Mathematica 11.3 Integration Test Results

Test results for the 1563 problems in "4.1.2.2 (g cos)^p (a+b sin)^m (c+d sin)^n.m"

Problem 6: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 99 leaves, 5 steps):

$$-\frac{2 a \text{Cos}[e+f x] \text{Log}[1-\text{Sin}[e+f x]]}{c f \sqrt{a+a \text{Sin}[e+f x]} \sqrt{c-c \text{Sin}[e+f x]}}-\frac{\text{Cos}[e+f x] \sqrt{a+a \text{Sin}[e+f x]}}{c f \sqrt{c-c \text{Sin}[e+f x]}}$$

Result (type 3, 127 leaves):

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

Problem 7: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 97 leaves, 5 steps):

$$\frac{\text{Cos}[e+f x] \sqrt{a+a \text{Sin}[e+f x]}}{c f (c-c \text{Sin}[e+f x])^{3/2}}+\frac{a \text{Cos}[e+f x] \text{Log}[1-\text{Sin}[e+f x]]}{c^2 f \sqrt{a+a \text{Sin}[e+f x]} \sqrt{c-c \text{Sin}[e+f x]}}$$

Result (type 3, 118 leaves):

$$\frac{1}{c^2 f \sqrt{c-c \text{Sin}[e+f x]}} \text{Sec}[e+f x] \sqrt{a (1+\text{Sin}[e+f x])} \left(2-i f x+\text{Log}\left[1+e^{2 i (e+f x)}\right]-2 i \text{ArcTan}\left[e^{i (e+f x)}\right] (-1+\text{Sin}[e+f x])+\left(i f x-\text{Log}\left[1+e^{2 i (e+f x)}\right]\right) \text{Sin}[e+f x]\right)$$

Problem 13: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 45 leaves, 2 steps):

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

Result (type 3, 111 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)(a\,(1+\text{Sin}[e+f x]))^{3/2}\,(-6\,\text{Cos}[2\,(e+f x)]+15\,\text{Sin}[e+f x]-\text{Sin}[3\,(e+f x)])\right)\Big/\left(12\,f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^3\sqrt{c-c\,\text{Sin}[e+f x]}\right)$$

Problem 17: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[e+f x]^2\,(a+a\,\text{Sin}[e+f x])^{3/2}}{(c-c\,\text{Sin}[e+f x])^{9/2}}\,dx$$

Optimal (type 3, 48 leaves, 2 steps):

$$\frac{\text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^{5/2}}{6\,a\,c\,f\,(c-c\,\text{Sin}[e+f x])^{7/2}}$$

Result (type 3, 110 leaves):

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

Problem 23: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 45 leaves, 2 steps):

$$\frac{\text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^{7/2}}{4\,a\,f\,\sqrt{c-c\,\text{Sin}[e+f x]}}$$

Result (type 3, 119 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\,\left(a\,\left(1+\text{Sin}[e+f\,x]\right)\right)^{5/2}\right.$$
$$\left.\left(-28\,\text{Cos}\left[2\,(e+f\,x)\right]+\text{Cos}\left[4\,(e+f\,x)\right]+56\,\text{Sin}[e+f\,x]-8\,\text{Sin}\left[3\,(e+f\,x)\right]\right)\right)\Big/$$
$$\left(32\,f\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^5\,\sqrt{c-c\,\text{Sin}[e+f\,x]}\right)$$

Problem 28: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[e+f\,x]^2\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{5/2}}{\left(c-c\,\text{Sin}[e+f\,x]\right)^{11/2}}\,dx$$

Optimal (type 3, 48 leaves, 2 steps):

$$\frac{\text{Cos}[e+f\,x]\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{7/2}}{8\,a\,c\,f\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{9/2}}$$

Result (type 3, 329 leaves):

$$\frac{2\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^3\,\left(a\,\left(1+\text{Sin}[e+f\,x]\right)\right)^{5/2}}{f\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^5\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{11/2}}-$$
$$\frac{4\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^5\,\left(a\,\left(1+\text{Sin}[e+f\,x]\right)\right)^{5/2}}{f\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^5\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{11/2}}+$$
$$\frac{3\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^7\,\left(a\,\left(1+\text{Sin}[e+f\,x]\right)\right)^{5/2}}{f\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^5\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{11/2}}-$$
$$\frac{\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^9\,\left(a\,\left(1+\text{Sin}[e+f\,x]\right)\right)^{5/2}}{f\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^5\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{11/2}}$$

Problem 29: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[e+f\,x]^2\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{5/2}}{\left(c-c\,\text{Sin}[e+f\,x]\right)^{13/2}}\,dx$$

Optimal (type 3, 97 leaves, 3 steps):

$$\frac{\text{Cos}[e+f\,x]\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{7/2}}{10\,a\,c\,f\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{11/2}}+\frac{\text{Cos}[e+f\,x]\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{7/2}}{80\,a\,c^2\,f\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{9/2}}$$

Result (type 3, 333 leaves):

$$\frac{8\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^3(a(1+\text{Sin}[e+f x]))^{5/2}}{5 f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^5(c-c\,\text{Sin}[e+f x])^{13/2}}-\frac{3\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^5(a(1+\text{Sin}[e+f x]))^{5/2}}{f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^5(c-c\,\text{Sin}[e+f x])^{13/2}}+\frac{2\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7(a(1+\text{Sin}[e+f x]))^{5/2}}{f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^5(c-c\,\text{Sin}[e+f x])^{13/2}}-\frac{\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^9(a(1+\text{Sin}[e+f x]))^{5/2}}{2 f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^5(c-c\,\text{Sin}[e+f x])^{13/2}}$$

Problem 30: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^2\,(a+a\,\text{Sin}[e+f x])^{7/2}\,(c-c\,\text{Sin}[e+f x])^{9/2}\,dx$$

Optimal (type 3, 236 leaves, 6 steps):

$$-\frac{4 a^4\,\text{Cos}[e+f x]\,(c-c\,\text{Sin}[e+f x])^{11/2}}{315 c f\sqrt{a+a\,\text{Sin}[e+f x]}}-\frac{4 a^3\,\text{Cos}[e+f x]\sqrt{a+a\,\text{Sin}[e+f x]}\,(c-c\,\text{Sin}[e+f x])^{11/2}}{105 c f}-\frac{a^2\,\text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^{3/2}(c-c\,\text{Sin}[e+f x])^{11/2}}{15 c f}-\frac{4 a\,\text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^{5/2}(c-c\,\text{Sin}[e+f x])^{11/2}}{45 c f}-\frac{\text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^{7/2}(c-c\,\text{Sin}[e+f x])^{11/2}}{10 c f}$$

Result (type 3, 919 leaves):

$$\left(21 \operatorname{Cos}[2 (e+f x)] (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2}\right) \Big/ \left(512 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(3 \operatorname{Cos}[4 (e+f x)] (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2}\right) \Big/ \left(128 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(9 \operatorname{Cos}[6 (e+f x)] (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2}\right) \Big/ \left(1024 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(\operatorname{Cos}[8 (e+f x)] (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2}\right) \Big/ \left(512 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(\operatorname{Cos}[10 (e+f x)] (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2}\right) \Big/ \left(5120 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(63 \operatorname{Sin}[e+f x] (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2}\right) \Big/ \left(128 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(7 (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2} \operatorname{Sin}[3 (e+f x)]\right) \Big/ \left(64 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(9 (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2} \operatorname{Sin}[5 (e+f x)]\right) \Big/ \left(320 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left(9 (a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2} \operatorname{Sin}[7 (e+f x)]\right) \Big/ \left(1792 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right) +$$

$$\left((a (1+\operatorname{Sin}[e+f x]))^{7/2} (c-c \operatorname{Sin}[e+f x])^{9/2} \operatorname{Sin}[9 (e+f x)]\right) \Big/ \left(2304 f \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7\right)$$

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

$$\int \frac{\operatorname{Cos}[e+f x]^2 (a+a \operatorname{Sin}[e+f x])^{7/2}}{\sqrt{c-c \operatorname{Sin}[e+f x]}} \, dx$$

Optimal (type 3, 45 leaves, 2 steps):

$$\frac{\text{Cos}[e+f x] (a+a \text{Sin}[e+f x])^{9/2}}{5 a f \sqrt{c-c \text{Sin}[e+f x]}}$$

Result (type 3, 142 leaves):

$$\left(a^3 \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right) (1+\text{Sin}[e+f x])^3 \sqrt{a (1+\text{Sin}[e+f x])} \left(-120 \text{Cos}[2 (e+f x)]+10 \text{Cos}[4 (e+f x)]+210 \text{Sin}[e+f x]-45 \text{Sin}[3 (e+f x)]+\text{Sin}[5 (e+f x)]\right)\right) \Big/ \left(80 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7 \sqrt{c-c \text{Sin}[e+f x]}\right)$$

Problem 41: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[e+f x]^2 (a+a \text{Sin}[e+f x])^{7/2}}{(c-c \text{Sin}[e+f x])^{13/2}} \, dx$$

Optimal (type 3, 48 leaves, 2 steps):

$$\frac{\text{Cos}[e+f x] (a+a \text{Sin}[e+f x])^{9/2}}{10 a c f (c-c \text{Sin}[e+f x])^{11/2}}$$

Result (type 3, 412 leaves):

$$\frac{16 \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^3 (a (1+\text{Sin}[e+f x]))^{7/2}}{5 f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7 (c-c \text{Sin}[e+f x])^{13/2}}-\frac{8 \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^5 (a (1+\text{Sin}[e+f x]))^{7/2}}{f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7 (c-c \text{Sin}[e+f x])^{13/2}}+\frac{8 \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7 (a (1+\text{Sin}[e+f x]))^{7/2}}{f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7 (c-c \text{Sin}[e+f x])^{13/2}}-\frac{4 \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^9 (a (1+\text{Sin}[e+f x]))^{7/2}}{f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7 (c-c \text{Sin}[e+f x])^{13/2}}+\frac{\left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^{11} (a (1+\text{Sin}[e+f x]))^{7/2}}{f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^7 (c-c \text{Sin}[e+f x])^{13/2}}$$

Problem 42: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[e+f x]^2 (a+a \text{Sin}[e+f x])^{7/2}}{(c-c \text{Sin}[e+f x])^{15/2}} \, dx$$

Optimal (type 3, 97 leaves, 3 steps):

$$\frac{\text{Cos}[e+f x]\ (a+a\,\text{Sin}[e+f x])^{9/2}}{12\,a\,c\,f\ (c-c\,\text{Sin}[e+f x])^{13/2}}+\frac{\text{Cos}[e+f x]\ (a+a\,\text{Sin}[e+f x])^{9/2}}{120\,a\,c^2\,f\ (c-c\,\text{Sin}[e+f x])^{11/2}}$$

Result (type 3, 419 leaves):

$$\frac{8\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^3 (a\,(1+\text{Sin}[e+f x]))^{7/2}}{3\,f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7 (c-c\,\text{Sin}[e+f x])^{15/2}}-$$
$$\frac{32\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^5 (a\,(1+\text{Sin}[e+f x]))^{7/2}}{5\,f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7 (c-c\,\text{Sin}[e+f x])^{15/2}}+$$
$$\frac{6\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7 (a\,(1+\text{Sin}[e+f x]))^{7/2}}{f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7 (c-c\,\text{Sin}[e+f x])^{15/2}}-$$
$$\frac{8\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^9 (a\,(1+\text{Sin}[e+f x]))^{7/2}}{3\,f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7 (c-c\,\text{Sin}[e+f x])^{15/2}}+$$
$$\frac{\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^{11} (a\,(1+\text{Sin}[e+f x]))^{7/2}}{2\,f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7 (c-c\,\text{Sin}[e+f x])^{15/2}}$$

Problem 43: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[e+f x]^2\ (a+a\,\text{Sin}[e+f x])^{7/2}}{(c-c\,\text{Sin}[e+f x])^{17/2}}\,dx$$

Optimal (type 3, 145 leaves, 4 steps):

$$\frac{\text{Cos}[e+f x]\ (a+a\,\text{Sin}[e+f x])^{9/2}}{14\,a\,c\,f\ (c-c\,\text{Sin}[e+f x])^{15/2}}+$$
$$\frac{\text{Cos}[e+f x]\ (a+a\,\text{Sin}[e+f x])^{9/2}}{84\,a\,c^2\,f\ (c-c\,\text{Sin}[e+f x])^{13/2}}+\frac{\text{Cos}[e+f x]\ (a+a\,\text{Sin}[e+f x])^{9/2}}{840\,a\,c^3\,f\ (c-c\,\text{Sin}[e+f x])^{11/2}}$$

Result (type 3, 419 leaves):

$$\frac{16\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^3\left(a\left(1+\text{Sin}[e+fx]\right)\right)^{7/2}}{7f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^7\left(c-c\,\text{Sin}[e+fx]\right)^{17/2}}-$$
$$\frac{16\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^5\left(a\left(1+\text{Sin}[e+fx]\right)\right)^{7/2}}{3f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^7\left(c-c\,\text{Sin}[e+fx]\right)^{17/2}}+$$
$$\frac{24\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^7\left(a\left(1+\text{Sin}[e+fx]\right)\right)^{7/2}}{5f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^7\left(c-c\,\text{Sin}[e+fx]\right)^{17/2}}-$$
$$\frac{2\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^9\left(a\left(1+\text{Sin}[e+fx]\right)\right)^{7/2}}{f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^7\left(c-c\,\text{Sin}[e+fx]\right)^{17/2}}+$$
$$\frac{\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^{11}\left(a\left(1+\text{Sin}[e+fx]\right)\right)^{7/2}}{3f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^7\left(c-c\,\text{Sin}[e+fx]\right)^{17/2}}$$

Problem 44: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[e+fx]^2\left(c-c\,\text{Sin}[e+fx]\right)^{5/2}}{\sqrt{a+a\,\text{Sin}[e+fx]}}\,dx$$

Optimal (type 3, 45 leaves, 2 steps):

$$-\frac{\text{Cos}[e+fx]\left(c-c\,\text{Sin}[e+fx]\right)^{7/2}}{4\,c\,f\sqrt{a+a\,\text{Sin}[e+fx]}}$$

Result (type 3, 134 leaves):

$$\left(c^2\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\left(-1+\text{Sin}[e+fx]\right)^2\sqrt{c-c\,\text{Sin}[e+fx]}\right.$$
$$\left.\left(28\,\text{Cos}[2(e+fx)]-\text{Cos}[4(e+fx)]+56\,\text{Sin}[e+fx]-8\,\text{Sin}[3(e+fx)]\right)\right)\Big/$$
$$\left(32f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^5\sqrt{a\left(1+\text{Sin}[e+fx]\right)}\right)$$

Problem 45: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[e+fx]^2\left(c-c\,\text{Sin}[e+fx]\right)^{3/2}}{\sqrt{a+a\,\text{Sin}[e+fx]}}\,dx$$

Optimal (type 3, 45 leaves, 2 steps):

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

Result (type 3, 120 leaves):

$$-\left(\left(c\left(\operatorname{Cos}\left[\frac{1}{2}(e+fx)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+fx)\right]\right)(-1+\operatorname{Sin}[e+fx])\sqrt{c-c\operatorname{Sin}[e+fx]}\left(6\operatorname{Cos}[2(e+fx)]+15\operatorname{Sin}[e+fx]-\operatorname{Sin}[3(e+fx)]\right)\right)\Big/\left(12f\left(\operatorname{Cos}\left[\frac{1}{2}(e+fx)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^3\sqrt{a(1+\operatorname{Sin}[e+fx])}\right)\right)$$

Problem 53: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\operatorname{Cos}[e+fx]^2\sqrt{c-c\operatorname{Sin}[e+fx]}}{(a+a\operatorname{Sin}[e+fx])^{3/2}}\,dx$$

Optimal (type 3, 96 leaves, 5 steps):

$$\frac{2c\operatorname{Cos}[e+fx]\operatorname{Log}[1+\operatorname{Sin}[e+fx]]}{af\sqrt{a+a\operatorname{Sin}[e+fx]}\sqrt{c-c\operatorname{Sin}[e+fx]}}+\frac{\operatorname{Cos}[e+fx]\sqrt{c-c\operatorname{Sin}[e+fx]}}{af\sqrt{a+a\operatorname{Sin}[e+fx]}}$$

Result (type 3, 127 leaves):

$$-\left(\left(\left(\operatorname{Cos}\left[\frac{1}{2}(e+fx)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^3\left(2\,i\,fx+4\,i\operatorname{ArcTan}\left[e^{i(e+fx)}\right]-2\operatorname{Log}\left[1+e^{2i(e+fx)}\right]+\operatorname{Sin}[e+fx]\right)\sqrt{c-c\operatorname{Sin}[e+fx]}\right)\Big/\left(f\left(\operatorname{Cos}\left[\frac{1}{2}(e+fx)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+fx)\right]\right)(a(1+\operatorname{Sin}[e+fx]))^{3/2}\right)\right)$$

Problem 61: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\operatorname{Cos}[e+fx]^2\sqrt{c-c\operatorname{Sin}[e+fx]}}{(a+a\operatorname{Sin}[e+fx])^{5/2}}\,dx$$

Optimal (type 3, 97 leaves, 5 steps):

$$-\frac{c\operatorname{Cos}[e+fx]\operatorname{Log}[1+\operatorname{Sin}[e+fx]]}{a^2f\sqrt{a+a\operatorname{Sin}[e+fx]}\sqrt{c-c\operatorname{Sin}[e+fx]}}-\frac{\operatorname{Cos}[e+fx]\sqrt{c-c\operatorname{Sin}[e+fx]}}{af(a+a\operatorname{Sin}[e+fx])^{3/2}}$$

Result (type 3, 121 leaves):

$$\left(i\operatorname{Sec}[e+fx]\sqrt{c-c\operatorname{Sin}[e+fx]}\left(2\,i+fx+i\operatorname{Log}\left[1+e^{2i(e+fx)}\right]+\left(fx+i\operatorname{Log}\left[1+e^{2i(e+fx)}\right]\right)\operatorname{Sin}[e+fx]+2\operatorname{ArcTan}\left[e^{i(e+fx)}\right](1+\operatorname{Sin}[e+fx])\right)\right)\Big/\left(a^2f\sqrt{a(1+\operatorname{Sin}[e+fx])}\right)$$

Problem 65: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\operatorname{Cos}[e+fx]^2(a+a\operatorname{Sin}[e+fx])^m(c-c\operatorname{Sin}[e+fx])^n\,dx$$

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

$$\frac{1}{f\,(3+2\,m)}2^{\frac{3}{2}+n}\,c^2\,\text{Cos}[e+f\,x]^3\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(-1-2\,n),\,\frac{1}{2}\,(5+2\,m),\,\frac{1}{2}\,(1+\text{Sin}[e+f\,x])\right]\,(1-\text{Sin}[e+f\,x])^{\frac{1}{2}-n}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-2+n}$$

Result (type 6, 15 688 leaves):

$$-\Bigg(\Bigg(4^{3+n}\,(3+2\,n)\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^n\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$
$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,n}\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$
$$\Bigg(\Bigg(5\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,3+2\,(m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\Bigg)\Bigg/\Bigg(-(3+2\,n)\,\text{AppellF1}\left[\frac{1}{2}+n,\right.$$
$$\left.-2\,m,\,3+2\,(m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$2\,\Bigg(2\,m\,\text{AppellF1}\left[\frac{3}{2}+n,\,1-2\,m,\,3+2\,(m+n),\,\frac{5}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(3+2\,m+2\,n)\,\text{AppellF1}\left[\frac{3}{2}+n,\,-2\,m,\,2\,(2+m+n),\,\frac{5}{2}+\right.$$
$$\left.n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+$$
$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,5+2\,(m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\Bigg/\Bigg(-(3+2\,n)\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\right.$$
$$\left.5+2\,(m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$2\,\Bigg(2\,m\,\text{AppellF1}\left[\frac{3}{2}+n,\,1-2\,m,\,5+2\,(m+n),\,\frac{5}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(5+2\,m+2\,n)\,\text{AppellF1}\left[\frac{3}{2}+n,\,-2\,m,\,2\,(3+m+n),\,\frac{5}{2}+\right.$$
$$\left.n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)-$$
$$\Bigg(\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,2\,(1+m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\Bigg)\Bigg/$$

$$\left(-(3+2n)\,\text{AppellF1}\left[\frac{1}{2}+n,-2m,2(1+m+n),\frac{3}{2}+n,\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}+n,1-2m,2(1+m+n),\frac{5}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+m+n)\,\text{AppellF1}\left[\frac{3}{2}+n,-2m,3+2(m+n),\frac{5}{2}+\right.$$
$$\left.\left.\left.n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)-$$
$$\left(8\,\text{AppellF1}\left[\frac{1}{2}+n,-2m,2(2+m+n),\frac{3}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\Big/$$
$$\left(-(3+2n)\,\text{AppellF1}\left[\frac{1}{2}+n,-2m,2(2+m+n),\frac{3}{2}+n,\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}+n,1-2m,2(2+m+n),\frac{5}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(2+m+n)\,\text{AppellF1}\left[\frac{3}{2}+n,-2m,5+2(m+n),\frac{5}{2}+n,\right.$$
$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\right)\Big/$$

$$\left(f(1+2n)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^5\left(-\frac{1}{(1+2n)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^6}\right.\right.$$
$$5\times 2^{3+2n}(3+2n)\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2$$
$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{2n}\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{2m}$$
$$\left(\left(5\,\text{AppellF1}\left[\frac{1}{2}+n,-2m,3+2(m+n),\frac{3}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2\right)\Big/$$
$$\left(-(3+2n)\,\text{AppellF1}\left[\frac{1}{2}+n,-2m,3+2(m+n),\frac{3}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}+n,1-2m,3+2(m+n),\right.\right.$$
$$\left.\frac{5}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(3+2m+2n)$$
$$\text{AppellF1}\left[\frac{3}{2}+n,-2m,2(2+m+n),\frac{5}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\Big(8\ \text{AppellF1}\Big[\frac{1}{2}+n,\ -2 m,\ 2\ (2+m+n),\ \frac{3}{2}+n,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

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

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

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

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

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

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

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

$$\left(\frac{1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$

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

$$\left(8\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,2\,(2+m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Big/$$
$$\left(-(3+2\,n)\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,2\,(2+m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+4\left(m\,\text{AppellF1}\left[\frac{3}{2}+n,\,1-2\,m,\,2\,(2+m+n),\right.\right.$$
$$\left.\frac{5}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$(2+m+n)\,\text{AppellF1}\left[\frac{3}{2}+n,\,-2\,m,\,5+2\,(m+n),\,\frac{5}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$
$$\frac{1}{(1+2\,n)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^5}\,2^{5+2\,n}\,n\,(3+2\,n)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$
$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-1+2\,n}$$
$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$
$$\left(-\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{4\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)}\right)$$
$$\left(\left(5\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,3+2\,(m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\right)\Big/$$
$$\left(-(3+2\,n)\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,3+2\,(m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}+n,\,1-2\,m,\,3+2\,(m+n),\right.\right.$$
$$\left.\frac{5}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(3+2\,m+2\,n)$$
$$\text{AppellF1}\left[\frac{3}{2}+n,\,-2\,m,\,2\,(2+m+n),\,\frac{5}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$
$$\left(4\,\text{AppellF1}\left[\frac{1}{2}+n,\,-2\,m,\,5+2\,(m+n),\,\frac{3}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\Big/$$

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

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

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

$$\left(8\,\text{AppellF1}\left[\frac{1}{2}+n,-2m,2\left(2+m+n\right),\frac{3}{2}+n,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\Big/$$

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

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

$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-1+2 m}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(8\,\mathrm{AppellF1}\left[\frac{1}{2}+n,\ -2\,m,\ 2\,\left(2+m+n\right),\ \frac{3}{2}+n,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

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

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

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

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

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

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

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

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

$$\left(\frac{1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$

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

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

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

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

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

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

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

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

$$\Bigg(5\,\Bigg(-\frac{1}{\frac{3}{2}+n}m\left(\frac{1}{2}+n\right)\text{AppellF1}\left[\frac{3}{2}+n,1-2m,3+2(m+n),\frac{5}{2}+n,\right.$$

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

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

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

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

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

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

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

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

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

$$\Bigg(4\,\Bigg(-\frac{1}{\frac{3}{2}+n}m\left(\frac{1}{2}+n\right)\text{AppellF1}\left[\frac{3}{2}+n,1-2m,5+2(m+n),\frac{5}{2}+n,\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\Big(8\ \Big(-\frac{1}{\frac{3}{2}+n}m\ \left(\frac{1}{2}+n\right)\ \text{AppellF1}\Big[\frac{3}{2}+n,\ 1-2m,\ 2\ (2+m+n),\ \frac{5}{2}+n,$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{\frac{3}{2}+n}\left(\frac{1}{2}+n\right)\,(1+m+n)\,\text{AppellF1}\left[\frac{3}{2}+n,\,-2\,m,\,1+2\,(1+m+n),\right.$$

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

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

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

$$\left.\frac{7}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$(1-2\,m)\,\left(\frac{3}{2}+n\right)\,\text{AppellF1}\left[\frac{5}{2}+n,\,2-2\,m,\,2\,(1+m+n),\,\frac{7}{2}+n,\right.$$

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

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

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

$$\left.\frac{7}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$\left(\frac{3}{2}+n\right)\,(3+2\,(m+n))\,\text{AppellF1}\left[\frac{5}{2}+n,\,-2\,m,\,4+2\,(m+n),\right.$$

$$\left.\frac{7}{2}+n,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

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

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

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

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

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

$$\Big(8\ \text{AppellF1}\Big[\frac{1}{2}+n,\ -2 m,\ 2\ (2+m+n),\ \frac{3}{2}+n,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

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

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

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

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

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

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

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

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

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

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

$$\frac{7}{2}+n,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

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

$$(1-2 m)\ \left(\frac{3}{2}+n\right)\ \text{AppellF1}\Big[\frac{5}{2}+n,\ 2-2 m,\ 2\ (2+m+n),\ \frac{7}{2}+n,$$

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

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

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

$$\frac{7}{2}+n,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

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

$$\left(\frac{3}{2}+n\right)\left(5+2\,(m+n)\right)\mathrm{AppellF1}\Big[\frac{5}{2}+n,\ -2\,m,\ 6+2\,(m+n),$$

$$\frac{7}{2}+n,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{2\left(\frac{3}{2}+n\right)}\left(\frac{1}{2}+n\right)\left(3+2\,(m+n)\right)\mathrm{AppellF1}\Big[\frac{3}{2}+n,\ -2\,m,\ 4+2\,(m+n),$$

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

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

$$\left(2\,m\left(-\frac{1}{2\left(\frac{5}{2}+n\right)}\left(\frac{3}{2}+n\right)\left(3+2\,(m+n)\right)\mathrm{AppellF1}\left[\frac{5}{2}+n,\,1-2\,m,\,4+\right.\right.\right.$$

$$\left.2\,(m+n),\,\frac{7}{2}+n,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$(1-2\,m)\left(\frac{3}{2}+n\right)\mathrm{AppellF1}\left[\frac{5}{2}+n,\,2-2\,m,\,3+2\,(m+n),\,\frac{7}{2}+n,\right.$$

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

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

$$(3+2\,m+2\,n)\left(-\frac{1}{\frac{5}{2}+n}m\left(\frac{3}{2}+n\right)\mathrm{AppellF1}\left[\frac{5}{2}+n,\,1-2\,m,\,2\,(2+m+n),\right.\right.$$

$$\left.\frac{7}{2}+n,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$\left(\frac{3}{2}+n\right)(2+m+n)\,\mathrm{AppellF1}\left[\frac{5}{2}+n,\,-2\,m,\,1+2\,(2+m+n),\right.$$

$$\left.\frac{7}{2}+n,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}+n\right)}\left(\frac{1}{2}+n\right)(5+2(m+n))\,\mathrm{AppellF1}\left[\frac{3}{2}+n,\,-2m,\,6+2(m+n),\right.$$

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

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

$$\Bigg(2m\Bigg(-\frac{1}{2\left(\frac{5}{2}+n\right)}\left(\frac{3}{2}+n\right)(5+2(m+n))\,\mathrm{AppellF1}\left[\frac{5}{2}+n,\,1-2m,\,6+\right.$$

$$\left.2(m+n),\,\frac{7}{2}+n,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

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

$$(1-2m)\left(\frac{3}{2}+n\right)\mathrm{AppellF1}\left[\frac{5}{2}+n,\,2-2m,\,5+2(m+n),\,\frac{7}{2}+n,\right.$$

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

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)+$$

$$(5+2m+2n)\Bigg(-\frac{1}{\frac{5}{2}+n}m\left(\frac{3}{2}+n\right)\mathrm{AppellF1}\left[\frac{5}{2}+n,\,1-2m,\,2(3+m+n),\right.$$

$$\left.\frac{7}{2}+n,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

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

$$\left(\frac{3}{2}+n\right)\ (3+m+n)\ \text{AppellF1}\left[\frac{5}{2}+n,\ -2\,m,\ 1+2\ (3+m+n),\ \frac{7}{2}+n,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(-(3+2\,n)\ \text{AppellF1}\left[\frac{1}{2}+n,\ -2\,m,\ 5+2\ (m+n),\ \frac{3}{2}+n,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\ \Bigg(2\,m\ \text{AppellF1}\left[\frac{3}{2}+n,\ 1-2\,m,\ 5+2\ (m+n),\ \frac{5}{2}+n,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(5+2\,m+2\,n)$$
$$\text{AppellF1}\left[\frac{3}{2}+n,\ -2\,m,\ 2\ (3+m+n),\ \frac{5}{2}+n,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 66: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]^2\ (a+a\,\text{Sin}[e+f\,x])^m\ (c-c\,\text{Sin}[e+f\,x])^3\,dx$$

Optimal (type 5, 86 leaves, 4 steps):

$$-\frac{1}{9\,f}2^{\frac{3}{2}+m}\,a^4\,c^3\,\text{Cos}[e+f\,x]^9\ \text{Hypergeometric2F1}\left[\frac{9}{2},\ -\frac{1}{2}-m,\ \frac{11}{2},\ \frac{1}{2}\ (1-\text{Sin}[e+f\,x])\right]\ (1+\text{Sin}[e+f\,x])^{-\frac{1}{2}-m}\ (a+a\,\text{Sin}[e+f\,x])^{-4+m}$$

Result (type 6, 17 864 leaves):

$$-\Bigg(\Bigg(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}\ (a+a\,\text{Sin}[e+f\,x])^m$$
$$(c-c\,\text{Sin}[e+f\,x])^3\ \Bigg(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\ \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{10}-$$
$$6\ \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\ \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^9\ \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]+$$
$$13\ \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\ \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^8\ \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^2-$$
$$8\ \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\ \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^7\ \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^3-$$
$$14\ \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\ \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^6\ \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^4+$$
$$28\ \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\ \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^5\ \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^5-$$

$$14\,\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{4}\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{6}-$$

$$8\,\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{3}\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{7}+$$

$$13\,\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{2}\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{8}-$$

$$6\,\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{9}+$$

$$\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^{10}\Big)$$

$$\Big(\Big(3\,\mathrm{AppellF1}\left[\frac{1}{2},-2\,(1+m),7+2\,m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)^{2\,(1+m)}$$

$$\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}}\right)^{7+2\,m}\Bigg)\Big/\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},-2\,(1+m),$$

$$7+2\,m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\Big]-$$

$$2\,\Big(2\,(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-1-2\,m,7+2\,m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\Big]+(7+2\,m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-2\,(1+m),2\,(4+m),\frac{5}{2},$$

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

$$\Big(18\,\mathrm{AppellF1}\left[\frac{1}{2},-2\,(1+m),9+2\,m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)^{2\,(1+m)}$$

$$\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}}\right)^{9+2\,m}\Bigg)\Big/\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},-2\,(1+m),$$

$$9+2\,m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\Big]-$$

$$2\,\Big(2\,(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-1-2\,m,9+2\,m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\Big]+(9+2\,m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-2\,(1+m),2\,(5+m),\frac{5}{2},$$

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

$$\Big(3\,\mathrm{AppellF1}\left[\frac{1}{2},-2\,(1+m),11+2\,m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}$$

$$\left(\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{11+2 m}\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),\right.\right.$$

$$11+2 m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$

$$2\left(2(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2 m,11+2 m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(11+2 m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),2(6+m),\frac{5}{2},\right.$$

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

$$\left(12\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),2(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}$$

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

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

$$4\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2 m,8+2 m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),9+2 m,\frac{5}{2},\right.$$

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

$$\left(12\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),2(5+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}$$

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

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

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

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(5+m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),11+2 m,\frac{5}{2},\right.$$

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

$$\left(f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^6\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),7+2m,\frac{3}{2},\right.\right.\right.\right.$$

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

$$\left.\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{7+2m}\right)\Big/$$

$$\left(4\left(3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),7+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-2\left(2(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,7+2m,\frac{5}{2},\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(7+2m)\,\text{AppellF1}\left[\frac{3}{2},\right.$$

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

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

$$\left(-\frac{1}{6}(7+2m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),8+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

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

$$\frac{1}{3}(1+m)\,\text{AppellF1}\left[\frac{3}{2},1-2(1+m),7+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

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

$$\left.\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{7+2m}\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),7+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

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

$$2\left(2(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,7+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(7+2m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),2(4+m),\frac{5}{2},\right.$$

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

$$\left(3\,(1+m)\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),7+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

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

$$\left.\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{7+2\,m}\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),7+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

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

$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,7+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(7+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(4+m),\frac{5}{2},\right.$$

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

$$\left(3\,(7+2\,m)\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),7+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

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

$$\left.\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{8+2\,m}\right)\Big/$$

$$\left(2\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),7+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

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

$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,7+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(7+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(4+m),\frac{5}{2},\right.$$

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

$$\left(9\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),9+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$

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

$$\left.\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{9+2\,m}\right)\Big/\left(2\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),\right.\right.\right.$$

$$9+2m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] -$$

$$2\left(2\,(1+m)\ \text{AppellF1}\left[\frac{3}{2},\ -1-2m,\ 9+2m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + (9+2m)\ \text{AppellF1}\left[\frac{3}{2},\ -2\,(1+m),\ 2\,(5+m),\ \frac{5}{2},\right.$$

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

$$\left(18\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\ \left(-\frac{1}{6}\,(9+2m)\ \text{AppellF1}\left[\frac{3}{2},\ -2\,(1+m),\ 10+2m,\right.\right.\right.$$

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

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

$$\frac{1}{3}\,(1+m)\ \text{AppellF1}\left[\frac{3}{2},\ 1-2\,(1+m),\ 9+2m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

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

$$\left.\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2\,(1+m)}\ \left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{9+2m}\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\ -2\,(1+m),\ 9+2m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

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

$$2\left(2\,(1+m)\ \text{AppellF1}\left[\frac{3}{2},\ -1-2m,\ 9+2m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + (9+2m)\ \text{AppellF1}\left[\frac{3}{2},\ -2\,(1+m),\ 2\,(5+m),\ \frac{5}{2},\right.$$

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

$$\left(18\,(1+m)\ \text{AppellF1}\left[\frac{1}{2},\ -2\,(1+m),\ 9+2m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

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

$$\left.\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2\,(1+m)}\ \left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{9+2m}\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\ -2\,(1+m),\ 9+2m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

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

$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,9+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(9+2m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(5+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Bigg)-$$

$$\Bigg(9\,(9+2m)\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),9+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{10+2m}\Bigg)\Bigg/$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),9+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,9+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(9+2m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(5+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Bigg)+$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),11+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{11+2m}\Bigg)\Bigg/$$

$$\Bigg(4\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),11+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,11+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(11+2m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(6+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\left(-\frac{1}{6}\,(11+2m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),12+2m,\right.\right.$$

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

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

$$\frac{1}{3}\ (1+m)\ \text{AppellF1}\left[\frac{3}{2},\ 1-2\ (1+m),\ 11+2\,m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

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

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{11+2\,m}\Bigg)\Bigg/$$

$$\Bigg(3\ \text{AppellF1}\left[\frac{1}{2},\ -2\ (1+m),\ 11+2\,m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

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

$$2\ \Bigg(2\ (1+m)\ \text{AppellF1}\left[\frac{3}{2},\ -1-2\,m,\ 11+2\,m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(11+2\,m)\ \text{AppellF1}\left[\frac{3}{2},\ -2\ (1+m),\ 2\ (6+m),\ \frac{5}{2},\right.$$

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

$$\Bigg(3\ (1+m)\ \text{AppellF1}\left[\frac{1}{2},\ -2\ (1+m),\ 11+2\,m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

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

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{11+2\,m}\Bigg)\Bigg/$$

$$\Bigg(3\ \text{AppellF1}\left[\frac{1}{2},\ -2\ (1+m),\ 11+2\,m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

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

$$2\ \Bigg(2\ (1+m)\ \text{AppellF1}\left[\frac{3}{2},\ -1-2\,m,\ 11+2\,m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(11+2\,m)\ \text{AppellF1}\left[\frac{3}{2},\ -2\ (1+m),\ 2\ (6+m),\ \frac{5}{2},\right.$$

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

$$\Bigg(3\ (11+2\,m)\ \text{AppellF1}\left[\frac{1}{2},\ -2\ (1+m),\ 11+2\,m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

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

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{12+2\,m}\Bigg)\Big/$$

$$\Bigg(2\,\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),11+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$2\,\Bigg(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,11+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(11+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(6+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(12\,m\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

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

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

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

$$4\,\Bigg((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,8+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),9+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)-$$

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

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

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

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

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

$$4\left(\left(1+m\right)\text{AppellF1}\left[\frac{3}{2},-1-2m,8+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),9+2m,\frac{5}{2},\right.$$

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

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

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

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

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

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

$$4\left(\left(1+m\right)\text{AppellF1}\left[\frac{3}{2},-1-2m,8+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),9+2m,\frac{5}{2},\right.$$

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

$$\Bigg(12\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\frac{1}{3}\,(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),1+2\,(4+m),\right.\right.$$

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

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

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

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

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

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

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

$$4\left(\left(1+m\right)\text{AppellF1}\left[\frac{3}{2},-1-2m,8+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),9+2m,\frac{5}{2},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)+$$

$$\Bigg(12\left(1+m\right)\text{AppellF1}\left[\frac{1}{2},-2\left(1+m\right),2\,(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2\,(1+m)}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m-2\,(4+m)}\Bigg)\Big/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\left(1+m\right),2\,(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$
$$4\left(\left(1+m\right)\text{AppellF1}\left[\frac{3}{2},-1-2m,8+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),9+2m,\frac{5}{2},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)+$$

$$\Bigg(12\,m\,\text{AppellF1}\left[\frac{1}{2},-2\left(1+m\right),2\,(5+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2\,(1+m)}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2m-2\,(5+m)}\Bigg)\Big/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\left(1+m\right),2\,(5+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$
$$4\left(\left(1+m\right)\text{AppellF1}\left[\frac{3}{2},-1-2m,2\,(5+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(5+m)\,\text{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),11+2m,\frac{5}{2},\right.$$

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

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

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

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

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

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

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

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

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(5+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),11+2 m,\frac{5}{2},\right.$$

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

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

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

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

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

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

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

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(5+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),11+2 m,\frac{5}{2},\right.$$

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

$$\Bigg(12\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\frac{1}{3}\,(5+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),1+2\,(5+m),\right.\right.$$

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

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

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

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

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m-2(5+m)}\Bigg)\Bigg/$$

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

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

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

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(5+m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),11+2m,\frac{5}{2},\right.$$

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

$$\left(12(1+m)\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),2(5+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2(1+m)}$$

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m-2(5+m)}\Bigg)\Bigg/$$

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

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

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

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(5+m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),11+2m,\frac{5}{2},\right.$$

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

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),7+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

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

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{7+2\,m}\left(-\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,7+2\,m,\frac{5}{2},\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(7+2\,m)\,\text{AppellF1}\left[\frac{3}{2},\right.$$

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

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+3\left(-\frac{1}{6}\,(7+2\,m)\,\text{AppellF1}\left[\right.\right.$$

$$\left.\frac{3}{2},-2\,(1+m),8+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$\left.1-2\,(1+m),7+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$\left(2\,(1+m)\left(-\frac{3}{10}\,(7+2\,m)\,\text{AppellF1}\left[\frac{5}{2},-1-2\,m,8+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

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

$$\frac{3}{10}\,(-1-2\,m)\,\text{AppellF1}\left[\frac{5}{2},-2\,m,7+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

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

$$(7+2\,m)\left(-\frac{3}{5}\,(4+m)\,\text{AppellF1}\left[\frac{5}{2},-2\,(1+m),1+2\,(4+m),\frac{7}{2},\right.\right.$$

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

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

$$\left.2\,(4+m),\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),7+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

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

$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,7+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(7+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(4+m),\frac{5}{2},\right.$$

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

$$\Bigg(18\,\text{AppellF1}\left[\frac{1}{2}, -2\,(1+m), 9+2\,m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

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

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{9+2\,m}$$

$$\Bigg(-\Bigg(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2}, -1-2\,m, 9+2\,m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + (9+2\,m)\,\text{AppellF1}\left[\frac{3}{2}, -2\,(1+m),\right.$$

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

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] + 3\,\Bigg(-\frac{1}{6}\,(9+2\,m)\,\text{AppellF1}\Big[$$

$$\frac{3}{2}, -2\,(1+m), 10+2\,m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

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

$$1-2\,(1+m), 9+2\,m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

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

$$\Bigg(2\,(1+m)\,\Bigg(-\frac{3}{10}\,(9+2\,m)\,\text{AppellF1}\left[\frac{5}{2}, -1-2\,m, 10+2\,m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

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

$$\frac{3}{10}\,(-1-2\,m)\,\text{AppellF1}\left[\frac{5}{2}, -2\,m, 9+2\,m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

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

$$(9+2\,m)\,\Bigg(-\frac{3}{5}\,(5+m)\,\text{AppellF1}\Big[\frac{5}{2}, -2\,(1+m), 1+2\,(5+m), \frac{7}{2},$$

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

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

$$2\,(5+m), \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

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

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),9+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,9+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(9+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(5+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2-$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),11+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{11+2\,m}\right.$$

$$\left(-\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,11+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(11+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(6+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+3\left(-\frac{1}{6}\,(11+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),12+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{3}\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},1-2\,(1+m),11+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

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

$$\left(-\frac{3}{10}\,(11+2\,m)\,\text{AppellF1}\left[\frac{5}{2},-1-2\,m,12+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\right.$$

$$\left.\frac{3}{10}\,(-1-2\,m)\,\text{AppellF1}\left[\frac{5}{2},-2\,m,11+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+$$

$$(11+2\,m)\left(-\frac{3}{5}\,(6+m)\,\text{AppellF1}\left[\frac{5}{2},-2\,(1+m),1+2\,(6+m),\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{3}{5}\,(1+m)\,\text{AppellF1}\left[\frac{5}{2},1-2\,(1+m),\right.$$
$$2\,(6+m),\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)\Big)\Big)\Big)\right)\Big/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),11+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$
$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,11+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(11+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(6+m),\frac{5}{2},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)^2+$$
$$\left(12\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$
$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$
$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,m-2\,(4+m)}$$
$$\left(-2\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,8+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),\right.$$
$$\left.\left.9+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+3\left(-\frac{1}{3}\,(4+m)\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.-2\,(1+m),1+2\,(4+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{3}\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},\right.$$
$$\left.1-2\,(1+m),2\,(4+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)-4\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\left((1+m)\left(-\frac{3}{10}\,(8+2\,m)\,\text{AppellF1}\left[\frac{5}{2},-1-2\,m,9+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

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

$$\frac{3}{10}\left(-1-2 m\right)\mathrm{AppellF1}\left[\frac{5}{2},-2 m,8+2 m,\frac{7}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

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

$$(4+m)\left(-\frac{3}{10}\left(9+2 m\right)\mathrm{AppellF1}\left[\frac{5}{2},-2\left(1+m\right),10+2 m,\frac{7}{2},\right.\right.$$

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

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

$$\left.9+2 m,\frac{7}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\left.\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\Bigg)\Bigg)\Bigg/$$

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

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

$$4\left(\left(1+m\right)\mathrm{AppellF1}\left[\frac{3}{2},-1-2 m,8+2 m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\,\mathrm{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),9+2 m,\frac{5}{2},\right.$$

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

$$\left(12\,\mathrm{AppellF1}\left[\frac{1}{2},-2\left(1+m\right),2\,(5+m),\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

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

$$\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2\,(1+m)}\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2 m}$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2 m-2\,(5+m)}$$

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

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

$$\left.\left.11+2 m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)$$

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

$$-2\,(1+m),\,1+2\,(5+m),\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{3}\,(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},$$
$$1-2\,(1+m),\,2\,(5+m),\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)\Big)-4\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\Big(\,(1+m)\left(-\frac{3}{5}\,(5+m)\,\mathrm{AppellF1}\Big[\frac{5}{2},\,-1-2\,m,\,1+2\,(5+m),\,\frac{7}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$
$$\frac{3}{10}\,(-1-2\,m)\,\mathrm{AppellF1}\Big[\frac{5}{2},\,-2\,m,\,2\,(5+m),\,\frac{7}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$
$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+$$
$$(5+m)\left(-\frac{3}{10}\,(11+2\,m)\,\mathrm{AppellF1}\Big[\frac{5}{2},\,-2\,(1+m),\,12+2\,m,\,\frac{7}{2},\right.$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{3}{5}\,(1+m)\,\mathrm{AppellF1}\Big[\frac{5}{2},\,1-2\,(1+m),$$
$$11+2\,m,\,\frac{7}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\left.\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big)\Big)\Big)\Big/$$
$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,-2\,(1+m),\,2\,(5+m),\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-4\,\Big(\,(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},\,-1-2\,m,\,2\,(5+m),$$
$$\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+(5+m)$$
$$\mathrm{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,11+2\,m,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)^2\Big)\Big)\Big)$$

Problem 67: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[e+f\,x]^2\,(a+a\,\mathrm{Sin}[e+f\,x])^m\,(c-c\,\mathrm{Sin}[e+f\,x])^2\,dx$$

Optimal (type 5, 86 leaves, 4 steps):

$$-\frac{1}{7 f} 2^{\frac{3}{2}+m} a^3 c^2 \text{Cos}[e+f x]^7 \text{Hypergeometric2F1}\left[\frac{7}{2}, -\frac{1}{2}-m, \frac{9}{2}, \frac{1}{2}(1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{2}-m} (a+a \text{Sin}[e+f x])^{-3+m}$$

Result (type 6, 13 077 leaves):

$$-\Bigg(\Bigg(12\,288\, c^2 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2 m} (a+a \text{Sin}[e+f x])^m \Bigg(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^8 -$$
$$4 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^7 \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right] +$$
$$4 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^6 \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^2 +$$
$$4 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^5 \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^3 -$$
$$10 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^4 \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^4 +$$
$$4 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^3 \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^5 +$$
$$4 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^2 \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^6 -$$
$$4 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right] \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^7 +$$
$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^8\Bigg) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]$$
$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)} \left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{9+2 m}$$
$$\Bigg(\Bigg(3 \text{AppellF1}\left[\frac{1}{2}, -2(1+m), 7+2 m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$
$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Bigg) \Big/ \Bigg(-3 \text{AppellF1}\left[\frac{1}{2}, -2(1+m),\right.$$
$$\left.7+2 m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] +$$
$$2 \Bigg(2(1+m) \text{AppellF1}\left[\frac{3}{2}, -1-2 m, 7+2 m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + (7+2 m) \text{AppellF1}\left[\frac{3}{2}, -2(1+m), 2(4+m), \frac{5}{2},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg) -$$
$$\text{AppellF1}\left[\frac{1}{2}, -2(1+m), 9+2 m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \Big/$$
$$\Bigg(3 \text{AppellF1}\left[\frac{1}{2}, -2(1+m), 9+2 m, \frac{3}{2},\right.$$

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

$$2\left(2(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,9+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(9+2m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),2(5+m),\frac{5}{2},\right.$$

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

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

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

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

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

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(3+m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),7+2m,\frac{5}{2},\right.$$

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

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

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

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

$$4\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,8+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),9+2m,\frac{5}{2},\right.$$

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

$$\left(f\left(3072\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}\right.\right.$$

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{9+2m}$$

$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),7+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

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

$$(1+m),7+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\,\Big(2\,(1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-1-2\,m,\,7+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(7+2\,m)\,\text{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,2\,(4+m),\,\frac{5}{2},$$

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

$$\text{AppellF1}\Big[\frac{1}{2},\,-2\,(1+m),\,9+2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\Big/\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,-2\,(1+m),\,9+$$

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

$$2\,\Big(2\,(1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-1-2\,m,\,9+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(9+2\,m)\,\text{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,2\,(5+m),\,\frac{5}{2},$$

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

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

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

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

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

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(3+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,7+2\,m,\,\frac{5}{2},$$

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

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

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

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

$$4\,\Big((1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-1-2\,m,\,8+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(4+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,9+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[$$

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

$$12\,288\,(1+m)\,\text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2$$

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

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{9+2m}$$

$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),7+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\Bigg)\Bigg/\left(-3\,\text{AppellF1}\left[\frac{1}{2},-2\right.\right.$$
$$\left.(1+m),7+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,7+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(7+2m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(4+m),\frac{5}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)-$$
$$\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),9+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg/\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),9+\right.\right.$$
$$\left.2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$
$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,9+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(9+2m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(5+m),\frac{5}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$
$$\left(\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(3+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\Bigg)\Bigg/\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\right.\right.$$
$$\left.(1+m),2\,(3+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$
$$4\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,6+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(3+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),7+2m,\frac{5}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Bigg)\Bigg/\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\right.\right.$$
$$\left.(1+m),2\,(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$4\,\Big(\,(1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-1-2\,m,\,8+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+(4+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,9+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[$$

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

$$6144\,(9+2\,m)\,\text{Sec}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2$$

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

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{10+2\,m}$$

$$\Big(\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,-2\,(1+m),\,7+2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

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

$$(1+m),\,7+2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+$$

$$2\,\Big(2\,(1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-1-2\,m,\,7+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+(7+2\,m)\,\text{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,2\,(4+m),\,\frac{5}{2},$$

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

$$\text{AppellF1}\Big[\frac{1}{2},\,-2\,(1+m),\,9+2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big/\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,-2\,(1+m),\,9+$$

$$2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]-$$

$$2\,\Big(2\,(1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,-1-2\,m,\,9+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+(9+2\,m)\,\text{AppellF1}\Big[\frac{3}{2},\,-2\,(1+m),\,2\,(5+m),\,\frac{5}{2},$$

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

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

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

$$(1+m),\,2\,(3+m),\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]-$$

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

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(3+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-2(1+m),7+2m,\frac{5}{2},$$

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

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

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

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

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

$$8+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(4+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-2(1+m),9+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

$$12\,288\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}$$

$$\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{9+2m}$$

$$\Big(\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},-2(1+m),7+2m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)\Big/\Big(-3\,\mathrm{AppellF1}\Big[\frac{1}{2},-2(1+m),7+$$

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

$$2\Big(2(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-1-2m,7+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(7+2m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-2(1+m),2(4+m),\frac{5}{2},$$

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

$$\Big(3\Big(-\frac{1}{6}(7+2m)\,\mathrm{AppellF1}\Big[\frac{3}{2},-2(1+m),8+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

$$(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},1-2(1+m),7+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)$$

$$\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Bigg)\Bigg/\Bigg(-3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),7+2m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\left(2(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,7+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(7+2m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),2(4+m),\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)-$$

$$\Bigg(-\frac{1}{6}(9+2m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),10+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{3}(1+m)\,\text{AppellF1}\left[\frac{3}{2},1-2(1+m),9+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg/$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},-2(1+m),9+2m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$

$$2\left(2(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2m,9+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(9+2m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),2(5+m),\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)+$$

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

$$\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Bigg)\Bigg/$$

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

$$(3+m)\,\text{AppellF1}\left[\frac{3}{2},-2(1+m),7+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)+$$

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

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

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

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)$$

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

$$\left.(3+m),\frac{3}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$

$$4\left((1+m)\operatorname{AppellF1}\left[\frac{3}{2},-1-2m,6+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(3+m)\operatorname{AppellF1}\left[\frac{3}{2},-2(1+m),7+2m,\frac{5}{2},\right.$$

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

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

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big) \Big/$$

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

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

$$\left.8+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$(4+m)\operatorname{AppellF1}\left[\frac{3}{2},-2(1+m),9+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$

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

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{3}$$

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

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)$$

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

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

$$4\left((1+m)\operatorname{AppellF1}\left[\frac{3}{2},-1-2m,8+2m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(4+m)\operatorname{AppellF1}\left[\frac{3}{2},-2(1+m),9+2m,\frac{5}{2},\right.$$

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

$$\Big(3\ \text{AppellF1}\Big[\frac{1}{2},\ -2\ (1+m),\ 7+2 m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

$$-1-2 m,\ 7+2 m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ +$$

$$(7+2 m)\ \text{AppellF1}\Big[\frac{3}{2},\ -2\ (1+m),\ 2\ (4+m),\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

$$\Big(-\frac{1}{6}\ (7+2 m)\ \text{AppellF1}\Big[\frac{3}{2},\ -2\ (1+m),\ 8+2 m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

$$\frac{1}{3}\ (1+m)\ \text{AppellF1}\Big[\frac{3}{2},\ 1-2\ (1+m),\ 7+2 m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \Big(2\ (1+m)\ \Big(-\frac{3}{10}\ (7+2 m)\ \text{AppellF1}\Big[\frac{5}{2},\ -1-2 m,$$

$$8+2 m,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\ +\ \frac{3}{10}\ (-1-2 m)\ \text{AppellF1}\Big[$$

$$\frac{5}{2},\ -2 m,\ 7+2 m,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

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

$$(7+2 m)\ \Big(-\frac{3}{5}\ (4+m)\ \text{AppellF1}\Big[\frac{5}{2},\ -2\ (1+m),\ 1+2\ (4+m),\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}$$

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

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

$$2\ (4+m),\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

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

$$\Big(-3\ \text{AppellF1}\Big[\frac{1}{2},\ -2\ (1+m),\ 7+2 m,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

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

$$7+2 m,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ +$$

$$\left(7+2\,m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-2\,\left(1+m\right),\,2\,\left(4+m\right),\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2+$$
$$\left(\text{AppellF1}\left[\frac{1}{2},\,-2\,\left(1+m\right),\,9+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\left(-\left(2\,\left(1+m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-1-2\,m,\,9+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(9+2\,m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-2\,\left(1+m\right),\right.$$
$$\left.\left.2\,\left(5+m\right),\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)$$
$$\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+3\,\left(-\frac{1}{6}\,\left(9+2\,m\right)\right.$$
$$\text{AppellF1}\left[\frac{3}{2},\,-2\,\left(1+m\right),\,10+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$
$$\frac{1}{3}\,\left(1+m\right)\,\text{AppellF1}\left[\frac{3}{2},\,1-2\,\left(1+m\right),\,9+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)-2$$
$$\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\left(2\,\left(1+m\right)\,\left(-\frac{3}{10}\,\left(9+2\,m\right)\,\text{AppellF1}\left[\frac{5}{2},\,-1-2\,m,\right.\right.\right.$$
$$\left.10+2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{3}{10}\,\left(-1-2\,m\right)\,\text{AppellF1}\left[\right.$$
$$\left.\frac{5}{2},\,-2\,m,\,9+2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\left.\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+$$
$$\left(9+2\,m\right)\,\left(-\frac{3}{5}\,\left(5+m\right)\,\text{AppellF1}\left[\frac{5}{2},\,-2\,\left(1+m\right),\,1+2\,\left(5+m\right),\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\right.\right.\right.$$
$$\left.\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{3}{5}\,\left(1+m\right)\,\text{AppellF1}\left[\frac{5}{2},\,1-2\,\left(1+m\right),\right.$$
$$\left.2\,\left(5+m\right),\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)\right)\right)\Big/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\,-2\,\left(1+m\right),\,9+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\,\left(2\,\left(1+m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-1-2\,m,\right.\right.$$

$$9+2\,m,\ \frac{5}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+$$

$$(9+2\,m)\ \text{AppellF1}\Big[\frac{3}{2},\ -2\,(1+m),\ 2\,(5+m),\ \frac{5}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

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

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

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

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

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

$$7+2\,m,\ \frac{5}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)$$

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

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

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

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

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

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\ \Big((1+m)\ \Big(-\frac{3}{10}\,(6+2\,m)\ \text{AppellF1}\Big[\frac{5}{2},\ -1-2\,m,$$

$$7+2\,m,\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]+\frac{3}{10}\,(-1-2\,m)\ \text{AppellF1}\Big[$$

$$\frac{5}{2},\ -2\,m,\ 6+2\,m,\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

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

$$\Big(-\frac{3}{10}\,(7+2\,m)\ \text{AppellF1}\Big[\frac{5}{2},\ -2\,(1+m),\ 8+2\,m,\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

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

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

$$7+2\,m,\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

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

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(3+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-4\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,\right.\right.$$
$$6+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$(3+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),7+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2-$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(4+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)$$
$$\left(-2\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,8+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),\right.$$
$$\left.\left.9+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+3$$
$$\left(-\frac{1}{3}\,(4+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),1+2\,(4+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$
$$\frac{1}{3}\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},1-2\,(1+m),2\,(4+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)-4$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\left((1+m)\left(-\frac{3}{10}\,(8+2\,m)\,\text{AppellF1}\left[\frac{5}{2},-1-2\,m,\right.\right.\right.$$
$$\left.9+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{3}{10}\,(-1-2\,m)\,\text{AppellF1}\left[\right.$$
$$\left.\frac{5}{2},-2\,m,8+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+(4+m)$$
$$\left(-\frac{3}{10}\,(9+2\,m)\,\text{AppellF1}\left[\frac{5}{2},-2\,(1+m),10+2\,m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{3}{5}\,(1+m)\,\text{AppellF1}\left[\frac{5}{2},1-2\,(1+m),\right.$$

$$9+2m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\Big)\Big)\Big)\Big)\Big/$$
$$\Big(3\,\mathrm{AppellF1}\left[\frac{1}{2},\ -2(1+m),\ 2(4+m),\ \frac{3}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-4\Big((1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},\ -1-2m,$$
$$8+2m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+$$
$$(4+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},\ -2(1+m),\ 9+2m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big)^2\Big)\Big)\Big)\Big)$$

Problem 68: Attempted integration timed out after 120 seconds.

$$\int \mathrm{Cos}[e+fx]^2\,(a+a\,\mathrm{Sin}[e+fx])^m\,(c-c\,\mathrm{Sin}[e+fx])\,dx$$

Optimal (type 5, 84 leaves, 4 steps):

$$-\frac{1}{5f}2^{\frac{3}{2}+m}a^2c\,\mathrm{Cos}[e+fx]^5\,\mathrm{Hypergeometric2F1}\left[\frac{5}{2},\ -\frac{1}{2}-m,\ \frac{7}{2},\ \frac{1}{2}(1-\mathrm{Sin}[e+fx])\right]$$
$$(1+\mathrm{Sin}[e+fx])^{-\frac{1}{2}-m}\,(a+a\,\mathrm{Sin}[e+fx])^{-2+m}$$

Result (type 1, 1 leaves):

???

