac{1}{2} (e+f x)\right]^2 \text{Cot}\left[\frac{1}{2} (e+f x)\right] \text{Cot}[e+f x]^m$$

$$\Bigg(-\frac{1}{3-m+n p} (1-m+n p) \text{AppellF1}\left[1+\frac{1}{2} (1-m+n p), -m+n p, 2, 1+\frac{1}{2} (3-m+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2} (e+f x)\right]^2 \text{Tan}\left[\frac{1}{2} (e+f x)\right] +$$

$$\frac{1}{3-m+n p} (-m+n p) (1-m+n p) \text{AppellF1}\left[1+\frac{1}{2} (1-m+n p), 1-m+n p,\right.$$

$$\left.1, 1+\frac{1}{2} (3-m+n p), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2} (e+f x)\right]^2 \text{Tan}\left[\frac{1}{2} (e+f x)\right]\Bigg) \text{Tan}[e+f x]^{n p}\Bigg) \Big/$$

$$\Bigg((-1+m-n p) \Bigg(2 \text{AppellF1}\left[\frac{1}{2} (3-m+n p), -m+n p, 2, \frac{1}{2} (5-m+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] + 2 (m-n p) \text{AppellF1}\left[\frac{1}{2} (3-m+n p),\right.$$

$$1-m+n p,1,\frac{1}{2}(5-m+n p),\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(-3+m-n p)\operatorname{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)+$$

$$\Big(2(-3+m-n p)\operatorname{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]$$

$$\operatorname{Cot}[e+f x]^m\Big(-(-3+m-n p)\operatorname{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]\operatorname{Csc}\left[\frac{1}{2}(e+f x)\right]^2+$$

$$(-3+m-n p)\operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Big(-\frac{1}{3-m+n p}(1-m+n p)\operatorname{AppellF1}\left[1+\frac{1}{2}(1-m+n p),\right.$$

$$\left.-m+n p,2,1+\frac{1}{2}(3-m+n p),\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3-m+n p}(-m+n p)(1-m+n p)$$

$$\operatorname{AppellF1}\left[1+\frac{1}{2}(1-m+n p),1-m+n p,1,1+\frac{1}{2}(3-m+n p),\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+$$

$$2\Big(-\frac{1}{5-m+n p}2(3-m+n p)\operatorname{AppellF1}\left[1+\frac{1}{2}(3-m+n p),-m+n p,3,\right.$$

$$\left.1+\frac{1}{2}(5-m+n p),\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n p}(-m+n p)(3-m+n p)$$

$$\operatorname{AppellF1}\left[1+\frac{1}{2}(3-m+n p),1-m+n p,2,1+\frac{1}{2}(5-m+n p),\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+$$

$$2(m-n p)\Big(-\frac{1}{5-m+n p}(3-m+n p)\operatorname{AppellF1}\left[1+\frac{1}{2}(3-m+n p),1-m+n p,\right.$$

$$\left.2,1+\frac{1}{2}(5-m+n p),\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n p}(1-m+n p)(3-m+n p)$$

$$\operatorname{AppellF1}\left[1+\frac{1}{2}(3-m+n p),2-m+n p,1,1+\frac{1}{2}(5-m+n p),\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\operatorname{Tan}[e+f x]^{n p}\Big)\Big/$$

$$\Big((-1+m-n p)\Big(2\operatorname{AppellF1}\left[\frac{1}{2}(3-m+n p),-m+n p,2,\frac{1}{2}(5-m+n p),\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2(m-n p)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n p),\right.$$
$$1-m+n p, 1, \frac{1}{2}(5-m+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$
$$(-3+m-n p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n p), -m+n p, 1, \frac{1}{2}(3-m+n p),\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right) -$$
$$\left(2 n p(-3+m-n p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n p), -m+n p, 1, \frac{1}{2}(3-m+n p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\left.\text{Cot}\left[\frac{1}{2}(e+f x)\right]\text{Cot}[e+f x]^m\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^{-1+n p}\right)\Big/$$
$$\left((-1+m-n p)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n p), -m+n p, 2, \frac{1}{2}(5-m+n p),\right.\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2(m-n p)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n p),\right.$$
$$1-m+n p, 1, \frac{1}{2}(5-m+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$
$$(-3+m-n p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n p), -m+n p, 1, \frac{1}{2}(3-m+n p),\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$
$$\left(2 m(-3+m-n p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n p), -m+n p, 1, \frac{1}{2}(3-m+n p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\left.\text{Cot}\left[\frac{1}{2}(e+f x)\right]\text{Cot}[e+f x]^m\,\text{Csc}[e+f x]^2\,\text{Tan}[e+f x]^{1+n p}\right)\Big/$$
$$\left((-1+m-n p)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n p), -m+n p, 2, \frac{1}{2}(5-m+n p),\right.\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2(m-n p)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n p),\right.$$
$$1-m+n p, 1, \frac{1}{2}(5-m+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$
$$(-3+m-n p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n p), -m+n p, 1, \frac{1}{2}(3-m+n p),\right.$$
$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)\right)$$

Problem 427: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]\left(a+b\,\text{Tan}[c+d x]^2\right)dx$$

Optimal (type 3, 28 leaves, 3 steps):

$$\frac{b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{(a-b)\,\text{Sin}[c+d\,x]}{d}$$

Result (type 3, 92 leaves):

$$-\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}+\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}+\frac{a\,\text{Cos}[d\,x]\,\text{Sin}[c]}{d}+\frac{a\,\text{Cos}[c]\,\text{Sin}[d\,x]}{d}-\frac{b\,\text{Sin}[c+d\,x]}{d}$$

Problem 431: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^6\,\left(a+b\,\text{Tan}[c+d\,x]^2\right)\,dx$$

Optimal (type 3, 68 leaves, 3 steps):

$$\frac{a\,\text{Tan}[c+d\,x]}{d}+\frac{(2\,a+b)\,\text{Tan}[c+d\,x]^3}{3\,d}+\frac{(a+2\,b)\,\text{Tan}[c+d\,x]^5}{5\,d}+\frac{b\,\text{Tan}[c+d\,x]^7}{7\,d}$$

Result (type 3, 139 leaves):

$$\frac{8\,a\,\text{Tan}[c+d\,x]}{15\,d}-\frac{8\,b\,\text{Tan}[c+d\,x]}{105\,d}+\frac{4\,a\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{15\,d}-\frac{4\,b\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{105\,d}+\frac{a\,\text{Sec}[c+d\,x]^4\,\text{Tan}[c+d\,x]}{5\,d}-\frac{b\,\text{Sec}[c+d\,x]^4\,\text{Tan}[c+d\,x]}{35\,d}+\frac{b\,\text{Sec}[c+d\,x]^6\,\text{Tan}[c+d\,x]}{7\,d}$$

Problem 432: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^4\,\left(a+b\,\text{Tan}[c+d\,x]^2\right)\,dx$$

Optimal (type 3, 46 leaves, 3 steps):

$$\frac{a\,\text{Tan}[c+d\,x]}{d}+\frac{(a+b)\,\text{Tan}[c+d\,x]^3}{3\,d}+\frac{b\,\text{Tan}[c+d\,x]^5}{5\,d}$$

Result (type 3, 95 leaves):

$$\frac{2\,a\,\text{Tan}[c+d\,x]}{3\,d}-\frac{2\,b\,\text{Tan}[c+d\,x]}{15\,d}+\frac{a\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{3\,d}-\frac{b\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{15\,d}+\frac{b\,\text{Sec}[c+d\,x]^4\,\text{Tan}[c+d\,x]}{5\,d}$$

Problem 437: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\,\left(a+b\,\text{Tan}[c+d\,x]^2\right)^2\,dx$$

Optimal (type 3, 128 leaves, 5 steps):

$$\frac{\left(8 a^2-4 a b+b^2\right) \text{ArcTanh}[\text{Sin}[c+d x]]}{16 d}+\frac{\left(8 a^2-4 a b+b^2\right) \text{Sec}[c+d x] \text{Tan}[c+d x]}{16 d}+\frac{(8 a-3 b) b \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{24 d}+\frac{b \text{Sec}[c+d x]^5 \left(a-(a-b) \text{Sin}[c+d x]^2\right) \text{Tan}[c+d x]}{6 d}$$

Result (type 3, 327 leaves):

$$\frac{\left(-8 a^2+4 a b-b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{16 d}+\frac{\left(8 a^2-4 a b+b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{16 d}+\frac{b^2}{48 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^6}+\frac{2 a b-b^2}{16 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{8 a^2-4 a b+b^2}{32 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{b^2}{48 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^6}+\frac{-2 a b+b^2}{16 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{-8 a^2+4 a b-b^2}{32 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}$$

Problem 439: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x] \left(a+b \text{Tan}[c+d x]^2\right)^2 \, dx$$

Optimal (type 3, 62 leaves, 5 steps):

$$\frac{(4 a-3 b) b \text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}+\frac{(a-b)^2 \text{Sin}[c+d x]}{d}+\frac{b^2 \text{Sec}[c+d x] \text{Tan}[c+d x]}{2 d}$$

Result (type 3, 146 leaves):

$$\frac{1}{4 d}\left(-2 (4 a-3 b) b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+2 (4 a-3 b) b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\frac{b^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{b^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}+4 (a-b)^2 \text{Sin}[c+d x]\right)$$

Problem 449: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d x]^6 \left(a+b \text{Tan}[c+d x]^2\right)^2 \, dx$$

Optimal (type 3, 122 leaves, 5 steps):

$$\frac{1}{16}\left(5 a^2+2 a b+b^2\right) x+\frac{\left(5 a^2+2 a b+b^2\right) \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]}{16 d}+\frac{(a-b)(5 a+3 b) \operatorname{Cos}[c+d x]^3 \operatorname{Sin}[c+d x]}{24 d}+\frac{(a-b) \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[c+d x]\left(a+b \operatorname{Tan}[c+d x]^2\right)}{6 d}$$