Problem 69: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[e+fx]^2\,(a+a\,\mathrm{Sin}[e+fx])^m\,dx$$

Optimal (type 5, 81 leaves, 3 steps):

$$-\frac{1}{3f}2^{\frac{3}{2}+m}a\,\mathrm{Cos}[e+fx]^3\,\mathrm{Hypergeometric2F1}\left[\frac{3}{2},\ -\frac{1}{2}-m,\ \frac{5}{2},\ \frac{1}{2}(1-\mathrm{Sin}[e+fx])\right]$$
$$(1+\mathrm{Sin}[e+fx])^{-\frac{1}{2}-m}\,(a+a\,\mathrm{Sin}[e+fx])^{-1+m}$$

Result (type 6, 6167 leaves):

$$-\Big(\Big(192\left(\mathrm{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^{5+2m}\mathrm{Cos}[e+fx]^2$$
$$(a+a\,\mathrm{Sin}[e+fx])^m\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^{2(1+m)}$$

$$\left(-\left(\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),5+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Big/\right.\right.$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),5+2\,m,\frac{3}{2},\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$
$$2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,5+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(5+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(3+m),\frac{5}{2},\right.$$
$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$
$$\left(\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(2+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(2+m),\right.\right.$$
$$\left.\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$
$$4\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,4+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(2+m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),5+2\,m,\frac{5}{2},\right.$$
$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\right)\Big/$$
$$\left(f\left(48\,\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^8\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,m}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}\right.\right.$$
$$\left(-\left(\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),5+2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),5+2\,m,\frac{3}{2},\right.\right.$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\left(2\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.-1-2\,m,5+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$(5+2\,m)\,\text{AppellF1}\left[\frac{3}{2},-2\,(1+m),2\,(3+m),\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$
$$\left(\text{AppellF1}\left[\frac{1}{2},-2\,(1+m),2\,(2+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},-2\right.\right.$$
$$\left.(1+m),2\,(2+m),\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$
$$4\left((1+m)\,\text{AppellF1}\left[\frac{3}{2},-1-2\,m,4+2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

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

$$96(5+2m)\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{4+2m}\text{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}$$

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

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

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

$$192(1+m)\,\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^6\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m}$$

$$\text{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2(1+m)}$$

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

$$
\begin{aligned}
&\left(5+2\,m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-2\,\left(1+m\right),\,2\,\left(3+m\right),\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\\
&\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+\\
&\left(\text{AppellF1}\left[\frac{1}{2},\,-2\,\left(1+m\right),\,2\,\left(2+m\right),\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\\
&\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big/\\
&\left(3\,\text{AppellF1}\left[\frac{1}{2},\,-2\,\left(1+m\right),\,2\,\left(2+m\right),\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-4\,\left(\left(1+m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-1-2\,m,\right.\right.\\
&\left.4+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\\
&\left(2+m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-2\,\left(1+m\right),\,5+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\\
&\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+\\
&192\,\left(\text{Cos}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{5+2\,m}\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\\
&\left(1-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,\left(1+m\right)}\\
&\left(-\left(\left(-\frac{1}{6}\,\left(5+2\,m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-2\,\left(1+m\right),\,6+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{3}\\
&\left(1+m\right)\,\text{AppellF1}\left[\frac{3}{2},\,1-2\,\left(1+m\right),\,5+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\\
&\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big/\\
&\left(3\,\text{AppellF1}\left[\frac{1}{2},\,-2\,\left(1+m\right),\,5+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\,\left(2\,\left(1+m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-1-2\,m,\right.\right.\\
&\left.5+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\\
&\left(5+2\,m\right)\,\text{AppellF1}\left[\frac{3}{2},\,-2\,\left(1+m\right),\,2\,\left(3+m\right),\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\\
&\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+\\
&\left(\text{AppellF1}\left[\frac{1}{2},\,-2\,\left(1+m\right),\,2\,\left(2+m\right),\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\\
&\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big/\\
&\left(2\,\left(3\,\text{AppellF1}\left[\frac{1}{2},\,-2\,\left(1+m\right),\,2\,\left(2+m\right),\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.
\end{aligned}
$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-4\left(\left(1+m\right)\mathrm{AppellF1}\left[\frac{3}{2},-1-2m,\right.\right.$$
$$4+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$
$$\left(2+m\right)\mathrm{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),5+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$
$$\left(\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(-\frac{1}{3}\left(2+m\right)\mathrm{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),1+2\left(2+m\right),\right.\right.\right.$$
$$\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{3}\left(1+m\right)\mathrm{AppellF1}\left[\frac{3}{2},1-2\left(1+m\right),\right.$$
$$2\left(2+m\right),\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big/\left(3\,\mathrm{AppellF1}\left[\frac{1}{2},-2\right.\right.$$
$$\left(1+m\right),2\left(2+m\right),\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-$$
$$4\left(\left(1+m\right)\mathrm{AppellF1}\left[\frac{3}{2},-1-2m,4+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\left(2+m\right)\mathrm{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),5+2m,\frac{5}{2},\right.$$
$$\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$
$$\left(\mathrm{AppellF1}\left[\frac{1}{2},-2\left(1+m\right),5+2m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$
$$\left(-\left(2\left(1+m\right)\mathrm{AppellF1}\left[\frac{3}{2},-1-2m,5+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\left(5+2m\right)\mathrm{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),\right.$$
$$\left.\left.2\left(3+m\right),\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+3\left(-\frac{1}{6}\left(5+2m\right)\right.$$
$$\mathrm{AppellF1}\left[\frac{3}{2},-2\left(1+m\right),6+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$
$$\frac{1}{3}\left(1+m\right)\mathrm{AppellF1}\left[\frac{3}{2},1-2\left(1+m\right),5+2m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)-2$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(2\left(1+m\right)\left(-\frac{3}{10}\left(5+2m\right)\mathrm{AppellF1}\left[\frac{5}{2},-1-2m,\right.\right.\right.$$

$$6+2\,m,\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]+\frac{3}{10}\,(-1-2\,m)\ \text{AppellF1}\Big[$$

$$\frac{5}{2},\ -2\,m,\ 5+2\,m,\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

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

$$(5+2\,m)\ \Big(-\frac{3}{5}\,(3+m)\ \text{AppellF1}\Big[\frac{5}{2},\ -2\,(1+m),\ 1+2\,(3+m),\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}$$

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

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

$$2\,(3+m),\ \frac{7}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

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

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

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

$$5+2\,m,\ \frac{5}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+$$

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

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

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

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

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

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

$$5+2\,m,\ \frac{5}{2},\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)$$

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

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

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

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

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

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\Big(\left(1+m\right)\,\Big(-\frac{3}{10}\,\left(4+2\,m\right)\,\text{AppellF1}\Big[\frac{5}{2},\,-1-2\,m,$$

$$5+2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{3}{10}\,\left(-1-2\,m\right)\,\text{AppellF1}\Big[$$

$$\frac{5}{2},\,-2\,m,\,4+2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

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

$$\Big(-\frac{3}{10}\,\left(5+2\,m\right)\,\text{AppellF1}\Big[\frac{5}{2},\,-2\,\left(1+m\right),\,6+2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

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

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

$$5+2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

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

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

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

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

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

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

Problem 70: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[e+f\,x]^2\,\left(a+a\,\text{Sin}[e+f\,x]\right)^m}{c-c\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 5, 77 leaves, 3 steps):

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

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

Result (type 6, 6494 leaves):

$$-\frac{1}{f\left(c-c\,\text{Sin}[e+f\,x]\right)}\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}\left(\text{Cos}\left[\frac{1}{2}\left(e+f\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)^{2}\left(a+a\,\text{Sin}[e+f\,x]\right)^{m}$$

$$\left(-\frac{1}{2}\,i\left(-\frac{1}{1+m}4^{-m}\,e^{-i\left(-e+\frac{\pi}{2}-f\,x\right)}\left(1+e^{i\left(-e+\frac{\pi}{2}-f\,x\right)}\right)^{-2\,m}\left(e^{-\frac{1}{2}i\left(-e+\frac{\pi}{2}-f\,x\right)}\left(1+e^{i\left(-e+\frac{\pi}{2}-f\,x\right)}\right)\right)^{2\,m}\right.\right.$$

$$\text{Hypergeometric2F1}\left[-1-m,\,-2\,m,\,-m,\,-e^{i\left(-e+\frac{\pi}{2}-f\,x\right)}\right]-\frac{1}{-1+m}$$

$$4^{-m}\,e^{i\left(-e+\frac{\pi}{2}-f\,x\right)}\left(1+e^{i\left(-e+\frac{\pi}{2}-f\,x\right)}\right)^{-2\,m}\left(e^{-\frac{1}{2}i\left(-e+\frac{\pi}{2}-f\,x\right)}\left(1+e^{i\left(-e+\frac{\pi}{2}-f\,x\right)}\right)\right)^{2\,m}$$

$$\left.\text{Hypergeometric2F1}\left[1-m,\,-2\,m,\,2-m,\,-e^{i\left(-e+\frac{\pi}{2}-f\,x\right)}\right]\right)-$$

$$\left(2\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{3+2\,m}\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{1}{2}\left(3+2\,m\right),\,\frac{1}{2}\left(5+2\,m\right),\right.\right.$$

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

$$\left(8\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)^{3+2\,m}\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$8\, m\, (\text{Cos}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2)^{1+2 m} \text{Sin}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 \ (1-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2)^{-1+2 m}$$

$$((3\, \text{AppellF1}[\frac{1}{2},\ -2 m,\ 2+2 m,\ \frac{3}{2},\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,$$

$$-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] \ \text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2) \Big/$$

$$(3\, \text{AppellF1}[\frac{1}{2},\ -2 m,\ 2+2 m,\ \frac{3}{2},\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,\ -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] -$$

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

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

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

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

$$(\text{AppellF1}[\frac{1}{2},\ -2 m,\ 3+2 m,\ \frac{3}{2},\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,\ -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] -$$

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

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

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

$$8\, (\text{Cos}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2)^{3+2 m} \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)] \ (1-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2)^{2 m}$$

$$((3\, \text{AppellF1}[\frac{1}{2},\ -2 m,\ 2+2 m,\ \frac{3}{2},\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,\ -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2]$$

$$\text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]) \Big/$$

$$(2\ (3\, \text{AppellF1}[\frac{1}{2},\ -2 m,\ 2+2 m,\ \frac{3}{2},\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,$$

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

$$\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,\ -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] + (1+m)\ \text{AppellF1}[\frac{3}{2},$$

$$-2 m,\ 3+2 m,\ \frac{5}{2},\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,\ -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2])$$

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

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

$$-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2]\ \text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2\ \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)] -$$

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

$$4\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\Big(m\,\Big(-\frac{3}{10}\,(2+2\,m)\,\text{AppellF1}\Big[\frac{5}{2},\,1-2\,m,$$

$$3+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\,\text{Sec}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]+\frac{3}{10}\,(1-2\,m)\,\text{AppellF1}\Big[\frac{5}{2},$$

$$2-2\,m,\,2+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

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

$$\Big(-\frac{3}{5}\,m\,\text{AppellF1}\Big[\frac{5}{2},\,1-2\,m,\,3+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

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

$$\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]-\frac{3}{10}\,(3+2\,m)\,\text{AppellF1}\Big[\frac{5}{2},\,-2\,m,$$

$$4+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{2}{3}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\left(2 m\left(-\frac{3}{10}(3+2 m)\,\text{AppellF1}\left[\frac{5}{2},1-2 m,4+2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{3}{10}(1-2 m)\,\text{AppellF1}\left[\frac{5}{2},2-2 m,\right.$$
$$\left.3+2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+(3+2 m)$$
$$\left(-\frac{3}{5} m\,\text{AppellF1}\left[\frac{5}{2},1-2 m,4+2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{3}{10}(4+2 m)\,\text{AppellF1}\left[\frac{5}{2},-2 m,\right.$$
$$\left.5+2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$
$$\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\Big/$$
$$\left(\text{AppellF1}\left[\frac{1}{2},-2 m,3+2 m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-\right.$$
$$\frac{2}{3}\left(2 m\,\text{AppellF1}\left[\frac{3}{2},1-2 m,3+2 m,\frac{5}{2},\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$(3+2 m)\,\text{AppellF1}\left[\frac{3}{2},-2 m,4+2 m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\right)$$

Problem 71: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[e+f x]^2\,(a+a\,\text{Sin}[e+f x])^m}{(c-c\,\text{Sin}[e+f x])^2}\,dx$$

Optimal (type 5, 81 leaves, 4 steps):

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

Result (type 6, 6360 leaves):

$$-\left(\left(\left(\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m}\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2m}\right.\right.\right.$$

$$\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^4$$

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

$$\left(2\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2m}\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)\Big/$$

$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^2+$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-4\left(\left(1+m\right)\mathrm{AppellF1}\left[\frac{1}{2},\right.\right.$$

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

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

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

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

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

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

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

$$1+2\,m,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

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

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

$$\frac{1}{4}\left(\mathrm{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,m}\mathrm{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}$$

$$\left(-\left(\mathrm{AppellF1}\left[-\frac{1}{2},\,-2\left(1+m\right),\,2\,m,\,\frac{1}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

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

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-4\left(\left(1+m\right)\mathrm{AppellF1}\left[\frac{1}{2},\right.\right.$$

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

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

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

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

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

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

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

$$1+2\,m,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

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

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

$$(1+m) \left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2 m} \left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2 (1+m)}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2 m} \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] \left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2 (1+m)}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(3\,\text{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\left(-\frac{1}{6}\,(1+2\,m)\,\text{AppellF1}\left[\frac{3}{2},\ -2\,(1+m),\ 2+2\,m,\ \frac{5}{2},\right.\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big) +$$

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

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

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big)\Big)\Big/$$

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

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

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

$$-1-2m, 1+2m, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] +$$

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

$$-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2]) \text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)] - 3$$

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

$$-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] \text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)] -$$

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

$$-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] \text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]) + 2$$

$$\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 (2(1+m) (-\frac{3}{10}(1+2 m) \text{AppellF1}[\frac{5}{2}, -1-2 m,$$

$$2+2 m, \frac{7}{2}, \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2, -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2]$$

$$\text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)] + \frac{3}{10}(-1-2 m) \text{AppellF1}[$$

$$\frac{5}{2}, -2 m, 1+2 m, \frac{7}{2}, \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2, -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2]$$

$$\text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]) +$$

$$(1+2 m) (-\frac{3}{5}(1+m) \text{AppellF1}[\frac{5}{2}, -2(1+m), 1+2(1+m), \frac{7}{2}, \text{Tan}[\frac{1}{4}$$

$$(-e+\frac{\pi}{2}-f x)]^2, -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] \text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2$$

$$\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)] - \frac{3}{5}(1+m) \text{AppellF1}[\frac{5}{2}, 1-2(1+m),$$

$$2(1+m), \frac{7}{2}, \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2, -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2]$$

$$\text{Sec}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2 \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)])))) \Big/$$

$$(-3 \text{AppellF1}[\frac{1}{2}, -2(1+m), 1+2 m, \frac{3}{2}, \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2,$$

$$-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] + 2(2(1+m) \text{AppellF1}[\frac{3}{2}, -1-2 m,$$

$$1+2 m, \frac{5}{2}, \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2, -\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2] +$$

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

$$-\text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2]) \text{Tan}[\frac{1}{4}(-e+\frac{\pi}{2}-f x)]^2)^2))))$$

Problem 72: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[e+f x]^2 \left(a+a \text{Sin}[e+f x]\right)^m}{\left(c-c \text{Sin}[e+f x]\right)^3} \, dx$$

Optimal (type 5, 86 leaves, 4 steps):

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

Result (type 6, 6298 leaves):

$$-\Bigg(\Bigg(\Bigg(\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2 m} \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2 m}$$
$$\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^3 \left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^6$$
$$\left(a+a \text{Sin}[e+f x]\right)^m \left(\frac{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^2}{\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^4}+\right.$$
$$\left(2 \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right] \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right) \Big/$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^4+$$
$$\left.\frac{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^2}{\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^4}\right) \left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2 (1+m)}$$
$$\Bigg(-\left(\text{AppellF1}\left[-\frac{3}{2}, -2(1+m), 2 m, -\frac{1}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \Big/\right.$$
$$\Bigg(\text{AppellF1}\left[-\frac{3}{2}, -2(1+m), 2 m, -\frac{1}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-\right.\right.\right.$$
$$\left.\left.f x\right)\right]^2\Big]+4\Bigg((1+m) \text{AppellF1}\left[-\frac{1}{2}, -1-2 m, 2 m, \frac{1}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+m \text{AppellF1}\left[-\frac{1}{2}, -2(1+m), 1+2 m, \frac{1}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg)-$$
$$\Bigg(3 \text{AppellF1}\left[-\frac{1}{2}, -2(1+m), 2 m, \frac{1}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg) \Big/$$
$$\Bigg(\text{AppellF1}\left[-\frac{1}{2}, -2(1+m), 2 m, \frac{1}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$
$$4\Bigg((1+m) \text{AppellF1}\left[\frac{1}{2}, -1-2 m, 2 m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+m \text{AppellF1}\left[\frac{1}{2}, -2(1+m), 1+2 m, \frac{3}{2},\right.$$

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

$$\Bigg(24 f\,(c-c\,\text{Sin}[e+f x])^3\left(-\frac{1}{24}m\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m}\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right.$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}$$

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

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

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{32}\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m}\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(1+m)}$$

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

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

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

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

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

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

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

$$\text{Tan}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2) \Big/ (\text{AppellF1}[-\tfrac{1}{2}, -2(1+m), 2m,$$

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

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

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

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

$$\frac{1}{24}(1+m)\left(\text{Cos}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2\right)^{2m} \text{Csc}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2$$

$$\left(1-\text{Tan}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2\right)^{-1+2(1+m)}$$

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

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

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

$$-1-2m, 2m, \tfrac{1}{2}, \text{Tan}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2, -\text{Tan}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2] +$$

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

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

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

$$\text{Tan}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2) \Big/ (\text{AppellF1}[-\tfrac{1}{2}, -2(1+m), 2m,$$

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

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

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

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

$$\frac{1}{24}\left(\text{Cos}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2\right)^{2m} \text{Cot}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^3 \left(1-\text{Tan}[\tfrac{1}{4}(-e+\tfrac{\pi}{2}-f x)]^2\right)^{2(1+m)}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 73: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]^2\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 244 leaves, 5 steps):

$$\frac{768\,c^3\,\text{Cos}[e+f\,x]\,(a+a\,\text{Sin}[e+f\,x])^{1+m}}{a\,f\,(7+2\,m)\,(9+2\,m)\,(15+16\,m+4\,m^2)\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}+$$
$$\frac{192\,c^2\,\text{Cos}[e+f\,x]\,(a+a\,\text{Sin}[e+f\,x])^{1+m}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}{a\,f\,(9+2\,m)\,(35+24\,m+4\,m^2)}+$$
$$\frac{24\,c\,\text{Cos}[e+f\,x]\,(a+a\,\text{Sin}[e+f\,x])^{1+m}\,(c-c\,\text{Sin}[e+f\,x])^{3/2}}{a\,f\,(63+32\,m+4\,m^2)}+$$
$$\frac{2\,\text{Cos}[e+f\,x]\,(a+a\,\text{Sin}[e+f\,x])^{1+m}\,(c-c\,\text{Sin}[e+f\,x])^{5/2}}{a\,f\,(9+2\,m)}$$

Result (type 3, 695 leaves):

$$\frac{1}{f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^5}\left(a\left(1+\text{Sin}[e+fx]\right)\right)^m\left(c-c\,\text{Sin}[e+fx]\right)^{5/2}$$

$$\left(\left(\left(2205+590\,m+108\,m^2+8\,m^3\right)\left(\left(\frac{3}{8}+\frac{3\,i}{8}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\left(\frac{3}{8}-\frac{3\,i}{8}\right)\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/\right.$$
$$\left((3+2m)(5+2m)(7+2m)(9+2m)\right)+$$
$$\left(\left(2205+590\,m+108\,m^2+8\,m^3\right)\left(\left(\frac{3}{8}-\frac{3\,i}{8}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\left(\frac{3}{8}+\frac{3\,i}{8}\right)\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((3+2m)(5+2m)(7+2m)(9+2m)\right)+$$
$$\left(\left(191\,m+48\,m^2+4\,m^3\right)\left((1-i)\,\text{Cos}\left[\frac{3}{2}(e+fx)\right]-(1+i)\,\text{Sin}\left[\frac{3}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((3+2m)(5+2m)(7+2m)(9+2m)\right)+$$
$$\left(\left(191\,m+48\,m^2+4\,m^3\right)\left((1+i)\,\text{Cos}\left[\frac{3}{2}(e+fx)\right]-(1-i)\,\text{Sin}\left[\frac{3}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((3+2m)(5+2m)(7+2m)(9+2m)\right)+$$
$$\left((21+2m)\left(\left(\frac{3}{2}+\frac{3\,i}{2}\right)\text{Cos}\left[\frac{5}{2}(e+fx)\right]+\left(\frac{3}{2}-\frac{3\,i}{2}\right)\text{Sin}\left[\frac{5}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((5+2m)(7+2m)(9+2m)\right)+$$
$$\left((21+2m)\left(\left(\frac{3}{2}-\frac{3\,i}{2}\right)\text{Cos}\left[\frac{5}{2}(e+fx)\right]+\left(\frac{3}{2}+\frac{3\,i}{2}\right)\text{Sin}\left[\frac{5}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((5+2m)(7+2m)(9+2m)\right)+$$
$$\left((15+2m)\left(\left(\frac{3}{16}-\frac{3\,i}{16}\right)\text{Cos}\left[\frac{7}{2}(e+fx)\right]-\left(\frac{3}{16}+\frac{3\,i}{16}\right)\text{Sin}\left[\frac{7}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((7+2m)(9+2m)\right)+$$
$$\left((15+2m)\left(\left(\frac{3}{16}+\frac{3\,i}{16}\right)\text{Cos}\left[\frac{7}{2}(e+fx)\right]-\left(\frac{3}{16}-\frac{3\,i}{16}\right)\text{Sin}\left[\frac{7}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((7+2m)(9+2m)\right)+\frac{\left(-\frac{1}{16}+\frac{i}{16}\right)\text{Cos}\left[\frac{9}{2}(e+fx)\right]-\left(\frac{1}{16}+\frac{i}{16}\right)\text{Sin}\left[\frac{9}{2}(e+fx)\right]}{9+2m}+$$
$$\left.\frac{\left(-\frac{1}{16}-\frac{i}{16}\right)\text{Cos}\left[\frac{9}{2}(e+fx)\right]-\left(\frac{1}{16}-\frac{i}{16}\right)\text{Sin}\left[\frac{9}{2}(e+fx)\right]}{9+2m}\right)$$

Problem 77: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[e+fx]^2\left(a+a\,\text{Sin}[e+fx]\right)^m}{\left(c-c\,\text{Sin}[e+fx]\right)^{3/2}}\,dx$$

Optimal (type 5, 76 leaves, 4 steps):

$$\left(\text{Cos}[e+fx]\,\text{Hypergeometric2F1}\left[1,\frac{3}{2}+m,\frac{5}{2}+m,\frac{1}{2}\left(1+\text{Sin}[e+fx]\right)\right]\left(a+a\,\text{Sin}[e+fx]\right)^{1+m}\right)\Big/$$
$$\left(a\,c\,f\,(3+2m)\sqrt{c-c\,\text{Sin}[e+fx]}\right)$$

Result (type 6, 3587 leaves):

$$\left(2\sqrt{2}\,(2+m)\right.$$
$$\text{AppellF1}\left[3+2m,2+2m,1,4+2m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^3\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^3$$
$$(a+a\,\text{Sin}[e+fx])^m\left(\frac{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^{2m}\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]^2}{\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]}+\right.$$
$$\left(2\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^{2m}\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]\right)\Big/$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]\right)+$$
$$\left.\left.\frac{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^{2m}\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]^2}{\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+fx\right)\right]}\right)\right)\Big/$$
$$\left(f\,(3+2m)\left(2\,(2+m)\,\text{AppellF1}\left[3+2m,2+2m,1,4+2m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),\right.\right.\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2+$$
$$\left(\text{AppellF1}\left[4+2m,2+2m,2,5+2m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),\right.\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+m)\,\text{AppellF1}\left[4+2m,3+2m,1,5+2m,\right.$$
$$\left.\left.\left.\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)$$
$$(c-c\,\text{Sin}[e+fx])^{3/2}\left(\left(\sqrt{2}\,(2+m)\,\text{AppellF1}\left[3+2m,2+2m,1,4+2m,\right.\right.\right.$$
$$\left.\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\left.\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^{3+2m}\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Big/$$
$$\left((3+2m)\left(2\,(2+m)\,\text{AppellF1}\left[3+2m,2+2m,1,4+2m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),\right.\right.\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2+\left(\text{AppellF1}\left[4+2m,2+2m,\right.\right.$$
$$\left.2,5+2m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$(1+m)\,\text{AppellF1}\left[4+2m,3+2m,1,5+2m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),\right.$$
$$\left.\left.\left.\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)\right)+$$
$$\left(\sqrt{2}\,(2+m)\,\text{AppellF1}\left[3+2m,2+2m,1,4+2m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right),\right.\right.$$

$$1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2+2\,m}\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\mathrm{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg/\Bigg(2\,(2+m)\,\mathrm{AppellF1}\Big[3+2\,m,\,2+2\,m,\,1,\,4+2\,m,$$

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

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

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

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

$$\Bigg(2\sqrt{2}\,(2+m)\,\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{3+2\,m}\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg(-\frac{1}{2\,(4+2\,m)}$$

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

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

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

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

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

$$1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2+\Bigg(\mathrm{AppellF1}\Big[4+2\,m,\,2+2\,m,$$

$$2,\,5+2\,m,\,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right),\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

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

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

$$\Bigg(2\sqrt{2}\,(2+m)\,\mathrm{AppellF1}\Big[3+2\,m,\,2+2\,m,\,1,\,4+2\,m,\,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right),$$

$$1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{3+2\,m}\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$(1+m)\ \Big(-\frac{1}{2\,(5+2\,m)}\,(4+2\,m)\ \text{AppellF1}\Big[5+2\,m,\ 3+2\,m,\ 2,\ 6+2\,m,$$

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

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

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

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

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

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

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

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

$$1-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]\Big)\ \text{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\Big]\Big)^2\Big)\Big)$$

Problem 78: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 5, 79 leaves, 4 steps):

$$\left(\text{Cos}[e+f x] \,\text{Hypergeometric2F1}\left[2, \frac{3}{2}+m, \frac{5}{2}+m, \frac{1}{2}\left(1+\text{Sin}[e+f x]\right)\right] \left(a+a \,\text{Sin}[e+f x]\right)^{1+m}\right) \Big/ \left(2 a c^2 f (3+2 m) \sqrt{c-c \,\text{Sin}[e+f x]}\right)$$

Result (type 6, 7834 leaves):

$$-\left(\left(\left(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2 m} \left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^5\right.\right.\right.$$
$$\left(a+a \,\text{Sin}[e+f x]\right)^m \left(\frac{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^2}{\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^3}+\right.$$
$$\left(2 \,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right] \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right) \Big/$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^3+$$
$$\frac{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]^2}{\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^3}\Bigg) \left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2 m}$$
$$\left(-\left(\text{AppellF1}\left[1,-2 m, 2 m, 2, \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \Big/\right.\right.$$
$$\left(-m\left(\text{AppellF1}\left[2, 1-2 m, 2 m, 3, \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\text{AppellF1}\left[2,-2 m, 1+2 m, 3,\right.$$
$$\left.\left.\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)+\text{AppellF1}\left[1,-2 m, 2 m, 2,\right.$$
$$\left.\left.\left.\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+$$
$$\left(\text{AppellF1}\left[1,-2 m, 2 m, 2, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right) \Big/$$
$$\left(\text{AppellF1}\left[1,-2 m, 2 m, 2, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-\right.$$
$$m\left(\text{AppellF1}\left[2, 1-2 m, 2 m, 3, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\right.$$

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

$$
\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big)+
$$

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

$$
\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg)\Big/
$$

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

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

$$
\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+m
$$

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

$$
\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg)\Bigg)\Bigg)\Bigg/
$$

$$
\left(4\sqrt{2}\,f\,(c-c\,\text{Sin}[e+fx])^{5/2}\left(\frac{1}{2\sqrt{2}}m\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{-1+2m}\right.\right.
$$

$$
\Bigg(-\Bigg(\Bigg(\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg)\Bigg/
$$

$$
\left(2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2\right)\Bigg)-\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]}{2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)}\Bigg)
$$

$$
\Bigg(-\Bigg(\text{AppellF1}\left[1,-2m,2m,2,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\Bigg/
$$

$$
\Bigg(-m\Bigg(\text{AppellF1}\Big[2,1-2m,2m,3,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,
$$

$$
-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+\text{AppellF1}\Big[2,-2m,1+2m,
$$

$$
3,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\Bigg)+
$$

$$
\text{AppellF1}\left[1,-2m,2m,2,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]
$$

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

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

$$
\Bigg(\text{AppellF1}\left[1,-2m,2m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-
$$

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

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

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

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

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

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

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

$$\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big/$$

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

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

$$\left.-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)+\text{AppellF1}\Big[1,-2m,2m,2,$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] \operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Big/$$

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

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

$$\frac{1}{2}-\frac{1}{2}\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, 1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

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

$$\left.1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\right)\left(-1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg)\Bigg)-$$

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

$$\left.1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\operatorname{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(-1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg)\Big/$$

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

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

$$\frac{1}{2}-\frac{1}{2}\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, 1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

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

$$\left.1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\right)\left(-1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg)\Bigg)+$$

$$\Bigg(4\,(1+m)\operatorname{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg(-\frac{1}{2\,(2+2 m)}(1+2 m)\,\text{AppellF1}\Big[2+2 m,$$

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

$$\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{2\,(2+2 m)}$$

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

$$1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\left(-1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg)\Big/$$

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

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

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

Problem 83: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^2\,(a+a\,\text{Sin}[e+f x])^m\,(c-c\,\text{Sin}[e+f x])^{-3-m}\,dx$$

Optimal (type 3, 54 leaves, 2 steps):

$$\frac{\text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^{1+m}\,(c-c\,\text{Sin}[e+f x])^{-2-m}}{a\,c\,f\,(3+2 m)}$$

Result (type 3, 109 leaves):

$$\frac{1}{c^3 f\,(3+2 m)}2^{-m}\,\text{Cos}\left[\frac{1}{4}\,(2 e+\pi+2 f x)\right]^{-3-2 m}\left(\text{Cos}\left[\frac{1}{2}\,(e+f x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f x)\right]\right)^{2 m}$$
$$(a\,(1+\text{Sin}[e+f x]))^m\,(c-c\,\text{Sin}[e+f x])^{-m}\,\text{Sin}\left[\frac{1}{4}\,(2 e+\pi+2 f x)\right]^3$$

Problem 84: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^2\,(a+a\,\text{Sin}[e+f x])^m\,(c-c\,\text{Sin}[e+f x])^{-2-m}\,dx$$

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

$$\frac{1}{f\,(3+2\,m)}2^{-\frac{1}{2}-m}\,\mathrm{Cos}[e+f\,x]^3\,\mathrm{Hypergeometric2F1}\Big[\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(5+2\,m),\,\frac{1}{2}\,(1+\mathrm{Sin}[e+f\,x])\Big]\,(1-\mathrm{Sin}[e+f\,x])^{\frac{1}{2}+m}\,(a+a\,\mathrm{Sin}[e+f\,x])^m\,(c-c\,\mathrm{Sin}[e+f\,x])^{-2-m}$$

Result (type 6, 5056 leaves):

$$-\Bigg(\Bigg(2^{-m}\left(\mathrm{Cos}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\right)^{2\,m}\mathrm{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{-2\,m}\mathrm{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]$$
$$\mathrm{Sin}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{-2\,m}\left(\mathrm{Cos}\Big[\frac{1}{2}\,(e+f\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(e+f\,x)\Big]\right)^{-2\,(-2-m)}(a+a\,\mathrm{Sin}[e+f\,x])^m$$
$$(c-c\,\mathrm{Sin}[e+f\,x])^{-2-m}\Bigg(\mathrm{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2\,m}\mathrm{Cos}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]^2$$
$$\left(\mathrm{Cos}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]-\mathrm{Sin}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]\right)^{-2-2\,m}+2\,\mathrm{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2\,m}$$
$$\mathrm{Cos}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]\left(\mathrm{Cos}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]-\mathrm{Sin}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]\right)^{-2-2\,m}$$
$$\mathrm{Sin}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]+\mathrm{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2\,m}$$
$$\left(\mathrm{Cos}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]-\mathrm{Sin}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]\right)^{-2-2\,m}\mathrm{Sin}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\Big]^2\Bigg)$$
$$\Bigg(-\frac{1}{1+2\,m}\mathrm{Hypergeometric2F1}\Big[-\frac{1}{2}-m,\,-2\,(1+m),\,\frac{1}{2}-m,\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+$$
$$\Bigg((-3+2\,m)\,\mathrm{AppellF1}\Big[\frac{1}{2}-m,\,-2\,(1+m),\,1,\,\frac{3}{2}-m,\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$
$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\,\mathrm{Sin}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\left(1-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\right)^{2\,(1+m)}\Bigg)\Bigg/$$
$$\Bigg((-1+2\,m)\,\Bigg((-3+2\,m)\,\mathrm{AppellF1}\Big[\frac{1}{2}-m,\,-2\,(1+m),\,1,\,\frac{3}{2}-m,$$
$$\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+$$
$$2\,\Bigg(2\,(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,-1-2\,m,\,1,\,\frac{5}{2}-m,\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$
$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,-2\,(1+m),\,2,\,\frac{5}{2}-m,\,\mathrm{Tan}\Big[$$
$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\Bigg)\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(f\,\Bigg(-2^{-m}\,m\left(\mathrm{Cos}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\right)^{2\,m}\mathrm{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\,\mathrm{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]$$
$$\mathrm{Sin}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{-1-2\,m}$$
$$\Bigg(-\frac{1}{1+2\,m}\mathrm{Hypergeometric2F1}\Big[-\frac{1}{2}-m,\,-2\,(1+m),\,\frac{1}{2}-m,\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+$$

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

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

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

$$\left(-\frac{1}{1+2\,m}\text{Hypergeometric2F1}\left[-\frac{1}{2}-m,\,-2\,\left(1+m\right),\,\frac{1}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\right.$$

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

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

$$2^{-2-m}\,\left(\text{Cos}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,m}\,\text{Csc}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Sin}\left[\frac{1}{2}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}$$

$$\left(-\frac{1}{1+2\,m}\text{Hypergeometric2F1}\left[-\frac{1}{2}-m,\,-2\,\left(1+m\right),\,\frac{1}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\right.$$

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

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

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

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

$$\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^3\left(1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,(1+m)}\Bigg)\Bigg/$$

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

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

$$\left.1,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

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

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

$$\frac{1}{2\left(1+2\,m\right)}\left(-\frac{1}{2}-m\right)\operatorname{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\Bigg(-\operatorname{Hypergeometric2F1}\left[-\frac{1}{2}-m,-2\left(1+m\right),\frac{1}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(1+m)}\Bigg)-$$

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

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

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

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

$$\left.-2\left(1+m\right),2,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)$$

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

$$\Bigg(-\frac{1}{2\left(\frac{3}{2}-m\right)}\left(\frac{1}{2}-m\right)\operatorname{AppellF1}\left[\frac{3}{2}-m,-2\left(1+m\right),2,\frac{5}{2}-m,\right.$$

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

$$\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)\left(1+m\right)\operatorname{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.1-2\left(1+m\right),1,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

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

$$\Bigg(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)\mathrm{AppellF1}\left[\frac{5}{2}-m,-2(1+m),3,\frac{7}{2}-m,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)(1+m)\,\mathrm{AppellF1}\left[\frac{5}{2}-m,1-2(1+m),2,\frac{7}{2}-m,\right.$$

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

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+2(1+m)\Bigg(-\frac{1}{2\left(\frac{5}{2}-m\right)}\left(\frac{3}{2}-m\right)\mathrm{AppellF1}\left[\frac{5}{2}-m,\right.$$

$$\left.-1-2m,2,\frac{7}{2}-m,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{1}{2\left(\frac{5}{2}-m\right)}(-1-2m)\left(\frac{3}{2}-m\right)\mathrm{AppellF1}\left[\frac{5}{2}-m,-2m,1,\frac{7}{2}-m,\right.$$

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

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

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

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

$$\left.1,\frac{5}{2}-m,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

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

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

Problem 85: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[e+f x]^2\,(a+a\,\mathrm{Sin}[e+f x])^m\,(c-c\,\mathrm{Sin}[e+f x])^{-1-m}\,dx$$

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

$$\frac{1}{f\,(3+2\,m)}2^{\frac{1}{2}-m}\,c\,\text{Cos}[e+f\,x]^3\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,(1+2\,m),\,\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(5+2\,m),\,\frac{1}{2}\,(1+\text{Sin}[e+f\,x])\right]\,(1-\text{Sin}[e+f\,x])^{\frac{1}{2}+m}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-2-m}$$

Result (type 6, 11 925 leaves) :

$$-\Bigg(\Bigg(\Bigg(8^{1-m}\,(-3+2\,m)\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^{-2\,(-1-m)}\,(a+a\,\text{Sin}[e+f\,x])^m$$

$$(c-c\,\text{Sin}[e+f\,x])^{-1-m}\Bigg(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^2$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-2 m}\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2 m}$$

$$\Big(-\Big(\Big(\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,1,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Big)\Big/\Big((-3+2 m)\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,1,\,\frac{3}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\,\Big(2 m\,\text{AppellF1}\Big[\frac{3}{2}-m,$$

$$1-2 m,\,1,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$\text{AppellF1}\Big[\frac{3}{2}-m,\,-2 m,\,2,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$

$$\Big(4\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,2,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)\Big/\Big((-3+2 m)\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,$$

$$2,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$4\,\Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2 m,\,2,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\text{AppellF1}\Big[\frac{3}{2}-m,\,-2 m,\,3,\,\frac{5}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)-$$

$$\left(4\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\Big/\left((-3+2m)\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+3\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)-$$

$$\frac{1}{(-1+2m)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3}\,2^{4-3m}\,m\,(-3+2m)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-1-2m}$$

$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}$$

$$\left(-\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{4\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)}\right)$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}-m,-2m,1,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\Big/\left((-3+2m)\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,1,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,1,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2}-m,-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+$$

$$\left(4\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\Big/\left((-3+2m)\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$
\begin{aligned}
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\text{AppellF1}\Big[\frac{3}{2}-m,\,-2 m,\,3,\,\frac{5}{2}-m,\\
&\quad\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)-\\
&\Big(4\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&\quad-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\Big/\Big(\left(-3+2 m\right)\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,3,\,\frac{3}{2}-m,\\
&\quad\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Big(2 m\,\text{AppellF1}\Big[\frac{3}{2}-m,\\
&\quad 1-2 m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\\
&\quad 3\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2 m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&\quad-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+\\
&\frac{1}{\left(-1+2 m\right)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3}\,2^{4-3 m}\,m\left(-3+2 m\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\\
&\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-2 m}\\
&\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-1+2 m}\\
&\Bigg(-\Big(\Big(\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)\Big/\\
&\quad\left(2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\Big)-\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)}\Bigg)\\
&\Big(-\Big(\Big(\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,1,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\\
&\quad\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Big)\Big/\Big(\left(-3+2 m\right)\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,1,\,\frac{3}{2}-m,\\
&\quad\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Big(2 m\,\text{AppellF1}\Big[\frac{3}{2}-m,\\
&\quad 1-2 m,\,1,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\\
&\quad\text{AppellF1}\Big[\frac{3}{2}-m,\,-2 m,\,2,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&\quad-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+\\
&\Big(4\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2 m,\,2,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]
\end{aligned}
$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Bigg/\left(\left(-3+2\,m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,\right.\right.$$

$$2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2\,m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2}-m,-2\,m,3,\frac{5}{2}-m,\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)-$$

$$\left(4\,\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\Bigg/\left(\left(-3+2\,m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,3,\frac{3}{2}-m,\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\right.\right.$$

$$1-2\,m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$3\,\text{AppellF1}\left[\frac{3}{2}-m,-2\,m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$

$$\frac{1}{\left(-1+2\,m\right)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3}\,8^{1-m}\left(-3+2\,m\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-2\,m}$$

$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,1,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Bigg/$$

$$\left(\left(-3+2\,m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,1,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2\,m,1,\right.\right.$$

$$\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\text{AppellF1}\left[\frac{3}{2}-m,-2\,m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)-$$

$$\left(\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,1,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\Big/\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2m,\right.\right.$$

$$\left.1,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,1,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2}-m,-2m,2,\frac{5}{2}-m,\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$

$$\left(2\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\Big/\left(\left(-3+2m\right)\text{AppellF1}\left[\right.\right.$$

$$\left.\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2}-m,-2m,3,\frac{5}{2}-m,\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$

$$\left(4\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,-2m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\Big/\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2m,\right.\right.$$

$$2,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2m,\ 2,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2}-m,\ -2m,\ 3,\ \frac{5}{2}-m,\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)-$$

$$\left(4\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2m,\ 3,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}3\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,\ -2m,\ 4,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\Big/$$

$$\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\ -2m,\ 3,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2m,\ 3,\right.\right.$$

$$\left.\frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$3\,\text{AppellF1}\left[\frac{3}{2}-m,\ -2m,\ 4,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$

$$\left(\text{AppellF1}\left[\frac{1}{2}-m,\ -2m,\ 1,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\left(\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2m,\ 1,\ \frac{5}{2}-m,\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.\left.-2m,\ 2,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\left(-3+2m\right)$$

$$\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2m,\ 1,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\text{AppellF1}\left[\frac{5}{2}-m,1-2m,\right.\right.$$

$$\left.2,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]-\frac{1}{\frac{5}{2}-m}$$

$$\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,-2m,3,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]+$$

$$2m\left(-\frac{1}{2\left(\frac{5}{2}-m\right)}\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,1-2m,2,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-\right.\right.\right.\right.$$

$$\left.\left.fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\Big]+\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2m)\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,\right.$$

$$\left.2-2m,1,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$

$$\left.\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)\right)\right)\right)\right)\Big/$$

$$\left(\left((-3+2m)\text{AppellF1}\left[\frac{1}{2}-m,-2m,1,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,1,\right.\right.$$

$$\left.\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$

$$\text{AppellF1}\left[\frac{3}{2}-m,-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2-$$

$$\left(4\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\left(2\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,2,\frac{5}{2}-m,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + \text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.-2 m, 3, \frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] + (-3+2 m)$$

$$\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) m \,\text{AppellF1}\left[\frac{3}{2}-m, 1-2 m, 2, \frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] -$$

$$\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) \text{AppellF1}\left[\frac{3}{2}-m, -2 m, 3, \frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right) +$$

$$4 \,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right) m \,\text{AppellF1}\left[\frac{5}{2}-m, 1-2 m,\right.\right.$$

$$\left.3, \frac{7}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] - \frac{1}{2\left(\frac{5}{2}-m\right)}$$

$$3\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m, -2 m, 4, \frac{7}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] +$$

$$m \left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m, 1-2 m, 3, \frac{7}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] + \frac{1}{2\left(\frac{5}{2}-m\right)}(1-2 m)\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m,\right.$$

$$\left.2-2 m, 2, \frac{7}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\right) \Big/$$

$$\left(\left(-3+2 m\right) \text{AppellF1}\left[\frac{1}{2}-m, -2 m, 2, \frac{3}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + 4 \left(m \,\text{AppellF1}\left[\frac{3}{2}-m, 1-2 m, 2,\right.\right.$$

$$\left.\frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] +$$

$$
\begin{aligned}
&\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\\
&\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2+\\
&\left(4\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.\\
&\left(\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+3\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,4,\right.\\
&\left.\left.\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\\
&\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+(-3+2m)\\
&\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\\
&\frac{1}{2\left(\frac{3}{2}-m\right)}3\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\\
&\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+\\
&2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(2\,m\left(-\frac{1}{2\left(\frac{5}{2}-m\right)}3\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,\right.\right.\right.\\
&\left.1-2m,\,4,\,\frac{7}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\\
&\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\\
&\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2m)\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,\,2-2m,\,3,\,\frac{7}{2}-m,\right.\\
&\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\\
&\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+3\\
&\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\text{AppellF1}\left[\frac{5}{2}-m,\,1-2m,\,4,\,\frac{7}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2
\end{aligned}
$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{\frac{5}{2}-m}2\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,-2m,\right.$$
$$5,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(\Bigg(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Bigg(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,3,\right.$$
$$\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$
$$3\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Bigg)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 86: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^2\left(a+a\,\text{Sin}[e+f x]\right)^m\left(c-c\,\text{Sin}[e+f x]\right)^{-m}dx$$

Optimal (type 5, 116 leaves, 5 steps):

$$\frac{1}{f\left(3+2m\right)}2^{\frac{3}{2}-m}c^2\,\text{Cos}[e+f x]^3\,\text{Hypergeometric2F1}\left[\frac{1}{2}\left(-1+2m\right),\frac{1}{2}\left(3+2m\right),\frac{1}{2}\left(5+2m\right),\frac{1}{2}\left(1+\text{Sin}[e+f x]\right)\right]$$
$$\left(1-\text{Sin}[e+f x]\right)^{\frac{1}{2}+m}\left(a+a\,\text{Sin}[e+f x]\right)^m\left(c-c\,\text{Sin}[e+f x]\right)^{-2-m}$$

Result (type 6, 15 277 leaves):

$$-\Bigg(\Bigg(8^{2-m}\left(-3+2m\right)\text{Cos}[e+f x]^2\left(\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]\right)^{2m}\left(a+a\,\text{Sin}[e+f x]\right)^m$$
$$\left(c-c\,\text{Sin}[e+f x]\right)^{-m}\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^{-2m}$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-2m}\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}$$
$$\Bigg(-\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\Bigg)\Bigg/\Bigg(\left(-3+2\,m\right)$$

$$\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,2,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$4\,\Bigg(m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,2,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,3,\,\frac{5}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(5\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\Bigg)\Bigg/\Bigg(\left(-3+2\,m\right)$$

$$\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$2\,\Bigg(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+3\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,4,\,\frac{5}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)-$$

$$\Bigg(8\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Bigg)\Bigg/\Bigg(\left(-3+2\,m\right)$$

$$\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$4\,\Bigg(m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,5,\,\frac{5}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\Bigg/$$

$$\Bigg(\left(-3+2\,m\right)\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$2\,\Bigg(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg]+5\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,6,\,\frac{5}{2}-m,\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big)\Big)\Big/$$

$$\Big(f\,(-1+2m)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^5\Big(-\frac{1}{(-1+2m)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^6}$$

$$5\times 2^{5-3m}(-3+2m)\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-2m}\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}$$

$$\Big(-\Big(\Big(\text{AppellF1}\Big[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3\Big)\Big/\Big(\big(-3+2m\big)\,\text{AppellF1}\Big[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+4\Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,$$

$$1-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$\text{AppellF1}\Big[\frac{3}{2}-m,-2m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$

$$\Big(5\,\text{AppellF1}\Big[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Big)\Big/$$

$$\Big(\big(-3+2m\big)\,\text{AppellF1}\Big[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Big(2m\,\text{AppellF1}\Big[\frac{3}{2}-m,1-2m,3,\frac{5}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+3\,\text{AppellF1}\Big[\frac{3}{2}-m,$$

$$-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)-\Big(8\,\text{AppellF1}\Big[\frac{1}{2}-m,-2m,4,\frac{3}{2}-m,\text{Tan}\Big[\frac{1}{4}$$

$$\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)\Big/$$

$$\Big(\big(-3+2m\big)\,\text{AppellF1}\Big[\frac{1}{2}-m,-2m,4,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+4\Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,1-2m,4,\frac{5}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\,\text{AppellF1}\Big[\frac{3}{2}-m,$$

$$-2\,m,\,5,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Bigg)$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+\Bigg(4\,\mathrm{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Bigg)\Bigg/\Bigg(\left(-3+2\,m\right)\,\mathrm{AppellF1}\Big[$$

$$\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2$$

$$\Bigg(2\,m\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,5,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+5\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,6,\,\frac{5}{2}-m,\,\mathrm{Tan}\Big[\frac{1}{4}\Big(-e+$$

$$\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{\left(-1+2\,m\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^5}\,2^{4-3\,m}\,\left(-3+2\,m\right)\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\left(\frac{\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-2\,m}$$

$$\left(\frac{1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$

$$\Bigg(-\Bigg(\Bigg(\mathrm{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,2,\,\frac{3}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\Bigg)\Bigg/\Bigg(\left(-3+2\,m\right)\,\mathrm{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,2,\,\frac{3}{2}-m,$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+4\,\Bigg(m\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,$$

$$1-2\,m,\,2,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,3,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(5\,\mathrm{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,3,\,\frac{3}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\Bigg)\Bigg/\Bigg(\left(-3+2\,m\right)\,\mathrm{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,$$

$$3,\,\frac{3}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$2\,\Bigg(2\,m\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,3,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+3\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,4,\,\frac{5}{2}-m,\,\mathrm{Tan}\Big[$$

$$\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2])\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2)\ -$$

$$(8\ \text{AppellF1}[\frac{1}{2}-m,\ -2\,m,\ 4,\ \frac{3}{2}-m,\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2]$$

$$(1+\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2))\Big/\ ((-3+2\,m)\ \text{AppellF1}[\frac{1}{2}-m,\ -2\,m,\ 4,\ \frac{3}{2}-m,$$

$$\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2]+4\ (m\ \text{AppellF1}[\frac{3}{2}-m,\ 1-2\,m,$$

$$4,\ \frac{5}{2}-m,\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2]+2\ \text{AppellF1}[$$

$$\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2])$$

$$\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2)+(4\ \text{AppellF1}[\frac{1}{2}-m,\ -2\,m,\ 5,\ \frac{3}{2}-m,$$

$$\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2])\Big/$$

$$((-3+2\,m)\ \text{AppellF1}[\frac{1}{2}-m,\ -2\,m,\ 5,\ \frac{3}{2}-m,\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,$$

$$-\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2]+2\ (2\,m\ \text{AppellF1}[\frac{3}{2}-m,\ 1-2\,m,\ 5,$$

$$\frac{5}{2}-m,\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2]+$$

$$5\ \text{AppellF1}[\frac{3}{2}-m,\ -2\,m,\ 6,\ \frac{5}{2}-m,\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,$$

$$-\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2])\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2))\ -$$

$$\frac{1}{(-1+2\,m)\ (1+\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2)^5}\ 2^{7-3\,m}\,m\ (-3+2\,m)\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]$$

$$\left(\frac{\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]}{1+\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2}\right)^{-1-2\,m}$$

$$\left(\frac{1-\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2}{1+\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2}\right)^{2\,m}$$

$$\left(-\frac{\text{Sec}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2}{2\ (1+\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2)^2}+\frac{\text{Sec}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2}{4\ (1+\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2)}\right)$$

$$(-((\text{AppellF1}[\frac{1}{2}-m,\ -2\,m,\ 2,\ \frac{3}{2}-m,\ \text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2]$$

$$(1+\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2)^3)\Big/\ ((-3+2\,m)\ \text{AppellF1}[\frac{1}{2}-m,\ -2\,m,\ 2,\ \frac{3}{2}-m,$$

$$\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\,(-e+\frac{\pi}{2}-f\,x)]^2]+4\ (m\ \text{AppellF1}[\frac{3}{2}-m,$$

$$1-2m,\,2,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)+$$

$$\Big(5\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\right)\Big/\ \Big(\left(-3+2m\right)\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2m,$$

$$3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$2\,\Big(2m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+3\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)-$$

$$\Big(8\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big)\Big/$$

$$\Big(\left(-3+2m\right)\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+4\,\Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2m,\,4,\,\frac{5}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2\,\text{AppellF1}\Big[\frac{3}{2}-m,$$

$$-2m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)+\Big(4\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2m,\,5,\,\frac{3}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\Big/$$

$$\Big(\left(-3+2m\right)\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2m,\,5,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2\,\Big(2m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2m,\,5,$$

$$\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$5\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2m,\,6,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)+$$

$$\frac{1}{\left(-1+2m\right)\,\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^5}\,2^{7-3m}\,m\,\left(-3+2m\right)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-2 m}$$

$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-1+2 m}$$

$$\left(-\left(\left(\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\Big/\right.\right.$$

$$\left.\left.\left(2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\right)-\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)}\right)$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}-m,-2 m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.\right.\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3\right)\Big/\left((-3+2 m)\,\text{AppellF1}\left[\frac{1}{2}-m,-2 m,2,\frac{3}{2}-m,\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,\right.\right.$$

$$1-2 m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$\text{AppellF1}\left[\frac{3}{2}-m,-2 m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+$$

$$\left(5\,\text{AppellF1}\left[\frac{1}{2}-m,-2 m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\Big/\left(\left(-3+2 m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2 m,\right.\right.$$

$$3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$2\left(2 m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2 m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+3\,\text{AppellF1}\left[\frac{3}{2}-m,-2 m,4,\frac{5}{2}-m,\text{Tan}\left[\right.\right.$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)-$$

$$\left(8\,\text{AppellF1}\left[\frac{1}{2}-m,-2 m,4,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\Big/$$

$$\left(\left(-3+2 m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2 m,4,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2 m,4,\frac{5}{2}-m,\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\,\text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.-2\,m,\ 5,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 5,\ \frac{3}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\Bigg/$$

$$\Bigg(\left(-3+2\,m\right)\,\text{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 5,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\,\Bigg(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 5,\right.$$

$$\left.\frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$5\,\text{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 6,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{\left(-1+2\,m\right)\,\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^5}\,8^{2-m}\,\left(-3+2\,m\right)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-2\,m}$$

$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$

$$\Bigg(-\Bigg(\Bigg(3\,\text{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 2,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\Bigg)\Bigg/\Bigg(2\,\Bigg(\left(-3+2\,m\right)\,\text{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 2,\ \frac{3}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+4\,\Bigg(m\,\text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.1-2\,m,\ 2,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\text{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 3,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)\Bigg)-$$

$$\Bigg(\Bigg(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 2,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] -$$

$$\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) \text{AppellF1}\Big[\frac{3}{2}-m,\ -2m,\ 3,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3\Bigg) \Bigg/ \Bigg(\Big((-3+2m)\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,$$

$$2,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] +$$

$$4\Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2m,\ 2,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + \text{AppellF1}\Big[\frac{3}{2}-m,\ -2m,\ 3,\ \frac{5}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big) +$$

$$\Big(5\,\text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,\ 3,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\ \left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big) \Big/$$

$$\Big(\Big(-3+2m\Big)\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,\ 3,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + 2\Big(2m\,\text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2m,\ 3,$$

$$\frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] +$$

$$3\,\text{AppellF1}\Big[\frac{3}{2}-m,\ -2m,\ 4,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big) +$$

$$\Bigg(5\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) m\,\text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2m,\ 3,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] -$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)} 3\left(\frac{1}{2}-m\right) \text{AppellF1}\Big[\frac{3}{2}-m,\ -2m,\ 4,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Bigg) \Bigg/ \Bigg(\Big((-3+2m)\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,$$

$$3,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$2\left(2\,m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 3,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+3\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\ -2\,m,\ 4,\ \frac{5}{2}-m,\ \mathrm{Tan}\Big[$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)-$$

$$\left(4\,\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 4,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$

$$\left.\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big/$$

$$\left(\left(-3+2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 4,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+4\left(m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 4,\right.\right.$$

$$\frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$2\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)-$$

$$\left(8\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 4,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$

$$\frac{1}{\frac{3}{2}-m}2\left(\frac{1}{2}-m\right)\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)$$

$$\left.\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Big/\left(\left(-3+2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\right.\right.$$

$$4,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$4\left(m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 4,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\Big[$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(4\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}5\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,-2m,6,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\Big/$$

$$\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2m,5,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,5,\right.\right.$$

$$\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$5\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,6,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$

$$\left(\text{AppellF1}\left[\frac{1}{2}-m,-2m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3\left(2\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,2,\frac{5}{2}-m,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.\left.-2m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\left(-3+2m\right)$$

$$\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,2,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,-2m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+$$

$$4\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\text{AppellF1}\left[\frac{5}{2}-m,1-2m,\right.\right.$$

$$3,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{2\left(\frac{5}{2}-m\right)}$$

$$3\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m,-2 m,4,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$m\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m,1-2 m,3,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2 m)\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m,\right.$$

$$\left.2-2 m,2,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\right)\Big/$$

$$\left(\left((-3+2 m) \text{AppellF1}\left[\frac{1}{2}-m,-2 m,2,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+4\left(m \text{AppellF1}\left[\frac{3}{2}-m,1-2 m,2,\right.\right.$$

$$\left.\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$\text{AppellF1}\left[\frac{3}{2}-m,-2 m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2-$$

$$\left(5 \text{AppellF1}\left[\frac{1}{2}-m,-2 m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\left(\left(2 m \text{AppellF1}\left[\frac{3}{2}-m,1-2 m,3,\frac{5}{2}-m,\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+3 \text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.\left.-2 m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+(-3+2 m)$$

$$\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) m \text{AppellF1}\left[\frac{3}{2}-m,1-2 m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}3\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)+$$
$$2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(2m\left(-\frac{1}{2\left(\frac{5}{2}-m\right)}3\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,\right.\right.\right.$$
$$\left.1-2m,4,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]+$$
$$\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2m)\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,2-2m,3,\frac{7}{2}-m,\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)+3$$
$$\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\text{AppellF1}\left[\frac{5}{2}-m,1-2m,4,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]-\frac{1}{\frac{5}{2}-m}2\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,-2m,\right.$$
$$\left.5,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)\right)\right)\right)\Big/$$
$$\left((-3+2m)\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,3,\right.\right.$$
$$\left.\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$3\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2+$$
$$\left(8\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,4,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\left(2\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,4,\frac{5}{2}-m,\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\,\text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.\left.-2m,5,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+(-3+2m)$$

$$\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{\frac{3}{2}-m}2\left(\frac{1}{2}-m\right)\text{AppellF1}\left[\frac{3}{2}-m,-2m,5,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+$$

$$4\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(m\left(-\frac{1}{\frac{5}{2}-m}2\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,1-2m,\right.\right.\right.$$

$$\left.5,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2m)\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,2-2m,4,\frac{7}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+2$$

$$\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\text{AppellF1}\left[\frac{5}{2}-m,1-2m,5,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{2\left(\frac{5}{2}-m\right)}5\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,\right.$$

$$\left.-2m,6,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\Big/$$

$$\Big(\big(-3+2\,m\big)\;\text{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+4\,\Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,4,$$

$$\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+$$

$$2\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)^2-$$

$$\Big(4\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\Big(\Big(2\,m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+5\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,6,$$

$$\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)$$

$$\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]+\big(-3+2\,m\big)$$

$$\Big(-\frac{1}{\frac{3}{2}-m}\Big(\frac{1}{2}-m\Big)\,m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]-$$

$$\frac{1}{2\,\big(\frac{3}{2}-m\big)}5\,\Big(\frac{1}{2}-m\Big)\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,6,\,\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\Big(2\,m\,\Big(-\frac{1}{2\,\big(\frac{5}{2}-m\big)}5\,\Big(\frac{3}{2}-m\Big)\,\text{AppellF1}\Big[\frac{5}{2}-m,$$

$$1-2\,m,\,6,\,\frac{7}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]+$$

$$\frac{1}{2\,\big(\frac{5}{2}-m\big)}\big(1-2\,m\big)\,\Big(\frac{3}{2}-m\Big)\,\text{AppellF1}\Big[\frac{5}{2}-m,\,2-2\,m,\,5,\,\frac{7}{2}-m,$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)+5$$

$$\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\text{AppellF1}\left[\frac{5}{2}-m,1-2m,6,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{\frac{5}{2}-m}3\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,-2m,\right.$$

$$7,\frac{7}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2m,5,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,5,\right.\right.$$

$$\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$5\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,6,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 87: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]^2\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{1-m}\,dx$$

Optimal (type 5, 116 leaves, 5 steps):

$$\frac{1}{f\,(3+2m)}2^{\frac{5}{2}-m}\,c^3\,\text{Cos}[e+f\,x]^3\,\text{Hypergeometric2F1}\left[\frac{1}{2}(-3+2m),\frac{1}{2}(3+2m),\frac{1}{2}(5+2m),\frac{1}{2}(1+\text{Sin}[e+f\,x])\right]$$
$$(1-\text{Sin}[e+f\,x])^{\frac{1}{2}+m}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-2-m}$$

Result (type 6, 19668 leaves):

$$-\left(\left(8^{3-m}\,(-3+2m)\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2m}\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-2(1-m)}\right.\right.$$

$$\left(a+a\,\text{Sin}[e+f\,x]\right)^m \left(c-c\,\text{Sin}[e+f\,x]\right)^{1-m} \left(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^6\right.$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-2\,m}-2\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}$$
$$\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^5 \left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-2\,m}$$
$$\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^4$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-2\,m} \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^2+$$
$$4\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^3$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-2\,m} \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^3-$$
$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^2$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-2\,m} \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^4-$$
$$2\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m} \text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-2\,m} \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^5+$$
$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m} \left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-2\,m}$$
$$\left.\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]^6\right) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$
$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-2\,m} \left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$
$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^4\right)\Big/\left(\left(-3+2\,m\right)\right.$$
$$\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$2\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2\,m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+3\,\text{AppellF1}\left[\frac{3}{2}-m,-2\,m,4,\frac{5}{2}-m,\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$
$$\left(6\,\text{AppellF1}\left[\frac{1}{2}-m,-2\,m,4,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\right)\Big/\left(\left(-3+2\,m\right)\right.$$

$$\text{AppellF1}\left[\frac{1}{2}-m,-2m,4,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+2\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,5,\frac{5}{2}-m,\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big)-$$
$$\left(13\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,5,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2\right)\Big/\left(\left(-3+2m\right)\right.$$
$$\text{AppellF1}\left[\frac{1}{2}-m,-2m,5,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,5,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+5\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,6,\frac{5}{2}-m,\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big)+$$
$$\left(12\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,6,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\Big/\left(\left(-3+2m\right)\right.$$
$$\text{AppellF1}\left[\frac{1}{2}-m,-2m,6,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,6,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+3\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,7,\frac{5}{2}-m,\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big)-$$
$$\left(4\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,7,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\Big/$$
$$\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,-2m,7,\frac{3}{2}-m,\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,7,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+7\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,8,\frac{5}{2}-m,\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\Big/$$

$$\left(f\,(-1+2\,m)\,\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^7\left(-\frac{1}{(-1+2\,m)\,\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^8}\right.\right.$$

$$7\times 2^{8-3\,m}\,(-3+2\,m)\,\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\left(\frac{\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-2\,m}\left(\frac{1-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$

$$\left(-\left(\left(\operatorname{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,3,\,\frac{3}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.\right.\right.$$

$$\left.\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^4\right)\Big/\left(\left(-3+2\,m\right)\operatorname{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,3,\,\frac{3}{2}-m,\right.\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\left(2\,m\operatorname{AppellF1}\left[\frac{3}{2}-m,\right.\right.$$

$$\left.1-2\,m,\,3,\,\frac{5}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$3\operatorname{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,4,\,\frac{5}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$

$$\left(6\operatorname{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,4,\,\frac{3}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\right)\Big/\left(\left(-3+2\,m\right)\operatorname{AppellF1}\left[\right.\right.$$

$$\left.\frac{1}{2}-m,\,-2\,m,\,4,\,\frac{3}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+4$$

$$\left(m\operatorname{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,4,\,\frac{5}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\operatorname{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,5,\,\frac{5}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\right.\right.$$

$$\left.\left.\left.\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)-$$

$$\left(13\operatorname{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\right)\Big/\left(\left(-3+2\,m\right)\operatorname{AppellF1}\left[\right.\right.$$

$$\left.\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2$$

$$\left(2\,m\operatorname{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,5,\,\frac{5}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+5\operatorname{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,6,\,\frac{5}{2}-m,\,\operatorname{Tan}\left[\frac{1}{4}\right.\right.$$

$$\left.\left.\left.\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(12\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,6,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\Big/$$
$$\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,6,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2m,\,6,\,\frac{5}{2}-m,\right.\right.\right.$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+3\,\text{AppellF1}\Big[\frac{3}{2}-m,$$
$$\left.-2m,\,7,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\Big)$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)-\left(4\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,7,\,\frac{3}{2}-m,\right.\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\Big/\left(\left(-3+2m\right)\text{AppellF1}\Big[\right.$$
$$\frac{1}{2}-m,\,-2m,\,7,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+2$$
$$\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2m,\,7,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+7\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2m,\,8,\,\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+$$
$$\left.\left.\frac{\pi}{2}-fx\Big)\Big]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)+$$
$$\frac{1}{\left(-1+2m\right)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^7}\,2^{7-3m}\left(-3+2m\right)\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2$$
$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{-2m}\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{2m}$$
$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^4\right)\Big/\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,3,\,\frac{3}{2}-m,\right.\right.$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\right.\right.$$
$$1-2m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+$$
$$3\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)+$$
$$\left(6\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^3\right)\Big/\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\right.\right.$$

$$4,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$4\ \Big(m\ \text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2m,\ 4,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\ \text{AppellF1}\Big[\frac{3}{2}-m,\ -2m,\ 5,\ \frac{5}{2}-m,\ \text{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)-$$

$$\Big(13\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,\ 5,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^2\Big)\Big/\ \Big(\left(-3+2m\right)\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,$$

$$5,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$2\ \Big(2m\ \text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2m,\ 5,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+5\ \text{AppellF1}\Big[\frac{3}{2}-m,\ -2m,\ 6,\ \frac{5}{2}-m,\ \text{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$

$$\Big(12\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,\ 6,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big/$$

$$\Big(\left(-3+2m\right)\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,\ 6,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+4\ \Big(m\ \text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2m,\ 6,\ \frac{5}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+3\ \text{AppellF1}\Big[\frac{3}{2}-m,$$

$$-2m,\ 7,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)-\Big(4\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,\ 7,\ \frac{3}{2}-m,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\Big/$$

$$\Big(\left(-3+2m\right)\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2m,\ 7,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\ \Big(2m\ \text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2m,\ 7,$$

$$\frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$7\ \text{AppellF1}\Big[\frac{3}{2}-m,\ -2m,\ 8,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)-$$

$$\frac{1}{\left(-1+2\,m\right)\,\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^7}\,2^{10-3\,m}\,m\,\left(-3+2\,m\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-1-2\,m}$$

$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{2\,m}$$

$$\left(-\frac{\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{2\,\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{4\,\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)}\right)$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.\right.\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^4\right)\Big/\left(\left(-3+2\,m\right)\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,3,\,\frac{3}{2}-m,\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2\,\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\right.\right.$$

$$1-2\,m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$3\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$

$$\left(6\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\right)\Big/\left(\left(-3+2\,m\right)\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\right.\right.$$

$$4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$4\,\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\left[\right.\right.$$

$$\left.\left.\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)-$$

$$\left(13\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,5,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\right)\Big/\left(\left(-3+2\,m\right)\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\right.\right.$$

$$5,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$2\,\left(2\,m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+5\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,6,\,\frac{5}{2}-m,\,\text{Tan}\Big[$$

$$\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)+$$

$$\Big(12\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,6,\,\frac{3}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)\Big)\Big/$$

$$\Big(\big(-3+2\,m\big)\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,6,\,\frac{3}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+4\,\Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,6,\,\frac{5}{2}-m,$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+3\,\text{AppellF1}\Big[\frac{3}{2}-m,$$

$$-2\,m,\,7,\,\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\Big)$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)-\Big(4\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,7,\,\frac{3}{2}-m,$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\Big)\Big/$$

$$\Big(\big(-3+2\,m\big)\,\text{AppellF1}\Big[\frac{1}{2}-m,\,-2\,m,\,7,\,\frac{3}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+2\,\Big(2\,m\,\text{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,7,$$

$$\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+$$

$$7\,\text{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,8,\,\frac{5}{2}-m,\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)\Big)+$$

$$\frac{1}{\big(-1+2\,m\big)\,\Big(1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)^7}\,2^{10-3\,m}\,m\,\big(-3+2\,m\big)\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]$$

$$\left(\frac{\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]}{1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2}\right)^{-2\,m}$$

$$\left(\frac{1-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2}{1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2}\right)^{-1+2\,m}$$

$$\Big(-\Big(\Big(\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]\,\Big(1-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)\Big)\Big/$$

$$\Big(2\,\Big(1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)^2\Big)\Big)-\frac{\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]}{2\,\Big(1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)}\Big)$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,3,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^4\right)\Big/\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,3,\,\frac{3}{2}-m,\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\right.\right.$$
$$\left.1-2m,\,3,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$3\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+$$
$$\left(6\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3\right)\Big/\left(\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\right.\right.\right.$$
$$\left.4,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2m,\,4,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,5,\,\frac{5}{2}-m,\,\text{Tan}\left[\right.\right.$$
$$\left.\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)-$$
$$\left(13\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,5,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\Big/$$
$$\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,5,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2m,\,5,\right.\right.$$
$$\left.\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$5\,\text{AppellF1}\left[\frac{3}{2}-m,\,-2m,\,6,\,\frac{5}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$
$$\left(12\,\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,6,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\Big/$$
$$\left(\left(-3+2m\right)\text{AppellF1}\left[\frac{1}{2}-m,\,-2m,\,6,\,\frac{3}{2}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+4\left(m\,\text{AppellF1}\left[\frac{3}{2}-m,\,1-2m,\,6,\,\frac{5}{2}-m,\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+3\,\text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.-2m,7,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)-\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,7,\frac{3}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg)\Big/$$

$$\Bigg((-3+2m)\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,7,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\Bigg(2m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,7,\right.$$

$$\left.\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$7\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,8,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{(-1+2m)\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^7}\,8^{3-m}\,(-3+2m)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\left(\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{-2m}$$

$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}$$

$$\Bigg(-\Bigg(\Bigg(2\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^3\Bigg)\Big/\Bigg((-3+2m)\,\text{AppellF1}\left[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\Bigg(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.1-2m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$3\,\text{AppellF1}\left[\frac{3}{2}-m,-2m,4,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(\Bigg(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\text{AppellF1}\left[\frac{3}{2}-m,1-2m,3,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}3\left(\frac{1}{2}-m\right)\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 4,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\ \mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^4\Bigg)\Bigg/\ \Bigg(\left(-3+2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\right.$$

$$3,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$2\left(2\,m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 3,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+3\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\ -2\,m,\ 4,\ \frac{5}{2}-m,\ \mathrm{Tan}\Big[$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+$$

$$\Bigg(9\,\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 4,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\Bigg)\Bigg/$$

$$\Bigg(\left(-3+2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 4,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+4\left(m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 4,\right.\right.$$

$$\left.\frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$2\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+$$

$$\Bigg(6\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 4,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$

$$\frac{1}{\frac{3}{2}-m}2\left(\frac{1}{2}-m\right)\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^3\Bigg)\Bigg/\ \Bigg(\left(-3+2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\right.$$

$$4,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$4\left(m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 4,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\right.\right.$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)-$$

$$\left(13\,\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 5,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$

$$\left.\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Big/$$

$$\left(\left(-3+2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 5,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\left(2\,m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 5,\right.\right.$$

$$\frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$5\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 6,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)-$$

$$\left(13\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}5\left(\frac{1}{2}-m\right)\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 6,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)$$

$$\left.\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\right)\Big/\left(\left(-3+2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\right.\right.$$

$$5,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$2\left(2\,m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ 1-2\,m,\ 5,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+5\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\ -2\,m,\ 6,\ \frac{5}{2}-m,\ \mathrm{Tan}\left[\right.\right.$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(6\,\mathrm{AppellF1}\left[\frac{1}{2}-m,\ -2\,m,\ 6,\ \frac{3}{2}-m,\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg/$$
$$\Bigg(\left(-3+2 m\right) \text{AppellF1}\left[\frac{1}{2}-m,-2 m,6,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+4\left(m \text{AppellF1}\left[\frac{3}{2}-m,1-2 m,6,\right.\right.$$
$$\left.\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$3 \text{AppellF1}\left[\frac{3}{2}-m,-2 m,7,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)+$$
$$\Bigg(12\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) m \text{AppellF1}\left[\frac{3}{2}-m,1-2 m,6,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$
$$\frac{1}{\frac{3}{2}-m}3\left(\frac{1}{2}-m\right) \text{AppellF1}\left[\frac{3}{2}-m,-2 m,7,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)$$
$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg)\Bigg/\Bigg(\left(-3+2 m\right) \text{AppellF1}\left[\frac{1}{2}-m,-2 m,\right.$$
$$\left.6,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$4\left(m \text{AppellF1}\left[\frac{3}{2}-m,1-2 m,6,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+3 \text{AppellF1}\left[\frac{3}{2}-m,-2 m,7,\frac{5}{2}-m,\text{Tan}\left[\right.\right.$$
$$\left.\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)-$$
$$\Bigg(4\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) m \text{AppellF1}\left[\frac{3}{2}-m,1-2 m,7,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$
$$\frac{1}{2\left(\frac{3}{2}-m\right)}7\left(\frac{1}{2}-m\right) \text{AppellF1}\left[\frac{3}{2}-m,-2 m,8,\frac{5}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\Bigg)\Bigg/$$
$$\Bigg(\left(-3+2 m\right) \text{AppellF1}\left[\frac{1}{2}-m,-2 m,7,\frac{3}{2}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\left(2\,m\,\operatorname{AppellF1}\left[\frac{3}{2}-m,1-2m,7,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+7\,\operatorname{AppellF1}\left[\frac{3}{2}-m,-2m,8,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$

$$\Bigg(\operatorname{AppellF1}\left[\frac{1}{2}-m,-2m,3,\frac{3}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left(1+\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^4\Bigg(\Bigg(2\,m\,\operatorname{AppellF1}\left[\frac{3}{2}-m,1-2m,3,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+3\,\operatorname{AppellF1}\left[\frac{3}{2}-m,-2m,4,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg)$$

$$\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+(-3+2m)$$

$$\Bigg(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)m\,\operatorname{AppellF1}\left[\frac{3}{2}-m,1-2m,3,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}3\left(\frac{1}{2}-m\right)\operatorname{AppellF1}\left[\frac{3}{2}-m,-2m,4,\frac{5}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)+$$

$$2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg(2\,m\Bigg(-\frac{1}{2\left(\frac{5}{2}-m\right)}3\left(\frac{3}{2}-m\right)\operatorname{AppellF1}\left[\frac{5}{2}-m,1-2m,4,\frac{7}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2m)$$

$$\left(\frac{3}{2}-m\right)\operatorname{AppellF1}\left[\frac{5}{2}-m,2-2m,3,\frac{7}{2}-m,\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\operatorname{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)+3\Bigg(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\operatorname{AppellF1}\left[\frac{5}{2}-m,1-2m,4,\right.$$

$$\frac{7}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\Big(-e+$$

$$\frac{\pi}{2}-f\,x\Big)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]-\frac{1}{\frac{5}{2}-m}2\Big(\frac{3}{2}-m\Big)\ \text{AppellF1}\Big[\frac{5}{2}-$$

$$m,\ -2\,m,\ 5,\ \frac{7}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\Big(-3+2\,m\Big)\ \text{AppellF1}\Big[\frac{1}{2}-m,\ -2\,m,\ 3,\ \frac{3}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+2\Big(2\,m\,\text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2\,m,\ 3,$$

$$\frac{5}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+$$

$$3\,\text{AppellF1}\Big[\frac{3}{2}-m,\ -2\,m,\ 4,\ \frac{5}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)^2-$$

$$\Big(6\,\text{AppellF1}\Big[\frac{1}{2}-m,\ -2\,m,\ 4,\ \frac{3}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\Big(1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)^3\ \Big(2\ \Big(m\,\text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2\,m,\ 4,\ \frac{5}{2}-m,$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+2\,\text{AppellF1}\Big[\frac{3}{2}-m,$$

$$-2\,m,\ 5,\ \frac{5}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)$$

$$\text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]+\Big(-3+2\,m\Big)$$

$$\Big(-\frac{1}{\frac{3}{2}-m}\Big(\frac{1}{2}-m\Big)\ m\,\text{AppellF1}\Big[\frac{3}{2}-m,\ 1-2\,m,\ 4,\ \frac{5}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]-$$

$$\frac{1}{\frac{3}{2}-m}2\ \Big(\frac{1}{2}-m\Big)\ \text{AppellF1}\Big[\frac{3}{2}-m,\ -2\,m,\ 5,\ \frac{5}{2}-m,\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]\Big)+$$

$$4\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\ \Big(m\ \Big(-\frac{1}{\frac{5}{2}-m}2\ \Big(\frac{3}{2}-m\Big)\ \text{AppellF1}\Big[\frac{5}{2}-m,\ 1-2\,m,$$

$$5,\ \frac{7}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2 m)\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m,\ 2-2 m,\ 4,\ \frac{7}{2}-m,\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+2$$

$$\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right) m\, \text{AppellF1}\left[\frac{5}{2}-m,\ 1-2 m,\ 5,\ \frac{7}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{2\left(\frac{5}{2}-m\right)} 5\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m,\right.$$

$$-2 m,\ 6,\ \frac{7}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\right) \Big/$$

$$\left(\left(-3+2 m\right) \text{AppellF1}\left[\frac{1}{2}-m,\ -2 m,\ 4,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+4\left(m\, \text{AppellF1}\left[\frac{3}{2}-m,\ 1-2 m,\ 4,\right.\right.$$

$$\frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\, \text{AppellF1}\left[\frac{3}{2}-m,\ -2 m,\ 5,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^2+$$

$$\left(13\, \text{AppellF1}\left[\frac{1}{2}-m,\ -2 m,\ 5,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\left(\left(2 m\, \text{AppellF1}\left[\frac{3}{2}-m,\ 1-2 m,\ 5,\ \frac{5}{2}-m,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+5\, \text{AppellF1}\left[\frac{3}{2}-m,\right.$$

$$\left.-2 m,\ 6,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+(-3+2 m)$$

$$\left(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right) m \,\text{AppellF1}\left[\frac{3}{2}-m, 1-2 m, 5, \frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)} 5\left(\frac{1}{2}-m\right) \text{AppellF1}\left[\frac{3}{2}-m, -2 m, 6, \frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+$$

$$2 \,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(2 m\left(-\frac{1}{2\left(\frac{5}{2}-m\right)} 5\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m,\right.\right.\right.$$

$$\left.1-2 m, 6, \frac{7}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2 m)\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m, 2-2 m, 5, \frac{7}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+5$$

$$\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right) m \,\text{AppellF1}\left[\frac{5}{2}-m, 1-2 m, 6, \frac{7}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{\frac{5}{2}-m} 3\left(\frac{3}{2}-m\right) \text{AppellF1}\left[\frac{5}{2}-m, -2 m,\right.$$

$$\left.7, \frac{7}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\right) \Big/$$

$$\left(\left(-3+2 m\right) \text{AppellF1}\left[\frac{1}{2}-m, -2 m, 5, \frac{3}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(2 m \,\text{AppellF1}\left[\frac{3}{2}-m, 1-2 m, 5,\right.\right.$$

$$\left.\frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$5 \,\text{AppellF1}\left[\frac{3}{2}-m, -2 m, 6, \frac{5}{2}-m, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)^2-$$

$$\Big(12\,\mathrm{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,6,\,\frac{3}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\ \Big(2\,\Big(m\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,6,\,\frac{5}{2}-m,$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+3\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,$$

$$-2\,m,\,7,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+(-3+2\,m)$$

$$\Big(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)\,m\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,1-2\,m,\,6,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$

$$\frac{1}{\frac{3}{2}-m}3\,\left(\frac{1}{2}-m\right)\,\mathrm{AppellF1}\Big[\frac{3}{2}-m,\,-2\,m,\,7,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)+$$

$$4\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big(m\,\Big(-\frac{1}{\frac{5}{2}-m}3\,\left(\frac{3}{2}-m\right)\,\mathrm{AppellF1}\Big[\frac{5}{2}-m,\,1-2\,m,$$

$$7,\,\frac{7}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$

$$\frac{1}{2\,\left(\frac{5}{2}-m\right)}(1-2\,m)\,\left(\frac{3}{2}-m\right)\,\mathrm{AppellF1}\Big[\frac{5}{2}-m,\,2-2\,m,\,6,\,\frac{7}{2}-m,$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)+3$$

$$\Big(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)\,m\,\mathrm{AppellF1}\Big[\frac{5}{2}-m,\,1-2\,m,\,7,\,\frac{7}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{2\,\left(\frac{5}{2}-m\right)}7\,\left(\frac{3}{2}-m\right)\,\mathrm{AppellF1}\Big[\frac{5}{2}-m,$$

$$-2\,m,\,8,\,\frac{7}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(-3+2\,m\right)\,\mathrm{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,6,\,\frac{3}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+4\,\Bigg(m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,6,\right.$$

$$\left.\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$3\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,7,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)^2+$$

$$\Bigg(4\,\mathrm{AppellF1}\left[\frac{1}{2}-m,\,-2\,m,\,7,\,\frac{3}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\Bigg(\Bigg(2\,m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,7,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+7\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,8,\right.$$

$$\left.\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\left(-3+2\,m\right)$$

$$\Bigg(-\frac{1}{\frac{3}{2}-m}\left(\frac{1}{2}-m\right)\,m\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\,1-2\,m,\,7,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$

$$\frac{1}{2\left(\frac{3}{2}-m\right)}7\left(\frac{1}{2}-m\right)\,\mathrm{AppellF1}\left[\frac{3}{2}-m,\,-2\,m,\,8,\,\frac{5}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)+$$

$$2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\Bigg(2\,m\,\Bigg(-\frac{1}{2\left(\frac{5}{2}-m\right)}7\left(\frac{3}{2}-m\right)\,\mathrm{AppellF1}\left[\frac{5}{2}-m,\right.$$

$$\left.1-2\,m,\,8,\,\frac{7}{2}-m,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$

$$\frac{1}{2\left(\frac{5}{2}-m\right)}(1-2m)\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,\ 2-2m,\ 7,\ \frac{7}{2}-m,\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+7$$

$$\left(-\frac{1}{\frac{5}{2}-m}\left(\frac{3}{2}-m\right)m\,\text{AppellF1}\left[\frac{5}{2}-m,\ 1-2m,\ 8,\ \frac{7}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{\frac{5}{2}-m}4\left(\frac{3}{2}-m\right)\text{AppellF1}\left[\frac{5}{2}-m,\ -2m,\right.$$

$$\left.9,\ \frac{7}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\Bigg/$$

$$\left(\left((-3+2m)\,\text{AppellF1}\left[\frac{1}{2}-m,\ -2m,\ 7,\ \frac{3}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(2m\,\text{AppellF1}\left[\frac{3}{2}-m,\ 1-2m,\ 7,\right.\right.$$

$$\left.\frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$7\,\text{AppellF1}\left[\frac{3}{2}-m,\ -2m,\ 8,\ \frac{5}{2}-m,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)\right)\right)\right)$$

Problem 88: Result unnecessarily involves higher level functions.

$$\int(g\,\text{Cos}[e+f x])^{3/2}\sqrt{a+a\,\text{Sin}[e+f x]}\,(c-c\,\text{Sin}[e+f x])^{7/2}\,dx$$

Optimal (type 4, 343 leaves, 8 steps):

$$\frac{2\,a\,c^4\,\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}}{3\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}+\frac{2\,a\,c^4\,g\,\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{f\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}+\frac{2\,a\,c^3\,\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}{7\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}}+\frac{10\,a\,c^2\,\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{3/2}}{77\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}}+\frac{2\,a\,c\,\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{5/2}}{33\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}}-\frac{2\,a\,\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{7/2}}{11\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 673 leaves):

$$-\left(\left((2-2\,i)\,c^4\,e^{-\frac{3}{2}\,i\,(e+f\,x)}\,\left(-i+e^{i\,(e+f\,x)}\right)\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\left(1+e^{2\,i\,(e+f\,x)}+\left(-1+e^{2\,i\,e}\right)\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(e+f\,x)}\right]\right)\sqrt{a\,\left(1+\text{Sin}[e+f\,x]\right)}\right)\Big/\left(\left(-1+e^{2\,i\,e}\right)\,\sqrt{i\,c\,e^{-i\,(e+f\,x)}\,\left(-i+e^{i\,(e+f\,x)}\right)^2}\,\sqrt{e^{-i\,(e+f\,x)}\,\left(1+e^{2\,i\,(e+f\,x)}\right)}\,f\,\text{Cos}[e+f\,x]^{3/2}\,\left(\text{Cos}\left[\frac{e}{2}+\frac{f\,x}{2}\right]+\text{Sin}\left[\frac{e}{2}+\frac{f\,x}{2}\right]\right)\right)\right)+$$

$$\frac{1}{\text{Cos}\left[\frac{e}{2}+\frac{f\,x}{2}\right]+\text{Sin}\left[\frac{e}{2}+\frac{f\,x}{2}\right]}\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\text{Sec}[e+f\,x]\left(\frac{58\,c^3\,\text{Cos}\left[\frac{f\,x}{2}\right]\,\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)}{77\,f}-\frac{3\,c^3\,\text{Cos}\left[\frac{3\,f\,x}{2}\right]\,\left(\text{Cos}\left[\frac{3\,e}{2}\right]-\text{Sin}\left[\frac{3\,e}{2}\right]\right)}{308\,f}+\frac{145\,c^3\,\text{Cos}\left[\frac{5\,f\,x}{2}\right]\,\left(\text{Cos}\left[\frac{5\,e}{2}\right]+\text{Sin}\left[\frac{5\,e}{2}\right]\right)}{924\,f}+\frac{19\,c^3\,\text{Cos}\left[\frac{7\,f\,x}{2}\right]\,\left(\text{Cos}\left[\frac{7\,e}{2}\right]-\text{Sin}\left[\frac{7\,e}{2}\right]\right)}{264\,f}-\frac{c^3\,\text{Cos}\left[\frac{9\,f\,x}{2}\right]\,\left(\text{Cos}\left[\frac{9\,e}{2}\right]+\text{Sin}\left[\frac{9\,e}{2}\right]\right)}{88\,f}+\frac{58\,c^3\,\left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\,\text{Sin}\left[\frac{f\,x}{2}\right]}{77\,f}+\frac{3\,c^3\,\left(\text{Cos}\left[\frac{3\,e}{2}\right]+\text{Sin}\left[\frac{3\,e}{2}\right]\right)\,\text{Sin}\left[\frac{3\,f\,x}{2}\right]}{308\,f}+\frac{145\,c^3\,\left(\text{Cos}\left[\frac{5\,e}{2}\right]-\text{Sin}\left[\frac{5\,e}{2}\right]\right)\,\text{Sin}\left[\frac{5\,f\,x}{2}\right]}{924\,f}-\frac{19\,c^3\,\left(\text{Cos}\left[\frac{7\,e}{2}\right]+\text{Sin}\left[\frac{7\,e}{2}\right]\right)\,\text{Sin}\left[\frac{7\,f\,x}{2}\right]}{264\,f}-\frac{c^3\,\left(\text{Cos}\left[\frac{9\,e}{2}\right]-\text{Sin}\left[\frac{9\,e}{2}\right]\right)\,\text{Sin}\left[\frac{9\,f\,x}{2}\right]}{88\,f}-\frac{2\,c^3\,\text{Cot}[e]}{f\,\left(\text{Cos}\left[\frac{e}{2}+\frac{f\,x}{2}\right]-\text{Sin}\left[\frac{e}{2}+\frac{f\,x}{2}\right]\right)}\right)\sqrt{a\,\left(1+\text{Sin}[e+f\,x]\right)}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}$$

Problem 89: Result unnecessarily involves higher level functions.

$$\int\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\left(c-c\,\text{Sin}[e+f\,x]\right)^{5/2}\,dx$$

Optimal (type 4, 290 leaves, 7 steps):

$$\frac{22\,a\,c^3\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}}{45\,f\,g\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}}+\frac{22\,a\,c^3\,g\,\sqrt{\mathrm{Cos}[e+f\,x]}\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\mathrm{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{15\,f\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}}+\frac{22\,a\,c^2\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}}{105\,f\,g\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}}+\frac{2\,a\,c\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}\,(c-c\,\mathrm{Sin}[e+f\,x])^{3/2}}{21\,f\,g\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}}-\frac{2\,a\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}\,(c-c\,\mathrm{Sin}[e+f\,x])^{5/2}}{9\,f\,g\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}}$$

Result (type 5, 205 leaves):

$$\left(c^3\,g^2\left(\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\sqrt{a\,(1+\mathrm{Sin}[e+f\,x])}\left(3696\,i\,e^{-i\,(e+f\,x)}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(e+f\,x)}\right]+4\,\mathrm{Cos}[e+f\,x]\,(-924\,i+\mathrm{Cos}[e+f\,x]\,(180+180\,\mathrm{Cos}[2\,(e+f\,x)]+273\,\mathrm{Sin}[e+f\,x]-35\,\mathrm{Sin}[3\,(e+f\,x)]))\right)\right)\Big/\left(2520\,f\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\left(\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}\right)$$

Problem 90: Result unnecessarily involves higher level functions.

$$\int(g\,\mathrm{Cos}[e+f\,x])^{3/2}\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}\,(c-c\,\mathrm{Sin}[e+f\,x])^{3/2}\,dx$$

Optimal (type 4, 235 leaves, 6 steps):

$$\frac{2\,a\,c^2\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}}{5\,f\,g\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}}+\frac{6\,a\,c^2\,g\,\sqrt{\mathrm{Cos}[e+f\,x]}\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\mathrm{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{5\,f\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}}+\frac{6\,a\,c\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}}{35\,f\,g\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}}-\frac{2\,a\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}\,(c-c\,\mathrm{Sin}[e+f\,x])^{3/2}}{7\,f\,g\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}}$$

Result (type 5, 147 leaves):

$$\left(c\,g^3\,\sqrt{a\,(1+\mathrm{Sin}[e+f\,x])}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}\left(168\,i\,e^{-i\,(e+f\,x)}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(e+f\,x)}\right]+4\,\mathrm{Cos}[e+f\,x]\,(-42\,i+\mathrm{Cos}[e+f\,x]\,(5+5\,\mathrm{Cos}[2\,(e+f\,x)]+14\,\mathrm{Sin}[e+f\,x]))\right)\right)\Big/\left(140\,f\,(g\,\mathrm{Cos}[e+f\,x])^{3/2}\right)$$

Problem 91: Result unnecessarily involves higher level functions.

$$\int (g\,\text{Cos}[e+f\,x])^{3/2}\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 178 leaves, 5 steps):

$$\frac{2\,a\,c\,(g\,\text{Cos}[e+f\,x])^{5/2}}{5\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}+\frac{6\,a\,c\,g\,\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{5\,f\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}-\frac{2\,a\,(g\,\text{Cos}[e+f\,x])^{5/2}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}{5\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 249 leaves):

$$\frac{1}{40\,f}(g\,\text{Cos}[e+f\,x])^{3/2}\,\text{Csc}\left[\frac{e}{2}\right]\,\text{Sec}\left[\frac{e}{2}\right]\,\text{Sec}[e+f\,x]^3\,\sqrt{a\,(1+\text{Sin}[e+f\,x])}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}\,\Big(-11\,\text{Cos}[f\,x]-13\,\text{Cos}[2\,e+f\,x]+\text{Cos}[2\,e+3\,f\,x]-\text{Cos}[4\,e+3\,f\,x]+12\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,f\,x}\,(\text{Cos}[e]+i\,\text{Sin}[e])^2\right]\,(\text{Cos}[f\,x]-i\,\text{Sin}[f\,x])\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]+i\,\text{Sin}[2\,(e+f\,x)]}+4\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},-e^{2\,i\,f\,x}\,(\text{Cos}[e]+i\,\text{Sin}[e])^2\right]\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]+i\,\text{Sin}[2\,(e+f\,x)]}\Big)$$

Problem 92: Result unnecessarily involves higher level functions.

$$\int \frac{(g\,\text{Cos}[e+f\,x])^{3/2}\,\sqrt{a+a\,\text{Sin}[e+f\,x]}}{\sqrt{c-c\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 4, 122 leaves, 4 steps):

$$-\frac{2\,a\,(g\,\text{Cos}[e+f\,x])^{5/2}}{3\,f\,g\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}+\frac{2\,a\,g\,\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{f\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c-c\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 147 leaves):

$$-\left(\left(g\sqrt{g\,\text{Cos}[e+f\,x]}\left(1+6\,i\,\text{Cos}[e+f\,x]+\text{Cos}[2\,(e+f\,x)]-6\,i\,e^{-i\,(e+f\,x)}\sqrt{1+e^{2\,i\,(e+f\,x)}}\right.\right.\right.$$
$$\left.\left.\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(e+f\,x)}\right]\right)\sqrt{a\,(1+\text{Sin}[e+f\,x])}\right)\Big/$$
$$\left.\left(3\,f\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\sqrt{c-c\,\text{Sin}[e+f\,x]}\right)\right)$$

Problem 93: Result unnecessarily involves higher level functions.

$$\int\frac{(g\,\text{Cos}[e+f\,x])^{3/2}\sqrt{a+a\,\text{Sin}[e+f\,x]}}{(c-c\,\text{Sin}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 4, 123 leaves, 4 steps):

$$\frac{4\,a\,(g\,\text{Cos}[e+f\,x])^{5/2}}{f\,g\sqrt{a+a\,\text{Sin}[e+f\,x]}\,(c-c\,\text{Sin}[e+f\,x])^{3/2}}-\frac{6\,a\,g\sqrt{\text{Cos}[e+f\,x]}\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}(e+f\,x),2\right]}{c\,f\sqrt{a+a\,\text{Sin}[e+f\,x]}\sqrt{c-c\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 184 leaves):

$$\left(2\,i\,g\sqrt{g\,\text{Cos}[e+f\,x]}\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right.$$
$$\sqrt{a\,(1+\text{Sin}[e+f\,x])}\left(-3\,\text{Cos}[e+f\,x]+3\,e^{-i\,(e+f\,x)}\sqrt{1+e^{2\,i\,(e+f\,x)}}\right.$$
$$\left.\left.\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(e+f\,x)}\right]+2\,i\,(1+\text{Sin}[e+f\,x])\right)\right)\Big/$$
$$\left(c\,f\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^2(-1+\text{Sin}[e+f\,x])\sqrt{c-c\,\text{Sin}[e+f\,x]}\right)$$

Problem 94: Result unnecessarily involves higher level functions.

$$\int\frac{(g\,\text{Cos}[e+f\,x])^{3/2}\sqrt{a+a\,\text{Sin}[e+f\,x]}}{(c-c\,\text{Sin}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 4, 182 leaves, 5 steps):

$$\frac{4\,a\,(g\,\text{Cos}[e+f\,x])^{5/2}}{5\,f\,g\sqrt{a+a\,\text{Sin}[e+f\,x]}\,(c-c\,\text{Sin}[e+f\,x])^{5/2}}-\frac{6\,a\,(g\,\text{Cos}[e+f\,x])^{5/2}}{5\,c\,f\,g\sqrt{a+a\,\text{Sin}[e+f\,x]}\,(c-c\,\text{Sin}[e+f\,x])^{3/2}}+$$
$$\frac{6\,a\,g\sqrt{\text{Cos}[e+f\,x]}\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}(e+f\,x),2\right]}{5\,c^2\,f\sqrt{a+a\,\text{Sin}[e+f\,x]}\sqrt{c-c\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 194 leaves):

$$\left(e^{-\frac{3}{2}i(e+fx)} g^3 \left(-3 - i e^{i(e+fx)} + e^{2i(e+fx)} - 5 i e^{3i(e+fx)} - 3\left(-i + e^{i(e+fx)}\right)^2 \sqrt{1+e^{2i(e+fx)}}\, \text{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2i(e+fx)}\right]\right) \left(\text{Cos}\left[\frac{1}{2}(e+fx)\right] - i\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right) \sqrt{a(1+\text{Sin}[e+fx])}\right) \Big/ \left(5 c^2 f (g\,\text{Cos}[e+fx])^{3/2} \sqrt{c - c\,\text{Sin}[e+fx]}\right)$$

Problem 95: Result unnecessarily involves higher level functions.

$$\int \frac{(g\,\text{Cos}[e+fx])^{3/2} \sqrt{a + a\,\text{Sin}[e+fx]}}{(c - c\,\text{Sin}[e+fx])^{7/2}}\, dx$$

Optimal (type 4, 237 leaves, 6 steps):

$$\frac{4 a (g\,\text{Cos}[e+fx])^{5/2}}{9 f g \sqrt{a + a\,\text{Sin}[e+fx]}\, (c - c\,\text{Sin}[e+fx])^{7/2}} - \frac{2 a (g\,\text{Cos}[e+fx])^{5/2}}{15 c f g \sqrt{a + a\,\text{Sin}[e+fx]}\, (c - c\,\text{Sin}[e+fx])^{5/2}} - \frac{2 a (g\,\text{Cos}[e+fx])^{5/2}}{15 c^2 f g \sqrt{a + a\,\text{Sin}[e+fx]}\, (c - c\,\text{Sin}[e+fx])^{3/2}} + \frac{2 a g \sqrt{\text{Cos}[e+fx]} \sqrt{g\,\text{Cos}[e+fx]}\, \text{EllipticE}\left[\frac{1}{2}(e+fx), 2\right]}{15 c^3 f \sqrt{a + a\,\text{Sin}[e+fx]} \sqrt{c - c\,\text{Sin}[e+fx]}}$$

Result (type 5, 237 leaves):

$$\left(g^2 (\text{Cos}[e+fx] - i\,\text{Sin}[e+fx]) \sqrt{a(1+\text{Sin}[e+fx])} \left(7 i + 8\,\text{Cos}[e+fx] - 13 i\,\text{Cos}[2(e+fx)] - \frac{3}{2} i e^{-2i(e+fx)} \left(-i + e^{i(e+fx)}\right)^4 \sqrt{1+e^{2i(e+fx)}}\, \text{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2i(e+fx)}\right] + 20 i\,\text{Sin}[e+fx] + 16\,\text{Sin}[2(e+fx)]\right)\right) \Big/ \left(45 c^3 f \sqrt{g\,\text{Cos}[e+fx]} \left(\text{Cos}\left[\frac{1}{2}(e+fx)\right] - \text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)^3 \left(\text{Cos}\left[\frac{1}{2}(e+fx)\right] + \text{Sin}\left[\frac{1}{2}(e+fx)\right]\right) \sqrt{c - c\,\text{Sin}[e+fx]}\right)$$

Problem 96: Result unnecessarily involves higher level functions.

$$\int \frac{(g\,\text{Cos}[e+fx])^{3/2} \sqrt{a + a\,\text{Sin}[e+fx]}}{(c - c\,\text{Sin}[e+fx])^{9/2}}\, dx$$