Result (type 3, 87 leaves):

$$\frac{1}{192 d}\Big(12\left((1-2 i) a+b\right)\left((1+2 i) a+b\right)(c+d x)+3(5 a-b)(3 a+b) \operatorname{Sin}[2(c+d x)]+3(a-b)(3 a+b) \operatorname{Sin}[4(c+d x)]+(a-b)^2 \operatorname{Sin}[6(c+d x)]\Big)$$

Problem 450: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[c+d x]^5}{a+b \operatorname{Tan}[c+d x]^2} \, dx$$

Optimal (type 3, 90 leaves, 5 steps):

$$-\frac{(2 a-3 b) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{2 b^2 d}+\frac{(a-b)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a-b} \operatorname{Sin}[c+d x]}{\sqrt{a}}\right]}{\sqrt{a}\, b^2 d}+\frac{\operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{2 b d}$$

Result (type 3, 207 leaves):

$$\frac{1}{4 b^2 d}\left(2(2 a-3 b) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+2(-2 a+3 b) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\frac{2(a-b)^{3/2} \operatorname{Log}\left[\sqrt{a}-\sqrt{a-b} \operatorname{Sin}[c+d x]\right]}{\sqrt{a}}+\frac{2(a-b)^{3/2} \operatorname{Log}\left[\sqrt{a}+\sqrt{a-b} \operatorname{Sin}[c+d x]\right]}{\sqrt{a}}+\frac{b}{\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{b}{\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)$$

Problem 451: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[c+d x]^3}{a+b \operatorname{Tan}[c+d x]^2} \, dx$$

Optimal (type 3, 59 leaves, 4 steps):

$$\frac{\operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{b d}-\frac{\sqrt{a-b} \operatorname{ArcTanh}\left[\frac{\sqrt{a-b} \operatorname{Sin}[c+d x]}{\sqrt{a}}\right]}{\sqrt{a}\, b d}$$

Result (type 3, 136 leaves):

$$\frac{1}{2\sqrt{a}\,b\,d}\left(-2\sqrt{a}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+2\sqrt{a}\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\sqrt{a-b}\left(\text{Log}\left[\sqrt{a}-\sqrt{a-b}\,\text{Sin}[c+d x]\right]-\text{Log}\left[\sqrt{a}+\sqrt{a-b}\,\text{Sin}[c+d x]\right]\right)\right)$$

Problem 462: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^7}{\left(a+b\,\text{Tan}[c+d x]^2\right)^2}\,dx$$

Optimal (type 3, 167 leaves, 6 steps):

$$-\frac{(4 a-5 b)\,\text{ArcTanh}[\text{Sin}[c+d x]]}{2 b^3 d}+\frac{(a-b)^{3/2}(4 a+b)\,\text{ArcTanh}\left[\frac{\sqrt{a-b}\,\text{Sin}[c+d x]}{\sqrt{a}}\right]}{2 a^{3/2} b^3 d}+\frac{(a-b)(2 a-b)\,\text{Sin}[c+d x]}{2 a b^2 d\left(a-(a-b)\,\text{Sin}[c+d x]^2\right)}+\frac{\text{Sec}[c+d x]\,\text{Tan}[c+d x]}{2 b d\left(a-(a-b)\,\text{Sin}[c+d x]^2\right)}$$

Result (type 3, 343 leaves):

$$\frac{(4 a-5 b)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{2 b^3 d}+\frac{(-4 a+5 b)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{2 b^3 d}-\frac{(a-b)^{3/2}(4 a+b)\,\text{Log}\left[\sqrt{a}-\sqrt{a-b}\,\text{Sin}[c+d x]\right]}{4 a^{3/2} b^3 d}+\frac{\left(4 a^3-7 a^2 b+2 a b^2+b^3\right)\text{Log}\left[\sqrt{a}+\sqrt{a-b}\,\text{Sin}[c+d x]\right]}{4 a^{3/2}\sqrt{a-b}\,b^3 d}+\frac{1}{4 b^2 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{1}{4 b^2 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}+\frac{-a^2\,\text{Sin}[c+d x]+2 a b\,\text{Sin}[c+d x]-b^2\,\text{Sin}[c+d x]}{a b^2 d\,(-a-b-a\,\text{Cos}[2(c+d x)]+b\,\text{Cos}[2(c+d x)])}$$

Problem 475: Result more than twice size of optimal antiderivative.

$$\int (d\,\text{Sec}[e+f x])^m\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 108 leaves, 3 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right](d\,\text{Sec}[e+f x])^m\left(\text{Sec}[e+f x]^2\right)^{-m/2}\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 2033 leaves):

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right.$$
$$\left.(d\,\text{Sec}[e+f\,x])^m\left(\text{Sec}[e+f\,x]^2\right)^{-1+\frac{m}{2}}\text{Tan}[e+f\,x]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{2\,p}\right)\Big/$$
$$\left(f\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.\right.$$
$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.$$
$$\left.\left.a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)$$
$$\left(\left(6\,a\,b\,p\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right.\right.$$
$$\left.\left(\text{Sec}[e+f\,x]^2\right)^{m/2}\text{Tan}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\right)\Big/$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.$$
$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)+$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right.$$
$$\left.\left(\text{Sec}[e+f\,x]^2\right)^{m/2}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{p}\right)\Big/$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.$$
$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)+$$
$$\left(6\,a\left(-1+\frac{m}{2}\right)\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right.$$
$$\left.\left(\text{Sec}[e+f\,x]^2\right)^{-1+\frac{m}{2}}\text{Tan}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{p}\right)\Big/$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.$$
$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(3\,a\,\left(\text{Sec}[e+f\,x]^2\right)^{-1+\frac{m}{2}}\,\text{Tan}[e+f\,x]\,\left(\frac{1}{3\,a}2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\left(1-\frac{m}{2}\right)\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)-\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(\text{Sec}[e+f\,x]^2\right)^{-1+\frac{m}{2}}\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(2\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+3\,a\left(\frac{1}{3\,a}2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\left(1-\frac{m}{2}\right)\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+\text{Tan}[e+f\,x]^2\left(2\,b\,p\left(-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},1-\frac{m}{2},2-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{6}{5}\left(1-\frac{m}{2}\right)\text{AppellF1}\left[\frac{5}{2},2-\frac{m}{2},1-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+a\,(-2+m)\left(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},2-\frac{m}{2},1-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{6}{5}\left(2-\frac{m}{2}\right)\text{AppellF1}\left[\frac{5}{2},3-\frac{m}{2},-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)\right.\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{3}{2},\,2-\frac{m}{2},\,-p,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\,\text{Tan}[e+f\,x]^2\right)^2\Bigg)\Bigg)$$

Problem 481: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]^2\,\left(b\,\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p\,dx$$

Optimal (type 5, 61 leaves, 3 steps):

$$\frac{1}{f\,(1+n\,p)}\,\text{Hypergeometric2F1}\left[2,\,\frac{1}{2}\,(1+n\,p),\,\frac{1}{2}\,(3+n\,p),\,-\text{Tan}[e+f\,x]^2\right]\,\text{Tan}[e+f\,x]\,\left(b\,\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p$$

Result (type 6, 8042 leaves):

$$\Bigg(2^{1+n\,p}\,(3+n\,p)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\left(-\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{n\,p}$$

$$\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\Bigg)\Bigg/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-2\,\Bigg(\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}\,(5+n\,p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Bigg)\Bigg/\Bigg((3+n\,p)$$

$$\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}\,(5+n\,p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)+$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\Bigg/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 4, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)$$

$$\text{Tan}[e+f x]^{-n p}\left(b\left(c\,\text{Tan}[e+f x]\right)^n\right)^p \left(\frac{1}{4}\text{Cos}\left[2(e+f x)\right]^3\text{Tan}[e+f x]^{n p} - \frac{1}{4}\,i\,\text{Sin}\left[2(e+f x)\right]\text{Tan}[e+f x]^{n p} + \frac{1}{2}\text{Sin}\left[2(e+f x)\right]^2\text{Tan}[e+f x]^{n p} + \frac{1}{4}\,i\,\text{Sin}\left[2(e+f x)\right]^3\text{Tan}[e+f x]^{n p} + \text{Cos}\left[2(e+f x)\right]^2\left(\frac{1}{2}\text{Tan}[e+f x]^{n p} + \frac{1}{4}\,i\,\text{Sin}\left[2(e+f x)\right]\text{Tan}[e+f x]^{n p}\right) + \text{Cos}\left[2(e+f x)\right]\left(\frac{1}{4}\text{Tan}[e+f x]^{n p} + \frac{1}{4}\text{Sin}\left[2(e+f x)\right]^2\text{Tan}[e+f x]^{n p}\right)\right)\Bigg/$$

$$\left(f(1+n p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\right.$$

$$\left(-\frac{1}{(1+n p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4}\right.$$

$$3\times 2^{1+n p}(3+n p)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p}$$

$$\left(\left(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\Bigg/\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) - \left(4\,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p),\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\Bigg)\Bigg/$$

$$\Bigg(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,2,\frac{1}{2}\left(3+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}\left(3+n p\right),n p,3,\frac{1}{2}\left(5+n p\right),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n p\right),1+n p,\right.$$

$$\left.2,\frac{1}{2}\left(5+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Bigg)+$$

$$\left(4\,\text{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,3,\frac{1}{2}\left(3+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\Bigg/$$

$$\Bigg(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,3,\frac{1}{2}\left(3+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\Bigg(-3\,\text{AppellF1}\left[\frac{1}{2}\left(3+n p\right),n p,4,\frac{1}{2}\left(5+n p\right),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n p\right),1+n p,3,\right.$$