Optimal (type 4, 292 leaves, 7 steps):

$$\frac{4 a \left(g \operatorname{Cos}[e+f x]\right)^{5/2}}{13 f g \sqrt{a+a \operatorname{Sin}[e+f x]} \left(c-c \operatorname{Sin}[e+f x]\right)^{9/2}}-\frac{2 a \left(g \operatorname{Cos}[e+f x]\right)^{5/2}}{39 c f g \sqrt{a+a \operatorname{Sin}[e+f x]} \left(c-c \operatorname{Sin}[e+f x]\right)^{7/2}}-\frac{2 a \left(g \operatorname{Cos}[e+f x]\right)^{5/2}}{65 c^2 f g \sqrt{a+a \operatorname{Sin}[e+f x]} \left(c-c \operatorname{Sin}[e+f x]\right)^{5/2}}-\frac{2 a \left(g \operatorname{Cos}[e+f x]\right)^{5/2}}{65 c^3 f g \sqrt{a+a \operatorname{Sin}[e+f x]} \left(c-c \operatorname{Sin}[e+f x]\right)^{3/2}}+\frac{2 a g \sqrt{\operatorname{Cos}[e+f x]} \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right]}{65 c^4 f \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}$$

Result (type 5, 255 leaves):

$$\left(g^2 \left(\operatorname{Cos}[e+f x]-i \operatorname{Sin}[e+f x]\right) \sqrt{a \left(1+\operatorname{Sin}[e+f x]\right)} \left(54 i+75 \operatorname{Cos}[e+f x]-66 i \operatorname{Cos}[2 (e+f x)]+\operatorname{Cos}[3 (e+f x)]+\frac{3}{2} e^{-3 i (e+f x)} \left(-i+e^{i (e+f x)}\right)^6 \sqrt{1+e^{2 i (e+f x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (e+f x)}\right]+118 i \operatorname{Sin}[e+f x]+84 \operatorname{Sin}[2 (e+f x)]-2 i \operatorname{Sin}[3 (e+f x)]\right)\right) \Big/ \left(390 c^4 f \sqrt{g \operatorname{Cos}[e+f x]} \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^5 \left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right) \sqrt{c-c \operatorname{Sin}[e+f x]}\right)$$

Problem 99: Result unnecessarily involves higher level functions.

$$\int \left(g \operatorname{Cos}[e+f x]\right)^{3/2} \left(a+a \operatorname{Sin}[e+f x]\right)^{3/2} \sqrt{c-c \operatorname{Sin}[e+f x]}\, dx$$

Optimal (type 4, 235 leaves, 6 steps):

$$-\frac{2 a^2 c \left(g \operatorname{Cos}[e+f x]\right)^{5/2}}{5 f g \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}+\frac{6 a^2 c g \sqrt{\operatorname{Cos}[e+f x]} \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right]}{5 f \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}-\frac{6 a c \left(g \operatorname{Cos}[e+f x]\right)^{5/2} \sqrt{a+a \operatorname{Sin}[e+f x]}}{35 f g \sqrt{c-c \operatorname{Sin}[e+f x]}}+\frac{2 c \left(g \operatorname{Cos}[e+f x]\right)^{5/2} \left(a+a \operatorname{Sin}[e+f x]\right)^{3/2}}{7 f g \sqrt{c-c \operatorname{Sin}[e+f x]}}$$

Result (type 5, 195 leaves):

$$\left(a^2 g^2 \left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right) \sqrt{c-c\,\text{Sin}[e+f x]} \left(168\, i\, e^{-i(e+f x)} \sqrt{1+e^{2 i(e+f x)}}\, \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2 i(e+f x)}\right]+ 4\,\text{Cos}[e+f x] \left(-42\, i+\text{Cos}[e+f x] \left(-5-5\,\text{Cos}[2(e+f x)]+14\,\text{Sin}[e+f x]\right)\right)\right)\right) \Big/ \left(140 f \sqrt{g\,\text{Cos}[e+f x]} \left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right) \sqrt{a(1+\text{Sin}[e+f x])}\right)$$

Problem 108: Result unnecessarily involves higher level functions.

$$\int (g\,\text{Cos}[e+f x])^{3/2} (a+a\,\text{Sin}[e+f x])^{5/2} \sqrt{c-c\,\text{Sin}[e+f x]}\, dx$$

Optimal (type 4, 290 leaves, 7 steps):

$$-\frac{22 a^3 c (g\,\text{Cos}[e+f x])^{5/2}}{45 f g \sqrt{a+a\,\text{Sin}[e+f x]} \sqrt{c-c\,\text{Sin}[e+f x]}}+\frac{22 a^3 c g \sqrt{\text{Cos}[e+f x]} \sqrt{g\,\text{Cos}[e+f x]}\, \text{EllipticE}\left[\frac{1}{2}(e+f x),2\right]}{15 f \sqrt{a+a\,\text{Sin}[e+f x]} \sqrt{c-c\,\text{Sin}[e+f x]}}-\frac{22 a^2 c (g\,\text{Cos}[e+f x])^{5/2} \sqrt{a+a\,\text{Sin}[e+f x]}}{105 f g \sqrt{c-c\,\text{Sin}[e+f x]}}-\frac{2 a c (g\,\text{Cos}[e+f x])^{5/2} (a+a\,\text{Sin}[e+f x])^{3/2}}{21 f g \sqrt{c-c\,\text{Sin}[e+f x]}}+\frac{2 c (g\,\text{Cos}[e+f x])^{5/2} (a+a\,\text{Sin}[e+f x])^{5/2}}{9 f g \sqrt{c-c\,\text{Sin}[e+f x]}}$$

Result (type 5, 182 leaves):

$$-\left(\left(a^3 g \sqrt{g\,\text{Cos}[e+f x]} \sqrt{c-c\,\text{Sin}[e+f x]} \left(-3696\, i\, e^{-i(e+f x)} \sqrt{1+e^{2 i(e+f x)}}\, \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2 i(e+f x)}\right]+4\,\text{Cos}[e+f x] \left(924\, i+ \text{Cos}[e+f x] \left(180+180\,\text{Cos}[2(e+f x)]-273\,\text{Sin}[e+f x]+35\,\text{Sin}[3(e+f x)]\right)\right)\right)\right) \Big/ \left(2520 f \left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{a(1+\text{Sin}[e+f x])}\right)\right)$$

Problem 118: Result unnecessarily involves higher level functions.

$$\int (g\,\text{Cos}[e+f x])^{3/2} (a+a\,\text{Sin}[e+f x])^{7/2} \sqrt{c-c\,\text{Sin}[e+f x]}\, dx$$

Optimal (type 4, 343 leaves, 8 steps):

$$-\frac{2 a^4 c \left(g \operatorname{Cos}[e+f x]\right)^{5/2}}{3 f g \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}+\frac{2 a^4 c g \sqrt{\operatorname{Cos}[e+f x]} \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2}(e+f x), 2\right]}{f \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}-\frac{2 a^3 c \left(g \operatorname{Cos}[e+f x]\right)^{5/2} \sqrt{a+a \operatorname{Sin}[e+f x]}}{7 f g \sqrt{c-c \operatorname{Sin}[e+f x]}}-\frac{10 a^2 c \left(g \operatorname{Cos}[e+f x]\right)^{5/2} \left(a+a \operatorname{Sin}[e+f x]\right)^{3/2}}{77 f g \sqrt{c-c \operatorname{Sin}[e+f x]}}-\frac{2 a c \left(g \operatorname{Cos}[e+f x]\right)^{5/2} \left(a+a \operatorname{Sin}[e+f x]\right)^{5/2}}{33 f g \sqrt{c-c \operatorname{Sin}[e+f x]}}+\frac{2 c \left(g \operatorname{Cos}[e+f x]\right)^{5/2} \left(a+a \operatorname{Sin}[e+f x]\right)^{7/2}}{11 f g \sqrt{c-c \operatorname{Sin}[e+f x]}}$$

Result (type 5, 676 leaves):

$$\left((2+2 i) a^4 e^{-\frac{3}{2} i (e+f x)} \left(i+e^{i (e+f x)}\right) \left(g \operatorname{Cos}[e+f x]\right)^{3/2} \left(1+e^{2 i (e+f x)}+\left(-1+e^{2 i e}\right) \sqrt{1+e^{2 i (e+f x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (e+f x)}\right]\right) \sqrt{c-c \operatorname{Sin}[e+f x]}\right) \Big/ \left(\left(-1+e^{2 i e}\right) \sqrt{-i a e^{-i (e+f x)} \left(i+e^{i (e+f x)}\right)^2} \sqrt{e^{-i (e+f x)} \left(1+e^{2 i (e+f x)}\right)} f \operatorname{Cos}[e+f x]^{3/2} \left(\operatorname{Cos}\left[\frac{e}{2}+\frac{f x}{2}\right]-\operatorname{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]\right)\right)+$$

$$\frac{1}{\operatorname{Cos}\left[\frac{e}{2}+\frac{f x}{2}\right]-\operatorname{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]} \left(g \operatorname{Cos}[e+f x]\right)^{3/2} \operatorname{Sec}[e+f x] \left(-\frac{58 a^3 \operatorname{Cos}\left[\frac{f x}{2}\right] \left(\operatorname{Cos}\left[\frac{e}{2}\right]-\operatorname{Sin}\left[\frac{e}{2}\right]\right)}{77 f}+\frac{3 a^3 \operatorname{Cos}\left[\frac{3 f x}{2}\right] \left(\operatorname{Cos}\left[\frac{3 e}{2}\right]+\operatorname{Sin}\left[\frac{3 e}{2}\right]\right)}{308 f}-\frac{145 a^3 \operatorname{Cos}\left[\frac{5 f x}{2}\right] \left(\operatorname{Cos}\left[\frac{5 e}{2}\right]-\operatorname{Sin}\left[\frac{5 e}{2}\right]\right)}{924 f}-\frac{19 a^3 \operatorname{Cos}\left[\frac{7 f x}{2}\right] \left(\operatorname{Cos}\left[\frac{7 e}{2}\right]+\operatorname{Sin}\left[\frac{7 e}{2}\right]\right)}{264 f}+\frac{a^3 \operatorname{Cos}\left[\frac{9 f x}{2}\right] \left(\operatorname{Cos}\left[\frac{9 e}{2}\right]-\operatorname{Sin}\left[\frac{9 e}{2}\right]\right)}{88 f}+\frac{58 a^3 \left(\operatorname{Cos}\left[\frac{e}{2}\right]+\operatorname{Sin}\left[\frac{e}{2}\right]\right) \operatorname{Sin}\left[\frac{f x}{2}\right]}{77 f}+\frac{3 a^3 \left(\operatorname{Cos}\left[\frac{3 e}{2}\right]-\operatorname{Sin}\left[\frac{3 e}{2}\right]\right) \operatorname{Sin}\left[\frac{3 f x}{2}\right]}{308 f}+\frac{145 a^3 \left(\operatorname{Cos}\left[\frac{5 e}{2}\right]+\operatorname{Sin}\left[\frac{5 e}{2}\right]\right) \operatorname{Sin}\left[\frac{5 f x}{2}\right]}{924 f}-\frac{19 a^3 \left(\operatorname{Cos}\left[\frac{7 e}{2}\right]-\operatorname{Sin}\left[\frac{7 e}{2}\right]\right) \operatorname{Sin}\left[\frac{7 f x}{2}\right]}{264 f}-\frac{a^3 \left(\operatorname{Cos}\left[\frac{9 e}{2}\right]+\operatorname{Sin}\left[\frac{9 e}{2}\right]\right) \operatorname{Sin}\left[\frac{9 f x}{2}\right]}{88 f}-\frac{2 a^3 \operatorname{Cot}[e]}{f \left(\operatorname{Cos}\left[\frac{e}{2}+\frac{f x}{2}\right]+\operatorname{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]\right)}\right) \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}$$

Problem 129: Result unnecessarily involves higher level functions.

$$\int \frac{\left(g \operatorname{Cos}[e+f x]\right)^{3/2} \sqrt{c-c \operatorname{Sin}[e+f x]}}{\sqrt{a+a \operatorname{Sin}[e+f x]}} \, dx$$

Optimal (type 4, 122 leaves, 4 steps):

$$\frac{2 c (g \operatorname{Cos}[e+f x])^{5/2}}{3 f g \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}+\frac{2 c g \sqrt{\operatorname{Cos}[e+f x]} \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2}(e+f x), 2\right]}{f \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}$$

Result (type 5, 149 leaves):

$$\left(g \sqrt{g \operatorname{Cos}[e+f x]}\left(1-6 i \operatorname{Cos}[e+f x]+\operatorname{Cos}[2(e+f x)]+6 i e^{-i(e+f x)} \sqrt{1+e^{2 i(e+f x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4},-e^{2 i(e+f x)}\right]\right) \sqrt{c-c \operatorname{Sin}[e+f x]}\right) \Big/ \left(3 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{a(1+\operatorname{Sin}[e+f x])}\right)$$

Problem 137: Result unnecessarily involves higher level functions.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{3/2} \sqrt{c-c \operatorname{Sin}[e+f x]}}{(a+a \operatorname{Sin}[e+f x])^{3/2}} \, dx$$

Optimal (type 4, 123 leaves, 4 steps):

$$-\frac{4 c (g \operatorname{Cos}[e+f x])^{5/2}}{f g (a+a \operatorname{Sin}[e+f x])^{3/2} \sqrt{c-c \operatorname{Sin}[e+f x]}}-\frac{6 c g \sqrt{\operatorname{Cos}[e+f x]} \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2}(e+f x), 2\right]}{a f \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}$$

Result (type 5, 170 leaves):

$$\left(2 g \sqrt{g \operatorname{Cos}[e+f x]}\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2\left(-2+3 i \operatorname{Cos}[e+f x]-3 i e^{-i(e+f x)} \sqrt{1+e^{2 i(e+f x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4},-e^{2 i(e+f x)}\right]+2 \operatorname{Sin}[e+f x]\right) \sqrt{c-c \operatorname{Sin}[e+f x]}\right) \Big/ \left(f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2 (a(1+\operatorname{Sin}[e+f x]))^{3/2}\right)$$

Problem 146: Result unnecessarily involves higher level functions.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{3/2} \sqrt{c-c \operatorname{Sin}[e+f x]}}{(a+a \operatorname{Sin}[e+f x])^{5/2}} \, dx$$

Optimal (type 4, 182 leaves, 5 steps):

$$-\frac{4 c (g \operatorname{Cos}[e+f x])^{5/2}}{5 f g (a+a \operatorname{Sin}[e+f x])^{5/2} \sqrt{c-c \operatorname{Sin}[e+f x]}}+\frac{6 c (g \operatorname{Cos}[e+f x])^{5/2}}{5 a f g (a+a \operatorname{Sin}[e+f x])^{3/2} \sqrt{c-c \operatorname{Sin}[e+f x]}}+\frac{6 c g \sqrt{\operatorname{Cos}[e+f x]} \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2}(e+f x), 2\right]}{5 a^2 f \sqrt{a+a \operatorname{Sin}[e+f x]} \sqrt{c-c \operatorname{Sin}[e+f x]}}$$

Result (type 5, 194 leaves):

$$-\left(\left(e^{-\frac{3}{2} i (e+f x)} g^3 \left(-3+i e^{i (e+f x)}+e^{2 i (e+f x)}+5 i e^{3 i (e+f x)}-3 \left(i+e^{i (e+f x)}\right)^2 \sqrt{1+e^{2 i (e+f x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (e+f x)}\right]\right) \left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-i \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right) \sqrt{c-c \operatorname{Sin}[e+f x]}\right) \Big/ \left(5 a^2 f (g \operatorname{Cos}[e+f x])^{3/2} \sqrt{a (1+\operatorname{Sin}[e+f x])}\right)\right)$$

Problem 152: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{3/2} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^3 \, dx$$

Optimal (type 5, 93 leaves, 4 steps):

$$-\frac{1}{17 f g^7} 2^{\frac{9}{4}+m} a^4 c^3 (g \operatorname{Cos}[e+f x])^{17/2} \operatorname{Hypergeometric2F1}\left[\frac{17}{4}, -\frac{1}{4}-m, \frac{21}{4}, \frac{1}{2}(1-\operatorname{Sin}[e+f x])\right] (1+\operatorname{Sin}[e+f x])^{-\frac{1}{4}-m} (a+a \operatorname{Sin}[e+f x])^{-4+m}$$

Result (type 1, 1 leaves):

???

Problem 153: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{3/2} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^2 \, dx$$

Optimal (type 5, 93 leaves, 4 steps):

$$-\frac{1}{13 f g^5} 2^{\frac{9}{4}+m} a^3 c^2 (g \operatorname{Cos}[e+f x])^{13/2} \operatorname{Hypergeometric2F1}\left[\frac{13}{4}, -\frac{1}{4}-m, \frac{17}{4}, \frac{1}{2}(1-\operatorname{Sin}[e+f x])\right] (1+\operatorname{Sin}[e+f x])^{-\frac{1}{4}-m} (a+a \operatorname{Sin}[e+f x])^{-3+m}$$

Result (type 1, 1 leaves):

???

Problem 154: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{3/2} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x]) \, dx$$

Optimal (type 5, 91 leaves, 4 steps):

$$-\frac{1}{9\,f\,g^3}2^{\frac{9}{4}+m}\,a^2\,c\,\left(g\,\text{Cos}[e+f\,x]\right)^{9/2}\,\text{Hypergeometric2F1}\left[\frac{9}{4},\,-\frac{1}{4}-m,\,\frac{13}{4},\,\frac{1}{2}\,\left(1-\text{Sin}[e+f\,x]\right)\right]$$
$$\left(1+\text{Sin}[e+f\,x]\right)^{-\frac{1}{4}-m}\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{-2+m}$$

Result (type 1, 1 leaves):

???

Problem 155: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\left(a+a\,\text{Sin}[e+f\,x]\right)^m\,dx$$

Optimal (type 5, 88 leaves, 3 steps):

$$-\frac{1}{5\,f\,g}2^{\frac{9}{4}+m}\,a\,\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\text{Hypergeometric2F1}\left[\frac{5}{4},\,-\frac{1}{4}-m,\,\frac{9}{4},\,\frac{1}{2}\,\left(1-\text{Sin}[e+f\,x]\right)\right]$$
$$\left(1+\text{Sin}[e+f\,x]\right)^{-\frac{1}{4}-m}\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{-1+m}$$

Result (type 6, 13703 leaves):

$$\left(64\,\text{Cos}\left[\frac{1}{2}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\left(a+a\,\text{Sin}[e+f\,x]\right)^m\right.$$
$$\left(\text{Cos}\left[\frac{1}{2}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\,\text{Cos}[e+f\,x]^{7/2}+\text{Cos}\left[\frac{1}{2}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\,\text{Cos}[e+f\,x]^{3/2}\,\text{Sin}[e+f\,x]^2\right)$$
$$\left(1-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,m}\,\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{3+2\,m}$$
$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2}}$$
$$\left(\left(25\,\text{AppellF1}\left[\frac{1}{4},\,-\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Big/$$
$$\left(-5\,\text{AppellF1}\left[\frac{1}{4},\,-\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\right.$$
$$2\,\left((6+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(1+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{9}{4},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,4+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,4+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-\right.$$
$$2\left(4(2+m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,5+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2m,4+2m,\frac{9}{4},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)+$$
$$9\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(-\left(\left(\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,3+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Big)\Big/\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-\right.\right.$$
$$2m,3+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$2\left((6+4m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2m,4+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,3+2m,\frac{13}{4},\text{Tan}\left[\right.\right.$$
$$\left.\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Big)+$$
$$\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\Big/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$2\left(4(2+m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2m,5+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\text{Tan}\left[\right.\right.$$
$$\left.\left.\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\right)\right)\Big/$$

$$\left(5\,f\,\text{Cos}[e+fx]^{3/2}\left(\frac{64}{5}\,m\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\right.\right.$$
$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^{-1+2m}$$

$$\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{3+2\,m}$$

$$\sqrt{\frac{\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^3}{\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2}}$$

$$\left(\left(25\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.\right.$$

$$\left.\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Big/\left(-5\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,\right.\right.$$

$$\left.3+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$2\left((6+4\,m)\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(1+4\,m)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\right.$$

$$\left.\left.\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(25\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\Big/$$

$$\left(5\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-\right.$$

$$2\left(4\,(2+m)\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,5+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(1+4\,m)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\right.$$

$$\left.\left.\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$9\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\left(-\left(\left(\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Big/$$

$$\left(-9\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\left((6+4\,m)\,\mathrm{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2\,m,\right.\right.$$

$$\left.4+2\,m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$(1+4\,m)\,\mathrm{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$

$$\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\Big/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+2\left(4\,(2+m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2m,\right.\right.$$
$$5+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$(1+4m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)+$$
$$\frac{32}{5}\,(3+2m)\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]$$
$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^{2m}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{4+2m}$$
$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2}}$$
$$\left(\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,3+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\Big/\left(-5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,\right.\right.$$
$$3+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$2\left((6+4m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2m,3+2m,\frac{9}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)+$$
$$\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,4+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,4+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-\right.$$
$$2\left(4\,(2+m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,5+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2m,4+2m,\frac{9}{4},\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$

$$9\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \Big(-\Big(\Big(\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,3+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big/$$

$$\Big(-9\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,3+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Big((6+4m)\ \text{AppellF1}\Big[\frac{9}{4},-\frac{1}{2}-2m,$$

$$4+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+4m)\ \text{AppellF1}\Big[\frac{9}{4},\frac{1}{2}-2m,3+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$

$$\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big/$$

$$\Big(-9\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Big(4\,(2+m)\ \text{AppellF1}\Big[\frac{9}{4},-\frac{1}{2}-2m,$$

$$5+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+4m)\ \text{AppellF1}\Big[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big)-$$

$$\frac{1}{5\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2}}}\ 32\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m}$$

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{3+2m}$$

$$\Big(\Big(\frac{1}{4}\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2-\frac{3}{4}\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big/$$

$$\Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^2-\Big(\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\Big(\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^3\Big)\Big)\Big/\ \Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^3\Big)$$

$$\Big(\Big(25\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2m,3+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big/\ \Big(-5\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2m,$$

$$3+2m,\ \frac{5}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\left((6+4m)\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{1}{2}-2m,\ 4+2m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4m)\ \text{AppellF1}\left[\frac{5}{4},\ \frac{1}{2}-2m,\ 3+2m,\ \frac{9}{4},\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$

$$\left(25\ \text{AppellF1}\left[\frac{1}{4},\ -\frac{1}{2}-2m,\ 4+2m,\ \frac{5}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\Big/\left(5\ \text{AppellF1}\left[\frac{1}{4},\ -\frac{1}{2}-2m,\ 4+2m,\right.\right.$$

$$\left.\frac{5}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$

$$2\left(4(2+m)\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{1}{2}-2m,\ 5+2m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4m)\ \text{AppellF1}\left[\frac{5}{4},\ \frac{1}{2}-2m,\ 4+2m,\ \frac{9}{4},\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$

$$9\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(-\left(\left(\text{AppellF1}\left[\frac{5}{4},\ -\frac{1}{2}-2m,\ 3+2m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\Big/$$

$$\left(-9\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{1}{2}-2m,\ 3+2m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left((6+4m)\ \text{AppellF1}\left[\frac{9}{4},\ -\frac{1}{2}-2m,\right.\right.$$

$$\left.4+2m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$(1+4m)\ \text{AppellF1}\left[\frac{9}{4},\ \frac{1}{2}-2m,\ 3+2m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+\text{AppellF1}\left[\frac{5}{4},\right.$$

$$\left.-\frac{1}{2}-2m,\ 4+2m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big/$$

$$\left(-9\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{1}{2}-2m,\ 4+2m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left(4(2+m)\ \text{AppellF1}\left[\frac{9}{4},\ -\frac{1}{2}-2m,\right.\right.$$

$$\left.5+2m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$(1+4m)\ \text{AppellF1}\left[\frac{9}{4},\ \frac{1}{2}-2m,\ 4+2m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\right)-$$

$$\frac{64}{5}\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2 m}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{3+2 m}$$

$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2}}$$

$$\left(\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2 m,3+2 m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\Big/$$

$$\left(2\left(-5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2 m,3+2 m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left((6+4 m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,\right.\right.$$

$$\left.4+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$(1+4 m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2 m,3+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+$$

$$\left(25\left(-\frac{1}{10}(3+2 m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,4+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{1}{10}\left(-\frac{1}{2}-2 m\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2 m,3+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)\Big/\left(-5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2 m,3+2 m,\right.\right.$$

$$\left.\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\left((6+4 m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,4+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4 m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2 m,3+2 m,\frac{9}{4},\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$

$$\left(25\left(-\frac{1}{10}(4+2 m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,5+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{1}{10}\left(-\frac{1}{2}-2 m\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2 m,4+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big/$$

$$\Big(5\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,4+2m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$

$$2\Big(4\,(2+m)\,\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,5+2m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(1+4m)\,\mathrm{AppellF1}\Big[\frac{5}{4},\frac{1}{2}-2m,4+2m,\frac{9}{4},$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$

$$\frac{9}{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\ \Big(-\Big(\Big(\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,$$

$$3+2m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)\Big/\Big(-9\,\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,3+2m,\frac{9}{4},$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Big((6+4m)\,\mathrm{AppellF1}\Big[\frac{9}{4},$$

$$-\frac{1}{2}-2m,4+2m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+4m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\frac{1}{2}-2m,3+2m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$

$$\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big/$$

$$\Big(-9\,\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+2\Big(4\,(2+m)\,\mathrm{AppellF1}\Big[\frac{9}{4},-\frac{1}{2}-2m,$$

$$5+2m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+4m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)-$$

$$\Big(25\,\mathrm{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2m,3+2m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)$$

$$\Big(\Big((6+4m)\,\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(1+4m)\,\mathrm{AppellF1}\Big[\frac{5}{4},\frac{1}{2}-2m,3+2m,\frac{9}{4},$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-5\left(-\frac{1}{10}\left(3+2\,m\right)\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{1}{10}\left(-\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\left((6+4\,m)\left(-\frac{5}{18}\left(4+2\,m\right)\mathrm{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2\,m,5+2\,m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+\left(1+4\,m\right)\left(-\frac{5}{18}\left(3+2\,m\right)\mathrm{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{5}{18}\left(\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\left[\frac{9}{4},\frac{3}{2}-2\,m,3+2\,m,\frac{13}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(-5\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\left((6+4\,m)\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(1+4\,m\right)\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2-$$

$$\Bigg(25\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg(-\Bigg(4\left(2+m\right)\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,5+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(1+4\,m\right)\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+5\left(-\frac{1}{10}(4+2 m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,5+2 m,\right.\right.$$
$$\left.\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{10}\left(-\frac{1}{2}-2 m\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2 m,4+2 m,\frac{9}{4},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)-2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(4(2+m)\right.$$
$$\left(-\frac{5}{18}(5+2 m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2 m,6+2 m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$
$$\frac{5}{18}\left(-\frac{1}{2}-2 m\right)\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2 m,5+2 m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+$$
$$(1+4 m)\left(-\frac{5}{18}(4+2 m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2 m,5+2 m,\frac{13}{4},\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{5}{18}\left(\frac{1}{2}-2 m\right)\text{AppellF1}\left[\frac{9}{4},\frac{3}{2}-2 m,\right.$$
$$\left.4+2 m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$
$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2 m,4+2 m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-\right.$$
$$2\left(4(2+m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,5+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4 m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2 m,4+2 m,\frac{9}{4},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)^2+$$
$$9\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(-\left(\left(\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,3+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\Big/$$
$$\left(2\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2 m,3+2 m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+2\left((6+4 m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2 m,\right.\right.$$
$$\left.4+2 m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$\left(1+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\right)-$$

$$\left(\left(-\frac{5}{18}\,\left(3+2\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$

$$\frac{5}{18}\,\left(-\frac{1}{2}-2\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)\Big/\,\left(-9\,\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,3+2\,m,\right.\right.$$

$$\left.\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$2\,\left(\left(6+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(1+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\right.\right.$$

$$\left.\left.\left.\left.\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(-\frac{5}{18}\,\left(4+2\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$

$$\frac{5}{18}\,\left(-\frac{1}{2}-2\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big/$$

$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\,\left(4\,\left(2+m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\right.\right.$$

$$\left.5+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(1+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\,\left(\left(\left(6+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\right.\right.\right.$$

$$\left.\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(1+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$
$$9\left(-\frac{5}{18}\left(3+2\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$
$$\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+$$
$$2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\Bigg(\left(6+4\,m\right)\,\left(-\frac{9}{26}\left(4+2\,m\right)\,\text{AppellF1}\left[\frac{13}{4},\,-\frac{1}{2}-2\,m,\right.\right.$$
$$\left.5+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{9}{26}\left(-\frac{1}{2}-2\,m\right)$$
$$\text{AppellF1}\left[\frac{13}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\Big[$$
$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\right)+\left(1+4\,m\right)\,\left(-\frac{9}{26}\left(3+2\,m\right)\,\text{AppellF1}\left[\frac{13}{4},\,\frac{1}{2}-2\,m,\right.\right.$$
$$\left.4+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{9}{26}\left(\frac{1}{2}-2\,m\right)\,\text{AppellF1}\Big[$$
$$\frac{13}{4},\,\frac{3}{2}-2\,m,\,3+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-$$
$$\left.\left.\left.\left.f\,x\Big)\Big]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)\right)\right)\Big/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\,\Bigg(\left(6+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\right.$$
$$\left.4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$\left(1+4\,m\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2-$$
$$\left(\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\left(\left(4\,\left(2+m\right)\,\text{AppellF1}\left[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+(1+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,$$

$$4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$

$$9\,\Big(-\frac{5}{18}\,(4+2\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$

$$\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)+$$

$$2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big(4\,(2+m)\,\Big(-\frac{9}{26}\,(5+2\,m)\,\text{AppellF1}\Big[\frac{13}{4},\,-\frac{1}{2}-2\,m,$$

$$6+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{9}{26}\left(-\frac{1}{2}-2\,m\right)$$

$$\text{AppellF1}\Big[\frac{13}{4},\,\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)+(1+4\,m)\,\Big(-\frac{9}{26}\,(4+2\,m)\,\text{AppellF1}\Big[\frac{13}{4},\,\frac{1}{2}-2\,m,$$

$$5+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{9}{26}\left(\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[$$

$$\frac{13}{4},\,\frac{3}{2}-2\,m,\,4+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-$$

$$f\,x\Big)\Big]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(-9\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+2\,\Big(4\,(2+m)\,\text{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,$$

$$5+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$(1+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)^2\Big)\Big)\Big)\Big)$$

Problem 156: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(g\,\mathrm{Cos}[e+f\,x])^{3/2}\,(a+a\,\mathrm{Sin}[e+f\,x])^m}{c-c\,\mathrm{Sin}[e+f\,x]}\,dx$$

Optimal (type 5, 84 leaves, 4 steps):

$$-\frac{1}{c\,f}2^{\frac{9}{4}+m}\,g\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\ \mathrm{Hypergeometric2F1}\left[\frac{1}{4},-\frac{1}{4}-m,\frac{5}{4},\frac{1}{2}\,(1-\mathrm{Sin}[e+f\,x])\right]\,(1+\mathrm{Sin}[e+f\,x])^{-\frac{1}{4}-m}\,(a+a\,\mathrm{Sin}[e+f\,x])^m$$

Result (type 6, 9339 leaves):

$$-\frac{1}{f\,\mathrm{Cos}[e+f\,x]^{3/2}\,(c-c\,\mathrm{Sin}[e+f\,x])}\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2m}(g\,\mathrm{Cos}[e+f\,x])^{3/2}\left(\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$
$$(a+a\,\mathrm{Sin}[e+f\,x])^m\Bigg(-\Bigg(\Bigg(10\,\sqrt{2}\ \mathrm{AppellF1}\left[\frac{1}{4},-\frac{3}{2}-2m,2+2m,\frac{5}{4},\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2+4m}\mathrm{Cos}[e+f\,x]$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg/\Bigg(\left(\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)$$
$$\Bigg(-8\,(1+m)\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{3}{2}-2m,3+2m,\frac{9}{4},\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\,(3+4m)\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,2+2m,\frac{9}{4},\mathrm{Cot}\left[\right.\right.$$
$$\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+5\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{3}{2}-2m,2+2m,\right.$$
$$\left.\frac{5}{4},\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)$$
$$\Bigg(-\Bigg(\Bigg(5\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{3}{2}-2m,2+2m,\frac{5}{4},\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{1+2m}\sqrt{\mathrm{Cos}[e+f\,x]}$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg/\Bigg(-8\,(1+m)\,\mathrm{AppellF1}\left[\frac{5}{4},\right.$$
$$\left.-\frac{3}{2}-2m,3+2m,\frac{9}{4},\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$2\,(3+4\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,2+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+5\,\text{AppellF1}\Big[\frac{1}{4},\,-\frac{3}{2}-2\,m,\,2+2\,m,\,\frac{5}{4},\,\text{Cot}\Big[$$

$$\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)\Big)-$$

$$\Big(10\,\text{Cos}\Big[\frac{1}{2}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^{1+2\,m}\,\sqrt{\text{Cos}[e+f\,x]}\,\Big(\frac{1}{10}\,(2+2\,m)\,\text{AppellF1}\Big[\frac{5}{4},$$

$$-\frac{3}{2}-2\,m,\,3+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2-\frac{1}{10}\,\Big(-\frac{3}{2}-2\,m\Big)\,\text{AppellF1}\Big[$$

$$\frac{5}{4},\,-\frac{1}{2}-2\,m,\,2+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]$$

$$\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)\Big/$$

$$\Big(-8\,(1+m)\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{3}{2}-2\,m,\,3+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]-2\,(3+4\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,$$

$$2+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+5$$

$$\text{AppellF1}\Big[\frac{1}{4},\,-\frac{3}{2}-2\,m,\,2+2\,m,\,\frac{5}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)+$$

$$\Big(5\,(1+2\,m)\,\text{AppellF1}\Big[\frac{1}{4},\,-\frac{3}{2}-2\,m,\,2+2\,m,\,\frac{5}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^{2\,m}\,\sqrt{\text{Cos}[e+f\,x]}\,\text{Sin}\Big[$$

$$\frac{1}{2}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)\Big/\Big(-8\,(1+m)\,\text{AppellF1}\Big[\frac{5}{4},$$

$$-\frac{3}{2}-2\,m,\,3+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]-2$$

$$(3+4\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,2+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+5\,\text{AppellF1}\Big[\frac{1}{4},\,-\frac{3}{2}-2\,m,\,2+2\,m,\,\frac{5}{4},$$

$$\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)-$$

$$\Big(5\,\text{AppellF1}\Big[\frac{1}{4},\,-\frac{3}{2}-2\,m,\,2+2\,m,\,\frac{5}{4},\,\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Cot}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^{1+2\,m}\,\text{Sin}[e+f\,x]$$

$$\text{Tan}\Big[\frac{1}{4}\,\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)\Big/\Big(\sqrt{\text{Cos}[e+f\,x]}\,\Big(-8\,(1+m)\,\text{AppellF1}\Big[\frac{5}{4},$$

$$-\frac{3}{2}-2\,m,\ 3+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$2\,(3+4\,m)\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+5\,\text{AppellF1}\left[\frac{1}{4},\ -\frac{3}{2}-2\,m,\ 2+2\,m,\ \frac{5}{4},\ \text{Cot}\left[\right.\right.$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(10\,\text{AppellF1}\left[\frac{1}{4},\ -\frac{3}{2}-2\,m,\ 2+2\,m,\ \frac{5}{4},\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\ \text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{1+2\,m}\sqrt{\text{Cos}[e+f\,x]}$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\ \Bigg(-8\,(1+m)\ \Bigg(\frac{5}{18}\,(3+2\,m)\ \text{AppellF1}\left[\frac{9}{4},\ -\frac{3}{2}-2\,m,\right.$$

$$\left.4+2\,m,\ \frac{13}{4},\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\ \text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2-\frac{5}{18}\left(-\frac{3}{2}-2\,m\right)\ \text{AppellF1}\left[\frac{9}{4},\right.$$

$$\left.-\frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{13}{4},\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\ \text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)-$$

$$2\,(3+4\,m)\ \Bigg(\frac{5}{18}\,(2+2\,m)\ \text{AppellF1}\left[\frac{9}{4},\ -\frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{13}{4},\right.$$

$$\left.\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2-\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\left[\frac{9}{4},\ \frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{13}{4},\right.$$

$$\left.\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+\frac{5}{2}\,\text{AppellF1}\left[\frac{1}{4},\ -\frac{3}{2}-2\,m,\ 2+2\,m,\ \frac{5}{4},\right.$$

$$\left.\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+5\ \Bigg(\frac{1}{10}\,(2+2\,m)\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{3}{2}-2\,m,\ 3+2\,m,\ \frac{9}{4},\right.$$

$$\left.\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2-\frac{1}{10}\left(-\frac{3}{2}-2\,m\right)\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{1}{2}-2\,m,\right.$$

$$\left.2+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\ \text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)\Bigg/$$

$$\Bigg(-8\,(1+m)\ \text{AppellF1}\left[\frac{5}{4},\ -\frac{3}{2}-2\,m,\ 3+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$-\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] - 2\,(3+4\,m)\,\text{AppellF1}\Big[\frac{5}{4}, -\frac{1}{2}-2\,m, 2+2\,m, \frac{9}{4}, \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + 5\,\text{AppellF1}\Big[\frac{1}{4}, -\frac{3}{2}-2\,m, 2+2\,m, \frac{5}{4}, \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^2\Big)\Big)\Big) +$$

$$\Big(7\sqrt{2}\,\text{AppellF1}\Big[\frac{3}{4}, -\frac{1}{2}-2\,m, 2+2\,m, \frac{7}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{4\,m}\,\text{Cos}[e+f x]\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big/$$

$$\Big(\Big(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right] - \text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\Big)$$

$$\Big(21\,\text{AppellF1}\Big[\frac{3}{4}, -\frac{1}{2}-2\,m, 2+2\,m, \frac{7}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] - 6\,\Big(4\,(1+m)\,\text{AppellF1}\Big[\frac{7}{4}, -\frac{1}{2}-2\,m, 3+2\,m, \frac{11}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + (1+4\,m)\,\text{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}-2\,m, 2+2\,m, \frac{11}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)$$

$$\Big(\Big(7\,\text{AppellF1}\Big[\frac{3}{4}, -\frac{1}{2}-2\,m, 2+2\,m, \frac{7}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{1+2\,m}\sqrt{\text{Cos}[e+f x]}\Big)\Big/\Big(21\,\text{AppellF1}\Big[\frac{3}{4}, -\frac{1}{2}-2\,m, 2+2\,m, \frac{7}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] - 6\,\Big(4\,(1+m)\,\text{AppellF1}\Big[\frac{7}{4}, -\frac{1}{2}-2\,m, 3+2\,m, \frac{11}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + (1+4\,m)\,\text{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}-2\,m, 2+2\,m, \frac{11}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big) -$$

$$\Big(14\,m\,\text{AppellF1}\Big[\frac{3}{4}, -\frac{1}{2}-2\,m, 2+2\,m, \frac{7}{4}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-1+2\,m}$$

$$\sqrt{\text{Cos}[e+f x]}\ \text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg) \Bigg/ \Bigg(21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-6\left(4(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)+$$

$$\Bigg(7\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2m}\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\text{Sin}[e+f x]\Bigg) \Bigg/$$

$$\Bigg(\sqrt{\text{Cos}[e+f x]}\ \Bigg(21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-6\left(4(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(14\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2m}\sqrt{\text{Cos}[e+f x]}\ \text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg(-\frac{3}{14}(2+2m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{3}{14}\left(-\frac{1}{2}-2m\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg) \Bigg/$$

$$\Bigg(21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-6\left(4(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)-$$

$$\Bigg(14\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2m}\sqrt{\mathrm{Cos}[e+f x]}$$

$$\mathrm{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg(-3\Bigg(4\,(1+m)\,\mathrm{AppellF1}\Big[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(1+4m)\,\mathrm{AppellF1}\Big[\frac{7}{4},$$

$$\frac{1}{2}-2m,2+2m,\frac{11}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Bigg)$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+21$$

$$\Bigg(-\frac{3}{14}(2+2m)\,\mathrm{AppellF1}\Big[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{3}{14}\left(-\frac{1}{2}-2m\right)\mathrm{AppellF1}\Big[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)-6$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg(4\,(1+m)\left(-\frac{7}{22}(3+2m)\,\mathrm{AppellF1}\Big[\frac{11}{4},-\frac{1}{2}-2m,\right.$$

$$4+2m,\frac{15}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{22}\left(-\frac{1}{2}-2m\right)$$

$$\mathrm{AppellF1}\Big[\frac{11}{4},\frac{1}{2}-2m,3+2m,\frac{15}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\Big[\frac{1}{4}$$

$$\left.\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+$$

$$(1+4m)\left(-\frac{7}{22}(2+2m)\,\mathrm{AppellF1}\Big[\frac{11}{4},\frac{1}{2}-2m,3+2m,\frac{15}{4},\mathrm{Tan}\Big[\frac{1}{4}\right.$$

$$\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{22}\left(\frac{1}{2}-2m\right)\mathrm{AppellF1}\Big[\frac{11}{4},\frac{3}{2}-2m,$$

$$2+2m,\frac{15}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\left.\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(21\,\mathrm{AppellF1}\Big[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-6\Bigg(4\,(1+m)\,\mathrm{AppellF1}\Big[\frac{7}{4},-\frac{1}{2}-2m,$$

$$3+2m,\frac{11}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+4m)\,\mathrm{AppellF1}\Big[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^2\Big)\Big)-$$

$$\Big(7\sqrt{2}\ \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2 m,2+2 m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{4 m}$$

$$\text{Cos}[e+f x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big/$$

$$\Big(\Big(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\Big)$$

$$\Big(-21\ \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2 m,2+2 m,\frac{7}{4},\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$6\Big(4(1+m)\ \text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2 m,3+2 m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4 m)\ \text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2 m,2+2 m,\frac{11}{4},\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)$$

$$\Big(\Big(7\ \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2 m,2+2 m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{1+2 m}\sqrt{\text{Cos}[e+f x]}\Big)\Big/$$

$$\Big(-21\ \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2 m,2+2 m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$6\Big(4(1+m)\ \text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2 m,3+2 m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4 m)\ \text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2 m,2+2 m,\frac{11}{4},\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)-$$

$$\Big(14 m\ \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2 m,2+2 m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-1+2 m}$$

$$\sqrt{\text{Cos}[e+f x]}\ \text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big/\Big(-21\ \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-\right.$$

$$\left.2 m,2+2 m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$6\left(4(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Bigg)+$$
$$\left(7\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$
$$\left.\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^{2m}\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]\text{Sin}[e+fx]\right)\Big/$$
$$\left(\sqrt{\text{Cos}[e+fx]}\left(-21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+6\left(4(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,\right.\right.$$
$$\left.3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$(1+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)+$$
$$\left(14\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^{2m}\sqrt{\text{Cos}[e+fx]}\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]\right.$$
$$\left(-\frac{3}{14}(2+2m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]+\frac{3}{14}$$
$$\left(-\frac{1}{2}-2m\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)\right)\Big/$$
$$\left(-21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$6\left(4(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2m,2+2m,\frac{11}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)-$$
$$\left(14\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]^{2m}\sqrt{\text{Cos}[e+fx]}$$
$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-fx\right)\right]\left(3\left(4(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2m,3+2m,\frac{11}{4},\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(1+4 m)\ \text{AppellF1}\left[\frac{7}{4},\right.$$

$$\left.\frac{1}{2}-2 m,\ 2+2 m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-21$$

$$\Bigg(-\frac{3}{14}(2+2 m)\ \text{AppellF1}\left[\frac{7}{4},\ -\frac{1}{2}-2 m,\ 3+2 m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{3}{14}\left(-\frac{1}{2}-2 m\right) \text{AppellF1}\left[\frac{7}{4},\ \frac{1}{2}-2 m,\ 2+2 m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)+6$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \Bigg(4(1+m)\Bigg(-\frac{7}{22}(3+2 m)\ \text{AppellF1}\left[\frac{11}{4},\ -\frac{1}{2}-2 m,\right.$$

$$\left.4+2 m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{22}\left(-\frac{1}{2}-2 m\right)$$

$$\text{AppellF1}\left[\frac{11}{4},\ \frac{1}{2}-2 m,\ 3+2 m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\right.\right.$$

$$\left.\left.\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)+$$

$$(1+4 m)\Bigg(-\frac{7}{22}(2+2 m)\ \text{AppellF1}\left[\frac{11}{4},\ \frac{1}{2}-2 m,\ 3+2 m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\right.\right.$$

$$\left.\left.\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{22}\left(\frac{1}{2}-2 m\right) \text{AppellF1}\left[\frac{11}{4},\ \frac{3}{2}-2 m,\right.$$

$$\left.2+2 m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(-21\ \text{AppellF1}\left[\frac{3}{4},\ -\frac{1}{2}-2 m,\ 2+2 m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+6\Bigg(4(1+m)\ \text{AppellF1}\left[\frac{7}{4},\ -\frac{1}{2}-2 m,\right.$$

$$\left.3+2 m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$(1+4 m)\ \text{AppellF1}\left[\frac{7}{4},\ \frac{1}{2}-2 m,\ 2+2 m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)^2\Bigg)\Bigg)$$

Problem 157: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{3/2} (a+a \operatorname{Sin}[e+f x])^m}{(c-c \operatorname{Sin}[e+f x])^2} \, dx$$

Optimal (type 5, 93 leaves, 4 steps):

$$\left(2^{\frac{9}{4}+m} g^3 \text{Hypergeometric2F1}\left[-\frac{3}{4}, -\frac{1}{4}-m, \frac{1}{4}, \frac{1}{2} (1-\operatorname{Sin}[e+f x])\right] (1+\operatorname{Sin}[e+f x])^{-\frac{1}{4}-m} (a+a \operatorname{Sin}[e+f x])^{1+m}\right) \Big/ \left(3 a c^2 f (g \operatorname{Cos}[e+f x])^{3/2}\right)$$

Result (type 6, 13 626 leaves):

$$-\frac{1}{f \operatorname{Cos}[e+f x]^{3/2} (c-c \operatorname{Sin}[e+f x])^2} \operatorname{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2 m} (g \operatorname{Cos}[e+f x])^{3/2} \left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^4$$
$$(a+a \operatorname{Sin}[e+f x])^m \left(\left(3 \text{AppellF1}\left[-\frac{1}{4}, -\frac{1}{2}-2 m, 2 m, \frac{3}{4}, \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{4 m} \operatorname{Cos}[e+f x]\right.\right.$$
$$\left.\operatorname{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] \operatorname{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\right) \Big/$$
$$\left(2 \sqrt{2} \left(8 m \text{AppellF1}\left[\frac{3}{4}, -\frac{1}{2}-2 m, 1+2 m, \frac{7}{4}, \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + (2+8 m) \text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}-2 m, 2 m, \frac{7}{4}, \right.\right.\right.$$
$$\left.\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] - 3 \text{AppellF1}\left[-\frac{1}{4}, -\frac{1}{2}-2 m, 2 m,\right.$$
$$\left.\left.\left.\frac{3}{4}, \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)$$
$$\left(\operatorname{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\operatorname{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^3$$
$$\left(-\left(\left(3 \text{AppellF1}\left[-\frac{1}{4}, -\frac{1}{2}-2 m, 2 m, \frac{3}{4}, \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.\right.\right.$$
$$\operatorname{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \sqrt{\operatorname{Cos}[e+f x]} \operatorname{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\left.\operatorname{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right) \Big/ \left(4 \left(8 m \text{AppellF1}\left[\frac{3}{4}, -\frac{1}{2}-2 m, 1+2 m, \frac{7}{4},\right.\right.\right.$$
$$\left.\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] + (2+8 m) \text{AppellF1}\left[\right.$$
$$\left.\frac{3}{4}, \frac{1}{2}-2 m, 2 m, \frac{7}{4}, \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] -$$
$$3 \text{AppellF1}\left[-\frac{1}{4}, -\frac{1}{2}-2 m, 2 m, \frac{3}{4}, \operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right] \operatorname{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right) -$$

$$\left(3\,\text{AppellF1}\left[-\frac{1}{4},-\frac{1}{2}-2\,m,2\,m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\left.\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[e+f\,x]}\,\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\right)\Big/\left(8\left(8\,m\,\text{AppellF1}\left[\right.\right.\right.$$
$$\frac{3}{4},-\frac{1}{2}-2\,m,1+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$
$$(2+8\,m)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2}-2\,m,2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-3\,\text{AppellF1}\left[-\frac{1}{4},-\frac{1}{2}-2\,m,2\,m,\frac{3}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)-$$
$$\left(3\,m\,\text{AppellF1}\left[-\frac{1}{4},-\frac{1}{2}-2\,m,2\,m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-1+2\,m}\sqrt{\text{Cos}[e+f\,x]}\,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$
$$\left.\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big/\left(2\left(8\,m\,\text{AppellF1}\left[\frac{3}{4},\right.\right.\right.$$
$$-\frac{1}{2}-2\,m,1+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$
$$(2+8\,m)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2}-2\,m,2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-3\,\text{AppellF1}\left[-\frac{1}{4},-\frac{1}{2}-2\,m,2\,m,\frac{3}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$
$$\left(3\,\text{AppellF1}\left[-\frac{1}{4},-\frac{1}{2}-2\,m,2\,m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\left.\text{Sin}[e+f\,x]\right)\Big/\left(4\sqrt{\text{Cos}[e+f\,x]}\left(8\,m\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,\right.\right.\right.$$
$$1+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$
$$(2+8\,m)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2}-2\,m,2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-3\,\text{AppellF1}\left[-\frac{1}{4},-\frac{1}{2}-2\,m,2\,m,\frac{3}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$
$$\left(3\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[e+f\,x]}\,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right.$$
$$\left(\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,1+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{6}$$

$$\left(-\frac{1}{2}-2\,m\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2}-2\,m,\,2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg)\Bigg/$$
$$\left(2\,\left(8\,m\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(2+8\,m\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2}-2\,m,\right.$$
$$\left.2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-3$$
$$\text{AppellF1}\left[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Cot}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)-$$
$$\left(3\,\text{AppellF1}\left[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right.$$
$$\text{Cos}\left[\frac{1}{2}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2\,m}\,\sqrt{\text{Cos}[e+f\,x]}\,\text{Cot}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$
$$\text{Csc}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\left(\frac{3}{2}\,\text{AppellF1}\left[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\right.\right.$$
$$\left.\frac{3}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Cot}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\text{Csc}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2-3\,\text{Cot}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\left(\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]-$$
$$\frac{1}{6}\,\left(-\frac{1}{2}-2\,m\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2}-2\,m,\,2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+8$$
$$m\,\left(-\frac{3}{14}\,\left(1+2\,m\right)\,\text{AppellF1}\left[\frac{7}{4},\,-\frac{1}{2}-2\,m,\,2+2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$
$$\frac{3}{14}\,\left(-\frac{1}{2}-2\,m\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+$$
$$\left(2+8\,m\right)\,\left(-\frac{3}{7}\,m\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$
$$\frac{3}{14}\,\left(\frac{1}{2}-2\,m\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\right.\right.$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]\Big)\Big)\Big)\Big)\Big/$$

$$\Bigg(2\,\Bigg(8\,m\,\mathrm{AppellF1}\Big[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]+(2+8\,m)\,\mathrm{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2}-2\,m,$$

$$2\,m,\,\frac{7}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]-$$

$$3\,\mathrm{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]\,\mathrm{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big)^2\Bigg)\Bigg)\Bigg)+$$

$$\Bigg(3\,\mathrm{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]$$

$$\mathrm{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\Big]^{4\,m}$$

$$\mathrm{Cos}[e+f x]$$

$$\mathrm{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]$$

$$\mathrm{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2$$

$$\mathrm{Sin}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\Big]\Bigg)\Big/$$

$$\Bigg(2\,\sqrt{2}\,\Bigg(8\,m\,\mathrm{AppellF1}\Big[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]+(2+8\,m)$$

$$\mathrm{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2}-2\,m,\,2\,m,\,\frac{7}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]-$$

$$3\,\mathrm{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]\,\mathrm{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Bigg)$$

$$\left(\mathrm{Cos}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\Big]-\mathrm{Sin}\Big[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\Big]\right)^3$$

$$\Bigg(\Bigg(3\,\mathrm{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]$$

$$\mathrm{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\Big]^{2\,m}\sqrt{\mathrm{Cos}[e+f x]}$$

$$\mathrm{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\,\mathrm{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Bigg)\Big/$$

$$\Bigg(4\,\Bigg(8\,m\,\mathrm{AppellF1}\Big[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]+(2+8\,m)\,\mathrm{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2}-2\,m,$$

$$2\,m,\,\frac{7}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2\Big]-3$$

$$\text{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)\Big)+$$

$$\Big(3\,\text{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\text{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2\,m}\sqrt{\text{Cos}[e+f\,x]}\,\text{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^4\Big)\Big/$$

$$\Big(8\,\Big(8\,m\,\text{AppellF1}\Big[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(2+8\,m)\,\text{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2}-2\,m,$$

$$2\,m,\,\frac{7}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]-3$$

$$\text{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)\Big)+$$

$$\Big(3\,m\,\text{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\text{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{-1+2\,m}\sqrt{\text{Cos}[e+f\,x]}\,\text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]$$

$$\text{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\text{Sin}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)\Big/$$

$$\Big(2\,\Big(8\,m\,\text{AppellF1}\Big[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(2+8\,m)\,\text{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2}-2\,m,$$

$$2\,m,\,\frac{7}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]-3$$

$$\text{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)\Big)-$$

$$\Big(3\,\text{AppellF1}\Big[-\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\text{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2\,m}\,\text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]$$

$$\text{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\text{Sin}[e+f\,x]\Big)\Big/$$

$$\Big(4\,\sqrt{\text{Cos}[e+f\,x]}\,\Big(8\,m\,\text{AppellF1}\Big[\frac{3}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{7}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(2+8\,m)\,\text{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2}-2\,m,$$

$$2\,m,\,\frac{7}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]-3$$

$$\text{AppellF1}\Big[-\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{3}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)\Big)\ -$$

$$\Big(3\,\text{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2\,m}\sqrt{\text{Cos}[e+f\,x]}\ \text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\ \text{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2$$

$$\Big(\frac{1}{3}\,m\,\text{AppellF1}\Big[\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{7}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]-\frac{1}{6}$$

$$\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{3}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{7}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)\Big)\Big/$$

$$\Big(2\ \Big(8\,m\,\text{AppellF1}\Big[\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{7}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(2+8\,m)\ \text{AppellF1}\Big[\frac{3}{4},\ \frac{1}{2}-2\,m,$$

$$2\,m,\ \frac{7}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]-3$$

$$\text{AppellF1}\Big[-\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{3}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)+$$

$$\Big(3\,\text{AppellF1}\Big[-\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{3}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\text{Cos}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2\,m}\sqrt{\text{Cos}[e+f\,x]}\ \text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]$$

$$\text{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \Big(\frac{3}{2}\,\text{AppellF1}\Big[-\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,$$

$$\frac{3}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\ \text{Csc}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2-3\,\text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2$$

$$\Big(\frac{1}{3}\,m\,\text{AppellF1}\Big[\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{7}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]-$$

$$\frac{1}{6}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{3}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{7}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)+8$$

$$m\ \Big(-\frac{3}{14}\,(1+2\,m)\ \text{AppellF1}\Big[\frac{7}{4},\ -\frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{11}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]+$$

$$\frac{3}{14}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\left[\frac{7}{4},\ \frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)+$$

$$(2+8\,m)\left(-\frac{3}{7}\,m\,\text{AppellF1}\left[\frac{7}{4},\ \frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$

$$\frac{3}{14}\left(\frac{1}{2}-2\,m\right)\text{AppellF1}\left[\frac{7}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\Big[\right.$$

$$\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\left(8\,m\,\text{AppellF1}\left[\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(2+8\,m)\,\text{AppellF1}\left[\frac{3}{4},\ \frac{1}{2}-2\,m,\right.$$

$$\left.2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$3\,\text{AppellF1}\left[-\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{3}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)-$$

$$\Bigg(\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,m}\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{1+2\,m}\sqrt{\text{Cos}[e+f\,x]}$$

$$\sqrt{\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(-\text{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)}$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,m}$$

$$\Bigg(\Bigg(\text{AppellF1}\left[-\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{1}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg/$$

$$\Bigg(\text{AppellF1}\left[-\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{1}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$2\left(4\,m\,\text{AppellF1}\left[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{5}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+(1+4\,m)\,\text{AppellF1}\Big[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},$$