$$\left.\frac{1}{2}\left(5+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{\left(1+n p\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^3}2^{n p}\left(3+n p\right)\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2$$

$$\left(-\frac{\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}\right)^{n p}$$

$$\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,1,\frac{1}{2}\left(3+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^2\Bigg)\Bigg/$$

$$\Bigg(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,1,\frac{1}{2}\left(3+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-2\Bigg(\text{AppellF1}\left[\frac{1}{2}\left(3+n p\right),n p,2,\frac{1}{2}\left(5+n p\right),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-n p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n p\right),1+n p,1,\right.$$

$$\left.\frac{1}{2}\left(5+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Bigg)-$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,2,\frac{1}{2}\left(3+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\Bigg)\Bigg/$$

$$\Bigg(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,2,\frac{1}{2}\left(3+n p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}\left(3+n p\right),n p,3,\frac{1}{2}\left(5+n p\right),\right.$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,$$

$$2,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Big)+$$

$$\left(4\,\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,3,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\Big/$$

$$\Big(\left(3+n\,p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,3,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\Big(-3\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),n\,p,4,\frac{1}{2}\left(5+n\,p\right),$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,3,$$

$$\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Big)\Big)+$$

$$\frac{1}{\left(1+n\,p\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^3}\,2^{1+n\,p}\,n\,p\left(3+n\,p\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]$$

$$\left(-\frac{\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}\right)^{-1+n\,p}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)}\right)$$

$$\Big(\Big(\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,1,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^2\Big)\Big/$$

$$\Big(\left(3+n\,p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,1,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-2\Big(\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),n\,p,2,\frac{1}{2}\left(5+n\,p\right),$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,1,$$

$$\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Big)-$$

$$\Big(4\,\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,2,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\Big)\Big/$$

$$\Big(\left(3+n\,p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,2,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\Big(-2\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),n\,p,3,\frac{1}{2}\left(5+n\,p\right),$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,$$

$$2,\ \frac{1}{2}\ (5+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big]\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)+$$

$$\Big(4\ \text{AppellF1}\left[\frac{1}{2}\ (1+n\,p),\ n\,p,\ 3,\ \frac{1}{2}\ (3+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)\Big/$$

$$\Big(\ (3+n\,p)\ \text{AppellF1}\left[\frac{1}{2}\ (1+n\,p),\ n\,p,\ 3,\ \frac{1}{2}\ (3+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+2\ \Big(-3\ \text{AppellF1}\left[\frac{1}{2}\ (3+n\,p),\ n\,p,\ 4,\ \frac{1}{2}\ (5+n\,p),\right.$$

$$\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big]+n\,p\ \text{AppellF1}\left[\frac{1}{2}\ (3+n\,p),\ 1+n\,p,\ 3,\right.$$

$$\left.\frac{1}{2}\ (5+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)\Big)+$$

$$\frac{1}{(1+n\,p)\ \left(1+\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right)^3}\ 2^{1+n\,p}\ (3+n\,p)\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]$$

$$\left(-\frac{\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2}\right)^{n\,p}$$

$$\Big(\Big(2\ \text{AppellF1}\left[\frac{1}{2}\ (1+n\,p),\ n\,p,\ 1,\ \frac{1}{2}\ (3+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]\ \left(1+\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right)\Big)\Big/$$

$$\Big(\ (3+n\,p)\ \text{AppellF1}\left[\frac{1}{2}\ (1+n\,p),\ n\,p,\ 1,\ \frac{1}{2}\ (3+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]-2\ \Big(\text{AppellF1}\left[\frac{1}{2}\ (3+n\,p),\ n\,p,\ 2,\ \frac{1}{2}\ (5+n\,p),\right.$$

$$\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big]-n\,p\ \text{AppellF1}\left[\frac{1}{2}\ (3+n\,p),\ 1+n\,p,\ 1,\right.$$

$$\left.\frac{1}{2}\ (5+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)+$$

$$\Big(\Big(-\frac{1}{3+n\,p}\ (1+n\,p)\ \text{AppellF1}\left[1+\frac{1}{2}\ (1+n\,p),\ n\,p,\ 2,\ 1+\frac{1}{2}\ (3+n\,p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \text{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]+$$

$$\frac{1}{3+n\,p}\,n\,p\ (1+n\,p)\ \text{AppellF1}\left[1+\frac{1}{2}\ (1+n\,p),\ 1+n\,p,\ 1,\ 1+\frac{1}{2}\ (3+n\,p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \text{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]\Big)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right)^2\Big)\Big/\ \Big(\ (3+n\,p)\ \text{AppellF1}\left[\frac{1}{2}\ (1+n\,p),\ n\,p,\ 1,\right.$$

$$\left.\frac{1}{2}\ (3+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]-$$

$$2\ \Big(\text{AppellF1}\left[\frac{1}{2}\ (3+n\,p),\ n\,p,\ 2,\ \frac{1}{2}\ (5+n\,p),\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]-n\,p\ \text{AppellF1}\left[\frac{1}{2}\ (3+n\,p),\ 1+n\,p,\ 1,\ \frac{1}{2}\ (5+n\,p),\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) -$$

$$\Big(4\,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big/$$

$$\Big((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\Big(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p,\right.$$

$$\left.2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) -$$

$$\Big(4\Big(-\frac{1}{3+n p}2(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 3, 1+\frac{1}{2}(3+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right] +$$

$$\frac{1}{3+n p}n p(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 2, 1+\frac{1}{2}(3+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)$$

$$\Big(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)\Big/\Big((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2,\right.$$

$$\left.\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$

$$2\Big(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) +$$

$$\Big(4\Big(-\frac{1}{3+n p}3(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 4, 1+\frac{1}{2}(3+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right] +$$

$$\frac{1}{3+n p}n p(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 3, 1+\frac{1}{2}(3+n p),\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\Big/$$

$$\Big((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\Big(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 4, \frac{1}{2}(5+n p),\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p,\right.$$

$$
\begin{aligned}
&3,\ \frac{1}{2}\,(5+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Big)-\\
&\Big(\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\ n\,p,\ 1,\ \frac{1}{2}\,(3+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\\
&\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\\
&\Big(-2\,\Big(\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\ n\,p,\ 2,\ \frac{1}{2}\,(5+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\\
&\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\ 1+n\,p,\ 1,\ \frac{1}{2}\,(5+n\,p),\right.\\
&\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big)\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\\
&(3+n\,p)\ \Big(-\frac{1}{3+n\,p}(1+n\,p)\ \text{AppellF1}\left[1+\frac{1}{2}\,(1+n\,p),\ n\,p,\ 2,\ 1+\frac{1}{2}\,(3+n\,p),\right.\\
&\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\\
&\frac{1}{3+n\,p}n\,p\ (1+n\,p)\ \text{AppellF1}\left[1+\frac{1}{2}\,(1+n\,p),\ 1+n\,p,\ 1,\ 1+\frac{1}{2}\,(3+n\,p),\right.\\
&\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\Big)-\\
&2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\ \Big(-\frac{1}{5+n\,p}2\ (3+n\,p)\ \text{AppellF1}\left[1+\frac{1}{2}\,(3+n\,p),\ n\,p,\ 3,\right.\\
&\left.1+\frac{1}{2}\,(5+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\\
&\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\frac{1}{5+n\,p}n\,p\ (3+n\,p)\ \text{AppellF1}\left[1+\frac{1}{2}\,(3+n\,p),\ 1+n\,p,\right.\\
&\left.2,\ 1+\frac{1}{2}\,(5+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\\
&\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]-n\,p\ \Big(-\frac{1}{5+n\,p}(3+n\,p)\ \text{AppellF1}\left[1+\frac{1}{2}\,(3+n\,p),\right.\\
&\left.1+n\,p,\ 2,\ 1+\frac{1}{2}\,(5+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\\
&\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\frac{1}{5+n\,p}(1+n\,p)\ (3+n\,p)\\
&\text{AppellF1}\left[1+\frac{1}{2}\,(3+n\,p),\ 2+n\,p,\ 1,\ 1+\frac{1}{2}\,(5+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\\
&\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\Big)\Big)\Big)\Big)\Big/\\
&\Big((3+n\,p)\ \text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\ n\,p,\ 1,\ \frac{1}{2}\,(3+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\\
&\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-2\ \Big(\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\ n\,p,\ 2,\ \frac{1}{2}\,(5+n\,p),\right.\\
&\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\ 1+n\,p,\ 1,\right.\\
&\left.\frac{1}{2}\,(5+n\,p),\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Big)^2+
\end{aligned}
$$

$$\Big(4\,\text{AppellF1}\big[\tfrac{1}{2}(1+n p),\,n p,\,2,\,\tfrac{1}{2}(3+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\,\Big(1+\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\Big)$$

$$\Big(2\,\Big(-2\,\text{AppellF1}\big[\tfrac{1}{2}(3+n p),\,n p,\,3,\,\tfrac{1}{2}(5+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]+n p\,\text{AppellF1}\big[\tfrac{1}{2}(3+n p),\,1+n p,\,2,\,\tfrac{1}{2}(5+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\Big)\,\text{Sec}\big[\tfrac{1}{2}(e+f x)\big]^2\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]+$$

$$(3+n p)\,\Big(-\frac{1}{3+n p}2\,(1+n p)\,\text{AppellF1}\big[1+\tfrac{1}{2}(1+n p),\,n p,\,3,\,1+\tfrac{1}{2}(3+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\,\text{Sec}\big[\tfrac{1}{2}(e+f x)\big]^2\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]+$$

$$\frac{1}{3+n p}n p\,(1+n p)\,\text{AppellF1}\big[1+\tfrac{1}{2}(1+n p),\,1+n p,\,2,\,1+\tfrac{1}{2}(3+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\,\text{Sec}\big[\tfrac{1}{2}(e+f x)\big]^2\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]\Big)+$$

$$2\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\,\Big(-2\,\Big(-\frac{1}{5+n p}3\,(3+n p)\,\text{AppellF1}\big[1+\tfrac{1}{2}(3+n p),\,n p,\,4,\,1+\tfrac{1}{2}(5+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\,\text{Sec}\big[\tfrac{1}{2}(e+f x)\big]^2$$

$$\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]+\frac{1}{5+n p}n p\,(3+n p)\,\text{AppellF1}\big[1+\tfrac{1}{2}(3+n p),\,1+n p,\,3,\,1+\tfrac{1}{2}(5+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\,\text{Sec}\big[\tfrac{1}{2}(e+f x)\big]^2$$

$$\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]\Big)+n p\,\Big(-\frac{1}{5+n p}2\,(3+n p)\,\text{AppellF1}\big[1+\tfrac{1}{2}(3+n p),\,1+n p,\,3,\,1+\tfrac{1}{2}(5+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]$$

$$\text{Sec}\big[\tfrac{1}{2}(e+f x)\big]^2\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]+\frac{1}{5+n p}(1+n p)\,(3+n p)$$

$$\text{AppellF1}\big[1+\tfrac{1}{2}(3+n p),\,2+n p,\,2,\,1+\tfrac{1}{2}(5+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\,\text{Sec}\big[\tfrac{1}{2}(e+f x)\big]^2\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\Big((3+n p)\,\text{AppellF1}\big[\tfrac{1}{2}(1+n p),\,n p,\,2,\,\tfrac{1}{2}(3+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]+2\,\Big(-2\,\text{AppellF1}\big[\tfrac{1}{2}(3+n p),\,n p,\,3,\,\tfrac{1}{2}(5+n p),$$

$$\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]+n p\,\text{AppellF1}\big[\tfrac{1}{2}(3+n p),\,1+n p,\,2,\,\tfrac{1}{2}(5+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]\Big)\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\Big)^2-$$

$$\Big(4\,\text{AppellF1}\big[\tfrac{1}{2}(1+n p),\,n p,\,3,\,\tfrac{1}{2}(3+n p),\,\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2,\,-\text{Tan}\big[\tfrac{1}{2}(e+f x)\big]^2\big]$$

$$\Bigg(2\,\bigg(-3\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+n\,p\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),$$

$$\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\bigg)\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+$$

$$(3+n\,p)\,\bigg(-\frac{1}{3+n\,p}3\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(1+n\,p),\,n\,p,\,4,\,1+\frac{1}{2}\,(3+n\,p),$$

$$\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+$$

$$\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(1+n\,p),\,1+n\,p,\,3,\,1+\frac{1}{2}\,(3+n\,p),$$

$$\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\bigg)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\bigg(-3\,\Big(-\frac{1}{5+n\,p}4\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n\,p),\,n\,p,\,5,\,1+$$

$$\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2$$

$$\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+\frac{1}{5+n\,p}n\,p\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,4,$$

$$1+\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2$$

$$\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big)+n\,p\,\Big(-\frac{1}{5+n\,p}3\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n\,p),$$

$$1+n\,p,\,4,\,1+\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+\frac{1}{5+n\,p}(1+n\,p)\,(3+n\,p)$$

$$\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n\,p),\,2+n\,p,\,3,\,1+\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big)\bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+2\,\bigg(-3\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),$$

$$\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+n\,p\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,$$

$$\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\bigg)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Bigg)^2\Bigg)\Bigg)$$

Problem 484: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]\,\left(b\,(c\,\text{Tan}[e+f x])^n\right)^p\,dx$$

Optimal (type 5, 79 leaves, 2 steps):

$$\frac{1}{f\,(1+n p)}\left(\text{Cos}[e+f x]^2\right)^{\frac{n p}{2}} \text{Hypergeometric2F1}\left[\frac{n p}{2},\frac{1}{2}(1+n p),\frac{1}{2}(3+n p),\text{Sin}[e+f x]^2\right]\text{Sin}[e+f x]\left(b\,(c\,\text{Tan}[e+f x])^n\right)^p$$

Result (type 6, 5006 leaves):

$$\Bigg(2\,(3+n p)\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]^3\text{Cos}[e+f x]\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]$$
$$\Bigg(-\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg/\Bigg((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-2\Bigg(\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,2,\frac{1}{2}(5+n p),\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,1,\frac{1}{2}\right.$$
$$\left.(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$
$$\Bigg(2\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,2,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\Bigg/$$
$$\Bigg((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,2,\right.$$
$$\left.\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$2\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,2,\frac{1}{2}(5+n p),\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)$$
$$\text{Tan}[e+f x]^{n p}\left(b\,(c\,\text{Tan}[e+f x])^n\right)^p\Bigg)\Bigg/\Bigg(f\,(1+n p)$$
$$\Bigg(\frac{1}{1+n p}$$
$$(3+n p)\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]^4\Bigg(-\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg/$$
$$\Bigg((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-2\Bigg(\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,2,\frac{1}{2}(5+n p),\right.$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,1,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\right)+$$

$$\left(2\,\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,2,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\Big/$$

$$\left(\left(3+n\,p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,2,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),n\,p,3,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,2,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\right)$$

$$\text{Tan}\left[e+f x\right]^{n\,p}-\frac{1}{1+n\,p}3\left(3+n\,p\right)\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]^2\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]^2$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,1,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\Big/\right.\right.$$

$$\left(\left(3+n\,p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,1,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),n\,p,2,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,1,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\right)+$$

$$\left(2\,\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,2,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\Big/$$

$$\left(\left(3+n\,p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,2,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),n\,p,3,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}\left(3+n\,p\right),1+n\,p,2,\frac{1}{2}\left(5+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\right)$$

$$\text{Tan}\left[e+f x\right]^{n\,p}+\frac{1}{1+n\,p}2\left(3+n\,p\right)\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]^3\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,1,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\Big/\right.\right.$$

$$\left(\left(3+n\,p\right)\text{AppellF1}\left[\frac{1}{2}\left(1+n\,p\right),n\,p,1,\frac{1}{2}\left(3+n\,p\right),\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1,\right.$$
$$\left.\left.\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)-$$
$$\left(\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-\frac{1}{3+n p}(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 2, 1+\frac{1}{2}(3+n p),\right.\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$\frac{1}{3+n p}n p(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 1, 1+\frac{1}{2}(3+n p),\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$
$$\left(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1,\right.$$
$$\left.\left.\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)+$$
$$\left(2\left(-\frac{1}{3+n p}2(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 3, 1+\frac{1}{2}(3+n p),\right.\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$\frac{1}{3+n p}n p(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 2, 1+\frac{1}{2}(3+n p),\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$
$$\left(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p,\right.$$
$$\left.\left.2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)+$$
$$\left(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p),\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$(3+n p)\left(-\frac{1}{3+n p}(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),n p,2,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),1+n p,1,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)-2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\frac{1}{5+n p}2(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),n p,3,1+\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}n p(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),1+n p,2,1+\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]-n p\left(-\frac{1}{5+n p}(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),1+n p,2,1+\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}(1+n p)(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),2+n p,1,1+\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Bigg((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,2,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,1,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2-$$

$$\Bigg(2\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,2,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg(2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,2,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n p)\left(-\frac{1}{3+n p}2(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),n p,3,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\frac{1}{3+n p} n p (1+n p) \text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 2, 1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg) +$$

$$2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \Bigg(-2 \Bigg(-\frac{1}{5+n p} 3 (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), n p, 4, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{5+n p} n p (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), 1+n p, 3, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg) + n p \Bigg(-\frac{1}{5+n p} 2 (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), 1+n p, 3, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{5+n p} (1+n p) (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), 2+n p, 2, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 \Bigg(-2 \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg)$$

$$\text{Tan}[e+f x]^{n p} + \frac{1}{1+n p} 2 n p (3+n p) \text{Cos}\left[\frac{1}{2}(e+f x)\right]^3 \text{Sec}[e+f x]^2 \text{Sin}\left[\frac{1}{2}(e+f x)\right]$$

$$\Bigg(-\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg/$$

$$\Bigg((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2 \Bigg(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n p \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1,\right.$$

$$\frac{1}{2}(5+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)+$$

$$\Big(2\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 2,\ \frac{1}{2}(3+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\Big/$$

$$\Big((3+n p)\ \text{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 2,\ \frac{1}{2}(3+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Big(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\ n p,\ 3,\ \frac{1}{2}(5+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\ 1+n p,\ 2,\ \frac{1}{2}(5+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)\ \text{Tan}[e+f x]^{-1+n p}\Big)\Big)$$

Problem 485: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^3\left(b\left(c\,\text{Tan}[e+f x]\right)^n\right)^p\,dx$$

Optimal (type 5, 82 leaves, 2 steps):

$$\frac{1}{f(1+n p)}\left(\text{Cos}[e+f x]^2\right)^{\frac{n p}{2}}\ \text{Hypergeometric2F1}\left[\frac{1}{2}(-2+n p),\ \frac{1}{2}(1+n p),\ \frac{1}{2}(3+n p),\ \text{Sin}[e+f x]^2\right]\ \text{Sin}[e+f x]\left(b\left(c\,\text{Tan}[e+f x]\right)^n\right)^p$$