$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+$$

$$\Bigg(15\,\text{AppellF1}\left[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\Bigg/$$

$$\Bigg(5\,\text{AppellF1}\left[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$2\ (4\,m\,\text{AppellF1}[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,$$

$$-\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2]+(1+4\,m)\ \text{AppellF1}[\frac{5}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Tan}[\frac{1}{4}$$

$$(-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2])\ \text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2)))\Big/$$

$$(6\ (\text{Cos}[\frac{\pi}{4}+\frac{1}{2}\ (e-\frac{\pi}{2}+f\,x)]-\text{Sin}[\frac{\pi}{4}+\frac{1}{2}\ (e-\frac{\pi}{2}+f\,x)])^3\ (\frac{1}{12\,\sqrt{2}}\ (-1+2\,m)$$

$$\text{Cos}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]\ (\text{Cos}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2)^{-2+2\,m}\ \text{Sin}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]$$

$$\sqrt{(\text{Cos}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]\ (-\text{Sin}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]+\text{Sin}[\frac{3}{4}\ (-e+\frac{\pi}{2}-f\,x)]))}$$

$$(1-\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2)^{2\,m}\ ((\text{AppellF1}[-\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{1}{4},$$

$$\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2]\ \text{Cot}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2)\Big/$$

$$(\text{AppellF1}[-\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{1}{4},\ \text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,$$

$$-\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2]-2\ (4\,m\,\text{AppellF1}[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{5}{4},$$

$$\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2]+(1+4\,m)\ \text{AppellF1}[$$

$$\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2])$$

$$\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2)+(15\ \text{AppellF1}[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},$$

$$\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2])\Big/\ (5\ \text{AppellF1}[\frac{1}{4},$$

$$-\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2]-$$

$$2\ (4\,m\,\text{AppellF1}[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,$$

$$-\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2]+(1+4\,m)\ \text{AppellF1}[\frac{5}{4},\ \frac{1}{2}-2\,m,$$

$$2\,m,\ \frac{9}{4},\ \text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2,\ -\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2])$$

$$\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2))-((\text{Cos}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2)^{-1+2\,m}$$

$$(\text{Cos}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]\ (-\frac{1}{4}\ \text{Cos}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]+\frac{3}{4}\ \text{Cos}[\frac{3}{4}\ (-e+\frac{\pi}{2}-f\,x)])-$$

$$\frac{1}{4}\ \text{Sin}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]\ (-\text{Sin}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]+\text{Sin}[\frac{3}{4}\ (-e+\frac{\pi}{2}-f\,x)]))$$

$$(1-\text{Tan}[\frac{1}{4}\ (-e+\frac{\pi}{2}-f\,x)]^2)^{2\,m}\ ((\text{AppellF1}[-\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{1}{4},$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big/$$
$$\Big(\text{AppellF1}\left[-\frac{3}{4},-\frac{1}{2}-2m,2m,\frac{1}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-2\Big(4m\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2m,1+2m,\frac{5}{4},$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(1+4m)\,\text{AppellF1}\Big[$$
$$\frac{1}{4},\frac{1}{2}-2m,2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+\Big(15\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2m,2m,\frac{5}{4},$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\Big/$$
$$\Big(5\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2m,2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-2\Big(4m\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2m,1+2m,$$
$$\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$
$$(1+4m)\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2}-2m,2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big)\Big/\Big(12\sqrt{2}$$
$$\sqrt{\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)}\Big)+$$
$$\frac{1}{6\sqrt{2}}m\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2m}\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4$$
$$\sqrt{\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)}$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2m}$$
$$\Big(\Big(\text{AppellF1}\Big[-\frac{3}{4},-\frac{1}{2}-2m,2m,\frac{1}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big/\Big(\text{AppellF1}\Big[-\frac{3}{4},$$
$$-\frac{1}{2}-2m,2m,\frac{1}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-$$
$$2\Big(4m\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2m,1+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(1+4m)\,\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2}-2m,$$
$$2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+\Bigg(15\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,2\,m,\frac{5}{4},\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\Bigg/\Bigg(5\,\mathrm{AppellF1}\left[\frac{1}{4},\right.$$

$$\left.-\frac{1}{2}-2\,m,2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-$$

$$2\,\Bigg(4\,m\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,1+2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(1+4\,m)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,\right.$$

$$\left.2\,m,\frac{9}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)-\frac{1}{6\sqrt{2}}\left(\mathrm{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,m}$$

$$\sqrt{\left(\mathrm{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(-\mathrm{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\mathrm{Sin}\left[\frac{3}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)}$$

$$\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,m}$$

$$\Bigg(-\Bigg(\Bigg(\mathrm{AppellF1}\left[-\frac{3}{4},-\frac{1}{2}-2\,m,2\,m,\frac{1}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\mathrm{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg/$$

$$\Bigg(2\,\Bigg(\mathrm{AppellF1}\left[-\frac{3}{4},-\frac{1}{2}-2\,m,2\,m,\frac{1}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\,\Bigg(4\,m\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,1+2\,m,\right.$$

$$\left.\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$(1+4\,m)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2}-2\,m,2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)\Bigg)+$$

$$\Bigg(\mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg(3\,m\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,1+2\,m,\frac{5}{4},\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{3}{2}\left(-\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2}-2\,m,2\,m,\frac{5}{4},\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg)\Bigg/\Bigg(\mathrm{AppellF1}\left[-\frac{3}{4},-\frac{1}{2}-2\,m,2\,m,\frac{1}{4},\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\,\Bigg(4\,m\,\mathrm{AppellF1}\left[\frac{1}{4},\right.$$

$$\left.-\frac{1}{2}-2\,m,1+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$(1+4\,m)\ \text{AppellF1}\Big[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\Big)\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)\ +$$

$$\Big(15\ \Big(-\frac{1}{5}\,m\,\text{AppellF1}\Big[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\ +$$

$$\frac{1}{10}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{5}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)\Big)\Big/$$

$$\Big(5\ \text{AppellF1}\Big[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]-2\ \Big(4\,m\,\text{AppellF1}\Big[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},$$

$$\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ +\ (1+4\,m)\ \text{AppellF1}\Big[$$

$$\frac{5}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\Big)$$

$$\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)\ -\ \Big(\text{AppellF1}\Big[-\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{1}{4},$$

$$\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Cot}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2$$

$$\Big(3\,m\,\text{AppellF1}\Big[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{5}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\ -$$

$$\frac{3}{2}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\ -$$

$$\Big(4\,m\,\text{AppellF1}\Big[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{5}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ +\ (1+4\,m)\ \text{AppellF1}\Big[\frac{1}{4},\ \frac{1}{2}-2\,m,$$

$$2\,m,\ \frac{5}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\Big)$$

$$\text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]-2\ \text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2$$

$$\Big(4\,m\ \Big(-\frac{1}{10}\ (1+2\,m)\ \text{AppellF1}\Big[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{9}{4},\ \text{Tan}\Big[\frac{1}{4}\ \Big(-e+\frac{\pi}{2}-$$

$$f\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2$$

$$\text{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\ +\ \frac{1}{10}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{5}{4},\ \frac{1}{2}-2\,m,$$

$$1+2\,m,\ \frac{9}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\mathrm{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)+(1+4\,m)$$

$$\Big(-\frac{1}{5}\,m\,\mathrm{AppellF1}\Big[\frac{5}{4},\ \frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2$$

$$\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]+\frac{1}{10}\left(\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\Big[\frac{5}{4},\ \frac{3}{2}-2\,m,$$

$$2\,m,\ \frac{9}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\mathrm{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\mathrm{AppellF1}\Big[-\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2\,m,\ \frac{1}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]-2\,\Big(4\,m\,\mathrm{AppellF1}\Big[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,$$

$$\frac{5}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+$$

$$(1+4\,m)\,\mathrm{AppellF1}\Big[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\Big)\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big)^2-\Big(15\,\mathrm{AppellF1}\Big[\frac{1}{4},$$

$$-\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\Big(-\Big(4\,m\,\mathrm{AppellF1}\Big[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]+(1+4\,m)\,\mathrm{AppellF1}\Big[\frac{5}{4},\ \frac{1}{2}-2\,m,$$

$$2\,m,\ \frac{9}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]\Big)$$

$$\mathrm{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]+5\,\Big(-\frac{1}{5}\,m\,\mathrm{AppellF1}\Big[\frac{5}{4},\ -\frac{1}{2}-$$

$$2\,m,\ 1+2\,m,\ \frac{9}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\mathrm{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]+\frac{1}{10}\left(-\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\Big[$$

$$\frac{5}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\mathrm{Sec}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Big)-$$

$$2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\,\Big(4\,m\,\Big(-\frac{5}{18}\,(1+2\,m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\ -\frac{1}{2}-2\,m,$$

$$2+2\,m,\ \frac{13}{4},\ \mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$
$$\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)+\left(1+4\,m\right)$$
$$\left(-\frac{5}{9}\,m\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{5}{18}\left(\frac{1}{2}-2\,m\right)\text{AppellF1}\left[\frac{9}{4},\,\frac{3}{2}-2\,m,\right.$$
$$\left.2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},\,-\frac{1}{2}-2\,m,\,2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,1+2\,m,\right.\right.$$
$$\left.\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$\left(1+4\,m\right)\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Bigg)\Bigg)\Bigg)$$

Problem 158: Attempted integration timed out after 120 seconds.

$$\int \frac{\left(g\,\text{Cos}\left[e+f\,x\right]\right)^{3/2}\left(a+a\,\text{Sin}\left[e+f\,x\right]\right)^m}{\left(c-c\,\text{Sin}\left[e+f\,x\right]\right)^3}\,dx$$

Optimal (type 5, 93 leaves, 4 steps):

$$\left(2^{\frac{9}{4}+m}\,g^5\,\text{Hypergeometric2F1}\left[-\frac{7}{4},\,-\frac{1}{4}-m,\,-\frac{3}{4},\,\frac{1}{2}\left(1-\text{Sin}\left[e+f\,x\right]\right)\right]\right.$$
$$\left.\left(1+\text{Sin}\left[e+f\,x\right]\right)^{-\frac{1}{4}-m}\left(a+a\,\text{Sin}\left[e+f\,x\right]\right)^{2+m}\right)\Big/\left(7\,a^2\,c^3\,f\left(g\,\text{Cos}\left[e+f\,x\right]\right)^{7/2}\right)$$

Result (type 1, 1 leaves):

???

Problem 159: Attempted integration timed out after 120 seconds.

$$\int (g\,\mathrm{Cos}[e+f\,x])^{3/2}\,(a+a\,\mathrm{Sin}[e+f\,x])^m\,(c-c\,\mathrm{Sin}[e+f\,x])^{5/2}\,dx$$

Optimal (type 5, 114 leaves, 4 steps):

$$-\frac{1}{15\,f\,g^6}2^{\frac{9}{4}+m}\,a^3\,c^2\,(g\,\mathrm{Cos}[e+f\,x])^{15/2}\,\mathrm{Hypergeometric2F1}\left[\frac{15}{4},-\frac{1}{4}-m,\frac{19}{4},\frac{1}{2}\,(1-\mathrm{Sin}[e+f\,x])\right]$$
$$\mathrm{Sec}[e+f\,x]\,(1+\mathrm{Sin}[e+f\,x])^{-\frac{1}{4}-m}\,(a+a\,\mathrm{Sin}[e+f\,x])^{-3+m}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}$$

Result (type 1, 1 leaves):

???

Problem 160: Attempted integration timed out after 120 seconds.

$$\int (g\,\mathrm{Cos}[e+f\,x])^{3/2}\,(a+a\,\mathrm{Sin}[e+f\,x])^m\,(c-c\,\mathrm{Sin}[e+f\,x])^{3/2}\,dx$$

Optimal (type 5, 112 leaves, 4 steps):

$$-\frac{1}{11\,f\,g^4}2^{\frac{9}{4}+m}\,a^2\,c\,(g\,\mathrm{Cos}[e+f\,x])^{11/2}\,\mathrm{Hypergeometric2F1}\left[\frac{11}{4},-\frac{1}{4}-m,\frac{15}{4},\frac{1}{2}\,(1-\mathrm{Sin}[e+f\,x])\right]$$
$$\mathrm{Sec}[e+f\,x]\,(1+\mathrm{Sin}[e+f\,x])^{-\frac{1}{4}-m}\,(a+a\,\mathrm{Sin}[e+f\,x])^{-2+m}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}$$

Result (type 1, 1 leaves):

???

Problem 161: Attempted integration timed out after 120 seconds.

$$\int (g\,\mathrm{Cos}[e+f\,x])^{3/2}\,(a+a\,\mathrm{Sin}[e+f\,x])^m\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}\,dx$$

Optimal (type 5, 109 leaves, 4 steps):

$$-\frac{1}{7\,f\,g^2}2^{\frac{9}{4}+m}\,a\,(g\,\mathrm{Cos}[e+f\,x])^{7/2}\,\mathrm{Hypergeometric2F1}\left[\frac{7}{4},-\frac{1}{4}-m,\frac{11}{4},\frac{1}{2}\,(1-\mathrm{Sin}[e+f\,x])\right]$$
$$\mathrm{Sec}[e+f\,x]\,(1+\mathrm{Sin}[e+f\,x])^{-\frac{1}{4}-m}\,(a+a\,\mathrm{Sin}[e+f\,x])^{-1+m}\,\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}$$

Result (type 1, 1 leaves):

???

Problem 162: Attempted integration timed out after 120 seconds.

$$\int \frac{(g\,\mathrm{Cos}[e+f\,x])^{3/2}\,(a+a\,\mathrm{Sin}[e+f\,x])^m}{\sqrt{c-c\,\mathrm{Sin}[e+f\,x]}}\,dx$$

Optimal (type 5, 106 leaves, 4 steps):

$$-\left(\left(2^{\frac{9}{4}+m}\, a\, \text{Cos}[e+f x]\, (g\, \text{Cos}[e+f x])^{3/2}\, \text{Hypergeometric2F1}\left[\frac{3}{4}, -\frac{1}{4}-m, \frac{7}{4}, \frac{1}{2}(1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{4}-m} (a+a\, \text{Sin}[e+f x])^{-1+m}\right) \Big/ \left(3 f \sqrt{c-c\, \text{Sin}[e+f x]}\right)\right)$$

Result (type 1, 1 leaves):

???

Problem 163: Attempted integration timed out after 120 seconds.

$$\int \frac{(g\, \text{Cos}[e+f x])^{3/2} (a+a\, \text{Sin}[e+f x])^m}{(c-c\, \text{Sin}[e+f x])^{3/2}}\, dx$$

Optimal (type 5, 106 leaves, 4 steps):

$$\left(2^{\frac{9}{4}+m}\, g^2\, \text{Cos}[e+f x]\, \text{Hypergeometric2F1}\left[-\frac{1}{4}, -\frac{1}{4}-m, \frac{3}{4}, \frac{1}{2}(1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{4}-m} (a+a\, \text{Sin}[e+f x])^m\right) \Big/ \left(c\, f \sqrt{g\, \text{Cos}[e+f x]} \sqrt{c-c\, \text{Sin}[e+f x]}\right)$$

Result (type 1, 1 leaves):

???

Problem 164: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g\, \text{Cos}[e+f x])^{3/2} (a+a\, \text{Sin}[e+f x])^m}{(c-c\, \text{Sin}[e+f x])^{5/2}}\, dx$$

Optimal (type 5, 114 leaves, 4 steps):

$$\left(2^{\frac{9}{4}+m}\, g^4\, \text{Cos}[e+f x]\, \text{Hypergeometric2F1}\left[-\frac{5}{4}, -\frac{1}{4}-m, -\frac{1}{4}, \frac{1}{2}(1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{4}-m} (a+a\, \text{Sin}[e+f x])^{1+m}\right) \Big/ \left(5\, a\, c^2 f\, (g\, \text{Cos}[e+f x])^{5/2} \sqrt{c-c\, \text{Sin}[e+f x]}\right)$$

Result (type 6, 20476 leaves): Display of huge result suppressed!

Problem 165: Attempted integration timed out after 120 seconds.

$$\int \frac{(g\, \text{Cos}[e+f x])^{3/2} (a+a\, \text{Sin}[e+f x])^m}{\sqrt{c-c\, \text{Sin}[e+f x]}}\, dx$$

Optimal (type 5, 106 leaves, 4 steps):

$$-\left(\left(2^{\frac{9}{4}+m}\, a\, \text{Cos}[e+f x]\, (g\, \text{Cos}[e+f x])^{3/2}\, \text{Hypergeometric2F1}\left[\frac{3}{4}, -\frac{1}{4}-m, \frac{7}{4}, \frac{1}{2}(1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{4}-m} (a+a\, \text{Sin}[e+f x])^{-1+m}\right) \Big/ \left(3 f \sqrt{c-c\, \text{Sin}[e+f x]}\right)\right)$$

Result (type 1, 1 leaves):
???

Problem 166: Attempted integration timed out after 120 seconds.

$$\int \frac{(g\,\text{Cos}[e+f\,x])^{3/2}\,(c+c\,\text{Sin}[e+f\,x])^m}{\sqrt{a-a\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 5, 106 leaves, 4 steps):

$$-\left(\left(2^{\frac{9}{4}+m}\,c\,\text{Cos}[e+f\,x]\,(g\,\text{Cos}[e+f\,x])^{3/2}\,\text{Hypergeometric2F1}\left[\frac{3}{4},-\frac{1}{4}-m,\frac{7}{4},\frac{1}{2}(1-\text{Sin}[e+f\,x])\right]\right.\right.$$
$$\left.\left.(1+\text{Sin}[e+f\,x])^{-\frac{1}{4}-m}\,(c+c\,\text{Sin}[e+f\,x])^{-1+m}\right)\Big/\left(3\,f\,\sqrt{a-a\,\text{Sin}[e+f\,x]}\right)\right)$$

Result (type 1, 1 leaves):
???

Problem 167: Result more than twice size of optimal antiderivative.

$$\int (g\,\text{Cos}[e+f\,x])^{3/2}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-3-m}\,dx$$

Optimal (type 5, 123 leaves, 4 steps):

$$\frac{1}{c^2\,f\,g\,(5+4\,m)}2^{-\frac{3}{4}-m}\,(g\,\text{Cos}[e+f\,x])^{5/2}$$
$$\text{Hypergeometric2F1}\left[\frac{1}{4}(5+4\,m),\frac{1}{4}(11+4\,m),\frac{1}{4}(9+4\,m),\frac{1}{2}(1+\text{Sin}[e+f\,x])\right]$$
$$(1-\text{Sin}[e+f\,x])^{-\frac{1}{4}+m}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-1-m}$$

Result (type 5, 2502 leaves):

$$\left(2^{-4-m}\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,m}\sqrt{\text{Cos}[e+f\,x]}\,(g\,\text{Cos}[e+f\,x])^{3/2}\right.$$
$$\left(\left(-3+8\,m+16\,m^2\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,-\frac{7}{4}-m,\right.\right.$$
$$\left.-\frac{3}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(7+4\,m)\left(2\,(-1+4\,m)\,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right.$$
$$\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,-\frac{3}{4}-m,\frac{1}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$
$$\left.\left.(3+4\,m)\,\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\frac{1}{4}-m,\frac{5}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\right)$$
$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]-\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-2\,(-3-m)}$$
$$(a+a\,\text{Sin}[e+f\,x])^m$$
$$(c-c\,\text{Sin}[e+f\,x])^{-3-m}$$
$$\left.\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right)\right]\right)^{-6-2\,m}\right)\Big/$$

$$\left(f\,(-1+4m)\,(3+4m)\,(7+4m)\,\sqrt{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right.$$

$$\left(-\frac{1}{(-1+4m)\,(3+4m)\,(7+4m)\,\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{3/2}}\right.$$

$$2^{-6-m}\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2m}\sqrt{\text{Cos}[e+f x]}$$
$$\left(\left(-3+8m+16m^2\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\text{Hypergeometric2F1}\left[-\frac{3}{2}-2m,-\frac{7}{4}-m,\right.\right.$$
$$\left.-\frac{3}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(7+4m)\left(2\,(-1+4m)\,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right.$$
$$\text{Hypergeometric2F1}\left[-\frac{3}{2}-2m,-\frac{3}{4}-m,\frac{1}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$\left.\left.(3+4m)\,\text{Hypergeometric2F1}\left[-\frac{3}{2}-2m,\frac{1}{4}-m,\frac{5}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\right)$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2m}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\frac{1}{(-1+4m)\,(3+4m)\,(7+4m)\,\sqrt{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}}$$
$$2^{-4-m}\,m\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1+2m}\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\sqrt{\text{Cos}[e+f x]}$$
$$\left(\left(-3+8m+16m^2\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\text{Hypergeometric2F1}\left[-\frac{3}{2}-2m,-\frac{7}{4}-m,\right.\right.$$
$$\left.-\frac{3}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(7+4m)\left(2\,(-1+4m)\,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right.$$
$$\text{Hypergeometric2F1}\left[-\frac{3}{2}-2m,-\frac{3}{4}-m,\frac{1}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$\left.\left.(3+4m)\,\text{Hypergeometric2F1}\left[-\frac{3}{2}-2m,\frac{1}{4}-m,\frac{5}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\right)$$
$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-1-2m}+\frac{1}{(-1+4m)\,(3+4m)\,(7+4m)\,\sqrt{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}}$$
$$2^{-5-m}\,(-1+2m)\,\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-2+2m}\sqrt{\text{Cos}[e+f x]}$$
$$\left(\left(-3+8m+16m^2\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\text{Hypergeometric2F1}\left[-\frac{3}{2}-2m,-\frac{7}{4}-m,\right.\right.$$
$$\left.-\frac{3}{4}-m,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(7+4m)\left(2\,(-1+4m)\,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right.$$

$$\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,-\frac{3}{4}-m,\,\frac{1}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(3+4\,m\right)\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,\frac{1}{4}-m,\,\frac{5}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\Bigg)$$

$$\text{Sin}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}-$$

$$\Bigg(2^{-5-m}\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,m}\Bigg(\left(-3+8\,m+16\,m^2\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4$$

$$\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,-\frac{7}{4}-m,\,-\frac{3}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(7+4\,m\right)\Bigg(2\left(-1+4\,m\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,-\frac{3}{4}-\right.$$

$$\left.m,\,\frac{1}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(3+4\,m\right)\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,\frac{1}{4}-\right.$$

$$\left.m,\,\frac{5}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\Bigg)\Bigg)\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}\text{Sin}[e+f\,x]\Bigg)\Bigg/$$

$$\left(\left(-1+4\,m\right)\left(3+4\,m\right)\left(7+4\,m\right)\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)-$$

$$\frac{1}{\left(-1+4\,m\right)\left(3+4\,m\right)\left(7+4\,m\right)\sqrt{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}}$$

$$2^{-4-m}\left(\text{Cos}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1+2\,m}\sqrt{\text{Cos}[e+f\,x]}\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-2\,m}$$

$$\Bigg(-\left(-3+8\,m+16\,m^2\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^3\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,-\frac{7}{4}-m,\,-\frac{3}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\frac{1}{2}\left(-\frac{7}{4}-m\right)\left(-3+8\,m+16\,m^2\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^3\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\Bigg(-\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,-\frac{7}{4}-m,\,-\frac{3}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{\frac{3}{2}+2\,m}\Bigg)+$$

$$\left(7+4\,m\right)\Bigg(-\left(-1+4\,m\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,-\frac{3}{4}-m,\,\frac{1}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(-\frac{3}{4}-m\right)\left(-1+4\,m\right)\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\Bigg(-\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,-\frac{3}{4}-m,\,\frac{1}{4}-m,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{\frac{3}{2}+2\,m}\right)+\frac{1}{2}\left(\frac{1}{4}-m\right)(3+4\,m)\,\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(-\text{Hypergeometric2F1}\left[-\frac{3}{2}-2\,m,\,\frac{1}{4}-m,\,\frac{5}{4}-m,\right.\right.$$

$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{\frac{3}{2}+2\,m}\right)\right)\right)\right)$$

Problem 169: Attempted integration timed out after 120 seconds.

$$\int (g\,\text{Cos}[e+f\,x])^{3/2}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-1-m}\,dx$$

Optimal (type 5, 120 leaves, 4 steps):

$$\frac{1}{f\,g\,(5+4\,m)}2^{\frac{5}{4}-m}\,(g\,\text{Cos}[e+f\,x])^{5/2}$$
$$\text{Hypergeometric2F1}\left[\frac{1}{4}(3+4\,m),\,\frac{1}{4}(5+4\,m),\,\frac{1}{4}(9+4\,m),\,\frac{1}{2}(1+\text{Sin}[e+f\,x])\right]$$
$$(1-\text{Sin}[e+f\,x])^{-\frac{1}{4}+m}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-1-m}$$

Result (type 1, 1 leaves):

???

Problem 170: Unable to integrate problem.

$$\int (g\,\text{Cos}[e+f\,x])^{3/2}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-m}\,dx$$

Optimal (type 5, 121 leaves, 4 steps):

$$\frac{1}{f\,g\,(5+4\,m)}2^{\frac{9}{4}-m}\,c\,(g\,\text{Cos}[e+f\,x])^{5/2}$$
$$\text{Hypergeometric2F1}\left[\frac{1}{4}(-1+4\,m),\,\frac{1}{4}(5+4\,m),\,\frac{1}{4}(9+4\,m),\,\frac{1}{2}(1+\text{Sin}[e+f\,x])\right]$$
$$(1-\text{Sin}[e+f\,x])^{-\frac{1}{4}+m}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-1-m}$$

Result (type 8, 42 leaves):

$$\int (g\,\text{Cos}[e+f\,x])^{3/2}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{-m}\,dx$$

Problem 171: Attempted integration timed out after 120 seconds.

$$\int (g\,\text{Cos}[e+f\,x])^{3/2}\,(a+a\,\text{Sin}[e+f\,x])^m\,(c-c\,\text{Sin}[e+f\,x])^{1-m}\,dx$$

Optimal (type 5, 123 leaves, 4 steps):

$$\frac{1}{f g (5+4 m)} 2^{\frac{13}{4}-m} c^2 (g \operatorname{Cos}[e+f x])^{5/2} \text{Hypergeometric2F1}\left[\frac{1}{4}(-5+4 m), \frac{1}{4}(5+4 m), \frac{1}{4}(9+4 m), \frac{1}{2}(1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{-\frac{1}{4}+m} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-1-m}$$

Result (type 1, 1 leaves):

???

Problem 172: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{3/2} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{2-m} \, dx$$

Optimal (type 5, 123 leaves, 4 steps):

$$\frac{1}{f g (5+4 m)} 2^{\frac{17}{4}-m} c^3 (g \operatorname{Cos}[e+f x])^{5/2} \text{Hypergeometric2F1}\left[\frac{1}{4}(-9+4 m), \frac{1}{4}(5+4 m), \frac{1}{4}(9+4 m), \frac{1}{2}(1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{-\frac{1}{4}+m} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-1-m}$$

Result (type 1, 1 leaves):

???

Problem 174: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{1-2 m} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-1+m} \, dx$$

Optimal (type 3, 57 leaves, 4 steps):

$$-\frac{1}{c f} g (g \operatorname{Cos}[e+f x])^{-2 m} \operatorname{Log}[1-\operatorname{Sin}[e+f x]] (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^m$$

Result (type 1, 1 leaves):

???

Problem 175: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (g \operatorname{Cos}[e+f x])^{5-2 m} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^n \, dx$$

Optimal (type 3, 203 leaves, 3 steps):

$$-\frac{8 a^3 \left(g \,\text{Cos}[e+f x]\right)^{6-2 m} \left(a+a \,\text{Sin}[e+f x]\right)^{-3+m} \left(c-c \,\text{Sin}[e+f x]\right)^n}{f g \left(3-m+n\right) \left(4-m+n\right) \left(5-m+n\right)}-\frac{4 a^2 \left(g \,\text{Cos}[e+f x]\right)^{6-2 m} \left(a+a \,\text{Sin}[e+f x]\right)^{-2+m} \left(c-c \,\text{Sin}[e+f x]\right)^n}{f g \left(4-m+n\right) \left(5-m+n\right)}-\frac{a \left(g \,\text{Cos}[e+f x]\right)^{6-2 m} \left(a+a \,\text{Sin}[e+f x]\right)^{-1+m} \left(c-c \,\text{Sin}[e+f x]\right)^n}{f g \left(5-m+n\right)}$$

Result (type 3, 1513 leaves):

$$\frac{1}{f}\text{Cos}[e+f x]^{-5+2 n} \left(g \,\text{Cos}[e+f x]\right)^{5-2 m}$$

$$\left(a \left(1+\text{Sin}[e+f x]\right)\right)^m \left(c-c \,\text{Sin}[e+f x]\right)^{n-\frac{n \left(\text{Log}\left[a \left(1+\text{Sin}[e+f x]\right)\right]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)}{\text{Log}[c-c \,\text{Sin}[e+f x]]}}$$

$$\Bigg(\Big(e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \left(256-41 m+3 m^2+41 n-6 m n+3 n^2\right)\Big) \Big/$$

$$\left(8 \left(-5+m-n\right) \left(-4+m-n\right) \left(-3+m-n\right)\right)+$$

$$\Bigg(\left(300-23 m+m^2+23 n-2 m n+n^2\right) \Bigg(-\frac{1}{16} i \, e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)}$$

$$\text{Cos}[e+f x]-\frac{1}{16} e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Sin}[e+f x]\Bigg)\Bigg) \Bigg/$$

$$\left(\left(-5+m-n\right) \left(-4+m-n\right) \left(-3+m-n\right)\right)+\Bigg(\left(300-23 m+m^2+23 n-2 m n+n^2\right)$$

$$\Bigg(\frac{1}{16} i \, e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Cos}[e+f x]-$$

$$\frac{1}{16} e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Sin}[e+f x]\Bigg)\Bigg) \Bigg/$$

$$\left(\left(-5+m-n\right) \left(-4+m-n\right) \left(-3+m-n\right)\right)+\Bigg(\left(-11 m+m^2+11 n-2 m n+n^2\right)$$

$$\Bigg(\frac{1}{4} e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Cos}\left[2 \left(e+f x\right)\right]-$$

$$\frac{1}{4} i \, e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Sin}\left[2 \left(e+f x\right)\right]\Bigg)\Bigg) \Bigg/$$

$$\left(\left(-5+m-n\right) \left(-4+m-n\right) \left(-3+m-n\right)\right)+\Bigg(\left(-11 m+m^2+11 n-2 m n+n^2\right)$$

$$\Bigg(\frac{1}{4} e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Cos}\left[2 \left(e+f x\right)\right]+$$

$$\frac{1}{4} i \, e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Sin}\left[2 \left(e+f x\right)\right]\Bigg)\Bigg) \Bigg/$$

$$\left(\left(-5+m-n\right) \left(-4+m-n\right) \left(-3+m-n\right)\right)+\Bigg(\left(100-53 m+3 m^2+53 n-6 m n+3 n^2\right)$$

$$\Bigg(-\frac{1}{32} i \, e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Cos}\left[3 \left(e+f x\right)\right]-$$

$$\frac{1}{32} e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Sin}\left[3 \left(e+f x\right)\right]\Bigg)\Bigg) \Bigg/$$

$$\left(\left(-5+m-n\right) \left(-4+m-n\right) \left(-3+m-n\right)\right)+\Bigg(\left(100-53 m+3 m^2+53 n-6 m n+3 n^2\right)$$

$$\Bigg(\frac{1}{32} i \, e^{n \left(-2 \,\text{Log}[\text{Cos}[e+f x]]+\text{Log}[a \left(1+\text{Sin}[e+f x]\right)]+\text{Log}[c-c \,\text{Sin}[e+f x]]\right)} \,\text{Cos}\left[3 \left(e+f x\right)\right]-$$

$$\frac{1}{32} e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Sin}[3 (e+f x)]\Big)\Big) \Big/ \big((-5+m-n) (-4+m-n) (-3+m-n)\big) +$$

$$\Big((m-n) \Big(\frac{1}{16} e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Cos}[4 (e+f x)] - \frac{1}{16} i e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Sin}[4 (e+f x)]\Big)\Big) \Big/$$

$$((-5+m-n) (-4+m-n)) + \Big((m-n) \Big(\frac{1}{16} e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Cos}[4 (e+f x)] + \frac{1}{16} i e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Sin}[4 (e+f x)]\Big)\Big) \Big/ ((-5+m-n) (-4+m-n)) + \frac{1}{-5+m-n}$$

$$\Big(-\frac{1}{32} i e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Cos}[5 (e+f x)] - \frac{1}{32} e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Sin}[5 (e+f x)]\Big) +$$

$$\frac{1}{-5+m-n} \Big(\frac{1}{32} i e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Cos}[5 (e+f x)] - \frac{1}{32} e^{n (-2 \text{Log}[\text{Cos}[e+f x]]+\text{Log}[a (1+\text{Sin}[e+f x])]+\text{Log}[c-c \text{Sin}[e+f x]])} \text{Sin}[5 (e+f x)]\Big)\Big)$$

Problem 178: Attempted integration timed out after 120 seconds.

$$\int (g \text{Cos}[e+f x])^{-1-2 m} (a+a \text{Sin}[e+f x])^m (c-c \text{Sin}[e+f x])^n \, dx$$

Optimal (type 5, 81 leaves, 4 steps):

$$\frac{1}{2 f g (m-n)} (g \text{Cos}[e+f x])^{-2 m} \text{Hypergeometric2F1}\Big[1, -m+n, 1-m+n, \frac{1}{2} (1-\text{Sin}[e+f x])\Big] (a+a \text{Sin}[e+f x])^m (c-c \text{Sin}[e+f x])^n$$

Result (type 1, 1 leaves):

???

Problem 179: Attempted integration timed out after 120 seconds.

$$\int (g \text{Cos}[e+f x])^{-3-2 m} (a+a \text{Sin}[e+f x])^m (c-c \text{Sin}[e+f x])^n \, dx$$

Optimal (type 5, 85 leaves, 4 steps):

$$\frac{1}{4 f g^3 (1+m-n)} c (g \text{Cos}[e+f x])^{-2 m} \text{Hypergeometric2F1}\Big[2, -1-m+n, -m+n, \frac{1}{2} (1-\text{Sin}[e+f x])\Big] (a+a \text{Sin}[e+f x])^m (c-c \text{Sin}[e+f x])^{-1+n}$$

Result (type 1, 1 leaves):

???

Problem 180: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{-5-2 m} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^n \, dx$$

Optimal (type 5, 88 leaves, 4 steps):

$$\frac{1}{8 f g^5 (2+m-n)} c^2 (g \operatorname{Cos}[e+f x])^{-2 m} \text{Hypergeometric2F1}\left[3,-2-m+n,-1-m+n,\frac{1}{2}(1-\operatorname{Sin}[e+f x])\right] (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-2+n}$$

Result (type 1, 1 leaves):

???

Problem 182: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{-1-m-n} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{3+n} \, dx$$

Optimal (type 5, 134 leaves, 4 steps):

$$\frac{1}{f g (m-n)} 2^{3-\frac{m}{2}+\frac{n}{2}} c^3 (g \operatorname{Cos}[e+f x])^{-m-n} \text{Hypergeometric2F1}\left[\frac{1}{2}(-4+m-n),\frac{m-n}{2},\frac{1}{2}(2+m-n),\frac{1}{2}(1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{\frac{m-n}{2}} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^n$$

Result (type 1, 1 leaves):

???

Problem 183: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{-1-m-n} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{2+n} \, dx$$

Optimal (type 5, 134 leaves, 4 steps):

$$\frac{1}{f g (m-n)} 2^{2-\frac{m}{2}+\frac{n}{2}} c^2 (g \operatorname{Cos}[e+f x])^{-m-n} \text{Hypergeometric2F1}\left[\frac{1}{2}(-2+m-n),\frac{m-n}{2},\frac{1}{2}(2+m-n),\frac{1}{2}(1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{\frac{m-n}{2}} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^n$$

Result (type 1, 1 leaves):

???

Problem 184: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^{-1-m-n} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{1+n} \, dx$$

Optimal (type 5, 131 leaves, 4 steps):

$$\frac{1}{f g (m-n)} 2^{1-\frac{m}{2}+\frac{n}{2}} c (g \operatorname{Cos}[e+f x])^{-m-n} \operatorname{Hypergeometric2F1}\left[\frac{m-n}{2}, \frac{m-n}{2}, \frac{1}{2} (2+m-n), \frac{1}{2} (1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{\frac{m-n}{2}} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^n$$

Result (type 1, 1 leaves):

???

Problem 187: Result more than twice size of optimal antiderivative.

$$\int (g \operatorname{Cos}[e+f x])^{-1-m-n} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-2+n} \, dx$$

Optimal (type 3, 204 leaves, 3 steps):

$$\frac{(g \operatorname{Cos}[e+f x])^{-m-n} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-2+n}}{f g (4+m-n)} + \frac{2 (g \operatorname{Cos}[e+f x])^{-m-n} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-1+n}}{c f g (2+m-n) (4+m-n)} + \frac{2 (g \operatorname{Cos}[e+f x])^{-m-n} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^n}{c^2 f g (m-n) (2+m-n) (4+m-n)}$$

Result (type 3, 2259 leaves):

$$\Bigg(2^{-2-m+2n} \operatorname{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2m} \operatorname{Cos}[e+f x] (g \operatorname{Cos}[e+f x])^{-1-m-n} \operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4$$
$$\left(\operatorname{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\operatorname{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\operatorname{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{2n}$$
$$\left(\operatorname{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\operatorname{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\operatorname{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-\operatorname{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\operatorname{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{-m-n}$$
$$\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^{-2(-2+n)} (a+a \operatorname{Sin}[e+f x])^m (c-c \operatorname{Sin}[e+f x])^{-2+n}$$
$$\left(3+4m+m^2-4n-2mn+n^2+\operatorname{Cos}\left[2\left(-e+\frac{\pi}{2}-f x\right)\right]-2(2+m-n)\operatorname{Sin}[e+f x]\right)$$
$$\left(\operatorname{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\operatorname{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^{-5+2n}\Bigg) \Big/$$
$$\big(f (m-n) (2+m-n) (4+m-n)$$

$$\left(-\frac{1}{(m-n)\,\left(2+m-n\right)\,(4+m-n)}\,2^{-2-m+2n}\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2m}\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{4}\right.$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{2n}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\right.\right.$$

$$\left.\left.\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{-m-n}$$

$$\left(2\,\left(2+m-n\right)\,\text{Cos}[e+f\,x]-2\,\text{Sin}\left[2\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+\frac{1}{(m-n)\,\left(2+m-n\right)\,(4+m-n)}$$

$$2^{-2-m+2n}\,m\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{-1+2m}\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{3}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{2n}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\right.\right.$$

$$\left.\left.\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{-m-n}$$

$$\left(3+4\,m+m^2-4\,n-2\,m\,n+n^2+\text{Cos}\left[2\left(-e+\frac{\pi}{2}-f\,x\right)\right]-2\,\left(2+m-n\right)\,\text{Sin}[e+f\,x]\right)+$$

$$\frac{1}{(m-n)\,\left(2+m-n\right)\,(4+m-n)}\,2^{-1-m+2n}\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{1+2m}\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{5}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{2n}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\right.\right.$$

$$\left.\left.\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{-m-n}$$

$$\left(3+4\,m+m^2-4\,n-2\,m\,n+n^2+\text{Cos}\left[2\left(-e+\frac{\pi}{2}-f\,x\right)\right]-2\,\left(2+m-n\right)\,\text{Sin}[e+f\,x]\right)-$$

$$\frac{1}{(m-n)\,\left(2+m-n\right)\,(4+m-n)}\,2^{-1-m+2n}\,n\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2m}\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{4}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{-1+2n}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\frac{1}{8}\,\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{3}{8}\,\text{Cos}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)-\right.$$

$$\left.\frac{1}{8}\,\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\right.\right.$$

$$\left.\left.\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)^{-m-n}$$

$$\left(3+4\,m+m^2-4\,n-2\,m\,n+n^2+\text{Cos}\left[2\left(-e+\frac{\pi}{2}-f\,x\right)\right]-2\,\left(2+m-n\right)\,\text{Sin}[e+f\,x]\right)-$$

$$\frac{1}{(m-n)\,\left(2+m-n\right)\,(4+m-n)}\,2^{-2-m+2n}\,(-m-n)\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2m}\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{4}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{2 n}$$
$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{-1-m-n}$$
$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\frac{1}{8}\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{3}{8}\text{Cos}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{5}{8}\text{Cos}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{8}\text{Cos}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)-\frac{1}{8}\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)$$
$$\left(3+4 m+m^2-4 n-2 m n+n^2+\text{Cos}\left[2\left(-e+\frac{\pi}{2}-f x\right)\right]-2(2+m-n)\text{Sin}[e+f x]\right)\right)$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]+\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)\right)$$

Problem 188: Result more than twice size of optimal antiderivative.

$$\int (g\,\text{Cos}[e+f x])^{-1-m-n}(a+a\,\text{Sin}[e+f x])^m(c-c\,\text{Sin}[e+f x])^{-3+n}\,dx$$

Optimal (type 3, 290 leaves, 4 steps):

$$\frac{(g\,\text{Cos}[e+f x])^{-m-n}(a+a\,\text{Sin}[e+f x])^m(c-c\,\text{Sin}[e+f x])^{-3+n}}{f g(6+m-n)}+\frac{3(g\,\text{Cos}[e+f x])^{-m-n}(a+a\,\text{Sin}[e+f x])^m(c-c\,\text{Sin}[e+f x])^{-2+n}}{c f g(4+m-n)(6+m-n)}+\frac{6(g\,\text{Cos}[e+f x])^{-m-n}(a+a\,\text{Sin}[e+f x])^m(c-c\,\text{Sin}[e+f x])^{-1+n}}{c^2 f g(2+m-n)(4+m-n)(6+m-n)}+\frac{6(g\,\text{Cos}[e+f x])^{-m-n}(a+a\,\text{Sin}[e+f x])^m(c-c\,\text{Sin}[e+f x])^{n}}{c^3 f g(m-n)(2+m-n)(4+m-n)(6+m-n)}$$

Result (type 3, 2681 leaves):

$$-\left(\left(2^{-4-m+2 n}\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m}\text{Cos}[e+f x](g\,\text{Cos}[e+f x])^{-1-m-n}\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^6\right.\right.$$
$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{2 n}$$
$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{-m-n}$$
$$\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^{-2(-3+n)}(a+a\,\text{Sin}[e+f x])^m(c-c\,\text{Sin}[e+f x])^{-3+n}$$

$$\left(-30-46 m-18 m^2-2 m^3+46 n+36 m n+6 m^2 n-18 n^2-6 m n^2+2 n^3-6 \left(3+m-n\right) \text{Cos}\left[2 \left(-e+\frac{\pi}{2}-f x\right)\right]+3 \text{Cos}\left[3 \left(-e+\frac{\pi}{2}-f x\right)\right]+3 \left(15+2 m^2-4 m \left(-3+n\right)-12 n+2 n^2\right) \text{Sin}[e+f x]\right)$$

$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2} \left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2} \left(e-\frac{\pi}{2}+f x\right)\right]\right)^{-7+2 n}\Bigg) \Bigg/$$

$$\Bigg(f (m-n) \left(2+m-n\right) (4+m-n) (6+m-n) \Bigg(\frac{1}{(m-n) \left(2+m-n\right) (4+m-n) (6+m-n)}$$

$$2^{-4-m+2 n} \text{Cos}\left[\frac{1}{2} \left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m} \text{Csc}\left[\frac{1}{2} \left(-e+\frac{\pi}{2}-f x\right)\right]^6$$

$$\left(\text{Cos}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right] \left(-\text{Sin}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{2 n}$$

$$\left(\text{Cos}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right] \left(-\text{Sin}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Sin}\left[\frac{5}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{-m-n}$$

$$\left(-3 \left(15+2 m^2-4 m \left(-3+n\right)-12 n+2 n^2\right) \text{Cos}[e+f x]+12 \left(3+m-n\right) \text{Sin}\left[2 \left(-e+\frac{\pi}{2}-f x\right)\right]-9 \text{Sin}\left[3 \left(-e+\frac{\pi}{2}-f x\right)\right]\right)-\frac{1}{(m-n) \left(2+m-n\right) (4+m-n) (6+m-n)}$$

$$2^{-4-m+2 n} m \text{Cos}\left[\frac{1}{2} \left(-e+\frac{\pi}{2}-f x\right)\right]^{-1+2 m} \text{Csc}\left[\frac{1}{2} \left(-e+\frac{\pi}{2}-f x\right)\right]^5$$

$$\left(\text{Cos}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right] \left(-\text{Sin}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{2 n}$$

$$\left(\text{Cos}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right] \left(-\text{Sin}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Sin}\left[\frac{5}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{-m-n} \left(-30-46 m-18 m^2-2 m^3+\right.$$

$$46 n+36 m n+6 m^2 n-18 n^2-6 m n^2+2 n^3-6 \left(3+m-n\right) \text{Cos}\left[2 \left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$\left.3 \text{Cos}\left[3 \left(-e+\frac{\pi}{2}-f x\right)\right]+3 \left(15+2 m^2-4 m \left(-3+n\right)-12 n+2 n^2\right) \text{Sin}[e+f x]\right)-$$

$$\frac{1}{(m-n) \left(2+m-n\right) (4+m-n) (6+m-n)} 3\times 2^{-4-m+2 n} \text{Cos}\left[\frac{1}{2} \left(-e+\frac{\pi}{2}-f x\right)\right]^{1+2 m}$$

$$\text{Csc}\left[\frac{1}{2} \left(-e+\frac{\pi}{2}-f x\right)\right]^7$$

$$\left(\text{Cos}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right] \left(-\text{Sin}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{2 n}$$

$$\left(\text{Cos}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right] \left(-\text{Sin}\left[\frac{1}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Sin}\left[\frac{5}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8} \left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{-m-n} \left(-30-46 m-18 m^2-2 m^3+\right.$$

$$46 n+36 m n+6 m^2 n-18 n^2-6 m n^2+2 n^3-6 \left(3+m-n\right) \text{Cos}\left[2 \left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$3\,\text{Cos}\left[3\left(-e+\frac{\pi}{2}-f x\right)\right]+3\left(15+2 m^2-4 m(-3+n)-12 n+2 n^2\right)\text{Sin}[e+f x]\Big)+$$

$$\frac{1}{(m-n)(2+m-n)(4+m-n)(6+m-n)}\,2^{-3-m+2 n}\,n\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m}$$

$$\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{6}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{-1+2 n}$$

$$\Big(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\frac{1}{8}\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{3}{8}\text{Cos}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)-$$

$$\frac{1}{8}\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\Big)$$

$$\Big(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-\text{Sin}\Big[$$

$$\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\Big]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)^{-m-n}\Big(-30-46 m-18 m^2-2 m^3+$$

$$46 n+36 m n+6 m^2 n-18 n^2-6 m n^2+2 n^3-6(3+m-n)\,\text{Cos}\left[2\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$3\,\text{Cos}\left[3\left(-e+\frac{\pi}{2}-f x\right)\right]+3\left(15+2 m^2-4 m(-3+n)-12 n+2 n^2\right)\text{Sin}[e+f x]\Big)+$$

$$\frac{1}{(m-n)(2+m-n)(4+m-n)(6+m-n)}\,2^{-4-m+2 n}\,(-m-n)$$

$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m}\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{6}$$

$$\left(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)^{2 n}$$

$$\Big(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)^{-1-m-n}$$

$$\Big(\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big(-\frac{1}{8}\text{Cos}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{3}{8}\text{Cos}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{5}{8}\text{Cos}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{8}\text{Cos}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)-$$

$$\frac{1}{8}\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big(-\text{Sin}\left[\frac{1}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{3}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\text{Sin}\left[\frac{5}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]+\text{Sin}\left[\frac{7}{8}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big(-30-46 m-18 m^2-2 m^3+$$

$$46 n+36 m n+6 m^2 n-18 n^2-6 m n^2+2 n^3-6(3+m-n)\,\text{Cos}\left[2\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$3\,\text{Cos}\left[3\left(-e+\frac{\pi}{2}-f x\right)\right]+3\left(15+2 m^2-4 m(-3+n)-12 n+2 n^2\right)\text{Sin}[e+f x]\Big)\Big)$$

$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]+\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)\Big)\Big)$$

Problem 212: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]\,\text{Csc}[c+d x]^3\,(a+a\,\text{Sin}[c+d x])^3\,dx$$

Optimal (type 3, 65 leaves, 4 steps):

$$-\frac{3\,a^3\,\text{Csc}[c+d x]}{d}-\frac{3\,a^3\,\text{Csc}[c+d x]^2}{2\,d}-\frac{a^3\,\text{Csc}[c+d x]^3}{3\,d}+\frac{a^3\,\text{Log}[\text{Sin}[c+d x]]}{d}$$

Result (type 3, 146 leaves):

$$a^3\left(-\frac{19\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{12\,d}-\frac{3\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{8\,d}-\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{24\,d}+\frac{\text{Log}[\text{Sin}[c+d x]]}{d}-\frac{3\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{8\,d}-\frac{19\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{12\,d}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{24\,d}\right)$$