Result (type 6, 10 987 leaves):

$$-\Bigg(\Bigg(2^{1+n p}(3+n p)\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p}$$

$$\Bigg(\Big(\text{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 1,\ \frac{1}{2}(3+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\Big)\Big/\Big((3+n p)\ \text{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 1,\ \frac{1}{2}(3+n p),\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-2\Big(\text{AppellF1}\left[\frac{1}{2}(3+n p),\ n p,\ 2,\ \frac{1}{2}(5+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\ 1+n p,\ 1,\ \frac{1}{2}(5+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)-$$

$$\Big(6\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 2,\ \frac{1}{2}(3+n p),\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Big)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Big]+2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Big]+n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}\right.$$
$$\left.\left.\left.(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+$$
$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\Big/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Big]+2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Big]+n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\right.$$
$$\left.\left.\left.(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$
$$\left(8\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\Big/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Big]+2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,5,\,\frac{1}{2}(5+n\,p),\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Big]+n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,4,\,\frac{1}{2}\right.$$
$$\left.\left.\left.(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)$$
$$\text{Tan}[e+f\,x]^{-n\,p}\left(b\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p\left(-\frac{1}{8}\,i\,\text{Sin}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\right.$$
$$\frac{3}{8}\,\text{Sin}[2(e+f\,x)]\,\text{Sin}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+$$
$$\frac{3}{8}\,i\,\text{Sin}[2(e+f\,x)]^2\,\text{Sin}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-$$
$$\frac{1}{8}\,\text{Sin}[2(e+f\,x)]^3\,\text{Sin}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+$$
$$\text{Cos}[3(e+f\,x)]\left(\frac{1}{8}\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,i\,\text{Sin}[2(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\right.$$
$$\left.\frac{3}{8}\,\text{Sin}[2(e+f\,x)]^2\,\text{Tan}[e+f\,x]^{n\,p}-\frac{1}{8}\,i\,\text{Sin}[2(e+f\,x)]^3\,\text{Tan}[e+f\,x]^{n\,p}\right)+$$
$$\text{Cos}[2(e+f\,x)]^3\left(\frac{1}{8}\,\text{Cos}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{1}{8}\,i\,\text{Sin}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}\right)+$$
$$\text{Cos}[2(e+f\,x)]^2$$
$$\left(-\frac{3}{8}\,i\,\text{Sin}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,\text{Sin}[2(e+f\,x)]\,\text{Sin}[3(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\right.$$

$$\mathrm{Cos}\left[3\left(e+f x\right)\right]\left(\frac{3}{8}\mathrm{Tan}[e+f x]^{n p}+\frac{3}{8}\,\mathrm{i}\,\mathrm{Sin}\left[2\left(e+f x\right)\right]\mathrm{Tan}[e+f x]^{n p}\right)\Bigg)+$$

$$\mathrm{Cos}\left[2\left(e+f x\right)\right]\left(-\frac{3}{8}\,\mathrm{i}\,\mathrm{Sin}\left[3\left(e+f x\right)\right]\mathrm{Tan}[e+f x]^{n p}+\frac{3}{4}\mathrm{Sin}\left[2\left(e+f x\right)\right]\right.$$

$$\mathrm{Sin}\left[3\left(e+f x\right)\right]\mathrm{Tan}[e+f x]^{n p}+\frac{3}{8}\,\mathrm{i}\,\mathrm{Sin}\left[2\left(e+f x\right)\right]^2\mathrm{Sin}\left[3\left(e+f x\right)\right]\mathrm{Tan}[e+f x]^{n p}+$$

$$\mathrm{Cos}\left[3\left(e+f x\right)\right]\left(\frac{3}{8}\mathrm{Tan}[e+f x]^{n p}+\frac{3}{4}\,\mathrm{i}\,\mathrm{Sin}\left[2\left(e+f x\right)\right]\mathrm{Tan}[e+f x]^{n p}-\right.$$

$$\left.\left.\left.\left.\frac{3}{8}\mathrm{Sin}\left[2\left(e+f x\right)\right]^2\mathrm{Tan}[e+f x]^{n p}\right)\right)\right)\right)\Bigg/$$

$$\left(f\left(1+n p\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^4\left(\frac{1}{\left(1+n p\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^5}\right.\right.$$

$$2^{3+n p}\left(3+n p\right)\mathrm{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\left(-\frac{\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}\right)^{n p}$$

$$\left(\left(\mathrm{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,1,\frac{1}{2}\left(3+n p\right),\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right.\right.$$

$$\left.\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^3\right)\Bigg/\left(\left(3+n p\right)\mathrm{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,1,\frac{1}{2}\left(3+n p\right),\right.\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-2\left(\mathrm{AppellF1}\left[\frac{1}{2}\left(3+n p\right),n p,\right.\right.$$

$$2,\frac{1}{2}(5+n p),\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-n p\,\mathrm{AppellF1}\Big[$$

$$\left.\frac{1}{2}\left(3+n p\right),1+n p,1,\frac{1}{2}(5+n p),\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\Big)$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)-\left(6\,\mathrm{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,2,\frac{1}{2}\left(3+n p\right),\right.\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^2\Bigg)\Bigg/$$

$$\left(\left(3+n p\right)\mathrm{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,2,\frac{1}{2}\left(3+n p\right),\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+2\left(-2\,\mathrm{AppellF1}\left[\frac{1}{2}\left(3+n p\right),n p,3,\frac{1}{2}(5+n p),\right.\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]+n p\,\mathrm{AppellF1}\left[\frac{1}{2}\left(3+n p\right),1+n p,\right.$$

$$\left.\left.2,\frac{1}{2}(5+n p),\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Bigg)+$$

$$\left(12\,\mathrm{AppellF1}\left[\frac{1}{2}\left(1+n p\right),n p,3,\frac{1}{2}\left(3+n p\right),\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\Bigg)\Bigg/\left(\left(3+n p\right)\mathrm{AppellF1}\Big[\right.$$

$$\frac{1}{2}\left(1+n p\right),n p,3,\frac{1}{2}\left(3+n p\right),\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\Big]+$$

$$2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),n\,p,4,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,3,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)-\left(8\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,4,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\Bigg/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,4,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),n\,p,5,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,4,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)-$$

$$\frac{1}{(1+n\,p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^4}2^{n\,p}(3+n\,p)\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2$$

$$\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{n\,p}\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,1,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^3\Bigg)\Bigg/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,1,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{1}{2}(3+n\,p),n\,p,2,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,1,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)-$$

$$\Bigg(6\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,2,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\Bigg)\Bigg/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,2,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),n\,p,3,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,2,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)+$$

$$\Bigg(12\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,3,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Bigg/\Bigg(\left(3+n p\right)\text{AppellF1}\Big[\frac{1}{2}(1+n p),n p,3,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+2\Big(-3\,\text{AppellF1}\Big[\frac{1}{2}(3+n p),n p,4,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n p\,\text{AppellF1}\Big[\frac{1}{2}(3+n p),1+n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)-\Bigg(8\,\text{AppellF1}\Big[\frac{1}{2}(1+n p),n p,4,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Bigg)\Bigg/\Bigg(\left(3+n p\right)\text{AppellF1}\Big[\frac{1}{2}(1+n p),n p,4,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+2\Big(-4\,\text{AppellF1}\Big[\frac{1}{2}(3+n p),n p,5,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n p\,\text{AppellF1}\Big[\frac{1}{2}(3+n p),1+n p,4,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\frac{1}{(1+n p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4}2^{1+n p}\,n p\,(3+n p)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+n p}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}\right)$$

$$\Bigg(\Bigg(\text{AppellF1}\Big[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\Bigg)\Bigg/\Bigg(\left(3+n p\right)\text{AppellF1}\Big[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-2\Big(\text{AppellF1}\Big[\frac{1}{2}(3+n p),n p,2,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-n p\,\text{AppellF1}\Big[\frac{1}{2}(3+n p),1+n p,1,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)-\Bigg(6\,\text{AppellF1}\Big[\frac{1}{2}(1+n p),n p,2,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Bigg)\Bigg/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,2,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,2,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,3,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,3,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,4,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$

$$\left(8\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,4,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,4,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,5,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,4,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)-$$

$$\frac{1}{(1+n p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4}\,2^{1+n p}(3+n p)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p}$$

$$\Bigg(\left(3\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\Big/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,2,\frac{1}{2}(5+n p),\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),1+n\,p,1,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)+$$

$$\Bigg(\Bigg(-\frac{1}{3+n\,p}(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),n\,p,2,1+\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),1+n\,p,1,1+\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^3\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),n\,p,1,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-2\Big(\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),n\,p,2,\frac{1}{2}(5+n\,p),$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),1+n\,p,1,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)-$$

$$\Bigg(12\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),n\,p,2,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),n\,p,2,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\Big(-2\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),n\,p,3,\frac{1}{2}(5+n\,p),$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),1+n\,p,2,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)-$$

$$\Bigg(6\Bigg(-\frac{1}{3+n\,p}2\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),n\,p,3,1+\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),1+n\,p,2,1+\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),n\,p,2,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,2,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,3,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Big/$$

$$\left(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,3,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,4,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(12\left(-\frac{1}{3+n p}3\left(1+n p\right)\text{AppellF1}\left[1+\frac{1}{2}(1+n p),n p,4,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p\left(1+n p\right)\text{AppellF1}\left[1+\frac{1}{2}(1+n p),1+n p,3,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/$$

$$\left(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,3,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,4,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,3,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$

$$\left(8\left(-\frac{1}{3+n p}4\left(1+n p\right)\text{AppellF1}\left[1+\frac{1}{2}(1+n p),n p,5,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p\left(1+n p\right)\text{AppellF1}\left[1+\frac{1}{2}(1+n p),1+n p,4,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$

$$\left(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,4,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$
\begin{aligned}
&-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\Bigg(-4\,\text{AppellF1}\Big[\frac{1}{2}(3+np),\,np,\,5,\,\frac{1}{2}(5+np),\\
&\quad\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+np\,\text{AppellF1}\Big[\frac{1}{2}(3+np),\,1+np,\\
&\quad 4,\,\frac{1}{2}(5+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Bigg)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)-\\
&\Bigg(\text{AppellF1}\Big[\frac{1}{2}(1+np),\,np,\,1,\,\frac{1}{2}(3+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\\
&\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^3\Bigg(-2\Bigg(\text{AppellF1}\Big[\frac{1}{2}(3+np),\,np,\,2,\,\frac{1}{2}(5+np),\\
&\quad\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-np\,\text{AppellF1}\Big[\frac{1}{2}(3+np),\,1+np,\\
&\quad 1,\,\frac{1}{2}(5+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Bigg)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\\
&\quad\text{Tan}\left[\frac{1}{2}(e+fx)\right]+(3+np)\Bigg(-\frac{1}{3+np}(1+np)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+np),\\
&\quad np,\,2,\,1+\frac{1}{2}(3+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\\
&\quad\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3+np}np\,(1+np)\\
&\quad\text{AppellF1}\Big[1+\frac{1}{2}(1+np),\,1+np,\,1,\,1+\frac{1}{2}(3+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\\
&\quad-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)-\\
&\quad 2\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg(-\frac{1}{5+np}2\,(3+np)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+np),\,np,\,3,\\
&\quad 1+\frac{1}{2}(5+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\\
&\quad\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+np}np\,(3+np)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+np),\,1+np,\,2,\\
&\quad 1+\frac{1}{2}(5+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\\
&\quad\text{Tan}\left[\frac{1}{2}(e+fx)\right]-np\Bigg(-\frac{1}{5+np}(3+np)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+np),\\
&\quad 1+np,\,2,\,1+\frac{1}{2}(5+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\\
&\quad\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+np}(1+np)\,(3+np)\\
&\quad\text{AppellF1}\Big[1+\frac{1}{2}(3+np),\,2+np,\,1,\,1+\frac{1}{2}(5+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\\
&\quad-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/\\
&\Bigg((3+np)\,\text{AppellF1}\Big[\frac{1}{2}(1+np),\,np,\,1,\,\frac{1}{2}(3+np),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\\
&\quad-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-2\Bigg(\text{AppellF1}\Big[\frac{1}{2}(3+np),\,np,\,2,\,\frac{1}{2}(5+np),\,\text{Tan}\Big[\frac{1}{2}
\end{aligned}
$$

$$(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2] - n\,p\,AppellF1[\frac{1}{2}(3+n\,p), 1+n\,p, 1,$$
$$\frac{1}{2}(5+n\,p), Tan[\frac{1}{2}(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2]\Big) Tan[\frac{1}{2}(e+fx)]^2\Big)^2 +$$
$$\Big(6\,AppellF1[\frac{1}{2}(1+n\,p), n\,p, 2, \frac{1}{2}(3+n\,p), Tan[\frac{1}{2}(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2]$$
$$\Big(1+Tan[\frac{1}{2}(e+fx)]^2\Big)^2 \Big(2\Big(-2\,AppellF1[\frac{1}{2}(3+n\,p), n\,p, 3, \frac{1}{2}(5+n\,p),$$
$$Tan[\frac{1}{2}(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2] + n\,p\,AppellF1[\frac{1}{2}(3+n\,p), 1+n\,p,$$
$$2, \frac{1}{2}(5+n\,p), Tan[\frac{1}{2}(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2]\Big) Sec[\frac{1}{2}(e+fx)]^2$$
$$Tan[\frac{1}{2}(e+fx)] + (3+n\,p)\Big(-\frac{1}{3+n\,p}2(1+n\,p)\,AppellF1[1+\frac{1}{2}(1+n\,p),$$
$$n\,p, 3, 1+\frac{1}{2}(3+n\,p), Tan[\frac{1}{2}(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2]$$
$$Sec[\frac{1}{2}(e+fx)]^2\,Tan[\frac{1}{2}(e+fx)] + \frac{1}{3+n\,p}n\,p\,(1+n\,p)$$
$$AppellF1[1+\frac{1}{2}(1+n\,p), 1+n\,p, 2, 1+\frac{1}{2}(3+n\,p), Tan[\frac{1}{2}(e+fx)]^2,$$
$$-Tan[\frac{1}{2}(e+fx)]^2]\,Sec[\frac{1}{2}(e+fx)]^2\,Tan[\frac{1}{2}(e+fx)]\Big) +$$
$$2\,Tan[\frac{1}{2}(e+fx)]^2\Big(-2\Big(-\frac{1}{5+n\,p}3(3+n\,p)\,AppellF1[1+\frac{1}{2}(3+n\,p),$$
$$n\,p, 4, 1+\frac{1}{2}(5+n\,p), Tan[\frac{1}{2}(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2]$$
$$Sec[\frac{1}{2}(e+fx)]^2\,Tan[\frac{1}{2}(e+fx)] + \frac{1}{5+n\,p}n\,p\,(3+n\,p)$$
$$AppellF1[1+\frac{1}{2}(3+n\,p), 1+n\,p, 3, 1+\frac{1}{2}(5+n\,p), Tan[\frac{1}{2}(e+fx)]^2,$$
$$-Tan[\frac{1}{2}(e+fx)]^2]\,Sec[\frac{1}{2}(e+fx)]^2\,Tan[\frac{1}{2}(e+fx)]\Big) +$$
$$n\,p\Big(-\frac{1}{5+n\,p}2(3+n\,p)\,AppellF1[1+\frac{1}{2}(3+n\,p), 1+n\,p, 3,$$
$$1+\frac{1}{2}(5+n\,p), Tan[\frac{1}{2}(e+fx)]^2, -Tan[\frac{1}{2}(e+fx)]^2]$$
$$Sec[\frac{1}{2}(e+fx)]^2\,Tan[\frac{1}{2}(e+fx)] + \frac{1}{5+n\,p}(1+n\,p)(3+n\,p)$$
$$AppellF1[1+\frac{1}{2}(3+n\,p), 2+n\,p, 2, 1+\frac{1}{2}(5+n\,p), Tan[\frac{1}{2}(e+fx)]^2,$$
$$-Tan[\frac{1}{2}(e+fx)]^2]\,Sec[\frac{1}{2}(e+fx)]^2\,Tan[\frac{1}{2}(e+fx)]\Big)\Big)\Big)\Big)\Big) \Big/$$
$$\Big((3+n\,p)\,AppellF1[\frac{1}{2}(1+n\,p), n\,p, 2, \frac{1}{2}(3+n\,p), Tan[\frac{1}{2}(e+fx)]^2,$$
$$-Tan[\frac{1}{2}(e+fx)]^2] +$$

$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,3,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,\,2,\,\frac{1}{2}(5+n p),$$
$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2-$$
$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,3,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$
$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,4,\,\frac{1}{2}(5+n p),\right.\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,$$
$$\left.\left.3,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n p)\left(-\frac{1}{3+n p}3(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\right.\right.$$
$$\left.n p,\,4,\,1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p(1+n p)$$
$$\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\,1+n p,\,3,\,1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$
$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-3\left(-\frac{1}{5+n p}4(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.\right.\right.$$
$$\left.n p,\,5,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}n p(3+n p)$$
$$\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,1+n p,\,4,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$
$$n p\left(-\frac{1}{5+n p}3(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,1+n p,\,4,\right.\right.$$
$$\left.1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}(1+n p)(3+n p)$$
$$\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,2+n p,\,3,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$
$$\left.\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\right)\Big/$$
$$\left(\left(3+n p\right)\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,3,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+$$

$$2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,4,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,\,3,\,\frac{1}{2}(5+n p),\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2+$$

$$\left(8\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,4,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$

$$\left(2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,5,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,\,4,\,\frac{1}{2}(5+n p),\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n p)\left(-\frac{1}{3+n p}4(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\right.\right.$$

$$\left.n p,\,5,\,1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p\,(1+n p)$$

$$\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\,1+n p,\,4,\,1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-4\left(-\frac{1}{5+n p}5(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.\right.\right.$$

$$\left.n p,\,6,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}n p\,(3+n p)$$

$$\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,1+n p,\,5,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$n p\left(-\frac{1}{5+n p}4(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,1+n p,\,5,\right.\right.$$

$$\left.1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}(1+n p)\,(3+n p)$$

$$\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,2+n p,\,4,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,4,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,5,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,\,4,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Bigg)\Bigg)$$

Problem 496: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (d\,\text{Csc}[e+f x])^m\,\left(b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 5, 98 leaves, 4 steps):

$$\frac{1}{f\,(1-m+2 p)}\left(\text{Cos}[e+f x]^2\right)^{\frac{1}{2}+p}\,(d\,\text{Csc}[e+f x])^m\,\text{Hypergeometric2F1}\left[\frac{1}{2}(1+2 p),\,\frac{1}{2}(1-m+2 p),\,\frac{1}{2}(3-m+2 p),\,\text{Sin}[e+f x]^2\right]\text{Tan}[e+f x]\,\left(b\,\text{Tan}[e+f x]^2\right)^p$$