Problem 230: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]\,\text{Csc}[c+d x]^2}{a+a\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 63 leaves, 4 steps):

$$\frac{\text{Csc}[c+d x]}{a\,d}-\frac{\text{Csc}[c+d x]^2}{2\,a\,d}+\frac{\text{Log}[\text{Sin}[c+d x]]}{a\,d}-\frac{\text{Log}[1+\text{Sin}[c+d x]]}{a\,d}$$

Result (type 3, 127 leaves):

$$\left(\left(\text{Csc}\left[\frac{1}{2}(c+d x)\right]+\text{Sec}\left[\frac{1}{2}(c+d x)\right]\right)^2\left(-1-2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Cos}[2(c+d x)]\left(2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\text{Log}[\text{Sin}[c+d x]]\right)+\text{Log}[\text{Sin}[c+d x]]+2\,\text{Sin}[c+d x]\right)\right)\Big/\left(8\,a\,d\,(1+\text{Sin}[c+d x])\right)$$

Problem 235: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]\,\text{Sin}[c+d x]}{(a+a\,\text{Sin}[c+d x])^2}\,dx$$

Optimal (type 3, 37 leaves, 4 steps):

$$\frac{\text{Log}[1+\text{Sin}[c+d x]]}{a^2\,d}+\frac{1}{d\,(a^2+a^2\,\text{Sin}[c+d x])}$$

Result (type 3, 88 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2 \left(1+2 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2\right)\right) \Big/ \left(d\,(a+a\,\text{Sin}[c+d x])^2\right)$$

Problem 236: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]}{(a+a\,\text{Sin}[c+d x])^2}\,dx$$

Optimal (type 3, 52 leaves, 3 steps):

$$\frac{\text{Log}[\text{Sin}[c+d x]]}{a^2 d}-\frac{\text{Log}[1+\text{Sin}[c+d x]]}{a^2 d}+\frac{1}{d\left(a^2+a^2\,\text{Sin}[c+d x]\right)}$$

Result (type 3, 112 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2 \left(1-2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Log}[\text{Sin}[c+d x]]+\left(-2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Log}[\text{Sin}[c+d x]]\right)\text{Sin}[c+d x]\right)\right) \Big/ \left(a^2 d\,(1+\text{Sin}[c+d x])^2\right)$$

Problem 238: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]\,\text{Csc}[c+d x]^2}{(a+a\,\text{Sin}[c+d x])^2}\,dx$$

Optimal (type 3, 85 leaves, 4 steps):

$$\frac{2\,\text{Csc}[c+d x]}{a^2 d}-\frac{\text{Csc}[c+d x]^2}{2 a^2 d}+\frac{3\,\text{Log}[\text{Sin}[c+d x]]}{a^2 d}-\frac{3\,\text{Log}[1+\text{Sin}[c+d x]]}{a^2 d}+\frac{1}{d\left(a^2+a^2\,\text{Sin}[c+d x]\right)}$$

Result (type 3, 214 leaves):

$$\frac{1}{16\,a^2\,d\,\left(1+\text{Sin}[c+d\,x]\right)^2}\left(\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2\left(4-12\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+\right.$$
$$6\,\text{Cos}\left[2\left(c+d\,x\right)\right]\left(-1+2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]-\text{Log}[\text{Sin}[c+d\,x]]\right)+$$
$$6\,\text{Log}[\text{Sin}[c+d\,x]]+\left(6-18\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+9\,\text{Log}[\text{Sin}[c+d\,x]]\right)$$
$$\text{Sin}[c+d\,x]+6\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]$$
$$\left.\text{Sin}\left[3\left(c+d\,x\right)\right]-3\,\text{Log}[\text{Sin}[c+d\,x]]\,\text{Sin}\left[3\left(c+d\,x\right)\right]\right)$$

Problem 239: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{\left(a+a\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 101 leaves, 4 steps):

$$-\frac{3\,\text{Csc}[c+d\,x]}{a^2\,d}+\frac{\text{Csc}[c+d\,x]^2}{a^2\,d}-\frac{\text{Csc}[c+d\,x]^3}{3\,a^2\,d}-\frac{4\,\text{Log}[\text{Sin}[c+d\,x]]}{a^2\,d}+\frac{4\,\text{Log}[1+\text{Sin}[c+d\,x]]}{a^2\,d}-\frac{1}{d\,\left(a^2+a^2\,\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 298 leaves):

$$-\frac{1}{48\,a^2\,d\,\left(1+\text{Sin}[c+d\,x]\right)^2}\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]$$
$$\left(\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2\left(8-18\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+\right.$$
$$6\,\text{Cos}\left[2\left(c+d\,x\right)\right]\left(-1+4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]-2\,\text{Log}[\text{Sin}[c+d\,x]]\right)+$$
$$9\,\text{Log}[\text{Sin}[c+d\,x]]+\text{Cos}\left[4\left(c+d\,x\right)\right]$$
$$\left(-6\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+3\,\text{Log}[\text{Sin}[c+d\,x]]\right)+14\,\text{Sin}[c+d\,x]-$$
$$36\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]\text{Sin}[c+d\,x]+18\,\text{Log}[\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]-$$
$$6\,\text{Sin}\left[3\left(c+d\,x\right)\right]+12\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]\text{Sin}\left[3\left(c+d\,x\right)\right]-$$
$$\left.6\,\text{Log}[\text{Sin}[c+d\,x]]\,\text{Sin}\left[3\left(c+d\,x\right)\right]\right)$$

Problem 240: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^5}{\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 111 leaves, 4 steps):

$$-\frac{10\,\text{Log}[1+\text{Sin}[c+d\,x]]}{a^3\,d}+\frac{6\,\text{Sin}[c+d\,x]}{a^3\,d}-\frac{3\,\text{Sin}[c+d\,x]^2}{2\,a^3\,d}+\frac{\text{Sin}[c+d\,x]^3}{3\,a^3\,d}+\frac{1}{2\,a\,d\,(a+a\,\text{Sin}[c+d\,x])^2}-\frac{5}{d\,(a^3+a^3\,\text{Sin}[c+d\,x])}$$

Result (type 3, 450 leaves):

$$\frac{1}{32}\left(\frac{24\,\text{Cos}[2\,c]\,\text{Cos}[2\,d\,x]}{a^3\,d}-\frac{448\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{a^3\,d}+x\left(\frac{224\,\text{Cos}\left[\frac{c}{2}\right]}{a^3\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}-\frac{224\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)}{a^3\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}-\frac{224\,\text{Sin}\left[\frac{c}{2}\right]}{a^3\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\right)+\frac{168\,\text{Cos}[d\,x]\,\text{Sin}[c]}{a^3\,d}-\frac{8\,\text{Cos}[3\,d\,x]\,\text{Sin}[3\,c]}{3\,a^3\,d}+\frac{168\,\text{Cos}[c]\,\text{Sin}[d\,x]}{a^3\,d}-\frac{24\,\text{Sin}[2\,c]\,\text{Sin}[2\,d\,x]}{a^3\,d}-\frac{8\,\text{Cos}[3\,c]\,\text{Sin}[3\,d\,x]}{3\,a^3\,d}+\frac{3}{a^3\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^4}-\frac{70}{a^3\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2}\right)-\frac{1}{4\,a^3\,d}\left(24\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-4\,\text{Cos}[d\,x]\,\text{Sin}[c]-4\,\text{Cos}[c]\,\text{Sin}[d\,x]-\frac{1}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{10}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)+\frac{5\,(-1-2\,\text{Sin}[c+d\,x])}{32\,a^3\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}$$

Problem 246: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 90 leaves, 4 steps):

$$-\frac{\text{Csc}[c+d\,x]}{a^3\,d}-\frac{3\,\text{Log}[\text{Sin}[c+d\,x]]}{a^3\,d}+\frac{3\,\text{Log}[1+\text{Sin}[c+d\,x]]}{a^3\,d}-\frac{1}{2\,a\,d\,(a+a\,\text{Sin}[c+d\,x])^2}-\frac{2}{d\,(a^3+a^3\,\text{Sin}[c+d\,x])}$$

Result (type 3, 218 leaves):

$$\frac{1}{2\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^3}\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\left(-1-4\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4+12\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-6\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

Problem 247: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2}{\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 108 leaves, 4 steps):

$$\frac{3\,\mathrm{Csc}[c+d\,x]}{a^3\,d}-\frac{\mathrm{Csc}[c+d\,x]^2}{2\,a^3\,d}+\frac{6\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a^3\,d}-\frac{6\,\mathrm{Log}[1+\mathrm{Sin}[c+d\,x]]}{a^3\,d}+\frac{1}{2\,a\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^2}+\frac{3}{d\,\left(a^3+a^3\,\mathrm{Sin}[c+d\,x]\right)}$$

Result (type 3, 275 leaves):

$$\frac{1}{8\,a^3\,d\,\left(1+\mathrm{Sin}[c+d\,x]\right)^3}\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\left(4-\left(1+\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^2+24\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+12\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-96\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4+48\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4+12\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)$$

Problem 248: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^3}{\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 126 leaves, 4 steps):

$$-\frac{6\,\mathrm{Csc}[c+d\,x]}{a^3\,d}+\frac{3\,\mathrm{Csc}[c+d\,x]^2}{2\,a^3\,d}-\frac{\mathrm{Csc}[c+d\,x]^3}{3\,a^3\,d}-\frac{10\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a^3\,d}+\frac{10\,\mathrm{Log}[1+\mathrm{Sin}[c+d\,x]]}{a^3\,d}-\frac{1}{2\,a\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^2}-\frac{4}{d\,\left(a^3+a^3\,\mathrm{Sin}[c+d\,x]\right)}$$

Result (type 3, 335 leaves):

$$\frac{1}{24\,a^3\,d\,\left(1+\mathrm{Sin}[c+d\,x]\right)^3}\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2$$
$$\left(-12-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\left(1+\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+\right.$$
$$9\left(1+\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^2-96\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-$$
$$74\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4+$$
$$480\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-$$
$$240\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-$$
$$74\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+$$
$$\left.9\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-\frac{1}{2}\,\mathrm{Sin}[c+d\,x]\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)$$

Problem 255: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 3, 111 leaves, 4 steps):

$$-\frac{\mathrm{Csc}[c+d\,x]}{a^4\,d}-\frac{4\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a^4\,d}+\frac{4\,\mathrm{Log}[1+\mathrm{Sin}[c+d\,x]]}{a^4\,d}-\frac{1}{3\,a\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^3}-\frac{1}{d\,\left(a^2+a^2\,\mathrm{Sin}[c+d\,x]\right)^2}-\frac{3}{d\,\left(a^4+a^4\,\mathrm{Sin}[c+d\,x]\right)}$$

Result (type 3, 243 leaves):

$$\frac{1}{6\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^4}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2$$
$$\left(-2-6\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-18\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-\right.$$
$$3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6+$$
$$48\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6-$$
$$24\,\text{Log}[\text{Sin}[c+d\,x]]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6-$$
$$\left.3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

Problem 256: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{\left(a+a\,\text{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 3, 131 leaves, 4 steps):

$$\frac{4\,\text{Csc}[c+d\,x]}{a^4\,d}-\frac{\text{Csc}[c+d\,x]^2}{2\,a^4\,d}+\frac{10\,\text{Log}[\text{Sin}[c+d\,x]]}{a^4\,d}-\frac{10\,\text{Log}[1+\text{Sin}[c+d\,x]]}{a^4\,d}+$$
$$\frac{1}{3\,a\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+\frac{3}{2\,d\,\left(a^2+a^2\,\text{Sin}[c+d\,x]\right)^2}+\frac{6}{d\,\left(a^4+a^4\,\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 300 leaves):

$$\frac{1}{24\,a^4\,d\,\left(1+\text{Sin}[c+d\,x]\right)^4}$$
$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(8-3\,\left(1+\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^4+\right.$$
$$36\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+144\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4+$$
$$48\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6-$$
$$480\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6+$$
$$240\,\text{Log}[\text{Sin}[c+d\,x]]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6+$$
$$48\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-$$
$$\left.3\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)$$

Problem 257: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]\,\sqrt{a+a\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 51 leaves, 4 steps):

$$-\frac{2\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{2\sqrt{a+a\,\text{Sin}[c+d x]}}{d}$$

Result (type 3, 118 leaves):

$$\left(\left(2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+2\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d x])}\right)\Big/\left(d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)$$

Problem 258: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]\,\text{Sin}[c+d x]^n\,(a+a\,\text{Sin}[c+d x])^4\,dx$$

Optimal (type 3, 114 leaves, 3 steps):

$$\frac{a^4\,\text{Sin}[c+d x]^{1+n}}{d\,(1+n)}+\frac{4\,a^4\,\text{Sin}[c+d x]^{2+n}}{d\,(2+n)}+\frac{6\,a^4\,\text{Sin}[c+d x]^{3+n}}{d\,(3+n)}+\frac{4\,a^4\,\text{Sin}[c+d x]^{4+n}}{d\,(4+n)}+\frac{a^4\,\text{Sin}[c+d x]^{5+n}}{d\,(5+n)}$$

Result (type 3, 457 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^8}\text{Sin}[c+dx]^n\,(a+a\,\text{Sin}[c+dx])^4$$
$$\left(\frac{22+7n}{2(2+n)(4+n)}+\frac{(315+300n+49n^2)\left(-\frac{1}{16}\,i\,\text{Cos}[c+dx]+\frac{1}{16}\text{Sin}[c+dx]\right)}{(1+n)(3+n)(5+n)}+\right.$$
$$\frac{(315+300n+49n^2)\left(\frac{1}{16}\,i\,\text{Cos}[c+dx]+\frac{1}{16}\text{Sin}[c+dx]\right)}{(1+n)(3+n)(5+n)}+$$
$$\frac{(3+n)\left(-2\,\text{Cos}[2(c+dx)]-2\,i\,\text{Sin}[2(c+dx)]\right)}{(2+n)(4+n)}+$$
$$\frac{(3+n)\left(-2\,\text{Cos}[2(c+dx)]+2\,i\,\text{Sin}[2(c+dx)]\right)}{(2+n)(4+n)}+$$
$$\frac{(135+29n)\left(-\frac{1}{32}\,i\,\text{Cos}[3(c+dx)]-\frac{1}{32}\text{Sin}[3(c+dx)]\right)}{(3+n)(5+n)}+$$
$$\frac{(135+29n)\left(\frac{1}{32}\,i\,\text{Cos}[3(c+dx)]-\frac{1}{32}\text{Sin}[3(c+dx)]\right)}{(3+n)(5+n)}+$$
$$\frac{\frac{1}{4}\text{Cos}[4(c+dx)]-\frac{1}{4}\,i\,\text{Sin}[4(c+dx)]}{4+n}+\frac{\frac{1}{4}\text{Cos}[4(c+dx)]+\frac{1}{4}\,i\,\text{Sin}[4(c+dx)]}{4+n}+$$
$$\left.\frac{-\frac{1}{32}\,i\,\text{Cos}[5(c+dx)]+\frac{1}{32}\text{Sin}[5(c+dx)]}{5+n}+\frac{\frac{1}{32}\,i\,\text{Cos}[5(c+dx)]+\frac{1}{32}\text{Sin}[5(c+dx)]}{5+n}\right)$$

Problem 259: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+dx]\,\text{Sin}[c+dx]^n\,(a+a\,\text{Sin}[c+dx])^3\,dx$$

Optimal (type 3, 91 leaves, 3 steps):

$$\frac{a^3\,\text{Sin}[c+dx]^{1+n}}{d(1+n)}+\frac{3a^3\,\text{Sin}[c+dx]^{2+n}}{d(2+n)}+\frac{3a^3\,\text{Sin}[c+dx]^{3+n}}{d(3+n)}+\frac{a^3\,\text{Sin}[c+dx]^{4+n}}{d(4+n)}$$

Result (type 3, 363 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}\text{Sin}[c+d x]^n\,(a+a\,\text{Sin}[c+d x])^3$$
$$\left(\frac{3(18+5n)}{8(2+n)(4+n)}+\frac{(21+13n)\left(-\frac{1}{8}\,i\,\text{Cos}[c+d x]+\frac{1}{8}\text{Sin}[c+d x]\right)}{(1+n)(3+n)}+\right.$$
$$\frac{(21+13n)\left(\frac{1}{8}\,i\,\text{Cos}[c+d x]+\frac{1}{8}\text{Sin}[c+d x]\right)}{(1+n)(3+n)}+$$
$$\frac{(-7-2n)\left(\frac{1}{2}\text{Cos}[2(c+d x)]-\frac{1}{2}\,i\,\text{Sin}[2(c+d x)]\right)}{(2+n)(4+n)}+$$
$$\frac{(-7-2n)\left(\frac{1}{2}\text{Cos}[2(c+d x)]+\frac{1}{2}\,i\,\text{Sin}[2(c+d x)]\right)}{(2+n)(4+n)}+$$
$$\frac{-\frac{3}{8}\,i\,\text{Cos}[3(c+d x)]-\frac{3}{8}\text{Sin}[3(c+d x)]}{3+n}+\frac{\frac{3}{8}\,i\,\text{Cos}[3(c+d x)]-\frac{3}{8}\text{Sin}[3(c+d x)]}{3+n}+$$
$$\left.\frac{\frac{1}{16}\text{Cos}[4(c+d x)]-\frac{1}{16}\,i\,\text{Sin}[4(c+d x)]}{4+n}+\frac{\frac{1}{16}\text{Cos}[4(c+d x)]+\frac{1}{16}\,i\,\text{Sin}[4(c+d x)]}{4+n}\right)$$

Problem 262: Unable to integrate problem.

$$\int\frac{\text{Cos}[c+d x]\,\text{Sin}[c+d x]^n}{a+a\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 5, 38 leaves, 2 steps):

$$\frac{\text{Hypergeometric2F1}[1,1+n,2+n,-\text{Sin}[c+d x]]\,\text{Sin}[c+d x]^{1+n}}{a\,d\,(1+n)}$$

Result (type 8, 29 leaves):

$$\int\frac{\text{Cos}[c+d x]\,\text{Sin}[c+d x]^n}{a+a\,\text{Sin}[c+d x]}\,dx$$

Problem 263: Unable to integrate problem.

$$\int\frac{\text{Cos}[c+d x]\,\text{Sin}[c+d x]^n}{(a+a\,\text{Sin}[c+d x])^2}\,dx$$

Optimal (type 5, 38 leaves, 2 steps):

$$\frac{\text{Hypergeometric2F1}[2,1+n,2+n,-\text{Sin}[c+d x]]\,\text{Sin}[c+d x]^{1+n}}{a^2\,d\,(1+n)}$$

Result (type 8, 29 leaves):

$$\int\frac{\text{Cos}[c+d x]\,\text{Sin}[c+d x]^n}{(a+a\,\text{Sin}[c+d x])^2}\,dx$$

Problem 264: Unable to integrate problem.

$$\int \frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 5, 38 leaves, 2 steps):

$$\frac{\text{Hypergeometric2F1}[3,1+n,2+n,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}}{a^3\,d\,(1+n)}$$

Result (type 8, 29 leaves):

$$\int \frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Problem 265: Unable to integrate problem.

$$\int \frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 5, 38 leaves, 2 steps):

$$\frac{\text{Hypergeometric2F1}[4,1+n,2+n,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}}{a^4\,d\,(1+n)}$$

Result (type 8, 29 leaves):

$$\int \frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^4}\,dx$$

Problem 282: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]^3\,(a+a\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 82 leaves, 9 steps):

$$\frac{5\,a^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,d}-\frac{2\,a^2\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{3\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,d}-\frac{a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,d}$$

Result (type 3, 209 leaves):

$$a^2 \left(\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{3 d} - \frac{3 \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{32 d} - \frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{12 d} - \frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{64 d} + \frac{5 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d} - \frac{5 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d} + \frac{3 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{32 d} + \frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{64 d} - \frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{3 d} + \frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{12 d} \right)$$

Problem 292: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^2 \text{Csc}[c+d x]^4 (a+a \text{Sin}[c+d x])^3 \, dx$$

Optimal (type 3, 100 leaves, 12 steps):

$$\frac{7 a^3 \text{ArcTanh}[\text{Cos}[c+d x]]}{8 d} - \frac{4 a^3 \text{Cot}[c+d x]^3}{3 d} - \frac{a^3 \text{Cot}[c+d x]^5}{5 d} - \frac{a^3 \text{Cot}[c+d x] \text{Csc}[c+d x]}{8 d} - \frac{3 a^3 \text{Cot}[c+d x] \text{Csc}[c+d x]^3}{4 d}$$

Result (type 3, 267 leaves):

$$a^3 \left(\frac{17 \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{30 d} - \frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{32 d} - \frac{59 \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{480 d} - \frac{3 \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{64 d} - \frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{160 d} + \frac{7 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d} - \frac{7 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d} + \frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{32 d} + \frac{3 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{64 d} - \frac{17 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{30 d} + \frac{59 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{480 d} + \frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{160 d} \right)$$

Problem 293: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^2 \text{Csc}[c+d x]^5 (a+a \text{Sin}[c+d x])^3 \, dx$$

Optimal (type 3, 124 leaves, 14 steps):

$$\frac{7 a^3 \text{ArcTanh}[\text{Cos}[c+d x]]}{16 d} - \frac{4 a^3 \text{Cot}[c+d x]^3}{3 d} - \frac{3 a^3 \text{Cot}[c+d x]^5}{5 d} + \frac{7 a^3 \text{Cot}[c+d x] \text{Csc}[c+d x]}{16 d} - \frac{17 a^3 \text{Cot}[c+d x] \text{Csc}[c+d x]^3}{24 d} - \frac{a^3 \text{Cot}[c+d x] \text{Csc}[c+d x]^5}{6 d}$$

Result (type 3, 252 leaves):

$$-\frac{1}{1920\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}$$

$$a^3\left(\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6(18+5\,\text{Csc}[c+d\,x])+\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4(34+90\,\text{Csc}[c+d\,x])-\right.$$
$$2\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2(176+105\,\text{Csc}[c+d\,x])-$$
$$840\,\text{Csc}[c+d\,x]\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)+$$
$$(97+159\,\text{Cos}[c+d\,x]+44\,\text{Cos}[2(c+d\,x)])\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6+$$
$$840\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]^2-1440\,\text{Csc}[c+d\,x]^5\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]^4-$$
$$\left.320\,\text{Csc}[c+d\,x]^7\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]^6\right)\text{Sin}[c+d\,x]\,(1+\text{Sin}[c+d\,x])^3$$

Problem 297: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^2\,\text{Sin}[c+d\,x]^4}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 104 leaves, 6 steps):

$$\frac{3\,x}{8\,a}+\frac{\text{Cos}[c+d\,x]}{a\,d}-\frac{2\,\text{Cos}[c+d\,x]^3}{3\,a\,d}+\frac{\text{Cos}[c+d\,x]^5}{5\,a\,d}-$$
$$\frac{3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{8\,a\,d}-\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^3}{4\,a\,d}$$

Result (type 3, 281 leaves):

$$\frac{1}{480}\left(\frac{180\,x}{a}+\frac{300\,\text{Cos}[c]\,\text{Cos}[d\,x]}{a\,d}-\frac{50\,\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{a\,d}+\frac{6\,\text{Cos}[5\,c]\,\text{Cos}[5\,d\,x]}{a\,d}-\right.$$
$$\frac{120\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{a\,d}+\frac{15\,\text{Cos}[4\,d\,x]\,\text{Sin}[4\,c]}{a\,d}-\frac{300\,\text{Sin}[c]\,\text{Sin}[d\,x]}{a\,d}-$$
$$\frac{120\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{a\,d}+\frac{50\,\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{a\,d}+\frac{15\,\text{Cos}[4\,c]\,\text{Sin}[4\,d\,x]}{a\,d}-$$
$$\frac{6\,\text{Sin}[5\,c]\,\text{Sin}[5\,d\,x]}{a\,d}-\frac{60\,\text{Sin}\left[\frac{d\,x}{2}\right]}{a\,d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+$$
$$\left.\frac{30\,\text{Sin}[c+d\,x]}{a\,d\,(1+\text{Sin}[c+d\,x])}+\frac{60\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]^2}{d\,(a+a\,\text{Sin}[c+d\,x])}\right)$$

Problem 298: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^2\,\text{Sin}[c+d\,x]^3}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 87 leaves, 6 steps):

$$-\frac{3x}{8a}-\frac{\text{Cos}[c+dx]}{ad}+\frac{\text{Cos}[c+dx]^3}{3ad}+\frac{3\,\text{Cos}[c+dx]\,\text{Sin}[c+dx]}{8ad}+\frac{\text{Cos}[c+dx]\,\text{Sin}[c+dx]^3}{4ad}$$

Result (type 3, 271 leaves):

$$\frac{1}{192\,a\,d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(24\,(c-3dx)\,\text{Cos}\left[\frac{c}{2}\right]-72\,\text{Cos}\left[\frac{c}{2}+dx\right]-72\,\text{Cos}\left[\frac{3c}{2}+dx\right]+24\,\text{Cos}\left[\frac{3c}{2}+2dx\right]-24\,\text{Cos}\left[\frac{5c}{2}+2dx\right]+8\,\text{Cos}\left[\frac{5c}{2}+3dx\right]+8\,\text{Cos}\left[\frac{7c}{2}+3dx\right]-3\,\text{Cos}\left[\frac{7c}{2}+4dx\right]+3\,\text{Cos}\left[\frac{9c}{2}+4dx\right]-48\,\text{Sin}\left[\frac{c}{2}\right]+24\,c\,\text{Sin}\left[\frac{c}{2}\right]-72\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]+72\,\text{Sin}\left[\frac{c}{2}+dx\right]-72\,\text{Sin}\left[\frac{3c}{2}+dx\right]+24\,\text{Sin}\left[\frac{3c}{2}+2dx\right]+24\,\text{Sin}\left[\frac{5c}{2}+2dx\right]-8\,\text{Sin}\left[\frac{5c}{2}+3dx\right]+8\,\text{Sin}\left[\frac{7c}{2}+3dx\right]-3\,\text{Sin}\left[\frac{7c}{2}+4dx\right]-3\,\text{Sin}\left[\frac{9c}{2}+4dx\right]\right)$$

Problem 300: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+dx]^2\,\text{Sin}[c+dx]}{a+a\,\text{Sin}[c+dx]}\,dx$$

Optimal (type 3, 45 leaves, 4 steps):

$$-\frac{x}{2a}-\frac{\text{Cos}[c+dx]}{ad}+\frac{\text{Cos}[c+dx]\,\text{Sin}[c+dx]}{2ad}$$

Result (type 3, 161 leaves):

$$\left(2\,(c-2dx)\,\text{Cos}\left[\frac{c}{2}\right]-4\,\text{Cos}\left[\frac{c}{2}+dx\right]-4\,\text{Cos}\left[\frac{3c}{2}+dx\right]+\text{Cos}\left[\frac{3c}{2}+2dx\right]-\text{Cos}\left[\frac{5c}{2}+2dx\right]-4\,\text{Sin}\left[\frac{c}{2}\right]+2\,c\,\text{Sin}\left[\frac{c}{2}\right]-4\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]+4\,\text{Sin}\left[\frac{c}{2}+dx\right]-4\,\text{Sin}\left[\frac{3c}{2}+dx\right]+\text{Sin}\left[\frac{3c}{2}+2dx\right]+\text{Sin}\left[\frac{5c}{2}+2dx\right]\right)\Big/\left(8\,a\,d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\right)$$

Problem 302: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+dx]^2}{a+a\,\text{Sin}[c+dx]}\,dx$$

Optimal (type 3, 29 leaves, 4 steps):

$$\frac{\text{ArcTanh}[\text{Cos}[c+dx]]}{ad}-\frac{\text{Cot}[c+dx]}{ad}$$

Result (type 3, 69 leaves):

$$-\frac{1}{2\,a\,d}\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]$$
$$\left(\text{Cos}[c+d\,x]+\left(-\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\,\text{Sin}[c+d\,x]\right)$$

Problem 308: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^2\,\text{Sin}[c+d\,x]^3}{(a+a\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 83 leaves, 9 steps):

$$\frac{3\,x}{a^2}+\frac{3\,\text{Cos}[c+d\,x]}{a^2\,d}-\frac{\text{Cos}[c+d\,x]^3}{3\,a^2\,d}-\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{a^2\,d}+\frac{2\,\text{Cos}[c+d\,x]}{a^2\,d\,(1+\text{Sin}[c+d\,x])}$$

Result (type 3, 183 leaves):

$$\left((2+72\,d\,x)\,\text{Cos}\left[\frac{d\,x}{2}\right]+31\,\text{Cos}\left[c+\frac{d\,x}{2}\right]+27\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]+\right.$$
$$5\,\text{Cos}\left[3\,c+\frac{5\,d\,x}{2}\right]-\text{Cos}\left[3\,c+\frac{7\,d\,x}{2}\right]-131\,\text{Sin}\left[\frac{d\,x}{2}\right]+2\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+$$
$$\left.72\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+27\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]-5\,\text{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]-\text{Sin}\left[4\,c+\frac{7\,d\,x}{2}\right]\right)\Big/$$
$$\left(24\,a^2\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)$$

Problem 310: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^2\,\text{Sin}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 47 leaves, 3 steps):

$$\frac{2\,x}{a^2}+\frac{\text{Cos}[c+d\,x]}{a^2\,d}+\frac{2\,\text{Cos}[c+d\,x]}{d\,(a^2+a^2\,\text{Sin}[c+d\,x])}$$

Result (type 3, 129 leaves):

$$\left((1+12\,d\,x)\,\text{Cos}\left[\frac{d\,x}{2}\right]+2\,\text{Cos}\left[c+\frac{d\,x}{2}\right]+3\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]-\right.$$
$$\left.28\,\text{Sin}\left[\frac{d\,x}{2}\right]+\text{Sin}\left[c+\frac{d\,x}{2}\right]+12\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+3\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]\right)\Big/$$
$$\left(6\,a^2\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)$$

Problem 311: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 40 leaves, 5 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+d x]]}{a^2 d}+\frac{2 \text{Cos}[c+d x]}{a^2 d (1+\text{Sin}[c+d x])}$$

Result (type 3, 115 leaves):

$$-\left(\left(\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)+\left(4+\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right) \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right) \Big/ \left(a^2 d (1+\text{Sin}[c+d x])^2\right)\right)$$

Problem 312: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2}{(a+a \text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 54 leaves, 7 steps):

$$\frac{2 \text{ArcTanh}[\text{Cos}[c+d x]]}{a^2 d}-\frac{\text{Cot}[c+d x]}{a^2 d}-\frac{2 \text{Cot}[c+d x]}{a^2 d (1+\text{Csc}[c+d x])}$$

Result (type 3, 216 leaves):

$$-\frac{1}{4 a^2 d (1+\text{Sin}[c+d x])^2} \text{Csc}\left[\frac{1}{2}(c+d x)\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right] \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3 \left(\text{Cos}\left[\frac{3}{2}(c+d x)\right]\left(5+2 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]-2 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)+\text{Cos}\left[\frac{1}{2}(c+d x)\right]\left(-3-2 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+2 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)+2\left(-2 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+2 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Cos}[c+d x]\left(1-2 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+2 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)\right) \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)$$

Problem 313: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2 \text{Csc}[c+d x]}{(a+a \text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 78 leaves, 9 steps):

$$-\frac{5 \text{ArcTanh}[\text{Cos}[c+d x]]}{2 a^2 d}+\frac{2 \text{Cot}[c+d x]}{a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]}{2 a^2 d}+\frac{2 \text{Cos}[c+d x]}{a^2 d (1+\text{Sin}[c+d x])}$$

Result (type 3, 364 leaves):

$$-\frac{4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}{d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^2}+$$
$$\frac{\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}{d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^2}-$$
$$\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^2}-$$
$$\frac{5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^2}+$$
$$\frac{5\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^2}+$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^2}-$$
$$\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^2}$$

Problem 314: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]^2}{\left(a+a\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 91 leaves, 11 steps):

$$\frac{3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a^2\,d}-\frac{3\,\text{Cot}[c+d\,x]}{a^2\,d}-\frac{\text{Cot}[c+d\,x]^3}{3\,a^2\,d}+\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{a^2\,d}-\frac{2\,\text{Cos}[c+d\,x]}{a^2\,d\,\left(1+\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 472 leaves):

$$\frac{1}{192\,a^2\,d\,\left(1+\text{Sin}[c+d\,x]\right)^2}\left(\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\left(-10\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]+20\,\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]-\right.$$
$$9\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+9\,\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$3\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(8+9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-9\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)-$$
$$3\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]\,\left(14+9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-9\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+$$
$$9\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-9\,\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$12\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+27\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-$$
$$27\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-6\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]+$$
$$27\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]-27\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]-$$
$$2\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]-9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]+$$
$$9\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]+8\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]-$$
$$\left.9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]+9\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]\right)$$

Problem 315: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^2\,\text{Sin}[c+d\,x]^3}{\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 97 leaves, 9 steps):

$$-\frac{11\,x}{2\,a^3}-\frac{3\,\text{Cos}[c+d\,x]}{a^3\,d}+\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{2\,a^3\,d}+\frac{2\,\text{Cos}[c+d\,x]}{3\,a^3\,d\,\left(1+\text{Sin}[c+d\,x]\right)^2}-\frac{19\,\text{Cos}[c+d\,x]}{3\,a^3\,d\,\left(1+\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 235 leaves):

$$\frac{1}{240\,a^3\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}$$
$$\left((9-1980\,d\,x)\,\text{Cos}\left[\frac{d\,x}{2}\right]+1326\,\text{Cos}\left[c+\frac{d\,x}{2}\right]-2012\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]-\right.$$
$$3\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]+660\,d\,x\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]+135\,\text{Cos}\left[3\,c+\frac{5\,d\,x}{2}\right]-15\,\text{Cos}\left[3\,c+\frac{7\,d\,x}{2}\right]+$$
$$3216\,\text{Sin}\left[\frac{d\,x}{2}\right]+9\,\text{Sin}\left[c+\frac{d\,x}{2}\right]-1980\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+3\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]-$$
$$\left.660\,d\,x\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]-498\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]-135\,\text{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]-15\,\text{Sin}\left[4\,c+\frac{7\,d\,x}{2}\right]\right)$$

Problem 317: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^2\,\text{Sin}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 61 leaves, 3 steps):

$$-\frac{x}{a^3}-\frac{7\,\text{Cos}[c+d\,x]}{3\,a^3\,d\,(1+\text{Sin}[c+d\,x])}+\frac{2\,\text{Cos}[c+d\,x]}{3\,a\,d\,(a+a\,\text{Sin}[c+d\,x])^2}$$

Result (type 3, 183 leaves):

$$\left((9-180\,d\,x)\,\text{Cos}\left[\frac{d\,x}{2}\right]+351\,\text{Cos}\left[c+\frac{d\,x}{2}\right]-277\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]-\right.$$
$$3\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]+60\,d\,x\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]+471\,\text{Sin}\left[\frac{d\,x}{2}\right]+9\,\text{Sin}\left[c+\frac{d\,x}{2}\right]-$$
$$\left.180\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+3\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]-60\,d\,x\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]-3\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]\right)\Big/$$
$$\left(120\,a^3\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)$$

Problem 318: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 68 leaves, 7 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a^3\,d}+\frac{2\,\text{Cos}[c+d\,x]}{3\,a^3\,d\,(1+\text{Sin}[c+d\,x])^2}+\frac{5\,\text{Cos}[c+d\,x]}{3\,a^3\,d\,(1+\text{Sin}[c+d\,x])}$$

Result (type 3, 185 leaves):

$$\frac{1}{3\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3 \left(-4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+2\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)-10\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3+3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)$$

Problem 319: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^2}{\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 82 leaves, 10 steps):

$$\frac{3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a^3\,d}-\frac{\text{Cot}[c+d\,x]}{a^3\,d}+\frac{2\,\text{Cot}[c+d\,x]}{3\,a^3\,d\,\left(1+\text{Csc}[c+d\,x]\right)^2}-\frac{13\,\text{Cot}[c+d\,x]}{3\,a^3\,d\,\left(1+\text{Csc}[c+d\,x]\right)}$$

Result (type 3, 255 leaves):

$$\frac{1}{6\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3 \left(8\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-4\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)+44\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3+18\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3-18\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3+3\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

Problem 320: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]}{\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 106 leaves, 11 steps):

$$-\frac{11\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a^3\,d}+\frac{3\,\text{Cot}[c+d\,x]}{a^3\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^3\,d}+\frac{2\,\text{Cos}[c+d\,x]}{3\,a^3\,d\,(1+\text{Sin}[c+d\,x])^2}+\frac{17\,\text{Cos}[c+d\,x]}{3\,a^3\,d\,(1+\text{Sin}[c+d\,x])}$$

Result (type 3, 465 leaves):

$$-\frac{4\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}{3\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+\frac{2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}{3\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{34\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{3\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+\frac{3\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{2\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{11\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{2\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+\frac{11\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{2\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\,d\,(a+a\,\text{Sin}[c+d\,x])^3}$$

Problem 326: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^2\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 89 leaves, 4 steps):

$$-\frac{\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{d}+\frac{3\,a\,\text{Cos}[c+d\,x]}{d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d}$$

Result (type 3, 206 leaves):

$$\left(\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4 \sqrt{a(1+\text{Sin}[c+d x])} \left(-4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]+2 \text{Cos}\left[\frac{3}{2}(c+d x)\right]+ 4 \text{Sin}\left[\frac{1}{2}(c+d x)\right]-\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \text{Sin}[c+d x]+ \text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \text{Sin}[c+d x]+2 \text{Sin}\left[\frac{3}{2}(c+d x)\right]\right)\right) \Big/ \left(d\left(1+\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\left(\text{Csc}\left[\frac{1}{4}(c+d x)\right]-\text{Sec}\left[\frac{1}{4}(c+d x)\right]\right) \left(\text{Csc}\left[\frac{1}{4}(c+d x)\right]+\text{Sec}\left[\frac{1}{4}(c+d x)\right]\right)\right)$$

Problem 327: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^2 \text{Csc}[c+d x] \sqrt{a+a \text{Sin}[c+d x]}\, dx$$

Optimal (type 3, 101 leaves, 5 steps):

$$\frac{5 \sqrt{a} \text{ ArcTanh}\left[\frac{\sqrt{a} \text{ Cos}[c+d x]}{\sqrt{a+a \text{Sin}[c+d x]}}\right]}{4 d}-\frac{a \text{Cot}[c+d x]}{4 d \sqrt{a+a \text{Sin}[c+d x]}}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x] \sqrt{a+a \text{Sin}[c+d x]}}{2 d}$$

Result (type 3, 249 leaves):

$$-\frac{1}{4 d\left(1+\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\left(\text{Csc}\left[\frac{1}{4}(c+d x)\right]^2-\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\right)^2} \text{Csc}\left[\frac{1}{2}(c+d x)\right]^7 \sqrt{a(1+\text{Sin}[c+d x])} \left(2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]+6 \text{Cos}\left[\frac{3}{2}(c+d x)\right]-5 \text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+ 5 \text{Cos}[2(c+d x)] \text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+ 5 \text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-5 \text{Cos}[2(c+d x)] \text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-2 \text{Sin}\left[\frac{1}{2}(c+d x)\right]+6 \text{Sin}\left[\frac{3}{2}(c+d x)\right]\right)$$

Problem 328: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^2 \text{Csc}[c+d x]^2 \sqrt{a+a \text{Sin}[c+d x]}\, dx$$

Optimal (type 3, 137 leaves, 6 steps):

$$\frac{3\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{8\,d}+\frac{3\,a\,\text{Cot}[c+d\,x]}{8\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{12\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{3\,d}$$

Result (type 3, 285 leaves):

$$-\frac{1}{24\,d\,\left(1+\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)^3}\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\Bigg(-12\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+58\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]+18\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]+12\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-27\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]+27\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]+58\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]-18\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]+9\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]-9\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]\Bigg)$$

Problem 334: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 131 leaves, 6 steps):

$$\frac{a^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{4\,d}+\frac{13\,a^2\,\text{Cos}[c+d\,x]}{4\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{3\,a\,\text{Cot}[c+d\,x]\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{4\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}{2\,d}$$

Result (type 3, 271 leaves):

$$-\frac{1}{4\,d\left(1+\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(\mathrm{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2-\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\right)^2}$$
$$a\,\mathrm{Csc}\left[\frac{1}{2}(c+d\,x)\right]^7\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\,\left(-22\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+22\,\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]+\right.$$
$$8\,\mathrm{Cos}\left[\frac{5}{2}(c+d\,x)\right]-\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+\mathrm{Cos}[2\,(c+d\,x)]$$
$$\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-$$
$$\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+$$
$$\left.22\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]+22\,\mathrm{Sin}\left[\frac{3}{2}(c+d\,x)\right]-8\,\mathrm{Sin}\left[\frac{5}{2}(c+d\,x)\right]\right)$$

Problem 335: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^2\,\mathrm{Csc}[c+d\,x]^2\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 139 leaves, 6 steps):

$$\frac{13\,a^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\,x]}{\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\right]}{8\,d}+\frac{5\,a^2\,\mathrm{Cot}[c+d\,x]}{24\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-$$
$$\frac{a\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{4\,d}-\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}{3\,d}$$

Result (type 3, 286 leaves):

$$-\frac{1}{24\,d\left(1+\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(\mathrm{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2-\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\right)^3}$$
$$a\,\mathrm{Csc}\left[\frac{1}{2}(c+d\,x)\right]^{10}\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}$$
$$\left(12\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+70\,\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]-18\,\mathrm{Cos}\left[\frac{5}{2}(c+d\,x)\right]-12\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]-\right.$$
$$117\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sin}[c+d\,x]+$$
$$117\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sin}[c+d\,x]+70\,\mathrm{Sin}\left[\frac{3}{2}(c+d\,x)\right]+$$
$$18\,\mathrm{Sin}\left[\frac{5}{2}(c+d\,x)\right]+39\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sin}[3\,(c+d\,x)]-$$
$$\left.39\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sin}[3\,(c+d\,x)]\right)$$

Problem 340: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cot}[c+d\,x]^2}{\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\,dx$$

Optimal (type 3, 62 leaves, 4 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{\sqrt{a}\,d}-\frac{\text{Cot}[c+d\,x]}{d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 138 leaves):

$$\left(\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]\left(-2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+2\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\left(\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)\text{Sin}[c+d\,x]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/\left(8\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)$$

Problem 341: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 3, 100 leaves, 5 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{4\,\sqrt{a}\,d}+\frac{\text{Cot}[c+d\,x]}{4\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 272 leaves):

$$\frac{1}{32\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(-8+4\,\text{Cot}\left[\frac{1}{4}(c+d\,x)\right]-\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2+4\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-4\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2+\frac{2}{\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^2}-\frac{8\,\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]}-\frac{2}{\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^2}+\frac{8\,\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]}+4\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)$$

Problem 342: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2 \,\text{Csc}[c+d x]^2}{\sqrt{a+a \,\text{Sin}[c+d x]}} \, dx$$

Optimal (type 3, 135 leaves, 6 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d x]}{\sqrt{a+a\,\text{Sin}[c+d x]}}\right]}{8\sqrt{a}\,d}+\frac{\text{Cot}[c+d x]}{8 d\sqrt{a+a\,\text{Sin}[c+d x]}}+\frac{\text{Cot}[c+d x]\,\text{Csc}[c+d x]}{12 d\sqrt{a+a\,\text{Sin}[c+d x]}}-\frac{\text{Cot}[c+d x]\,\text{Csc}[c+d x]^2}{3 d\sqrt{a+a\,\text{Sin}[c+d x]}}$$

Result (type 3, 292 leaves):

$$\frac{1}{24 d\left(\text{Csc}\left[\frac{1}{4}(c+d x)\right]^2-\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\right)^3\sqrt{a\left(1+\text{Sin}[c+d x]\right)}}$$
$$\text{Csc}\left[\frac{1}{2}(c+d x)\right]^9\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)$$
$$\left(-60\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+2\,\text{Cos}\left[\frac{3}{2}(c+d x)\right]-6\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]+\right.$$
$$60\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+9\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[c+d x]-$$
$$9\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[c+d x]+2\,\text{Sin}\left[\frac{3}{2}(c+d x)\right]+$$
$$6\,\text{Sin}\left[\frac{5}{2}(c+d x)\right]-3\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[3(c+d x)]+$$
$$\left.3\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[3(c+d x)]\right)$$

Problem 343: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d x]^2\,\text{Sin}[c+d x]^3}{\left(a+a\,\text{Sin}[c+d x]\right)^{3/2}} \, dx$$

Optimal (type 3, 184 leaves, 8 steps):

$$\frac{2\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d x]}{\sqrt{2}\sqrt{a+a\,\text{Sin}[c+d x]}}\right]}{a^{3/2} d}-\frac{344\,\text{Cos}[c+d x]}{105\, a\, d\sqrt{a+a\,\text{Sin}[c+d x]}}-\frac{16\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]^2}{35\, a\, d\sqrt{a+a\,\text{Sin}[c+d x]}}+\frac{2\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]^3}{7\, a\, d\sqrt{a+a\,\text{Sin}[c+d x]}}+\frac{76\,\text{Cos}[c+d x]\sqrt{a+a\,\text{Sin}[c+d x]}}{105\, a^2 d}$$

Result (type 3, 201 leaves):

$$\frac{1}{420\, a^2\, d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}$$
$$\sqrt{a\,(1+\text{Sin}[c+d x])}\,\left(\left(1680+1680\, i\right) (-1)^{3/4}\, \text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right) (-1)^{3/4}\, \text{Sec}\left[\frac{d x}{4}\right] \left(\text{Cos}\left[\frac{1}{4} (2 c+d x)\right]-\text{Sin}\left[\frac{1}{4} (2 c+d x)\right]\right)\right]-\right.$$
$$1365\, \text{Cos}\left[\frac{1}{2} (c+d x)\right]+245\, \text{Cos}\left[\frac{3}{2} (c+d x)\right]+63\, \text{Cos}\left[\frac{5}{2} (c+d x)\right]-15\, \text{Cos}\left[\frac{7}{2} (c+d x)\right]+$$
$$\left.1365\, \text{Sin}\left[\frac{1}{2} (c+d x)\right]+245\, \text{Sin}\left[\frac{3}{2} (c+d x)\right]-63\, \text{Sin}\left[\frac{5}{2} (c+d x)\right]-15\, \text{Sin}\left[\frac{7}{2} (c+d x)\right]\right)$$

Problem 344: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d x]^2\, \text{Sin}[c+d x]^2}{(a+a\, \text{Sin}[c+d x])^{3/2}}\, dx$$

Optimal (type 3, 140 leaves, 5 steps):

$$-\frac{2 \sqrt{2}\, \text{ArcTanh}\left[\frac{\sqrt{a}\, \text{Cos}[c+d x]}{\sqrt{2} \sqrt{a+a\, \text{Sin}[c+d x]}}\right]}{a^{3/2}\, d}+\frac{18\, \text{Cos}[c+d x]}{5\, a\, d \sqrt{a+a\, \text{Sin}[c+d x]}}-\frac{2\, \text{Cos}[c+d x]^3}{5\, a\, d \sqrt{a+a\, \text{Sin}[c+d x]}}-\frac{4\, \text{Cos}[c+d x] \sqrt{a+a\, \text{Sin}[c+d x]}}{5\, a^2\, d}$$

Result (type 3, 150 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3\right.$$
$$\left(\left(40+40\, i\right) (-1)^{3/4}\, \text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right) (-1)^{3/4} \left(-1+\text{Tan}\left[\frac{1}{4} (c+d x)\right]\right)\right]+\right.$$
$$30\, \text{Cos}\left[\frac{1}{2} (c+d x)\right]-5\, \text{Cos}\left[\frac{3}{2} (c+d x)\right]-\text{Cos}\left[\frac{5}{2} (c+d x)\right]-30\, \text{Sin}\left[\frac{1}{2} (c+d x)\right]-$$
$$\left.\left.5\, \text{Sin}\left[\frac{3}{2} (c+d x)\right]+\text{Sin}\left[\frac{5}{2} (c+d x)\right]\right)\right) \Big/ \left(10\, d\, (a\,(1+\text{Sin}[c+d x]))^{3/2}\right)$$

Problem 345: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d x]^2\, \text{Sin}[c+d x]}{(a+a\, \text{Sin}[c+d x])^{3/2}}\, dx$$

Optimal (type 3, 108 leaves, 4 steps):

$$\frac{2 \sqrt{2}\, \text{ArcTanh}\left[\frac{\sqrt{a}\, \text{Cos}[c+d x]}{\sqrt{2} \sqrt{a+a\, \text{Sin}[c+d x]}}\right]}{a^{3/2}\, d}-\frac{10\, \text{Cos}[c+d x]}{3\, a\, d \sqrt{a+a\, \text{Sin}[c+d x]}}+\frac{2\, \text{Cos}[c+d x] \sqrt{a+a\, \text{Sin}[c+d x]}}{3\, a^2\, d}$$

Result (type 3, 149 leaves):

$$\left(\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\,\left((12+12\,i)\,(-1)^{3/4}\,\mathrm{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\mathrm{Sec}\left[\frac{d\,x}{4}\right]\left(\mathrm{Cos}\left[\frac{1}{4}(2\,c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{4}(2\,c+d\,x)\right]\right)\right]-9\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]+9\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{3}{2}(c+d\,x)\right]\right)\right)\Big/\left(3\,a^2\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)$$

Problem 346: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\mathrm{Cos}[c+d\,x]\,\mathrm{Cot}[c+d\,x]}{(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 85 leaves, 6 steps):

$$-\frac{2\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\,x]}{\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\right]}{a^{3/2}\,d}+\frac{2\,\sqrt{2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\right]}{a^{3/2}\,d}$$

Result (type 3, 130 leaves):

$$-\left(\left(\left(\left(4+4\,i\right)(-1)^{3/4}\,\mathrm{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\right]+\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right)\Big/\left(d\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{3/2}\right)\right)$$

Problem 347: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\mathrm{Cot}[c+d\,x]^2}{(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 113 leaves, 6 steps):

$$\frac{3\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\,x]}{\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\right]}{a^{3/2}\,d}-\frac{2\,\sqrt{2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\right]}{a^{3/2}\,d}-\frac{\mathrm{Cot}[c+d\,x]}{a\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}$$

Result (type 3, 206 leaves):

$$\frac{1}{4\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{3}$$
$$\left((16+16\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\,\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]-\right.$$
$$\text{Cot}\left[\frac{1}{4}\,(c+d\,x)\right]+2\,\left(3\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\right.$$
$$\left.3\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]+$$
$$\left.\text{Csc}[c+d\,x]\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}-\text{Csc}[c+d\,x]\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{3}{4}\,(c+d\,x)\right]\right)$$

Problem 348: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^{2}\,\text{Csc}[c+d\,x]}{\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 153 leaves, 8 steps):

$$-\frac{11\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{4\,a^{3/2}\,d}+\frac{2\,\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{3/2}\,d}+$$
$$\frac{5\,\text{Cot}[c+d\,x]}{4\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 791 leaves):

$$-\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{4 d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}+\left((4+4 i)(-1)^{3/4}\right.$$

$$\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]-\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)\right]$$

$$\left.\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)\Big/\left(d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}\right)+$$

$$\frac{3\,\text{Cot}\left[\frac{1}{4}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{8 d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}-$$

$$\frac{\text{Csc}\left[\frac{1}{4}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{32 d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}-$$

$$\left(11\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)\Big/$$

$$\left(8 d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}\right)+$$

$$\left(11\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)\Big/$$

$$\left(8 d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}\right)+\frac{\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{32 d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}+$$

$$\frac{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{16 d\left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]-\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)^2\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}-$$

$$\frac{3\,\text{Sin}\left[\frac{1}{4}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{4 d\left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]-\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}-$$

$$\frac{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{16 d\left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]+\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)^2\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}+$$

$$\frac{3\,\text{Sin}\left[\frac{1}{4}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{4 d\left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]+\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}+$$

$$\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{8 d\left(a(1+\text{Sin}[c+d x])\right)^{3/2}}$$

Problem 349: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cot}[c+d x]^2\,\text{Csc}[c+d x]^2}{(a+a\,\text{Sin}[c+d x])^{3/2}}\,dx$$

Optimal (type 3, 191 leaves, 9 steps):

$$\frac{23\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{8\,a^{3/2}\,d}-\frac{2\,\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{3/2}\,d}-\frac{9\,\text{Cot}[c+d\,x]}{8\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{7\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{12\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 332 leaves):

$$\frac{1}{192\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3$$

$$\left((768+768\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]-\right.$$

$$\frac{1}{\left(\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)^3}$$

$$8\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^9\left(228\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-110\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-54\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]-\right.$$

$$228\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-207\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]+$$

$$207\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]-110\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]+$$

$$54\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]+69\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]-$$

$$\left.\left.69\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]\right)\right)$$

Problem 376: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 114 leaves, 8 steps):

$$-\frac{a\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{16\,d}-\frac{a\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{16\,d}+\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{8\,d}-\frac{a\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^3}{6\,d}$$