Result (type 6, 2469 leaves):

$$-\left(\left((-3+m-2 p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,2 p,\,1-m,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Csc}[e+f x]^{-1+m}\,(d\,\text{Csc}[e+f x])^m\,\text{Tan}[e+f x]^{2 p}\,\left(b\,\text{Tan}[e+f x]^2\right)^p\right)\Big/\right.$$

$$\left(f\,(-1+m-2 p)\,\left((-3+m-2 p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,2 p,\,1-m,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-(-1+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,2 p,\,2-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-2 p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1+2 p,\,1-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\left(\left((-1+m)\,(-3+m-2 p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,2 p,\,1-m,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cos}[e+f x]\,\text{Csc}[e+f x]^m\,\text{Tan}[e+f x]^{2 p}\right)\Big/\right.$$

$$\left((-1+m-2 p)\,\left((-3+m-2 p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,2 p,\,1-m,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\left(-(-1+m)\,\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\right.\right.$$
$$\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-2p\,\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\right.$$
$$\left.\left.\frac{5}{2}-\frac{m}{2}+p,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)\Bigg)-$$
$$\Bigg(\left(-3+m-2p\right)\mathrm{Csc}[e+fx]^{-1+m}\left(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}(1-m)\left(\frac{1}{2}-\frac{m}{2}+p\right)\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+\right.\right.$$
$$p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{3}{2}-\frac{m}{2}+p}2p\left(\frac{1}{2}-\frac{m}{2}+p\right)$$
$$\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\frac{5}{2}-\frac{m}{2}+p,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$
$$\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\mathrm{Tan}[e+fx]^{2p}\Bigg)\Bigg/$$
$$\Bigg(\left(-1+m-2p\right)\Bigg(\left(-3+m-2p\right)\mathrm{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$
$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\left(-(-1+m)\,\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\right.\right.$$
$$\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-2p\,\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\right.$$
$$\left.\left.\frac{5}{2}-\frac{m}{2}+p,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)\Bigg)+$$
$$\Bigg(\left(-3+m-2p\right)\mathrm{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$
$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\mathrm{Csc}[e+fx]^{-1+m}$$
$$\Bigg(2\left(-(-1+m)\,\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$
$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]-2p\,\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\frac{5}{2}-\frac{m}{2}+p,\right.$$
$$\left.\left.\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+$$
$$\left(-3+m-2p\right)\left(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}(1-m)\left(\frac{1}{2}-\frac{m}{2}+p\right)\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\right.\right.$$
$$\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+$$
$$\frac{1}{\frac{3}{2}-\frac{m}{2}+p}2p\left(\frac{1}{2}-\frac{m}{2}+p\right)\mathrm{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\frac{5}{2}-\frac{m}{2}+p,\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg) +$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \Bigg(-(-1+m)\Bigg(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}(2-m)\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\Big[$$

$$\frac{5}{2}-\frac{m}{2}+p, 2p, 3-m, \frac{7}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{\frac{5}{2}-\frac{m}{2}+p} 2p\left(\frac{3}{2}-\frac{m}{2}+p\right)$$

$$\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2}+p, 1+2p, 2-m, \frac{7}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg) - 2$$

$$p\Bigg(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}(1-m)\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2}+p, 1+2p, 2-m,$$

$$\frac{7}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)(1+2p)\,\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2}+p,$$

$$2+2p, 1-m, \frac{7}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg) \text{Tan}[e+f x]^{2p}\Bigg) \Big/$$

$$\Bigg((-1+m-2p)\Bigg((-3+m-2p)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}+p, 2p, 1-m, \frac{3}{2}-\frac{m}{2}+p,$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] +$$

$$2\Bigg(-(-1+m)\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}+p, 2p, 2-m, \frac{5}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] - 2p\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}+p, 1+2p, 1-m, \frac{5}{2}-\frac{m}{2}+p,$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Bigg) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg) -$$

$$\Bigg(2(-3+m-2p)\,p\,\text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}+p, 2p, 1-m, \frac{3}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] \text{Csc}[e+f x]^{-1+m} \text{Sec}[e+f x]^2 \text{Tan}[e+f x]^{-1+2p}\Bigg) \Big/$$

$$\Bigg((-1+m-2p)\Bigg((-3+m-2p)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}+p, 2p, 1-m, \frac{3}{2}-\frac{m}{2}+p, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + 2\Bigg(-(-1+m)\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}+p, 2p, 2-m, \frac{5}{2}-\frac{m}{2}+p,$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]-2\,p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2\,p,1-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\right)\right)\right)$$

Problem 497: Result more than twice size of optimal antiderivative.

$$\int\left(d\,\text{Csc}[e+f x]\right)^m\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 127 leaves, 4 steps):

$$\frac{1}{f\,(1-m)}\text{AppellF1}\left[\frac{1-m}{2},1-\frac{m}{2},-p,\frac{3-m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(d\,\text{Csc}[e+f x]\right)^m\left(\text{Sec}[e+f x]^2\right)^{-m/2}\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 3031 leaves):

$$-\left(\left(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Cos}[e+f x]\right.\right.$$
$$\left.\left(d\,\text{Csc}[e+f x]\right)^m\left(\text{Cot}[e+f x]\sqrt{\text{Sec}[e+f x]^2}\right)^m\text{Sin}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^{2p}\right)\Big/$$
$$\left(f\,(-1+m)\left(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-\right.\right.$$
$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+a\,(-2+m)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)$$
$$\left(-\left(\left(2\,a\,b\,(-3+m)\,p\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right.\right.\right.$$
$$\left.\left(\text{Cot}[e+f x]\sqrt{\text{Sec}[e+f x]^2}\right)^m\text{Tan}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\right)\Big/$$
$$\left((-1+m)\left(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,\right.\right.\right.$$
$$\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},\right.\right.$$
$$\left.-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},\right.$$
$$\left.\left.\left.\left.-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)\right)\right)-$$
$$\left(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right.$$

$$\text{Cos}[e+f x]^2 \left(\text{Cot}[e+f x] \sqrt{\text{Sec}[e+f x]^2}\right)^m \left(a+b \text{Tan}[e+f x]^2\right)^p\Bigg) \Big/$$

$$\Bigg(\left(-1+m\right) \Bigg(a \left(-3+m\right) \text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] - \Bigg(2 b p \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 1-\frac{m}{2}, 1-p, \frac{5}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] + a \left(-2+m\right) \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 2-\frac{m}{2}, -p, \frac{5}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big]\Bigg) \text{Tan}[e+f x]^2\Bigg)\Bigg) -$$

$$\Bigg(a \left(-3+m\right) m \text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] \text{Cos}[e+f x] \left(\text{Cot}[e+f x] \sqrt{\text{Sec}[e+f x]^2}\right)^{-1+m} \left(\sqrt{\text{Sec}[e+f x]^2} - \text{Csc}[e+f x]^2 \sqrt{\text{Sec}[e+f x]^2}\right) \text{Sin}[e+f x] \left(a+b \text{Tan}[e+f x]^2\right)^p\Bigg) \Big/$$

$$\Bigg(\left(-1+m\right) \Bigg(a \left(-3+m\right) \text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] - \Bigg(2 b p \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 1-\frac{m}{2}, 1-p, \frac{5}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] + a \left(-2+m\right) \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 2-\frac{m}{2}, -p, \frac{5}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big]\Bigg) \text{Tan}[e+f x]^2\Bigg)\Bigg) +$$

$$\Bigg(a \left(-3+m\right) \text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] \left(\text{Cot}[e+f x] \sqrt{\text{Sec}[e+f x]^2}\right)^m \text{Sin}[e+f x]^2 \left(a+b \text{Tan}[e+f x]^2\right)^p\Bigg) \Big/$$

$$\Bigg(\left(-1+m\right) \Bigg(a \left(-3+m\right) \text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] - \Bigg(2 b p \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 1-\frac{m}{2}, 1-p, \frac{5}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big] + a \left(-2+m\right) \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 2-\frac{m}{2}, -p, \frac{5}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b \text{Tan}[e+f x]^2}{a}\Big]\Bigg) \text{Tan}[e+f x]^2\Bigg)\Bigg) -$$

$$\Bigg(a \left(-3+m\right) \text{Cos}[e+f x] \left(\text{Cot}[e+f x] \sqrt{\text{Sec}[e+f x]^2}\right)^m \text{Sin}[e+f x]$$

$$\Bigg(\frac{1}{a \left(\frac{3}{2}-\frac{m}{2}\right)} 2 b \left(\frac{1}{2}-\frac{m}{2}\right) p \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 1-\frac{m}{2}, 1-p, \frac{5}{2}-\frac{m}{2},$$

$$-\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\ -\ \frac{1}{\frac{3}{2}-\frac{m}{2}}$$

$$2\ \Big(\frac{1}{2}-\frac{m}{2}\Big)\ \Big(1-\frac{m}{2}\Big)\ \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},\ 2-\frac{m}{2},\ -p,\ \frac{5}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,$$

$$-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\Big)\ \big(a+b\,\text{Tan}[e+f x]^2\big)^p\Big)\Big/$$

$$\Big(\big(-1+m\big)\ \Big(a\ \big(-3+m\big)\ \text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2},\ 1-\frac{m}{2},\ -p,\ \frac{3}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,$$

$$-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\ -\ \Big(2\,b\,p\ \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},\ 1-\frac{m}{2},\ 1-p,\ \frac{5}{2}-\frac{m}{2},$$

$$-\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\ +\ a\ \big(-2+m\big)\ \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},\ 2-\frac{m}{2},$$

$$-p,\ \frac{5}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\ \text{Tan}[e+f x]^2\Big)\Big)\ +$$

$$\Big(a\ \big(-3+m\big)\ \text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2},\ 1-\frac{m}{2},\ -p,\ \frac{3}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$

$$\text{Cos}[e+f x]\ \Big(\text{Cot}[e+f x]\ \sqrt{\text{Sec}[e+f x]^2}\Big)^m\ \text{Sin}[e+f x]\ \big(a+b\,\text{Tan}[e+f x]^2\big)^p$$

$$\Big(-2\ \Big(2\,b\,p\ \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},\ 1-\frac{m}{2},\ 1-p,\ \frac{5}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\ +\ a$$

$$\big(-2+m\big)\ \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},\ 2-\frac{m}{2},\ -p,\ \frac{5}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)$$

$$\text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\ +\ a\ \big(-3+m\big)\ \Big(\frac{1}{a\ \big(\frac{3}{2}-\frac{m}{2}\big)}2\,b\ \Big(\frac{1}{2}-\frac{m}{2}\Big)\ p$$

$$\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},\ 1-\frac{m}{2},\ 1-p,\ \frac{5}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$

$$\text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\ -\ \frac{1}{\frac{3}{2}-\frac{m}{2}}2\ \Big(\frac{1}{2}-\frac{m}{2}\Big)\ \Big(1-\frac{m}{2}\Big)\ \text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},\ 2-\frac{m}{2},$$

$$-p,\ \frac{5}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\Big)\ -$$

$$\text{Tan}[e+f x]^2\ \Big(2\,b\,p\ \Big(-\frac{1}{a\ \big(\frac{5}{2}-\frac{m}{2}\big)}2\,b\ \Big(\frac{3}{2}-\frac{m}{2}\Big)\ \big(1-p\big)\ \text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2},\ 1-\frac{m}{2},$$

$$2-p,\ \frac{7}{2}-\frac{m}{2},\ -\text{Tan}[e+f x]^2,\ -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\ \text{Sec}[e+f x]^2\ \text{Tan}[e+f x]\ -$$

$$\frac{1}{\frac{5}{2}-\frac{m}{2}}2\ \Big(1-\frac{m}{2}\Big)\ \Big(\frac{3}{2}-\frac{m}{2}\Big)\ \text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2},\ 2-\frac{m}{2},\ 1-p,\ \frac{7}{2}-\frac{m}{2},$$

$$-\text{Tan}[e+f x]^2, -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg) + a$$

$$(-2+m)\left(\frac{1}{a\left(\frac{5}{2}-\frac{m}{2}\right)}2\,b\left(\frac{3}{2}-\frac{m}{2}\right)p\,\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2}, 2-\frac{m}{2}, 1-p,\right.$$

$$\frac{7}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x] -$$

$$\frac{1}{\frac{5}{2}-\frac{m}{2}}2\left(\frac{3}{2}-\frac{m}{2}\right)\left(2-\frac{m}{2}\right)\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2}, 3-\frac{m}{2}, -p, \frac{7}{2}-\frac{m}{2},$$

$$\left.-\text{Tan}[e+f x]^2, -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Bigg((-1+m)\Bigg(a\,(-3+m)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2,$$

$$-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big] - \Bigg(2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 1-\frac{m}{2}, 1-p, \frac{5}{2}-\frac{m}{2},$$

$$-\text{Tan}[e+f x]^2, -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big] + a\,(-2+m)\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}, 2-\frac{m}{2},$$

$$-p, \frac{5}{2}-\frac{m}{2}, -\text{Tan}[e+f x]^2, -\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Bigg)\,\text{Tan}[e+f x]^2\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 498: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (d\,\text{Csc}[e+f x])^m\,\left(b\,(c\,\text{Tan}[e+f x])^n\right)^p\,dx$$

Optimal (type 5, 104 leaves, 4 steps):

$$\frac{1}{f\,(1-m+n\,p)}\left(\text{Cos}[e+f x]^2\right)^{\frac{1}{2}(1+n\,p)}\,(d\,\text{Csc}[e+f x])^m$$

$$\text{Hypergeometric2F1}\Big[\frac{1}{2}(1+n\,p), \frac{1}{2}(1-m+n\,p), \frac{1}{2}(3-m+n\,p), \text{Sin}[e+f x]^2\Big]$$

$$\text{Tan}[e+f x]\,\left(b\,(c\,\text{Tan}[e+f x])^n\right)^p$$

Result (type 6, 2597 leaves):

$$-\Bigg(\Bigg((-3+m-n\,p)$$

$$\text{AppellF1}\Big[\frac{1}{2}(1-m+n\,p), n\,p, 1-m, \frac{1}{2}(3-m+n\,p), \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\text{Csc}[e+f x]^{-1+m}\,(d\,\text{Csc}[e+f x])^m\,\text{Tan}[e+f x]^{n\,p}\,\left(b\,(c\,\text{Tan}[e+f x])^n\right)^p\Bigg)\Bigg/\Bigg(f\,(-1+m-n\,p)$$

$$\Bigg((-3+m-n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n\,p), n\,p, 1-m, \frac{1}{2}(3-m+n\,p), \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3-m+n p),n p,2-m,\frac{1}{2}(5-m+n p),\right.\right.$$
$$\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n p\,\mathrm{AppellF1}\left[\frac{1}{2}(3-m+n p),1+n p,\right.$$
$$\left.\left.1-m,\frac{1}{2}(5-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)$$
$$\left(\left((-1+m)(-3+m-n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1-m+n p),n p,1-m,\frac{1}{2}(3-m+n p),\right.\right.\right.$$
$$\left.\left.\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Cos}[e+f x]\,\mathrm{Csc}[e+f x]^m\,\mathrm{Tan}[e+f x]^{n p}\right)\Big/$$
$$\left((-1+m-n p)\left((-3+m-n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1-m+n p),n p,1-m,\right.\right.\right.$$
$$\left.\frac{1}{2}(3-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$
$$2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3-m+n p),n p,2-m,\frac{1}{2}(5-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\mathrm{AppellF1}\left[\frac{1}{2}(3-m+n p),1+n p,1-m,\right.$$
$$\left.\left.\left.\left.\frac{1}{2}(5-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$
$$\left((-3+m-n p)\,\mathrm{Csc}[e+f x]^{-1+m}\left(-\frac{1}{3-m+n p}(1-m)(1-m+n p)\,\mathrm{AppellF1}\left[1+\right.\right.\right.$$
$$\frac{1}{2}(1-m+n p),n p,2-m,1+\frac{1}{2}(3-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$
$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3-m+n p}n p\,(1-m+n p)$$
$$\mathrm{AppellF1}\left[1+\frac{1}{2}(1-m+n p),1+n p,1-m,1+\frac{1}{2}(3-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$
$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\mathrm{Tan}[e+f x]^{n p}\right)\Big/$$
$$\left((-1+m-n p)\left((-3+m-n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1-m+n p),n p,1-m,\right.\right.\right.$$
$$\left.\frac{1}{2}(3-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$
$$2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3-m+n p),n p,2-m,\frac{1}{2}(5-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\mathrm{AppellF1}\left[\frac{1}{2}(3-m+n p),1+n p,1-m,\right.$$
$$\left.\left.\left.\left.\frac{1}{2}(5-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$
$$\left((-3+m-n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1-m+n p),n p,1-m,\frac{1}{2}(3-m+n p),\right.\right.$$
$$\left.\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Csc}[e+f x]^{-1+m}$$
$$\left(-2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3-m+n p),n p,2-m,\frac{1}{2}(5-m+n p),\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n p\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n p),1+n p,1-m,$$

$$\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(-3+m-n p)\Big(-\frac{1}{3-m+n p}(1-m)(1-m+n p)$$

$$\text{AppellF1}\Big[1+\frac{1}{2}(1-m+n p),n p,2-m,1+\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3-m+n p}n p$$

$$(1-m+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1-m+n p),1+n p,1-m,1+\frac{1}{2}(3-m+n p),$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)-$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big((-1+m)\Big(-\frac{1}{5-m+n p}(2-m)(3-m+n p)\,\text{AppellF1}\Big[$$

$$1+\frac{1}{2}(3-m+n p),n p,3-m,1+\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n p}$$

$$n p(3-m+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n p),1+n p,2-m,1+$$

$$\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+n p\Big(-\frac{1}{5-m+n p}(1-m)(3-m+n p)\,\text{AppellF1}\Big[$$

$$1+\frac{1}{2}(3-m+n p),1+n p,2-m,1+\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n p}$$

$$(1+n p)(3-m+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n p),2+n p,1-m,$$

$$1+\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\Big)\text{Tan}[e+f x]^{n p}\Big)\Big/$$

$$\Big((-1+m-n p)\Big((-3+m-n p)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n p),n p,1-m,\frac{1}{2}(3-m+n p),$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-2\Big((-1+m)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n p),$$

$$n p,2-m,\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+$$

$$n p\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n p),1+n p,1-m,\frac{1}{2}(5-m+n p),$$

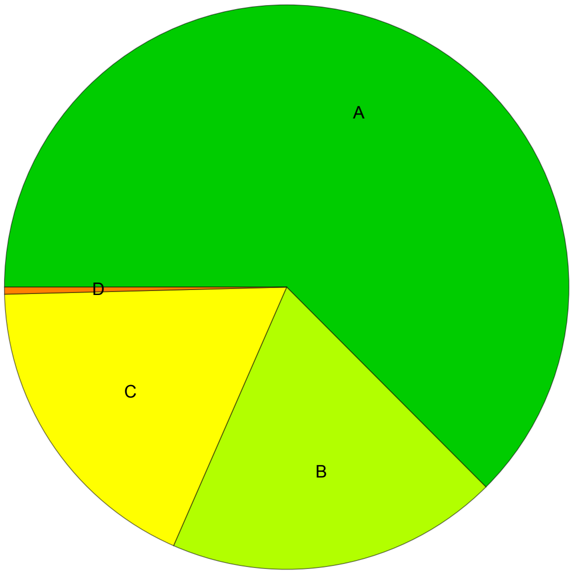
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2\Big)-$$

$$\left(n\,p\,(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\,\text{Csc}[e+f\,x]^{-1+m}\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^{-1+n\,p}\right)\Big/$$

$$\left((-1+m-n\,p)\left((-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-2\left((-1+m)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),\,n\,p,\,2-m,\,\frac{1}{2}(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),\,1+n\,p,\,1-m,\,\frac{1}{2}(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)$$

Summary of Integration Test Results

499 integration problems



A - 312 optimal antiderivatives

B - 95 more than twice size of optimal antiderivatives

C - 90 unnecessarily complex antiderivatives

D - 2 unable to integrate problems

E - 0 integration timeouts