Result (type 3, 239 leaves):

$$-\frac{2\,a\,\text{Cot}[c+d\,x]}{35\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{64\,d}+\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{64\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{384\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{35\,d}+\frac{8\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{35\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^6}{7\,d}-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{16\,d}+\frac{a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{16\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{64\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4}{64\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6}{384\,d}$$

Problem 377: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 136 leaves, 9 steps):

$$-\frac{3\,a\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{128\,d}-\frac{a\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{3\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{128\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{64\,d}+\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5}{16\,d}-\frac{a\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^5}{8\,d}$$

Result (type 3, 279 leaves):

$$-\frac{2\,a\,\text{Cot}[c+d\,x]}{35\,d}-\frac{3\,a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{512\,d}+\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{1024\,d}+\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{512\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^8}{2048\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{35\,d}+\frac{8\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{35\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^6}{7\,d}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{128\,d}+\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{128\,d}+\frac{3\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{512\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4}{1024\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6}{512\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^8}{2048\,d}$$

Problem 388: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]^3\,(a+a\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 132 leaves, 11 steps):

$$-\frac{7\,a^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{16\,d}-\frac{2\,a^2\,\text{Cot}[c+d\,x]^5}{5\,d}+\frac{5\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{16\,d}-\frac{a^2\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]}{4\,d}+\frac{a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{8\,d}-\frac{a^2\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^3}{6\,d}$$

Result (type 3, 267 leaves):

$$a^2 \left(-\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{5 d}+\frac{9 \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{64 d}+\frac{7 \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{80 d}-\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{80 d}-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^6}{384 d}-\frac{7 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{16 d}+\frac{7 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{16 d}-\frac{9 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{64 d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^6}{384 d}+\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{5 d}-\frac{7 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{80 d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{80 d}\right)$$

Problem 398: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x] \,\text{Cot}[c+d x]^3 \,(a+a \,\text{Sin}[c+d x])^3 \,dx$$

Optimal (type 3, 137 leaves, 15 steps):

$$-\frac{33 a^3 x}{8}-\frac{3 a^3 \text{ArcTanh}[\text{Cos}[c+d x]]}{2 d}+\frac{2 a^3 \text{Cos}[c+d x]}{d}+\frac{a^3 \text{Cos}[c+d x]^3}{d}-\frac{3 a^3 \text{Cot}[c+d x]}{d}-\frac{a^3 \text{Cot}[c+d x] \,\text{Csc}[c+d x]}{2 d}-\frac{7 a^3 \text{Cos}[c+d x] \,\text{Sin}[c+d x]}{8 d}-\frac{a^3 \text{Cos}[c+d x] \,\text{Sin}[c+d x]^3}{4 d}$$

Result (type 3, 564 leaves):

$$-\frac{33 (c+d x) (a+a \,\text{Sin}[c+d x])^3}{8 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{11 \,\text{Cos}[c+d x] (a+a \,\text{Sin}[c+d x])^3}{4 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{\text{Cos}[3 (c+d x)] (a+a \,\text{Sin}[c+d x])^3}{4 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}-\frac{3 \,\text{Cot}\left[\frac{1}{2}(c+d x)\right] (a+a \,\text{Sin}[c+d x])^3}{2 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2 (a+a \,\text{Sin}[c+d x])^3}{8 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}-\frac{3 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right] (a+a \,\text{Sin}[c+d x])^3}{2 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{3 \,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] (a+a \,\text{Sin}[c+d x])^3}{2 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a+a \,\text{Sin}[c+d x])^3}{8 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}-\frac{(a+a \,\text{Sin}[c+d x])^3 \,\text{Sin}[2 (c+d x)]}{2 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{(a+a \,\text{Sin}[c+d x])^3 \,\text{Sin}[4 (c+d x)]}{32 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{3 (a+a \,\text{Sin}[c+d x])^3 \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}$$

Problem 403: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^4 \,\text{Csc}[c+d x]^4 \,(a+a \,\text{Sin}[c+d x])^3 \, dx$$

Optimal (type 3, 150 leaves, 14 steps):

$$-\frac{9 a^3 \,\text{ArcTanh}[\text{Cos}[c+d x]]}{16 d}-\frac{4 a^3 \,\text{Cot}[c+d x]^5}{5 d}-\frac{a^3 \,\text{Cot}[c+d x]^7}{7 d}+\frac{3 a^3 \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]}{16 d}-\frac{a^3 \,\text{Cot}[c+d x]^3 \,\text{Csc}[c+d x]}{4 d}+\frac{3 a^3 \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^3}{8 d}-\frac{a^3 \,\text{Cot}[c+d x]^3 \,\text{Csc}[c+d x]^3}{2 d}$$

Result (type 3, 363 leaves):

$$a^3 \left(-\frac{23 \,\text{Cot}\left[\frac{1}{2} (c+d x)\right]}{70 d}+\frac{7 \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^2}{64 d}+\frac{297 \,\text{Cot}\left[\frac{1}{2} (c+d x)\right] \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^2}{2240 d}+\frac{\text{Csc}\left[\frac{1}{2} (c+d x)\right]^4}{32 d}-\frac{31 \,\text{Cot}\left[\frac{1}{2} (c+d x)\right] \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^4}{2240 d}-\frac{\text{Csc}\left[\frac{1}{2} (c+d x)\right]^6}{128 d}-\frac{\text{Cot}\left[\frac{1}{2} (c+d x)\right] \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^6}{896 d}-\frac{9 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right]}{16 d}+\frac{9 \,\text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{16 d}-\frac{7 \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{64 d}-\frac{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^4}{32 d}+\frac{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^6}{128 d}+\frac{23 \,\text{Tan}\left[\frac{1}{2} (c+d x)\right]}{70 d}-\frac{297 \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \,\text{Tan}\left[\frac{1}{2} (c+d x)\right]}{2240 d}+\frac{31 \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^4 \,\text{Tan}\left[\frac{1}{2} (c+d x)\right]}{2240 d}+\frac{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^6 \,\text{Tan}\left[\frac{1}{2} (c+d x)\right]}{896 d}\right)$$

Problem 404: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^4 \,\text{Csc}[c+d x]^5 \,(a+a \,\text{Sin}[c+d x])^3 \, dx$$

Optimal (type 3, 176 leaves, 16 steps):

$$-\frac{27 a^3 \,\text{ArcTanh}[\text{Cos}[c+d x]]}{128 d}-\frac{4 a^3 \,\text{Cot}[c+d x]^5}{5 d}-\frac{3 a^3 \,\text{Cot}[c+d x]^7}{7 d}-\frac{27 a^3 \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]}{128 d}+\frac{23 a^3 \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^3}{64 d}-\frac{a^3 \,\text{Cot}[c+d x]^3 \,\text{Csc}[c+d x]^3}{2 d}+\frac{a^3 \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^5}{16 d}-\frac{a^3 \,\text{Cot}[c+d x]^3 \,\text{Csc}[c+d x]^5}{8 d}$$

Result (type 3, 1027 leaves):

$$-\frac{13\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+a\,\text{Sin}[c+d\,x])^3}{70\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-\frac{27\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+a\,\text{Sin}[c+d\,x])^3}{512\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+$$

$$\frac{107\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+a\,\text{Sin}[c+d\,x])^3}{2240\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+$$

$$\frac{49\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,(a+a\,\text{Sin}[c+d\,x])^3}{1024\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+$$

$$\frac{19\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,(a+a\,\text{Sin}[c+d\,x])^3}{2240\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-$$

$$\frac{3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,(a+a\,\text{Sin}[c+d\,x])^3}{512\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-$$

$$\frac{3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,(a+a\,\text{Sin}[c+d\,x])^3}{896\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-$$

$$\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,(a+a\,\text{Sin}[c+d\,x])^3}{2048\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-\frac{27\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+a\,\text{Sin}[c+d\,x])^3}{128\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+$$

$$\frac{27\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+a\,\text{Sin}[c+d\,x])^3}{128\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{27\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+a\,\text{Sin}[c+d\,x])^3}{512\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-$$

$$\frac{49\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,(a+a\,\text{Sin}[c+d\,x])^3}{1024\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,(a+a\,\text{Sin}[c+d\,x])^3}{512\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+$$

$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,(a+a\,\text{Sin}[c+d\,x])^3}{2048\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{13\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{70\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-$$

$$\frac{107\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2240\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-$$

$$\frac{19\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2240\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+$$

$$\frac{3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{896\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}$$

Problem 410: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^4 \,\text{Sin}[c+d x]^3}{a+a \,\text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 117 leaves, 8 steps):

$$-\frac{x}{16 a}-\frac{\text{Cos}[c+d x]^3}{3 a d}+\frac{\text{Cos}[c+d x]^5}{5 a d}-\frac{\text{Cos}[c+d x] \,\text{Sin}[c+d x]}{16 a d}+\frac{\text{Cos}[c+d x]^3 \,\text{Sin}[c+d x]}{8 a d}+\frac{\text{Cos}[c+d x]^3 \,\text{Sin}[c+d x]^3}{6 a d}$$

Result (type 3, 377 leaves):

$$\frac{1}{1920 a d \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)} \left(30 (3 c-4 d x) \,\text{Cos}\left[\frac{c}{2}\right]-120 \,\text{Cos}\left[\frac{c}{2}+d x\right]-120 \,\text{Cos}\left[\frac{3 c}{2}+d x\right]+15 \,\text{Cos}\left[\frac{3 c}{2}+2 d x\right]-15 \,\text{Cos}\left[\frac{5 c}{2}+2 d x\right]-20 \,\text{Cos}\left[\frac{5 c}{2}+3 d x\right]-20 \,\text{Cos}\left[\frac{7 c}{2}+3 d x\right]+15 \,\text{Cos}\left[\frac{7 c}{2}+4 d x\right]-15 \,\text{Cos}\left[\frac{9 c}{2}+4 d x\right]+12 \,\text{Cos}\left[\frac{9 c}{2}+5 d x\right]+12 \,\text{Cos}\left[\frac{11 c}{2}+5 d x\right]-5 \,\text{Cos}\left[\frac{11 c}{2}+6 d x\right]+5 \,\text{Cos}\left[\frac{13 c}{2}+6 d x\right]-180 \,\text{Sin}\left[\frac{c}{2}\right]+90 c \,\text{Sin}\left[\frac{c}{2}\right]-120 d x \,\text{Sin}\left[\frac{c}{2}\right]+120 \,\text{Sin}\left[\frac{c}{2}+d x\right]-120 \,\text{Sin}\left[\frac{3 c}{2}+d x\right]+15 \,\text{Sin}\left[\frac{3 c}{2}+2 d x\right]+15 \,\text{Sin}\left[\frac{5 c}{2}+2 d x\right]+20 \,\text{Sin}\left[\frac{5 c}{2}+3 d x\right]-20 \,\text{Sin}\left[\frac{7 c}{2}+3 d x\right]+15 \,\text{Sin}\left[\frac{7 c}{2}+4 d x\right]+15 \,\text{Sin}\left[\frac{9 c}{2}+4 d x\right]-12 \,\text{Sin}\left[\frac{9 c}{2}+5 d x\right]+12 \,\text{Sin}\left[\frac{11 c}{2}+5 d x\right]-5 \,\text{Sin}\left[\frac{11 c}{2}+6 d x\right]-5 \,\text{Sin}\left[\frac{13 c}{2}+6 d x\right]\right)$$

Problem 411: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^4 \,\text{Sin}[c+d x]^2}{a+a \,\text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 91 leaves, 7 steps):

$$\frac{x}{8 a}+\frac{\text{Cos}[c+d x]^3}{3 a d}-\frac{\text{Cos}[c+d x]^5}{5 a d}+\frac{\text{Cos}[c+d x] \,\text{Sin}[c+d x]}{8 a d}-\frac{\text{Cos}[c+d x]^3 \,\text{Sin}[c+d x]}{4 a d}$$

Result (type 3, 258 leaves):

$$\frac{1}{960\,a\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(120\,d\,x\,\text{Cos}\left[\frac{c}{2}\right]+60\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+60\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]+10\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+10\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]-15\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]+15\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]-6\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]-6\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]+120\,\text{Sin}\left[\frac{c}{2}\right]+120\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-60\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+60\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]-10\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+10\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]-15\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]-15\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]+6\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]-6\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]\right)$$

Problem 412: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 73 leaves, 6 steps):

$$-\frac{x}{8\,a}-\frac{\text{Cos}[c+d\,x]^3}{3\,a\,d}-\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{8\,a\,d}+\frac{\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{4\,a\,d}$$

Result (type 3, 219 leaves):

$$-\left(\left(-24\,(c-d\,x)\,\text{Cos}\left[\frac{c}{2}\right]+24\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+24\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]+8\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+8\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]-3\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]+3\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+48\,\text{Sin}\left[\frac{c}{2}\right]-24\,c\,\text{Sin}\left[\frac{c}{2}\right]+24\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-24\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+24\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]-8\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+8\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]-3\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]-3\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]\right)\Big/\left(192\,a\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\right)\right)$$

Problem 416: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^4}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 58 leaves, 5 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a\,d}-\frac{\text{Cot}[c+d\,x]^3}{3\,a\,d}+\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a\,d}$$

Result (type 3, 124 leaves):

$$-\left(\left(\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\left(\text{Cos}[3\,(c+d\,x)]+\text{Cos}[c+d\,x]\,(3-6\,\text{Sin}[c+d\,x])+6\,\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\,\text{Sin}[c+d\,x]^3\right)\right)\Big/\left(96\,a\,d\,(1+\text{Sin}[c+d\,x])\right)\right)$$

Problem 420: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^4 \,\text{Sin}[c+d x]^5}{(a+a \,\text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 147 leaves, 11 steps):

$$-\frac{5 x}{8 a^2}-\frac{2 \,\text{Cos}[c+d x]}{a^2 d}+\frac{5 \,\text{Cos}[c+d x]^3}{3 a^2 d}-\frac{4 \,\text{Cos}[c+d x]^5}{5 a^2 d}+\frac{\text{Cos}[c+d x]^7}{7 a^2 d}+\frac{5 \,\text{Cos}[c+d x] \,\text{Sin}[c+d x]}{8 a^2 d}+\frac{5 \,\text{Cos}[c+d x] \,\text{Sin}[c+d x]^3}{12 a^2 d}+\frac{\text{Cos}[c+d x] \,\text{Sin}[c+d x]^5}{3 a^2 d}$$

Result (type 3, 414 leaves):

$$\frac{1}{13440 a^2 d \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)} \left(-8400 d x \,\text{Cos}\left[\frac{c}{2}\right]-7875 \,\text{Cos}\left[\frac{c}{2}+d x\right]-7875 \,\text{Cos}\left[\frac{3 c}{2}+d x\right]+3150 \,\text{Cos}\left[\frac{3 c}{2}+2 d x\right]-3150 \,\text{Cos}\left[\frac{5 c}{2}+2 d x\right]+1435 \,\text{Cos}\left[\frac{5 c}{2}+3 d x\right]+1435 \,\text{Cos}\left[\frac{7 c}{2}+3 d x\right]-630 \,\text{Cos}\left[\frac{7 c}{2}+4 d x\right]+630 \,\text{Cos}\left[\frac{9 c}{2}+4 d x\right]-231 \,\text{Cos}\left[\frac{9 c}{2}+5 d x\right]-231 \,\text{Cos}\left[\frac{11 c}{2}+5 d x\right]+70 \,\text{Cos}\left[\frac{11 c}{2}+6 d x\right]-70 \,\text{Cos}\left[\frac{13 c}{2}+6 d x\right]+15 \,\text{Cos}\left[\frac{13 c}{2}+7 d x\right]+15 \,\text{Cos}\left[\frac{15 c}{2}+7 d x\right]+420 \,\text{Sin}\left[\frac{c}{2}\right]-8400 d x \,\text{Sin}\left[\frac{c}{2}\right]+7875 \,\text{Sin}\left[\frac{c}{2}+d x\right]-7875 \,\text{Sin}\left[\frac{3 c}{2}+d x\right]+3150 \,\text{Sin}\left[\frac{3 c}{2}+2 d x\right]+3150 \,\text{Sin}\left[\frac{5 c}{2}+2 d x\right]-1435 \,\text{Sin}\left[\frac{5 c}{2}+3 d x\right]+1435 \,\text{Sin}\left[\frac{7 c}{2}+3 d x\right]-630 \,\text{Sin}\left[\frac{7 c}{2}+4 d x\right]-630 \,\text{Sin}\left[\frac{9 c}{2}+4 d x\right]+231 \,\text{Sin}\left[\frac{9 c}{2}+5 d x\right]-231 \,\text{Sin}\left[\frac{11 c}{2}+5 d x\right]+70 \,\text{Sin}\left[\frac{11 c}{2}+6 d x\right]+70 \,\text{Sin}\left[\frac{13 c}{2}+6 d x\right]-15 \,\text{Sin}\left[\frac{13 c}{2}+7 d x\right]+15 \,\text{Sin}\left[\frac{15 c}{2}+7 d x\right]\right)$$

Problem 422: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^4 \,\text{Sin}[c+d x]^3}{(a+a \,\text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 102 leaves, 10 steps):

$$-\frac{3 x}{4 a^2}-\frac{2 \,\text{Cos}[c+d x]}{a^2 d}+\frac{\text{Cos}[c+d x]^3}{a^2 d}-\frac{\text{Cos}[c+d x]^5}{5 a^2 d}+\frac{3 \,\text{Cos}[c+d x] \,\text{Sin}[c+d x]}{4 a^2 d}+\frac{\text{Cos}[c+d x] \,\text{Sin}[c+d x]^3}{2 a^2 d}$$

Result (type 3, 304 leaves):

$$-\frac{1}{160\,a^2\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)}\left(120\,d\,x\,\mathrm{Cos}\left[\frac{c}{2}\right]+110\,\mathrm{Cos}\left[\frac{c}{2}+d\,x\right]+110\,\mathrm{Cos}\left[\frac{3\,c}{2}+d\,x\right]-40\,\mathrm{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]+40\,\mathrm{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]-15\,\mathrm{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]-15\,\mathrm{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+5\,\mathrm{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]-5\,\mathrm{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+\mathrm{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]+\mathrm{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]-10\,\mathrm{Sin}\left[\frac{c}{2}\right]+120\,d\,x\,\mathrm{Sin}\left[\frac{c}{2}\right]-110\,\mathrm{Sin}\left[\frac{c}{2}+d\,x\right]+110\,\mathrm{Sin}\left[\frac{3\,c}{2}+d\,x\right]-40\,\mathrm{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]-40\,\mathrm{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]+15\,\mathrm{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]-15\,\mathrm{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]+5\,\mathrm{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]+5\,\mathrm{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]-\mathrm{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]+\mathrm{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]\right)$$

Problem 423: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^4\,\mathrm{Sin}[c+d\,x]^2}{(a+a\,\mathrm{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 87 leaves, 10 steps):

$$\frac{7\,x}{8\,a^2}+\frac{2\,\mathrm{Cos}[c+d\,x]}{a^2\,d}-\frac{2\,\mathrm{Cos}[c+d\,x]^3}{3\,a^2\,d}-\frac{7\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{8\,a^2\,d}-\frac{\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^3}{4\,a^2\,d}$$

Result (type 3, 258 leaves):

$$\frac{1}{192\,a^2\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)}\left(168\,d\,x\,\mathrm{Cos}\left[\frac{c}{2}\right]+144\,\mathrm{Cos}\left[\frac{c}{2}+d\,x\right]+144\,\mathrm{Cos}\left[\frac{3\,c}{2}+d\,x\right]-48\,\mathrm{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]+48\,\mathrm{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]-16\,\mathrm{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]-16\,\mathrm{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+3\,\mathrm{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]-3\,\mathrm{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+8\,\mathrm{Sin}\left[\frac{c}{2}\right]+168\,d\,x\,\mathrm{Sin}\left[\frac{c}{2}\right]-144\,\mathrm{Sin}\left[\frac{c}{2}+d\,x\right]+144\,\mathrm{Sin}\left[\frac{3\,c}{2}+d\,x\right]-48\,\mathrm{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]-48\,\mathrm{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]+16\,\mathrm{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]-16\,\mathrm{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]+3\,\mathrm{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]+3\,\mathrm{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]\right)$$

Problem 424: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^4\,\mathrm{Sin}[c+d\,x]}{(a+a\,\mathrm{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 70 leaves, 4 steps):

$$-\frac{x}{a^2}-\frac{2\,\mathrm{Cos}[c+d\,x]^3}{3\,a^2\,d}-\frac{\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{a^2\,d}-\frac{\mathrm{Cos}[c+d\,x]^5}{d\,(a+a\,\mathrm{Sin}[c+d\,x])^2}$$

Result (type 3, 200 leaves):

$$\left(-24\,d\,x\,\mathrm{Cos}\left[\frac{c}{2}\right]-21\,\mathrm{Cos}\left[\frac{c}{2}+d\,x\right]-21\,\mathrm{Cos}\left[\frac{3\,c}{2}+d\,x\right]+6\,\mathrm{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]-6\,\mathrm{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]+\mathrm{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+\mathrm{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+4\,\mathrm{Sin}\left[\frac{c}{2}\right]-24\,d\,x\,\mathrm{Sin}\left[\frac{c}{2}\right]+21\,\mathrm{Sin}\left[\frac{c}{2}+d\,x\right]-21\,\mathrm{Sin}\left[\frac{3\,c}{2}+d\,x\right]+6\,\mathrm{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]+6\,\mathrm{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]-\mathrm{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+\mathrm{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]\right)\Big/\left(24\,a^2\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right)$$

Problem 426: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^2\,\mathrm{Cot}[c+d\,x]^2}{(a+a\,\mathrm{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 35 leaves, 6 steps):

$$\frac{x}{a^2}+\frac{2\,\mathrm{ArcTanh}[\mathrm{Cos}[c+d\,x]]}{a^2\,d}-\frac{\mathrm{Cot}[c+d\,x]}{a^2\,d}$$

Result (type 3, 98 leaves):

$$\left(\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\left(2\,(c+d\,x)-\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]+4\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-4\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Big/\left(2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])^2\right)$$

Problem 433: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^4\,\mathrm{Sin}[c+d\,x]^2}{(a+a\,\mathrm{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 87 leaves, 9 steps):

$$-\frac{11\,x}{2\,a^3}-\frac{5\,\mathrm{Cos}[c+d\,x]}{a^3\,d}+\frac{\mathrm{Cos}[c+d\,x]^3}{3\,a^3\,d}+\frac{3\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{2\,a^3\,d}-\frac{4\,\mathrm{Cos}[c+d\,x]}{a^3\,d\,(1+\mathrm{Sin}[c+d\,x])}$$

Result (type 3, 181 leaves):

$$\left((1-660\,d\,x)\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]-286\,\mathrm{Cos}\left[c+\frac{d\,x}{2}\right]-240\,\mathrm{Cos}\left[c+\frac{3\,d\,x}{2}\right]-40\,\mathrm{Cos}\left[3\,c+\frac{5\,d\,x}{2}\right]+5\,\mathrm{Cos}\left[3\,c+\frac{7\,d\,x}{2}\right]+1244\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]+\mathrm{Sin}\left[c+\frac{d\,x}{2}\right]-660\,d\,x\,\mathrm{Sin}\left[c+\frac{d\,x}{2}\right]-240\,\mathrm{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]+40\,\mathrm{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]+5\,\mathrm{Sin}\left[4\,c+\frac{7\,d\,x}{2}\right]\right)\Big/\left(120\,a^3\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)$$

Problem 435: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^3 \, \text{Cot}[c+d x]}{(a+a \, \text{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 45 leaves, 5 steps):

$$\frac{x}{a^3}-\frac{\text{ArcTanh}[\text{Cos}[c+d x]]}{a^3 d}+\frac{4 \, \text{Cos}[c+d x]}{a^3 d \, (1+\text{Sin}[c+d x])}$$

Result (type 3, 122 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]\left(c+d x-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)+\left(-8+c+d x-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right) \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right) \Big/ \left(a^3 d \, (1+\text{Sin}[c+d x])^3\right)$$

Problem 436: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^2 \, \text{Cot}[c+d x]^2}{(a+a \, \text{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 54 leaves, 7 steps):

$$\frac{3 \, \text{ArcTanh}[\text{Cos}[c+d x]]}{a^3 d}-\frac{\text{Cot}[c+d x]}{a^3 d}-\frac{4 \, \text{Cos}[c+d x]}{a^3 d \, (1+\text{Sin}[c+d x])}$$

Result (type 3, 156 leaves):

$$-\left(\left(\left(\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]\left(-17+\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2-6 \, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+6 \, \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Cot}\left[\frac{1}{2}(c+d x)\right]\left(1-6 \, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+6 \, \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)\right)-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \Big/ \left(2 a^3 d \, (1+\text{Sin}[c+d x])^3\right)\right)$$

Problem 437: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x] \, \text{Cot}[c+d x]^3}{(a+a \, \text{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 78 leaves, 9 steps):

$$-\frac{9\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a^3\,d}+\frac{3\,\text{Cot}[c+d\,x]}{a^3\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^3\,d}+\frac{4\,\text{Cos}[c+d\,x]}{a^3\,d\,\left(1+\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 369 leaves):

$$-\frac{8\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\frac{9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{9\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\frac{3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}$$

Problem 438: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^4}{\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 96 leaves, 11 steps):

$$\frac{11\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a^3\,d}-\frac{5\,\text{Cot}[c+d\,x]}{a^3\,d}-$$

$$\frac{\text{Cot}[c+d\,x]^3}{3\,a^3\,d}+\frac{3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^3\,d}-\frac{4\,\text{Cot}[c+d\,x]}{a^3\,d\,\left(1+\text{Csc}[c+d\,x]\right)}$$

Result (type 3, 497 leaves):

$$\frac{8\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{7\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{3\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$

$$\left(\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)\Big/$$

$$\left(24\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)+\frac{11\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{11\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{7\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{3\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/$$

$$\left(24\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)$$

Problem 439: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 117 leaves, 14 steps):

$$-\frac{51\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,a^3\,d}+\frac{7\,\text{Cot}[c+d\,x]}{a^3\,d}+\frac{\text{Cot}[c+d\,x]^3}{a^3\,d}-$$

$$\frac{19\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,a^3\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,a^3\,d}+\frac{4\,\text{Cos}[c+d\,x]}{a^3\,d\,(1+\text{Sin}[c+d\,x])}$$

Result (type 3, 601 leaves):

$$-\frac{8\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{19\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{32\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\left(\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)\Big/$$
$$\left(8\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)-\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{51\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{51\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{19\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{32\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/$$
$$\left(8\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)$$

Problem 440: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[e+f\,x]^4\,\text{Sin}[e+f\,x]}{(a+a\,\text{Sin}[e+f\,x])^6}\,dx$$

Optimal (type 3, 58 leaves, 2 steps):

$$\frac{\text{Cos}[e+f\,x]^5}{7\,f\,(a+a\,\text{Sin}[e+f\,x])^6}-\frac{6\,\text{Cos}[e+f\,x]^5}{35\,a\,f\,(a+a\,\text{Sin}[e+f\,x])^5}$$

Result (type 3, 237 leaves):

$$\frac{1}{4620\, a^6 f \left(\mathrm{Cos}\left[\frac{e}{2}\right]+\mathrm{Sin}\left[\frac{e}{2}\right]\right) \left(\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]+\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^7}\left(35\,\mathrm{Cos}\left[\frac{f x}{2}\right]+4585\,\mathrm{Cos}\left[e+\frac{f x}{2}\right]-2982\,\mathrm{Cos}\left[e+\frac{3 f x}{2}\right]-21\,\mathrm{Cos}\left[2 e+\frac{3 f x}{2}\right]-7\,\mathrm{Cos}\left[2 e+\frac{5 f x}{2}\right]-1148\,\mathrm{Cos}\left[3 e+\frac{5 f x}{2}\right]+197\,\mathrm{Cos}\left[3 e+\frac{7 f x}{2}\right]+\mathrm{Cos}\left[4 e+\frac{7 f x}{2}\right]+2275\,\mathrm{Sin}\left[\frac{f x}{2}\right]+35\,\mathrm{Sin}\left[e+\frac{f x}{2}\right]+21\,\mathrm{Sin}\left[e+\frac{3 f x}{2}\right]+1134\,\mathrm{Sin}\left[2 e+\frac{3 f x}{2}\right]-224\,\mathrm{Sin}\left[2 e+\frac{5 f x}{2}\right]-7\,\mathrm{Sin}\left[3 e+\frac{5 f x}{2}\right]-\mathrm{Sin}\left[3 e+\frac{7 f x}{2}\right]+\mathrm{Sin}\left[4 e+\frac{7 f x}{2}\right]\right)$$

Problem 441: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[e+f x]^4\,\mathrm{Sin}[e+f x]^2}{(a+a\,\mathrm{Sin}[e+f x])^7}\,dx$$

Optimal (type 3, 89 leaves, 18 steps):

$$-\frac{a\,\mathrm{Cos}[e+f x]^7}{18 f\,(a+a\,\mathrm{Sin}[e+f x])^8}+\frac{25\,\mathrm{Cos}[e+f x]^5}{126\, a f\,(a+a\,\mathrm{Sin}[e+f x])^6}-\frac{47\,\mathrm{Cos}[e+f x]^5}{315\, a^2 f\,(a+a\,\mathrm{Sin}[e+f x])^5}$$

Result (type 3, 293 leaves):

$$\frac{1}{720720\, a^7 f \left(\mathrm{Cos}\left[\frac{e}{2}\right]+\mathrm{Sin}\left[\frac{e}{2}\right]\right) \left(\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]+\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^9}\left(1890\,\mathrm{Cos}\left[\frac{f x}{2}\right]+718830\,\mathrm{Cos}\left[e+\frac{f x}{2}\right]-467208\,\mathrm{Cos}\left[e+\frac{3 f x}{2}\right]-1260\,\mathrm{Cos}\left[2 e+\frac{3 f x}{2}\right]-540\,\mathrm{Cos}\left[2 e+\frac{5 f x}{2}\right]-179640\,\mathrm{Cos}\left[3 e+\frac{5 f x}{2}\right]+30753\,\mathrm{Cos}\left[3 e+\frac{7 f x}{2}\right]+135\,\mathrm{Cos}\left[4 e+\frac{7 f x}{2}\right]+15\,\mathrm{Cos}\left[4 e+\frac{9 f x}{2}\right]-15\,\mathrm{Cos}\left[5 e+\frac{9 f x}{2}\right]+971082\,\mathrm{Sin}\left[\frac{f x}{2}\right]+1890\,\mathrm{Sin}\left[e+\frac{f x}{2}\right]+1260\,\mathrm{Sin}\left[e+\frac{3 f x}{2}\right]+659400\,\mathrm{Sin}\left[2 e+\frac{3 f x}{2}\right]-303192\,\mathrm{Sin}\left[2 e+\frac{5 f x}{2}\right]-540\,\mathrm{Sin}\left[3 e+\frac{5 f x}{2}\right]-135\,\mathrm{Sin}\left[3 e+\frac{7 f x}{2}\right]-89955\,\mathrm{Sin}\left[4 e+\frac{7 f x}{2}\right]+13427\,\mathrm{Sin}\left[4 e+\frac{9 f x}{2}\right]+15\,\mathrm{Sin}\left[5 e+\frac{9 f x}{2}\right]\right)$$

Problem 442: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[e+f x]^4\,\mathrm{Sin}[e+f x]^3}{(a+a\,\mathrm{Sin}[e+f x])^8}\,dx$$

Optimal (type 3, 157 leaves, 24 steps):

$$\frac{4\,\mathrm{Cos}[e+f x]}{11\, a^8 f\,(1+\mathrm{Sin}[e+f x])^6}-\frac{52\,\mathrm{Cos}[e+f x]}{33\, a^8 f\,(1+\mathrm{Sin}[e+f x])^5}+\frac{617\,\mathrm{Cos}[e+f x]}{231\, a^8 f\,(1+\mathrm{Sin}[e+f x])^4}-\frac{846\,\mathrm{Cos}[e+f x]}{385\, a^8 f\,(1+\mathrm{Sin}[e+f x])^3}+\frac{1003\,\mathrm{Cos}[e+f x]}{1155\, a^8 f\,(1+\mathrm{Sin}[e+f x])^2}-\frac{152\,\mathrm{Cos}[e+f x]}{1155\, a^8 f\,(1+\mathrm{Sin}[e+f x])}$$

Result (type 3, 343 leaves):

$$\left(1\Big/\left(240240\, a^8 f \left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^{11}\right)\right)$$
$$\left(462\,\text{Cos}\left[\frac{f x}{2}\right]+486024\,\text{Cos}\left[e+\frac{f x}{2}\right]-351450\,\text{Cos}\left[e+\frac{3 f x}{2}\right]-330\,\text{Cos}\left[2 e+\frac{3 f x}{2}\right]-\right.$$
$$165\,\text{Cos}\left[2 e+\frac{5 f x}{2}\right]-180015\,\text{Cos}\left[3 e+\frac{5 f x}{2}\right]+63580\,\text{Cos}\left[3 e+\frac{7 f x}{2}\right]+55\,\text{Cos}\left[4 e+\frac{7 f x}{2}\right]+$$
$$11\,\text{Cos}\left[4 e+\frac{9 f x}{2}\right]+15004\,\text{Cos}\left[5 e+\frac{9 f x}{2}\right]-1975\,\text{Cos}\left[5 e+\frac{11 f x}{2}\right]-\text{Cos}\left[6 e+\frac{11 f x}{2}\right]+$$
$$425964\,\text{Sin}\left[\frac{f x}{2}\right]+462\,\text{Sin}\left[e+\frac{f x}{2}\right]+330\,\text{Sin}\left[e+\frac{3 f x}{2}\right]+299970\,\text{Sin}\left[2 e+\frac{3 f x}{2}\right]-$$
$$145695\,\text{Sin}\left[2 e+\frac{5 f x}{2}\right]-165\,\text{Sin}\left[3 e+\frac{5 f x}{2}\right]-55\,\text{Sin}\left[3 e+\frac{7 f x}{2}\right]-44990\,\text{Sin}\left[4 e+\frac{7 f x}{2}\right]+$$
$$\left.6710\,\text{Sin}\left[4 e+\frac{9 f x}{2}\right]+11\,\text{Sin}\left[5 e+\frac{9 f x}{2}\right]+\text{Sin}\left[5 e+\frac{11 f x}{2}\right]-\text{Sin}\left[6 e+\frac{11 f x}{2}\right]\right)$$

Problem 443: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^4\,\text{Sin}[c+d x]^2\,\sqrt{a+a\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 156 leaves, 5 steps):

$$-\frac{1472\,a^3\,\text{Cos}[c+d x]^5}{45045\,d\,(a+a\,\text{Sin}[c+d x])^{5/2}}-\frac{368\,a^2\,\text{Cos}[c+d x]^5}{9009\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}-\frac{46\,a\,\text{Cos}[c+d x]^5}{1287\,d\,\sqrt{a+a\,\text{Sin}[c+d x]}}+$$
$$\frac{20\,\text{Cos}[c+d x]^5\,\sqrt{a+a\,\text{Sin}[c+d x]}}{143\,d}-\frac{2\,\text{Cos}[c+d x]^5\,(a+a\,\text{Sin}[c+d x])^{3/2}}{13\,a\,d}$$

Result (type 3, 619 leaves):

$$\frac{\left(5\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-3\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{480\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{\left(9\,\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]-7\,\text{Cos}\left[\frac{9}{2}\,(c+d\,x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{1008\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{\left(13\,\text{Cos}\left[\frac{11}{2}\,(c+d\,x)\right]-11\,\text{Cos}\left[\frac{13}{2}\,(c+d\,x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{4576\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\left(\frac{2\,\text{Cos}\left[\frac{d\,x}{2}\right]\,\text{Sin}\left[\frac{c}{2}\right]}{d}+\frac{2\,\text{Cos}\left[\frac{c}{2}\right]\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d}\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{16\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\left(-\frac{2\,\text{Cos}\left[\frac{c}{2}\right]\,\text{Cos}\left[\frac{d\,x}{2}\right]}{d}+\frac{2\,\text{Sin}\left[\frac{c}{2}\right]\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d}\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{16\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\left(5\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]+3\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]\right)}{480\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{\sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\left(9\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]+7\,\text{Sin}\left[\frac{9}{2}\,(c+d\,x)\right]\right)}{1008\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{\sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\left(13\,\text{Sin}\left[\frac{11}{2}\,(c+d\,x)\right]+11\,\text{Sin}\left[\frac{13}{2}\,(c+d\,x)\right]\right)}{4576\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}$$

Problem 449: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 173 leaves, 9 steps):

$$-\frac{67\,\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{64\,d}+\frac{61\,a\,\text{Cot}[c+d\,x]}{64\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{61\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{96\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-$$

$$\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{24\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{4\,d}$$

Result (type 3, 367 leaves):

$$-\frac{1}{192\,d\,\left(1+\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)^4}$$
$$\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{13}\sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\left(442\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-162\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]+\right.$$
$$122\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]+366\,\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]+603\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$804\,\text{Cos}[2\,(c+d\,x)]\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$201\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$603\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$804\,\text{Cos}[2\,(c+d\,x)]\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$201\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-442\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-$$
$$\left.162\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]-122\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]+366\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]\right)$$

Problem 453: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^2\,(a+a\,\text{Sin}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 188 leaves, 6 steps):

$$-\frac{256\,a^4\,\text{Cos}[c+d\,x]^5}{6435\,d\,(a+a\,\text{Sin}[c+d\,x])^{5/2}}-\frac{64\,a^3\,\text{Cos}[c+d\,x]^5}{1287\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-$$
$$\frac{56\,a^2\,\text{Cos}[c+d\,x]^5}{1287\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{14\,a\,\text{Cos}[c+d\,x]^5\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{429\,d}+$$
$$\frac{4\,\text{Cos}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}{39\,d}-\frac{2\,\text{Cos}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])^{5/2}}{15\,a\,d}$$

Result (type 3, 859 leaves):

$$\frac{a\left(-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d x])}}{8 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}-$$

$$\left(a\left(3\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Cos}\left[\frac{3}{2}(c+d x)\right]-4\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]^3\right)\sqrt{a\,(1+\text{Sin}[c+d x])}\right)\Big/$$
$$\left(48 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)+\left(a\sqrt{a\,(1+\text{Sin}[c+d x])}\right.$$
$$\left.\left(5\,\text{Cos}\left[\frac{3}{2}(c+d x)\right]-3\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]+5\,\text{Sin}\left[\frac{3}{2}(c+d x)\right]+3\,\text{Sin}\left[\frac{5}{2}(c+d x)\right]\right)\right)\Big/$$
$$\left(480 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)+\left(a\sqrt{a\,(1+\text{Sin}[c+d x])}\right.$$
$$\left(105\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+35\,\text{Cos}\left[\frac{3}{2}(c+d x)\right]-21\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]-15\,\text{Cos}\left[\frac{7}{2}(c+d x)\right]-\right.$$
$$\left.\left.105\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+35\,\text{Sin}\left[\frac{3}{2}(c+d x)\right]+21\,\text{Sin}\left[\frac{5}{2}(c+d x)\right]-15\,\text{Sin}\left[\frac{7}{2}(c+d x)\right]\right)\right)\Big/$$
$$\left(6720 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)-\left(a\sqrt{a\,(1+\text{Sin}[c+d x])}\right.$$
$$\left.\left(9\,\text{Cos}\left[\frac{7}{2}(c+d x)\right]-7\,\text{Cos}\left[\frac{9}{2}(c+d x)\right]+9\,\text{Sin}\left[\frac{7}{2}(c+d x)\right]+7\,\text{Sin}\left[\frac{9}{2}(c+d x)\right]\right)\right)\Big/$$
$$\left(1008 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)-$$
$$\left(a\sqrt{a\,(1+\text{Sin}[c+d x])}\left(693\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]+495\,\text{Cos}\left[\frac{7}{2}(c+d x)\right]-\right.\right.$$
$$385\,\text{Cos}\left[\frac{9}{2}(c+d x)\right]-315\,\text{Cos}\left[\frac{11}{2}(c+d x)\right]-693\,\text{Sin}\left[\frac{5}{2}(c+d x)\right]+$$
$$\left.\left.495\,\text{Sin}\left[\frac{7}{2}(c+d x)\right]+385\,\text{Sin}\left[\frac{9}{2}(c+d x)\right]-315\,\text{Sin}\left[\frac{11}{2}(c+d x)\right]\right)\right)\Big/$$
$$\left(110880 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)-\left(a\sqrt{a\,(1+\text{Sin}[c+d x])}\right.$$
$$\left.\left(13\,\text{Cos}\left[\frac{11}{2}(c+d x)\right]-11\,\text{Cos}\left[\frac{13}{2}(c+d x)\right]+13\,\text{Sin}\left[\frac{11}{2}(c+d x)\right]+11\,\text{Sin}\left[\frac{13}{2}(c+d x)\right]\right)\right)\Big/$$
$$\left(4576 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)-$$
$$\left(a\sqrt{a\,(1+\text{Sin}[c+d x])}\left(715\,\text{Cos}\left[\frac{9}{2}(c+d x)\right]+585\,\text{Cos}\left[\frac{11}{2}(c+d x)\right]-495\,\text{Cos}\left[\frac{13}{2}(c+d x)\right]-\right.\right.$$
$$429\,\text{Cos}\left[\frac{15}{2}(c+d x)\right]-715\,\text{Sin}\left[\frac{9}{2}(c+d x)\right]+585\,\text{Sin}\left[\frac{11}{2}(c+d x)\right]+495\,\text{Sin}\left[\frac{13}{2}(c+d x)\right]-$$
$$\left.\left.429\,\text{Sin}\left[\frac{15}{2}(c+d x)\right]\right)\right)\Big/\left(411840 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)$$

Problem 454: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^4\,\text{Sin}[c+d x]\,(a+a\,\text{Sin}[c+d x])^{3/2}\,dx$$

Optimal (type 3, 156 leaves, 5 steps):

$$-\frac{256\,a^4\,\mathrm{Cos}[c+d\,x]^5}{5005\,d\,(a+a\,\mathrm{Sin}[c+d\,x])^{5/2}}-\frac{64\,a^3\,\mathrm{Cos}[c+d\,x]^5}{1001\,d\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}-\frac{8\,a^2\,\mathrm{Cos}[c+d\,x]^5}{143\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-\frac{6\,a\,\mathrm{Cos}[c+d\,x]^5\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{143\,d}-\frac{2\,\mathrm{Cos}[c+d\,x]^5\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}{13\,d}$$

Result (type 3, 673 leaves):

$$-\left(\left(a\left(3\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]-4\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]^3\right)\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\right)\Big/\left(24\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)-$$

$$\left(a\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\left(30\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+5\,\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]-3\,\mathrm{Cos}\left[\frac{5}{2}(c+d\,x)\right]-30\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]+5\,\mathrm{Sin}\left[\frac{3}{2}(c+d\,x)\right]+3\,\mathrm{Sin}\left[\frac{5}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left(240\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)-\left(3\,a\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\left(7\,\mathrm{Cos}\left[\frac{5}{2}(c+d\,x)\right]+5\,\mathrm{Cos}\left[\frac{7}{2}(c+d\,x)\right]-7\,\mathrm{Sin}\left[\frac{5}{2}(c+d\,x)\right]+5\,\mathrm{Sin}\left[\frac{7}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left(560\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)+\left(a\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\left(105\,\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]-63\,\mathrm{Cos}\left[\frac{5}{2}(c+d\,x)\right]-45\,\mathrm{Cos}\left[\frac{7}{2}(c+d\,x)\right]+35\,\mathrm{Cos}\left[\frac{9}{2}(c+d\,x)\right]+105\,\mathrm{Sin}\left[\frac{3}{2}(c+d\,x)\right]+63\,\mathrm{Sin}\left[\frac{5}{2}(c+d\,x)\right]-45\,\mathrm{Sin}\left[\frac{7}{2}(c+d\,x)\right]-35\,\mathrm{Sin}\left[\frac{9}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left(3360\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)-\left(a\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\left(11\,\mathrm{Cos}\left[\frac{9}{2}(c+d\,x)\right]+9\,\mathrm{Cos}\left[\frac{11}{2}(c+d\,x)\right]-11\,\mathrm{Sin}\left[\frac{9}{2}(c+d\,x)\right]+9\,\mathrm{Sin}\left[\frac{11}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left(1584\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)+$$

$$\left(a\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\left(1287\,\mathrm{Cos}\left[\frac{7}{2}(c+d\,x)\right]-1001\,\mathrm{Cos}\left[\frac{9}{2}(c+d\,x)\right]-819\,\mathrm{Cos}\left[\frac{11}{2}(c+d\,x)\right]+693\,\mathrm{Cos}\left[\frac{13}{2}(c+d\,x)\right]+1287\,\mathrm{Sin}\left[\frac{7}{2}(c+d\,x)\right]+1001\,\mathrm{Sin}\left[\frac{9}{2}(c+d\,x)\right]-819\,\mathrm{Sin}\left[\frac{11}{2}(c+d\,x)\right]-693\,\mathrm{Sin}\left[\frac{13}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left(288\,288\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)$$

Problem 462: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^4\,\mathrm{Csc}[c+d\,x]^4\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 291 leaves, 16 steps):

$$-\frac{171\, a^{3/2}\, \text{ArcTanh}\left[\frac{\sqrt{a}\, \text{Cos}[c+d x]}{\sqrt{a+a\, \text{Sin}[c+d x]}}\right]}{1024\, d}-\frac{171\, a^2\, \text{Cot}[c+d x]}{1024\, d\, \sqrt{a+a\, \text{Sin}[c+d x]}}-\frac{57\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]}{512\, d\, \sqrt{a+a\, \text{Sin}[c+d x]}}+\frac{199\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^2}{640\, d\, \sqrt{a+a\, \text{Sin}[c+d x]}}+\frac{1237\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^3}{2240\, d\, \sqrt{a+a\, \text{Sin}[c+d x]}}+\frac{9\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^4}{40\, d\, \sqrt{a+a\, \text{Sin}[c+d x]}}-\frac{a\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^5\, \sqrt{a+a\, \text{Sin}[c+d x]}}{28\, d}-\frac{\text{Cot}[c+d x]\, \text{Csc}[c+d x]^6\, \left(a+a\, \text{Sin}[c+d x]\right)^{3/2}}{7\, d}$$

Result (type 3, 2055 leaves):

$$\frac{3861\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{71680\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}-\frac{3861\, \text{Cot}\left[\frac{1}{4}\, (c+d x)\right]\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{143360\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}-\frac{43\, \text{Csc}\left[\frac{1}{4}\, (c+d x)\right]^2\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{8192\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}+\frac{619\, \text{Cot}\left[\frac{1}{4}\, (c+d x)\right]\, \text{Csc}\left[\frac{1}{4}\, (c+d x)\right]^2\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{286720\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}+\frac{11\, \text{Csc}\left[\frac{1}{4}\, (c+d x)\right]^4\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{8192\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}+\frac{9\, \text{Cot}\left[\frac{1}{4}\, (c+d x)\right]\, \text{Csc}\left[\frac{1}{4}\, (c+d x)\right]^4\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{143360\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}-\frac{\text{Csc}\left[\frac{1}{4}\, (c+d x)\right]^6\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{16384\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}-\frac{\text{Cot}\left[\frac{1}{4}\, (c+d x)\right]\, \text{Csc}\left[\frac{1}{4}\, (c+d x)\right]^6\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}}{114688\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3}-\left(171\, \text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]-\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right]\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}\right)\Big/\left(2048\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3\right)+\left(171\, \text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right]\, \left(a\, \left(1+\text{Sin}[c+d x]\right)\right)^{3/2}\right)\Big/\left(2048\, d\, \left(\text{Cos}\left[\frac{1}{2}\, (c+d x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d x)\right]\right)^3\right)+$$

$$\frac{43\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{8192\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{11\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{8192\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{16\,384\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\Big/$$

$$\left(1792\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^6\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)-$$

$$\left(403\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/\left(71\,680\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^4\right.$$

$$\left.\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+\left(443\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(71\,680\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+$$

$$\left(\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(7168\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^7\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)-$$

$$\left(9\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(17\,920\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^5\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)-$$

$$\left(619\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(71\,680\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+$$

$$\left(3861\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(71\,680\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)-$$

$$\left(\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(7168\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^7\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)-$$

$$\left(3\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(7168\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^6\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+$$

$$\left(9\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(17\,920\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^5\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+$$

$$\left(367\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$

$$\left(71680\, d \left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]+\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)^4 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)+$$
$$\left(619\, \text{Sin}\left[\frac{1}{4}(c+d x)\right] (a(1+\text{Sin}[c+d x]))^{3/2}\right)\Big/$$
$$\left(71680\, d \left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]+\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)^3 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)-$$
$$\left(531 (a(1+\text{Sin}[c+d x]))^{3/2}\right)\Big/$$
$$\left(35840\, d \left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]+\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right)^2 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)-$$
$$\left(3861\, \text{Sin}\left[\frac{1}{4}(c+d x)\right] (a(1+\text{Sin}[c+d x]))^{3/2}\right)\Big/$$
$$\left(71680\, d \left(\text{Cos}\left[\frac{1}{4}(c+d x)\right]+\text{Sin}\left[\frac{1}{4}(c+d x)\right]\right) \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)-$$
$$\frac{3861 (a(1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4}(c+d x)\right]}{143360\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}+$$
$$\frac{619\, \text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 (a(1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4}(c+d x)\right]}{286720\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}+$$
$$\frac{9\, \text{Sec}\left[\frac{1}{4}(c+d x)\right]^4 (a(1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4}(c+d x)\right]}{143360\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}-$$
$$\frac{\text{Sec}\left[\frac{1}{4}(c+d x)\right]^6 (a(1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4}(c+d x)\right]}{114688\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}$$

Problem 463: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^4\, \text{Csc}[c+d x]^5 (a+a\, \text{Sin}[c+d x])^{3/2}\, dx$$

Optimal (type 3, 329 leaves, 18 steps):

$$-\frac{1587\, a^{3/2}\, \text{ArcTanh}\left[\frac{\sqrt{a}\, \text{Cos}[c+d x]}{\sqrt{a+a\, \text{Sin}[c+d x]}}\right]}{16384\, d}-\frac{1587\, a^2\, \text{Cot}[c+d x]}{16384\, d \sqrt{a+a\, \text{Sin}[c+d x]}}-\frac{529\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]}{8192\, d \sqrt{a+a\, \text{Sin}[c+d x]}}-$$
$$\frac{529\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^2}{10240\, d \sqrt{a+a\, \text{Sin}[c+d x]}}+\frac{8653\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^3}{35840\, d \sqrt{a+a\, \text{Sin}[c+d x]}}+$$
$$\frac{1957\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^4}{4480\, d \sqrt{a+a\, \text{Sin}[c+d x]}}+\frac{83\, a^2\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^5}{448\, d \sqrt{a+a\, \text{Sin}[c+d x]}}-$$
$$\frac{3\, a\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^6 \sqrt{a+a\, \text{Sin}[c+d x]}}{112\, d}-\frac{\text{Cot}[c+d x]\, \text{Csc}[c+d x]^7 (a+a\, \text{Sin}[c+d x])^{3/2}}{8\, d}$$

Result (type 3, 2303 leaves):

$$\frac{6053\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{143\,360\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{6053\,\text{Cot}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{286\,720\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{179\,\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{131\,072\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{107\,\text{Cot}\left[\frac{1}{4}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{573\,440\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{113\,\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{262\,144\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{31\,\text{Cot}\left[\frac{1}{4}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{143\,360\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{131\,072\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{3\,\text{Cot}\left[\frac{1}{4}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{229\,376\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{\text{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{524\,288\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\left(1587\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$
$$\left(32\,768\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+$$

$$\left(1587\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/$$
$$\left(32\,768\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+$$

$$\frac{179\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{131\,072\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{113\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{262\,144\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{131\,072\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{524\,288\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\Big/$$

$$\left(32768\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^8 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)+$$

$$\left(5\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/\left(114688\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^6\right.$$

$$\left.\left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)-\left(5939\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(2293760\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^4 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)+$$

$$\left(5409\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(2293760\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^2 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)+$$

$$\left(3\, \text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(14336\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^7 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)-$$

$$\left(31\, \text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(17920\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^5 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)-$$

$$\left(107\, \text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(143360\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^3 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)+$$

$$\left(6053\, \text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(143360\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right) \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)-$$

$$(a\, (1+\text{Sin}[c+d\, x]))^{3/2}\Big/$$

$$\left(32768\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^8 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)-$$

$$\left(3\, \text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(14336\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^7 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)+$$

$$\left(19\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(114688\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^6 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)+$$

$$\left(31\, \text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(17920\, d \left(\text{Cos}\left[\frac{1}{4}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{4}\, (c+d\, x)\right]\right)^5 \left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^3\right)+$$

$$\left(1971\, (a\, (1+\text{Sin}[c+d\, x]))^{3/2}\right)\Big/$$

$$\left(2293760\, d \left(\text{Cos}\left[\frac{1}{4} (c+d x)\right]+\text{Sin}\left[\frac{1}{4} (c+d x)\right]\right)^4 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3\right)+$$

$$\left(107\, \text{Sin}\left[\frac{1}{4} (c+d x)\right] (a (1+\text{Sin}[c+d x]))^{3/2}\right)\Big/$$

$$\left(143360\, d \left(\text{Cos}\left[\frac{1}{4} (c+d x)\right]+\text{Sin}\left[\frac{1}{4} (c+d x)\right]\right)^3 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3\right)-$$

$$\left(7121 (a (1+\text{Sin}[c+d x]))^{3/2}\right)\Big/$$

$$\left(2293760\, d \left(\text{Cos}\left[\frac{1}{4} (c+d x)\right]+\text{Sin}\left[\frac{1}{4} (c+d x)\right]\right)^2 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3\right)-$$

$$\left(6053\, \text{Sin}\left[\frac{1}{4} (c+d x)\right] (a (1+\text{Sin}[c+d x]))^{3/2}\right)\Big/$$

$$\left(143360\, d \left(\text{Cos}\left[\frac{1}{4} (c+d x)\right]+\text{Sin}\left[\frac{1}{4} (c+d x)\right]\right) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3\right)-$$

$$\frac{6053 (a (1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4} (c+d x)\right]}{286720\, d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3}+$$

$$\frac{107\, \text{Sec}\left[\frac{1}{4} (c+d x)\right]^2 (a (1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4} (c+d x)\right]}{573440\, d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3}+$$

$$\frac{31\, \text{Sec}\left[\frac{1}{4} (c+d x)\right]^4 (a (1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4} (c+d x)\right]}{143360\, d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3}-$$

$$\frac{3\, \text{Sec}\left[\frac{1}{4} (c+d x)\right]^6 (a (1+\text{Sin}[c+d x]))^{3/2}\, \text{Tan}\left[\frac{1}{4} (c+d x)\right]}{229376\, d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3}$$

Problem 468: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]\, \text{Cot}[c+d x]^3}{\sqrt{a+a\, \text{Sin}[c+d x]}}\, dx$$

Optimal (type 3, 125 leaves, 11 steps):

$$\frac{9\, \text{ArcTanh}\left[\frac{\sqrt{a}\, \text{Cos}[c+d x]}{\sqrt{a+a\, \text{Sin}[c+d x]}}\right]}{4 \sqrt{a}\, d}-\frac{2\, \text{Cos}[c+d x]}{d \sqrt{a+a\, \text{Sin}[c+d x]}}+\frac{\text{Cot}[c+d x]}{4\, d \sqrt{a+a\, \text{Sin}[c+d x]}}-\frac{\text{Cot}[c+d x]\, \text{Csc}[c+d x]}{2\, d \sqrt{a+a\, \text{Sin}[c+d x]}}$$

Result (type 3, 773 leaves):

$$-\frac{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{4\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}-\frac{2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}+$$
$$\frac{\text{Cot}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{8\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}-$$
$$\frac{\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{32\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}+$$
$$\left(9\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$
$$\left(8\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)-$$
$$\left(9\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$
$$\left(8\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)+\frac{\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{32\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}+$$
$$\frac{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{16\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^2\sqrt{a\,(1+\text{Sin}[c+d\,x])}}-$$
$$\frac{\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{4\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}-$$
$$\frac{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{16\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^2\sqrt{a\,(1+\text{Sin}[c+d\,x])}}+$$
$$\frac{\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{4\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}+$$
$$\frac{2\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}+$$
$$\frac{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{8\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}}$$

Problem 469: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^4}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 3, 135 leaves, 11 steps):

$$-\frac{7\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{8\,\sqrt{a}\,d}+\frac{9\,\text{Cot}[c+d\,x]}{8\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{12\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 292 leaves):

$$\frac{1}{24\,d\left(\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\right)^3\sqrt{a\,(1+\text{Sin}[c+d\,x])}}\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^9\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)$$
$$\left(36\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-46\,\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]-54\,\text{Cos}\left[\frac{5}{2}(c+d\,x)\right]-\right.$$
$$36\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-63\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]+$$
$$63\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]-46\,\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]+$$
$$54\,\text{Sin}\left[\frac{5}{2}(c+d\,x)\right]+21\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]-$$
$$\left.21\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]\right)$$

Problem 470: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 3, 170 leaves, 15 steps):

$$-\frac{11\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{64\,\sqrt{a}\,d}-\frac{11\,\text{Cot}[c+d\,x]}{64\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{53\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{96\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{24\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 374 leaves):

$$\frac{1}{192\,d\,\left(\mathrm{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^2-\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)^4\,\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}}$$

$$\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{12}\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\left(214\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-558\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-490\,\mathrm{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]+\right.$$
$$66\,\mathrm{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]-99\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$132\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$33\,\mathrm{Cos}[4\,(c+d\,x)]\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$99\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$132\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$33\,\mathrm{Cos}[4\,(c+d\,x)]\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-214\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-$$
$$\left.558\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]+490\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]+66\,\mathrm{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]\right)$$

Problem 476: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^2\,\mathrm{Cot}[c+d\,x]^2}{(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 94 leaves, 9 steps):

$$\frac{3\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\,x]}{\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\right]}{a^{3/2}\,d}-\frac{\mathrm{Cos}[c+d\,x]}{a\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-\frac{\mathrm{Cot}[c+d\,x]\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{a^2\,d}$$

Result (type 3, 220 leaves):

$$\left(\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right.$$
$$\left(2-8\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Cot}\left[\frac{1}{4}\,(c+d\,x)\right]+6\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\right.$$
$$6\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$\frac{2\,\mathrm{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]}{\mathrm{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]}-\frac{2\,\mathrm{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]}{\mathrm{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]}+$$
$$\left.\left.8\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right)\Big/\left(4\,d\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{3/2}\right)$$

Problem 477: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x] \, \text{Cot}[c+d x]^3}{(a+a \, \text{Sin}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 106 leaves, 8 steps):

$$-\frac{3 \, \text{ArcTanh}\left[\frac{\sqrt{a} \, \text{Cos}[c+d x]}{\sqrt{a+a \, \text{Sin}[c+d x]}}\right]}{4 \, a^{3/2} \, d}+\frac{7 \, \text{Cot}[c+d x]}{4 \, a \, d \, \sqrt{a+a \, \text{Sin}[c+d x]}}-\frac{\text{Cot}[c+d x] \, \text{Csc}[c+d x] \, \sqrt{a+a \, \text{Sin}[c+d x]}}{2 \, a^2 \, d}$$

Result (type 3, 274 leaves):

$$\frac{1}{32 \, d \, (a \, (1+\text{Sin}[c+d x]))^{3/2}} \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3$$
$$\left(-24+12 \, \text{Cot}\left[\frac{1}{4} (c+d x)\right]-\text{Csc}\left[\frac{1}{4} (c+d x)\right]^2-12 \, \text{Log}\left[1+\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\right.$$
$$12 \, \text{Log}\left[1-\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+$$
$$\text{Sec}\left[\frac{1}{4} (c+d x)\right]^2+\frac{2}{\left(\text{Cos}\left[\frac{1}{4} (c+d x)\right]-\text{Sin}\left[\frac{1}{4} (c+d x)\right]\right)^2}-$$
$$\frac{24 \, \text{Sin}\left[\frac{1}{4} (c+d x)\right]}{\text{Cos}\left[\frac{1}{4} (c+d x)\right]-\text{Sin}\left[\frac{1}{4} (c+d x)\right]}-\frac{2}{\left(\text{Cos}\left[\frac{1}{4} (c+d x)\right]+\text{Sin}\left[\frac{1}{4} (c+d x)\right]\right)^2}+$$
$$\left.\frac{24 \, \text{Sin}\left[\frac{1}{4} (c+d x)\right]}{\text{Cos}\left[\frac{1}{4} (c+d x)\right]+\text{Sin}\left[\frac{1}{4} (c+d x)\right]}+12 \, \text{Tan}\left[\frac{1}{4} (c+d x)\right]\right)$$

Problem 478: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^4}{(a+a \, \text{Sin}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 144 leaves, 10 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a} \, \text{Cos}[c+d x]}{\sqrt{a+a \, \text{Sin}[c+d x]}}\right]}{8 \, a^{3/2} \, d}-\frac{\text{Cot}[c+d x]}{8 \, a \, d \, \sqrt{a+a \, \text{Sin}[c+d x]}}+$$
$$\frac{11 \, \text{Cot}[c+d x] \, \text{Csc}[c+d x]}{12 \, a \, d \, \sqrt{a+a \, \text{Sin}[c+d x]}}-\frac{\text{Cot}[c+d x] \, \text{Csc}[c+d x]^2 \, \sqrt{a+a \, \text{Sin}[c+d x]}}{3 \, a^2 \, d}$$

Result (type 3, 294 leaves):

$$\frac{1}{24\,d\left(\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\right)^3\left(a\,(1+\text{Sin}[c+d\,x])\right)^{3/2}}$$

$$\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^9\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3$$

$$\Big(-132\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+62\,\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]+6\,\text{Cos}\left[\frac{5}{2}(c+d\,x)\right]+$$

$$132\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-9\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]+$$

$$9\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]+62\,\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]-$$

$$6\,\text{Sin}\left[\frac{5}{2}(c+d\,x)\right]+3\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]-$$

$$3\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]\Big)$$

Problem 479: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 182 leaves, 12 steps):

$$-\frac{3\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{64\,a^{3/2}\,d}-\frac{3\,\text{Cot}[c+d\,x]}{64\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{32\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+$$

$$\frac{5\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{8\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{4\,a^2\,d}$$

Result (type 3, 376 leaves):

$$-\left(1\Big/\left(64\,d\left(\mathrm{Csc}\left[\frac{1}{4}\,(c+d\,x)\right]^2-\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)^4\,\left(a\,\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{3/2}\right)\right)$$

$$\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{12}\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3$$

$$\left(446\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-182\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-2\,\mathrm{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]-\right.$$

$$6\,\mathrm{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]+9\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$

$$12\,\mathrm{Cos}\left[2\,(c+d\,x)\right]\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$

$$3\,\mathrm{Cos}\left[4\,(c+d\,x)\right]\,\mathrm{Log}\left[1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$

$$9\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$

$$12\,\mathrm{Cos}\left[2\,(c+d\,x)\right]\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$

$$3\,\mathrm{Cos}\left[4\,(c+d\,x)\right]\,\mathrm{Log}\left[1-\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$

$$\left.446\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-182\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]+2\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]-6\,\mathrm{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]\right)$$

Problem 481: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Cos}[c+d\,x]^4\,\mathrm{Sin}[c+d\,x]^4}{\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 260 leaves, 18 steps):

$$-\frac{4\,\sqrt{2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\right]}{a^{5/2}\,d}+\frac{4496\,\mathrm{Cos}[c+d\,x]}{693\,a^2\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{200\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^2}{231\,a^2\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-\frac{424\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^3}{693\,a^2\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}+\frac{46\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^4}{99\,a^2\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{2\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^5}{11\,a^2\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-\frac{1048\,\mathrm{Cos}[c+d\,x]\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{693\,a^3\,d}$$

Result (type 3, 224 leaves):

$$\frac{1}{11088\, d\, \left(a\, \left(1+\mathrm{Sin}[c+d\, x]\right)\right)^{5/2}}\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\, x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\, x)\right]\right)^5$$
$$\left(\left(88704+88704\, i\right)\,(-1)^{3/4}\,\mathrm{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\,\left(-1+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\, x)\right]\right)\right]+\right.$$
$$73458\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\, x)\right]-15246\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\, x)\right]-4851\,\mathrm{Cos}\left[\frac{5}{2}\,(c+d\, x)\right]+$$
$$1485\,\mathrm{Cos}\left[\frac{7}{2}\,(c+d\, x)\right]+385\,\mathrm{Cos}\left[\frac{9}{2}\,(c+d\, x)\right]-63\,\mathrm{Cos}\left[\frac{11}{2}\,(c+d\, x)\right]-$$
$$73458\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\, x)\right]-15246\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\, x)\right]+4851\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\, x)\right]+$$
$$\left.1485\,\mathrm{Sin}\left[\frac{7}{2}\,(c+d\, x)\right]-385\,\mathrm{Sin}\left[\frac{9}{2}\,(c+d\, x)\right]-63\,\mathrm{Sin}\left[\frac{11}{2}\,(c+d\, x)\right]\right)$$

Problem 482: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\mathrm{Cos}[c+d\, x]^4\,\mathrm{Sin}[c+d\, x]^3}{\left(a+a\,\mathrm{Sin}[c+d\, x]\right)^{5/2}}\, dx$$

Optimal (type 3, 222 leaves, 16 steps):

$$\frac{4\,\sqrt{2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[c+d\, x]}{\sqrt{2}\,\sqrt{a+a\,\mathrm{Sin}[c+d\, x]}}\right]}{a^{5/2}\, d}-\frac{2048\,\mathrm{Cos}[c+d\, x]}{315\, a^2\, d\,\sqrt{a+a\,\mathrm{Sin}[c+d\, x]}}-\frac{92\,\mathrm{Cos}[c+d\, x]\,\mathrm{Sin}[c+d\, x]^2}{105\, a^2\, d\,\sqrt{a+a\,\mathrm{Sin}[c+d\, x]}}+$$
$$\frac{38\,\mathrm{Cos}[c+d\, x]\,\mathrm{Sin}[c+d\, x]^3}{63\, a^2\, d\,\sqrt{a+a\,\mathrm{Sin}[c+d\, x]}}-\frac{2\,\mathrm{Cos}[c+d\, x]\,\mathrm{Sin}[c+d\, x]^4}{9\, a^2\, d\,\sqrt{a+a\,\mathrm{Sin}[c+d\, x]}}+\frac{472\,\mathrm{Cos}[c+d\, x]\,\sqrt{a+a\,\mathrm{Sin}[c+d\, x]}}{315\, a^3\, d}$$

Result (type 3, 225 leaves):

$$\frac{1}{2520\, a^3\, d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\, x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\, x)\right]\right)}$$
$$\sqrt{a\,\left(1+\mathrm{Sin}[c+d\, x]\right)}\,\left(\left(20160+20160\, i\right)\,(-1)^{3/4}\,\mathrm{ArcTanh}\left[\right.\right.$$
$$\left.\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\,\mathrm{Sec}\left[\frac{d\, x}{4}\right]\,\left(\mathrm{Cos}\left[\frac{1}{4}\,(2\, c+d\, x)\right]-\mathrm{Sin}\left[\frac{1}{4}\,(2\, c+d\, x)\right]\right)\right]-$$
$$16380\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\, x)\right]+3150\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\, x)\right]+882\,\mathrm{Cos}\left[\frac{5}{2}\,(c+d\, x)\right]-$$
$$225\,\mathrm{Cos}\left[\frac{7}{2}\,(c+d\, x)\right]-35\,\mathrm{Cos}\left[\frac{9}{2}\,(c+d\, x)\right]+16380\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\, x)\right]+$$
$$\left.3150\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\, x)\right]-882\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\, x)\right]-225\,\mathrm{Sin}\left[\frac{7}{2}\,(c+d\, x)\right]+35\,\mathrm{Sin}\left[\frac{9}{2}\,(c+d\, x)\right]\right)$$

Problem 483: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\mathrm{Cos}[c+d\, x]^4\,\mathrm{Sin}[c+d\, x]^2}{\left(a+a\,\mathrm{Sin}[c+d\, x]\right)^{5/2}}\, dx$$

Optimal (type 3, 169 leaves, 6 steps):

$$-\frac{4\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d x]}}\right]}{a^{5/2}\,d}+\frac{4\,\text{Cos}[c+d x]^5}{7\,d\,(a+a\,\text{Sin}[c+d x])^{5/2}}+\frac{2\,\text{Cos}[c+d x]^3}{3\,a\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}-\frac{2\,\text{Cos}[c+d x]^5}{7\,a\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}+\frac{4\,\text{Cos}[c+d x]}{a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d x]}}$$

Result (type 3, 201 leaves):

$$-\frac{1}{84\,a^3\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}\sqrt{a\,(1+\text{Sin}[c+d x])}\,\Big((672+672\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{d x}{4}\right]\left(\text{Cos}\left[\frac{1}{4}(2 c+d x)\right]-\text{Sin}\left[\frac{1}{4}(2 c+d x)\right]\right)\right]-525\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+91\,\text{Cos}\left[\frac{3}{2}(c+d x)\right]+21\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]-3\,\text{Cos}\left[\frac{7}{2}(c+d x)\right]+525\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+91\,\text{Sin}\left[\frac{3}{2}(c+d x)\right]-21\,\text{Sin}\left[\frac{5}{2}(c+d x)\right]-3\,\text{Sin}\left[\frac{7}{2}(c+d x)\right]\Big)$$

Problem 484: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[c+d x]^4\,\text{Sin}[c+d x]}{(a+a\,\text{Sin}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 137 leaves, 5 steps):

$$\frac{4\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d x]}}\right]}{a^{5/2}\,d}-\frac{2\,\text{Cos}[c+d x]^5}{5\,d\,(a+a\,\text{Sin}[c+d x])^{5/2}}-\frac{2\,\text{Cos}[c+d x]^3}{3\,a\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}-\frac{4\,\text{Cos}[c+d x]}{a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d x]}}$$

Result (type 3, 177 leaves):

$$\left(\sqrt{a\,(1+\text{Sin}[c+d x])}\,\Big((240+240\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{d x}{4}\right]\left(\text{Cos}\left[\frac{1}{4}(2 c+d x)\right]-\text{Sin}\left[\frac{1}{4}(2 c+d x)\right]\right)\right]-180\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+25\,\text{Cos}\left[\frac{3}{2}(c+d x)\right]+3\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]+180\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+25\,\text{Sin}\left[\frac{3}{2}(c+d x)\right]-3\,\text{Sin}\left[\frac{5}{2}(c+d x)\right]\Big)\right)\Big/\left(30\,a^3\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)$$

Problem 485: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[c+d x]^3\,\text{Cot}[c+d x]}{(a+a\,\text{Sin}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 113 leaves, 9 steps):

$$-\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{5/2}\,d}+\frac{4\,\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{5/2}\,d}-\frac{2\,\text{Cos}[c+d\,x]}{a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 154 leaves):

$$-\left(\left(\left(\left(8+8\,i\right)\,\left(-1\right)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,\left(-1\right)^{3/4}\,\left(-1+\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]\right)\right]+\right.\right.\right.$$
$$2\,\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]-$$
$$\left.\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]-2\,\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)$$
$$\left.\left.\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^5\right)\Big/\left(d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\right)\right)$$

Problem 486: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d\,x]^2\,\text{Cot}[c+d\,x]^2}{\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 113 leaves, 12 steps):

$$\frac{5\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{5/2}\,d}-\frac{4\,\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{5/2}\,d}-\frac{\text{Cot}[c+d\,x]}{a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 170 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^5\right.$$
$$\left(\left(32+32\,i\right)\,\left(-1\right)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,\left(-1\right)^{3/4}\,\left(-1+\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]\right)\right]-\right.$$
$$\text{Cot}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]+10\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]-$$
$$10\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]+2\,\text{Sec}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]\right)\right)\Big/\left(4\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\right)$$

Problem 487: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^3}{\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 153 leaves, 14 steps):

$$-\frac{23\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{4\,a^{5/2}\,d}+\frac{4\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{5/2}\,d}+\frac{9\,\text{Cot}[c+d\,x]}{4\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 791 leaves):

$$-\frac{5\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{4\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}+\left((8+8\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\Big/\left(d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}\right)+$$

$$\frac{5\,\text{Cot}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{8\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}-\frac{\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{32\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}-$$

$$\left(23\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\Big/\left(8\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}\right)+$$

$$\left(23\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\Big/\left(8\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}\right)+\frac{\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{32\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}+$$

$$\frac{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{16\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^2(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}-\frac{5\,\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{4\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}-$$

$$\frac{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{16\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^2(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}+\frac{5\,\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{4\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}+$$

$$\frac{5\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{8\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}}$$

Problem 488: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cot}[c+d x]^4}{(a+a \text{Sin}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 191 leaves, 16 steps):

$$\frac{45 \text{ArcTanh}\left[\frac{\sqrt{a} \text{Cos}[c+d x]}{\sqrt{a+a \text{Sin}[c+d x]}}\right]}{8 a^{5/2} d}-\frac{4 \sqrt{2} \text{ArcTanh}\left[\frac{\sqrt{a} \text{Cos}[c+d x]}{\sqrt{2} \sqrt{a+a \text{Sin}[c+d x]}}\right]}{a^{5/2} d}-\frac{19 \text{Cot}[c+d x]}{8 a^2 d \sqrt{a+a \text{Sin}[c+d x]}}+\frac{13 \text{Cot}[c+d x] \text{Csc}[c+d x]}{12 a^2 d \sqrt{a+a \text{Sin}[c+d x]}}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^2}{3 a^2 d \sqrt{a+a \text{Sin}[c+d x]}}$$

Result (type 3, 332 leaves):

$$\frac{1}{192 d (a (1+\text{Sin}[c+d x]))^{5/2}}\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5$$
$$\left((1536+1536 i)(-1)^{3/4} \text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]-\right.$$
$$\frac{1}{\left(\text{Csc}\left[\frac{1}{4}(c+d x)\right]^2-\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\right)^3}$$
$$8 \text{Csc}\left[\frac{1}{2}(c+d x)\right]^9\left(396 \text{Cos}\left[\frac{1}{2}(c+d x)\right]-218 \text{Cos}\left[\frac{3}{2}(c+d x)\right]-114 \text{Cos}\left[\frac{5}{2}(c+d x)\right]-\right.$$
$$396 \text{Sin}\left[\frac{1}{2}(c+d x)\right]-405 \text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \text{Sin}[c+d x]+$$
$$405 \text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \text{Sin}[c+d x]-218 \text{Sin}\left[\frac{3}{2}(c+d x)\right]+$$
$$114 \text{Sin}\left[\frac{5}{2}(c+d x)\right]+135 \text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \text{Sin}[3(c+d x)]-$$
$$\left.\left.135 \text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \text{Sin}[3(c+d x)]\right)\right)$$

Problem 489: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^4 \text{Csc}[c+d x]}{(a+a \text{Sin}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 229 leaves, 18 steps):

$$-\frac{363\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{64\,a^{5/2}\,d}+\frac{4\,\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{a^{5/2}\,d}+\frac{149\,\text{Cot}[c+d\,x]}{64\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{107\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{96\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{17\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{24\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 1327 leaves):

$$-\frac{155\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{96\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+\left((8+8\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\Big/\left(d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}\right)+$$

$$\frac{155\,\text{Cot}\left[\frac{1}{4}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{192\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{51\,\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{512\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\left(5\,\text{Cot}\left[\frac{1}{4}(c+d\,x)\right]\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\Big/\left(384\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}\right)-\frac{\text{Csc}\left[\frac{1}{4}(c+d\,x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{1024\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\left(363\,\text{Log}\left[1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\Big/\left(128\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}\right)+$$

$$\left(363\,\text{Log}\left[1-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\Big/\left(128\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}\right)+\frac{51\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{512\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{1024\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{256\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^4\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{133\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}{768\,d\left(\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(c+d\,x)\right]\right)^2\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{5\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{96\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^3\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{155\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{96\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{256\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^4\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{5\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{96\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^3\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{173\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{768\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)^2\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{155\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{96\,d\,\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{155\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{192\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\left(5\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\Big/\left(384\,d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}\right)$$

Problem 490: Unable to integrate problem.

$$\int \text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^n\,(a+a\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 5, 200 leaves, 5 steps):

$$\left(a^2\,\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\frac{1+n}{2},\frac{3+n}{2},\text{Sin}[c+d\,x]^2\right]\,\text{Sin}[c+d\,x]^{1+n}\right)\Big/\left(d\,(1+n)\,\sqrt{\text{Cos}[c+d\,x]^2}\right)+$$
$$\left(2\,a^2\,\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\frac{2+n}{2},\frac{4+n}{2},\text{Sin}[c+d\,x]^2\right]\,\text{Sin}[c+d\,x]^{2+n}\right)\Big/\left(d\,(2+n)\,\sqrt{\text{Cos}[c+d\,x]^2}\right)+$$
$$\left(a^2\,\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\frac{3+n}{2},\frac{5+n}{2},\text{Sin}[c+d\,x]^2\right]\,\text{Sin}[c+d\,x]^{3+n}\right)\Big/\left(d\,(3+n)\,\sqrt{\text{Cos}[c+d\,x]^2}\right)$$

Result (type 8, 31 leaves):

$$\int \text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^n\,(a+a\,\text{Sin}[c+d\,x])^2\,dx$$

Problem 491: Unable to integrate problem.

$$\int \text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^n\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 5, 129 leaves, 3 steps):

$$\left(a\,\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\frac{1+n}{2},\frac{3+n}{2},\text{Sin}[c+d\,x]^2\right]\text{Sin}[c+d\,x]^{1+n}\right)\Big/\left(d\,(1+n)\,\sqrt{\text{Cos}[c+d\,x]^2}\right)+\left(a\,\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\frac{2+n}{2},\frac{4+n}{2},\text{Sin}[c+d\,x]^2\right]\text{Sin}[c+d\,x]^{2+n}\right)\Big/\left(d\,(2+n)\,\sqrt{\text{Cos}[c+d\,x]^2}\right)$$

Result (type 8, 29 leaves):

$$\int \text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^n\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Problem 492: Unable to integrate problem.

$$\int \frac{\text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^n}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 5, 134 leaves, 3 steps):

$$\left(\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\frac{1+n}{2},\frac{3+n}{2},\text{Sin}[c+d\,x]^2\right]\text{Sin}[c+d\,x]^{1+n}\right)\Big/\left(a\,d\,(1+n)\,\sqrt{\text{Cos}[c+d\,x]^2}\right)-\left(\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\frac{2+n}{2},\frac{4+n}{2},\text{Sin}[c+d\,x]^2\right]\text{Sin}[c+d\,x]^{2+n}\right)\Big/\left(a\,d\,(2+n)\,\sqrt{\text{Cos}[c+d\,x]^2}\right)$$

Result (type 9, 23 962 leaves): Display of huge result suppressed!

Problem 504: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 86 leaves, 4 steps):

$$-\frac{a\,\mathrm{Csc}[c+d\,x]}{d}+\frac{a\,\mathrm{Csc}[c+d\,x]^2}{d}+\frac{2\,a\,\mathrm{Csc}[c+d\,x]^3}{3\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^4}{4\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^5}{5\,d}+\frac{a\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}$$

Result (type 3, 198 leaves):

$$-\frac{89\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{240\,d}+\frac{31\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{480\,d}-\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{160\,d}+\frac{a\,\mathrm{Csc}[c+d\,x]^2}{d}-\frac{a\,\mathrm{Csc}[c+d\,x]^4}{4\,d}+\frac{a\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{89\,a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{240\,d}+\frac{31\,a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{480\,d}-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{160\,d}$$

Problem 505: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^5\,\mathrm{Csc}[c+d\,x]^2\,(a+a\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 61 leaves, 6 steps):

$$-\frac{a\,\mathrm{Cot}[c+d\,x]^6}{6\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]}{d}+\frac{2\,a\,\mathrm{Csc}[c+d\,x]^3}{3\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^5}{5\,d}$$

Result (type 3, 173 leaves):

$$-\frac{89\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{240\,d}-\frac{a\,\mathrm{Cot}[c+d\,x]^6}{6\,d}+\frac{31\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{480\,d}-\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{160\,d}-\frac{89\,a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{240\,d}+\frac{31\,a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{480\,d}-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{160\,d}$$

Problem 506: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^5\,\mathrm{Csc}[c+d\,x]^3\,(a+a\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 65 leaves, 6 steps):

$$-\frac{a\,\mathrm{Cot}[c+d\,x]^6}{6\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^3}{3\,d}+\frac{2\,a\,\mathrm{Csc}[c+d\,x]^5}{5\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^7}{7\,d}$$

Result (type 3, 233 leaves):

$$-\frac{103\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{3360\,d}-\frac{a\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{103\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{6720\,d}+\frac{9\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{1120\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{896\,d}-\frac{103\,a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{3360\,d}-\frac{103\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{6720\,d}+\frac{9\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1120\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{896\,d}$$

Problem 507: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 81 leaves, 7 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Csc}[c+d\,x]^3}{3\,d}+\frac{2\,a\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Csc}[c+d\,x]^7}{7\,d}$$

Result (type 3, 265 leaves):

$$-\frac{103\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{3360\,d}-\frac{103\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{6720\,d}+\frac{9\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{1120\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{896\,d}-\frac{a\,\text{Csc}[c+d\,x]^4}{4\,d}+\frac{a\,\text{Csc}[c+d\,x]^6}{3\,d}-\frac{a\,\text{Csc}[c+d\,x]^8}{8\,d}-\frac{103\,a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{3360\,d}-\frac{103\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{6720\,d}+\frac{9\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1120\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{896\,d}$$

Problem 508: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 81 leaves, 7 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Csc}[c+d\,x]^5}{5\,d}+\frac{2\,a\,\text{Csc}[c+d\,x]^7}{7\,d}-\frac{a\,\text{Csc}[c+d\,x]^9}{9\,d}$$

Result (type 3, 325 leaves):

$$-\frac{649\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}-\frac{649\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{161\,280\,d}-\frac{31\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{53\,760\,d}+\frac{37\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{32\,256\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4608\,d}-\frac{a\,\text{Csc}[c+d\,x]^4}{4\,d}+\frac{a\,\text{Csc}[c+d\,x]^6}{3\,d}-\frac{a\,\text{Csc}[c+d\,x]^8}{8\,d}-\frac{649\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}-\frac{649\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{161\,280\,d}-\frac{31\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{53\,760\,d}+\frac{37\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{32\,256\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4608\,d}$$

Problem 509: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^6\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 97 leaves, 4 steps):

$$-\frac{a\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Csc}[c+d\,x]^6}{6\,d}+\frac{2\,a\,\text{Csc}[c+d\,x]^7}{7\,d}+\frac{a\,\text{Csc}[c+d\,x]^8}{4\,d}-\frac{a\,\text{Csc}[c+d\,x]^9}{9\,d}-\frac{a\,\text{Csc}[c+d\,x]^{10}}{10\,d}$$

Result (type 3, 325 leaves):

$$-\frac{649\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}-\frac{649\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{161\,280\,d}-\frac{31\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{53\,760\,d}+\frac{37\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{32\,256\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4608\,d}-\frac{a\,\text{Csc}[c+d\,x]^6}{6\,d}+\frac{a\,\text{Csc}[c+d\,x]^8}{4\,d}-\frac{a\,\text{Csc}[c+d\,x]^{10}}{10\,d}-\frac{649\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}-\frac{649\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{161\,280\,d}-\frac{31\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{53\,760\,d}+\frac{37\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{32\,256\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4608\,d}$$

Problem 510: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^5 \text{Csc}[c+d x]^7 (a+a \text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 97 leaves, 4 steps):

$$-\frac{a \text{Csc}[c+d x]^6}{6 d}-\frac{a \text{Csc}[c+d x]^7}{7 d}+\frac{a \text{Csc}[c+d x]^8}{4 d}+\frac{2 a \text{Csc}[c+d x]^9}{9 d}-\frac{a \text{Csc}[c+d x]^{10}}{10 d}-\frac{a \text{Csc}[c+d x]^{11}}{11 d}$$

Result (type 3, 385 leaves):

$$-\frac{1109 a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{354816 d}-\frac{1109 a \text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^2}{709632 d}-\frac{13 a \text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^4}{29568 d}+\frac{173 a \text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^6}{1419264 d}+\frac{17 a \text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^8}{101376 d}-\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^{10}}{22528 d}-\frac{a \text{Csc}[c+d x]^6}{6 d}+\frac{a \text{Csc}[c+d x]^8}{4 d}-\frac{a \text{Csc}[c+d x]^{10}}{10 d}-\frac{1109 a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{354816 d}-\frac{1109 a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{709632 d}-\frac{13 a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^4 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{29568 d}+\frac{173 a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^6 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{1419264 d}+\frac{17 a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^8 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{101376 d}-\frac{a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^{10} \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{22528 d}$$

Problem 520: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^5 \text{Csc}[c+d x]^2 (a+a \text{Sin}[c+d x])^2 \, dx$$

Optimal (type 3, 119 leaves, 4 steps):

$$-\frac{2 a^2 \text{Csc}[c+d x]}{d}+\frac{a^2 \text{Csc}[c+d x]^2}{2 d}+\frac{4 a^2 \text{Csc}[c+d x]^3}{3 d}+\frac{a^2 \text{Csc}[c+d x]^4}{4 d}-\frac{2 a^2 \text{Csc}[c+d x]^5}{5 d}-\frac{a^2 \text{Csc}[c+d x]^6}{6 d}+\frac{a^2 \text{Log}[\text{Sin}[c+d x]]}{d}$$

Result (type 3, 280 leaves):

$$a^2 \left(-\frac{89\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{120\,d}+\frac{9\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{64\,d}+\frac{31\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{240\,d}+\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{128\,d}-\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{80\,d}-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^6}{384\,d}+\frac{\text{Log}[\text{Sin}[c+d x]]}{d}+\frac{9\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{64\,d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{128\,d}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^6}{384\,d}-\frac{89\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{120\,d}+\frac{31\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{240\,d}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{80\,d}\right)$$

Problem 529: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^5\,\text{Csc}[c+d x]^2\,(a+a\,\text{Sin}[c+d x])^3\,dx$$

Optimal (type 3, 133 leaves, 4 steps):

$$-\frac{a^3\,\text{Csc}[c+d x]}{d}+\frac{5\,a^3\,\text{Csc}[c+d x]^2}{2\,d}+\frac{5\,a^3\,\text{Csc}[c+d x]^3}{3\,d}-\frac{a^3\,\text{Csc}[c+d x]^4}{4\,d}-\frac{3\,a^3\,\text{Csc}[c+d x]^5}{5\,d}-\frac{a^3\,\text{Csc}[c+d x]^6}{6\,d}+\frac{3\,a^3\,\text{Log}[\text{Sin}[c+d x]]}{d}+\frac{a^3\,\text{Sin}[c+d x]}{d}$$

Result (type 3, 291 leaves):

$$a^3 \left(-\frac{47\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{240\,d}+\frac{37\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{64\,d}+\frac{73\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{480\,d}-\frac{3\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{128\,d}-\frac{3\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{160\,d}-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^6}{384\,d}+\frac{3\,\text{Log}[\text{Sin}[c+d x]]}{d}+\frac{37\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{64\,d}-\frac{3\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{128\,d}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^6}{384\,d}+\frac{\text{Sin}[c+d x]}{d}-\frac{47\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{240\,d}+\frac{73\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{480\,d}-\frac{3\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{160\,d}\right)$$

Problem 530: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]\,\text{Cot}[c+d x]^4\,(a+a\,\text{Sin}[c+d x])^4\,dx$$

Optimal (type 3, 145 leaves, 4 steps):

$$-\frac{4 a^4 \text{Csc}[c+d x]}{d}-\frac{2 a^4 \text{Csc}[c+d x]^2}{d}-\frac{a^4 \text{Csc}[c+d x]^3}{3 d}-\frac{4 a^4 \text{Log}[\text{Sin}[c+d x]]}{d}-\frac{10 a^4 \text{Sin}[c+d x]}{d}-\frac{2 a^4 \text{Sin}[c+d x]^2}{d}+\frac{4 a^4 \text{Sin}[c+d x]^3}{3 d}+\frac{a^4 \text{Sin}[c+d x]^4}{d}+\frac{a^4 \text{Sin}[c+d x]^5}{5 d}$$

Result (type 3, 636 leaves) :

$$\frac{\text{Cos}[2 (c+d x)] (a+a \text{Sin}[c+d x])^4}{2 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}+\frac{\text{Cos}[4 (c+d x)] (a+a \text{Sin}[c+d x])^4}{8 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{25 \text{Cot}\left[\frac{1}{2} (c+d x)\right] (a+a \text{Sin}[c+d x])^4}{12 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{\text{Csc}\left[\frac{1}{2} (c+d x)\right]^2 (a+a \text{Sin}[c+d x])^4}{2 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{\text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^2 (a+a \text{Sin}[c+d x])^4}{24 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{4 \text{Log}[\text{Sin}[c+d x]] (a+a \text{Sin}[c+d x])^4}{d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 (a+a \text{Sin}[c+d x])^4}{2 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{71 \text{Sin}[c+d x] (a+a \text{Sin}[c+d x])^4}{8 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{19 (a+a \text{Sin}[c+d x])^4 \text{Sin}[3 (c+d x)]}{48 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}+\frac{(a+a \text{Sin}[c+d x])^4 \text{Sin}[5 (c+d x)]}{80 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{25 (a+a \text{Sin}[c+d x])^4 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{12 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}-\frac{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 (a+a \text{Sin}[c+d x])^4 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{24 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}$$

Problem 561: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^5}{(a+a \text{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 96 leaves, 3 steps) :

$$\frac{4 \text{Csc}[c+d x]}{a^3 d}-\frac{2 \text{Csc}[c+d x]^2}{a^3 d}+\frac{\text{Csc}[c+d x]^3}{a^3 d}-\frac{\text{Csc}[c+d x]^4}{4 a^3 d}+\frac{4 \text{Log}[\text{Sin}[c+d x]]}{a^3 d}-\frac{4 \text{Log}[1+\text{Sin}[c+d x]]}{a^3 d}$$

Result (type 3, 558 leaves) :

$$\frac{9\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{4\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{17\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{32\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\left(\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\right)\Big/$$
$$\left(8\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)-\frac{\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\left(8\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\right)\Big/$$
$$\left(d\,(a+a\,\text{Sin}[c+d\,x])^3\right)+\frac{4\,\text{Log}[\text{Sin}[c+d\,x]]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{17\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{32\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{9\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{4\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$
$$\left(\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/$$
$$\left(8\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)$$

Problem 563: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^5}{(a+a\,\text{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 3, 120 leaves, 3 steps):

$$\frac{12\,\text{Csc}[c+d\,x]}{a^4\,d}-\frac{4\,\text{Csc}[c+d\,x]^2}{a^4\,d}+\frac{4\,\text{Csc}[c+d\,x]^3}{3\,a^4\,d}-\frac{\text{Csc}[c+d\,x]^4}{4\,a^4\,d}+$$
$$\frac{16\,\text{Log}[\text{Sin}[c+d\,x]]}{a^4\,d}-\frac{16\,\text{Log}[1+\text{Sin}[c+d\,x]]}{a^4\,d}+\frac{4}{d\,(a^4+a^4\,\text{Sin}[c+d\,x])}$$

Result (type 3, 598 leaves):

$$\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{d\,(a+a\,\text{Sin}[c+d x])^4}+$$
$$\frac{19\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{3\,d\,(a+a\,\text{Sin}[c+d x])^4}-$$
$$\frac{33\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{32\,d\,(a+a\,\text{Sin}[c+d x])^4}+$$
$$\left(\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\right)\Big/$$
$$\left(6\,d\,(a+a\,\text{Sin}[c+d x])^4\right)-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{64\,d\,(a+a\,\text{Sin}[c+d x])^4}-$$
$$\left(32\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\right)\Big/$$
$$\left(d\,(a+a\,\text{Sin}[c+d x])^4\right)+\frac{16\,\text{Log}[\text{Sin}[c+d x]]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{d\,(a+a\,\text{Sin}[c+d x])^4}-$$
$$\frac{33\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{32\,d\,(a+a\,\text{Sin}[c+d x])^4}-$$
$$\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{64\,d\,(a+a\,\text{Sin}[c+d x])^4}+$$
$$\frac{19\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{3\,d\,(a+a\,\text{Sin}[c+d x])^4}+$$
$$\left(\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/$$
$$\left(6\,d\,(a+a\,\text{Sin}[c+d x])^4\right)$$

Problem 564: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d x]^5\,\text{Csc}[c+d x]}{(a+a\,\text{Sin}[c+d x])^4}\,dx$$

Optimal (type 3, 135 leaves, 4 steps):

$$-\frac{16\,\text{Csc}[c+d x]}{a^4 d}+\frac{6\,\text{Csc}[c+d x]^2}{a^4 d}-\frac{8\,\text{Csc}[c+d x]^3}{3\,a^4 d}+\frac{\text{Csc}[c+d x]^4}{a^4 d}-\frac{\text{Csc}[c+d x]^5}{5\,a^4 d}-$$
$$\frac{20\,\text{Log}[\text{Sin}[c+d x]]}{a^4 d}+\frac{20\,\text{Log}[1+\text{Sin}[c+d x]]}{a^4 d}-\frac{4}{d\,(a^4+a^4\,\text{Sin}[c+d x])}$$

Result (type 3, 726 leaves):

$$-\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{d\,(a+a\,\text{Sin}[c+d x])^4}-\frac{2089\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{240\,d\,(a+a\,\text{Sin}[c+d x])^4}+\frac{13\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{8\,d\,(a+a\,\text{Sin}[c+d x])^4}-\left(169\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\right)\Big/\left(480\,d\,(a+a\,\text{Sin}[c+d x])^4\right)+\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{16\,d\,(a+a\,\text{Sin}[c+d x])^4}-\left(\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\right)\Big/\left(160\,d\,(a+a\,\text{Sin}[c+d x])^4\right)+\left(40\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\right)\Big/\left(d\,(a+a\,\text{Sin}[c+d x])^4\right)-\frac{20\,\text{Log}[\text{Sin}[c+d x]]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{d\,(a+a\,\text{Sin}[c+d x])^4}+\frac{13\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{8\,d\,(a+a\,\text{Sin}[c+d x])^4}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}{16\,d\,(a+a\,\text{Sin}[c+d x])^4}-\frac{2089\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{240\,d\,(a+a\,\text{Sin}[c+d x])^4}-\left(169\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(480\,d\,(a+a\,\text{Sin}[c+d x])^4\right)-\left(\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(160\,d\,(a+a\,\text{Sin}[c+d x])^4\right)$$

Problem 565: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^5\,\text{Sin}[c+d x]^n\,(a+a\,\text{Sin}[c+d x])^3\,dx$$

Optimal (type 3, 181 leaves, 3 steps):

$$\frac{a^3 \text{Sin}[c+d x]^{1+n}}{d (1+n)}+\frac{3 a^3 \text{Sin}[c+d x]^{2+n}}{d (2+n)}+\frac{a^3 \text{Sin}[c+d x]^{3+n}}{d (3+n)}-\frac{5 a^3 \text{Sin}[c+d x]^{4+n}}{d (4+n)}-\frac{5 a^3 \text{Sin}[c+d x]^{5+n}}{d (5+n)}+\frac{a^3 \text{Sin}[c+d x]^{6+n}}{d (6+n)}+\frac{3 a^3 \text{Sin}[c+d x]^{7+n}}{d (7+n)}+\frac{a^3 \text{Sin}[c+d x]^{8+n}}{d (8+n)}$$

Result (type 3, 843 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^6}$$

$$\text{Sin}[c+d\,x]^n\left(a+a\,\text{Sin}[c+d\,x]\right)^3\left(\frac{18\,064+5508\,n+596\,n^2+27\,n^3}{128\,(2+n)\,(4+n)\,(6+n)\,(8+n)}+\right.$$
$$\left(\left(5775+3015\,n+329\,n^2+17\,n^3\right)\left(-\frac{1}{128}\,\mathrm{i}\,\text{Cos}[c+d\,x]+\frac{1}{128}\,\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left((1+n)\,(3+n)\,(5+n)\,(7+n)\right)+$$
$$\left(\left(5775+3015\,n+329\,n^2+17\,n^3\right)\left(\frac{1}{128}\,\mathrm{i}\,\text{Cos}[c+d\,x]+\frac{1}{128}\,\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left((1+n)\,(3+n)\,(5+n)\,(7+n)\right)+$$
$$\left(\left(-3168-368\,n+38\,n^2+3\,n^3\right)\left(\frac{1}{64}\,\text{Cos}\left[2\left(c+d\,x\right)\right]-\frac{1}{64}\,\mathrm{i}\,\text{Sin}\left[2\left(c+d\,x\right)\right]\right)\right)\Big/$$
$$\left((2+n)\,(4+n)\,(6+n)\,(8+n)\right)+$$
$$\left(\left(-3168-368\,n+38\,n^2+3\,n^3\right)\left(\frac{1}{64}\,\text{Cos}\left[2\left(c+d\,x\right)\right]+\frac{1}{64}\,\mathrm{i}\,\text{Sin}\left[2\left(c+d\,x\right)\right]\right)\right)\Big/$$
$$\left((2+n)\,(4+n)\,(6+n)\,(8+n)\right)+$$
$$\left(\left(595+304\,n+21\,n^2\right)\left(-\frac{1}{128}\,\mathrm{i}\,\text{Cos}\left[3\left(c+d\,x\right)\right]+\frac{1}{128}\,\text{Sin}\left[3\left(c+d\,x\right)\right]\right)\right)\Big/$$
$$\left((3+n)\,(5+n)\,(7+n)\right)+$$
$$\left(\left(595+304\,n+21\,n^2\right)\left(\frac{1}{128}\,\mathrm{i}\,\text{Cos}\left[3\left(c+d\,x\right)\right]+\frac{1}{128}\,\text{Sin}\left[3\left(c+d\,x\right)\right]\right)\right)\Big/$$
$$\left((3+n)\,(5+n)\,(7+n)\right)+\frac{\left(-600-138\,n-7\,n^2\right)\left(\frac{1}{64}\,\text{Cos}\left[4\left(c+d\,x\right)\right]-\frac{1}{64}\,\mathrm{i}\,\text{Sin}\left[4\left(c+d\,x\right)\right]\right)}{(4+n)\,(6+n)\,(8+n)}+$$
$$\frac{\left(-600-138\,n-7\,n^2\right)\left(\frac{1}{64}\,\text{Cos}\left[4\left(c+d\,x\right)\right]+\frac{1}{64}\,\mathrm{i}\,\text{Sin}\left[4\left(c+d\,x\right)\right]\right)}{(4+n)\,(6+n)\,(8+n)}+$$
$$\frac{(-35+n)\left(-\frac{1}{128}\,\mathrm{i}\,\text{Cos}\left[5\left(c+d\,x\right)\right]+\frac{1}{128}\,\text{Sin}\left[5\left(c+d\,x\right)\right]\right)}{(5+n)\,(7+n)}+$$
$$\frac{(-35+n)\left(\frac{1}{128}\,\mathrm{i}\,\text{Cos}\left[5\left(c+d\,x\right)\right]+\frac{1}{128}\,\text{Sin}\left[5\left(c+d\,x\right)\right]\right)}{(5+n)\,(7+n)}+$$
$$\frac{(-20-3\,n)\left(\frac{1}{64}\,\text{Cos}\left[6\left(c+d\,x\right)\right]-\frac{1}{64}\,\mathrm{i}\,\text{Sin}\left[6\left(c+d\,x\right)\right]\right)}{(6+n)\,(8+n)}+$$
$$\frac{(-20-3\,n)\left(\frac{1}{64}\,\text{Cos}\left[6\left(c+d\,x\right)\right]+\frac{1}{64}\,\mathrm{i}\,\text{Sin}\left[6\left(c+d\,x\right)\right]\right)}{(6+n)\,(8+n)}+$$
$$\frac{-\frac{3}{128}\,\mathrm{i}\,\text{Cos}\left[7\left(c+d\,x\right)\right]-\frac{3}{128}\,\text{Sin}\left[7\left(c+d\,x\right)\right]}{7+n}+\frac{\frac{3}{128}\,\mathrm{i}\,\text{Cos}\left[7\left(c+d\,x\right)\right]-\frac{3}{128}\,\text{Sin}\left[7\left(c+d\,x\right)\right]}{7+n}+$$
$$\left.\frac{\frac{1}{256}\,\text{Cos}\left[8\left(c+d\,x\right)\right]-\frac{1}{256}\,\mathrm{i}\,\text{Sin}\left[8\left(c+d\,x\right)\right]}{8+n}+\frac{\frac{1}{256}\,\text{Cos}\left[8\left(c+d\,x\right)\right]+\frac{1}{256}\,\mathrm{i}\,\text{Sin}\left[8\left(c+d\,x\right)\right]}{8+n}\right)$$

Problem 566: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^5 \,\text{Sin}[c+d x]^n \,(a+a \,\text{Sin}[c+d x])^2 \, dx$$

Optimal (type 3, 160 leaves, 3 steps):

$$\frac{a^2 \,\text{Sin}[c+d x]^{1+n}}{d\,(1+n)}+\frac{2\,a^2 \,\text{Sin}[c+d x]^{2+n}}{d\,(2+n)}-\frac{a^2 \,\text{Sin}[c+d x]^{3+n}}{d\,(3+n)}-\frac{4\,a^2 \,\text{Sin}[c+d x]^{4+n}}{d\,(4+n)}-\frac{a^2 \,\text{Sin}[c+d x]^{5+n}}{d\,(5+n)}+\frac{2\,a^2 \,\text{Sin}[c+d x]^{6+n}}{d\,(6+n)}+\frac{a^2 \,\text{Sin}[c+d x]^{7+n}}{d\,(7+n)}$$

Result (type 3, 705 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}$$

$$\text{Sin}[c+d x]^n\,(a+a\,\text{Sin}[c+d x])^2\left(\frac{88+14 n+n^2}{8(2+n)(4+n)(6+n)}+\left(\left(4725+1853 n+211 n^2+11 n^3\right)\left(-\frac{1}{128}\,i\,\text{Cos}[c+d x]+\frac{1}{128}\,\text{Sin}[c+d x]\right)\right)\Big/\left((1+n)(3+n)(5+n)(7+n)\right)+\right.$$
$$\left(\left(4725+1853 n+211 n^2+11 n^3\right)\left(\frac{1}{128}\,i\,\text{Cos}[c+d x]+\frac{1}{128}\,\text{Sin}[c+d x]\right)\right)\Big/$$
$$\left((1+n)(3+n)(5+n)(7+n)\right)+$$
$$\frac{\left(-120+6 n+n^2\right)\left(\frac{1}{32}\,\text{Cos}[2(c+d x)]-\frac{1}{32}\,i\,\text{Sin}[2(c+d x)]\right)}{(2+n)(4+n)(6+n)}+$$
$$\frac{\left(-120+6 n+n^2\right)\left(\frac{1}{32}\,\text{Cos}[2(c+d x)]+\frac{1}{32}\,i\,\text{Sin}[2(c+d x)]\right)}{(2+n)(4+n)(6+n)}+$$
$$\left(\left(665+224 n+15 n^2\right)\left(-\frac{1}{128}\,i\,\text{Cos}[3(c+d x)]+\frac{1}{128}\,\text{Sin}[3(c+d x)]\right)\right)\Big/$$
$$\left((3+n)(5+n)(7+n)\right)+$$
$$\left(\left(665+224 n+15 n^2\right)\left(\frac{1}{128}\,i\,\text{Cos}[3(c+d x)]+\frac{1}{128}\,\text{Sin}[3(c+d x)]\right)\right)\Big/$$
$$\left((3+n)(5+n)(7+n)\right)+\frac{(-12-n)\left(\frac{1}{16}\,\text{Cos}[4(c+d x)]-\frac{1}{16}\,i\,\text{Sin}[4(c+d x)]\right)}{(4+n)(6+n)}+$$
$$\frac{(-12-n)\left(\frac{1}{16}\,\text{Cos}[4(c+d x)]+\frac{1}{16}\,i\,\text{Sin}[4(c+d x)]\right)}{(4+n)(6+n)}+$$
$$\frac{(7+3 n)\left(-\frac{1}{128}\,i\,\text{Cos}[5(c+d x)]+\frac{1}{128}\,\text{Sin}[5(c+d x)]\right)}{(5+n)(7+n)}+$$
$$\frac{(7+3 n)\left(\frac{1}{128}\,i\,\text{Cos}[5(c+d x)]+\frac{1}{128}\,\text{Sin}[5(c+d x)]\right)}{(5+n)(7+n)}+$$
$$\frac{-\frac{1}{32}\,\text{Cos}[6(c+d x)]-\frac{1}{32}\,i\,\text{Sin}[6(c+d x)]}{6+n}+\frac{-\frac{1}{32}\,\text{Cos}[6(c+d x)]+\frac{1}{32}\,i\,\text{Sin}[6(c+d x)]}{6+n}+$$
$$\left.\frac{-\frac{1}{128}\,i\,\text{Cos}[7(c+d x)]-\frac{1}{128}\,\text{Sin}[7(c+d x)]}{7+n}+\frac{\frac{1}{128}\,i\,\text{Cos}[7(c+d x)]-\frac{1}{128}\,\text{Sin}[7(c+d x)]}{7+n}\right)$$

Problem 567: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^5\,\text{Sin}[c+d x]^n\,(a+a\,\text{Sin}[c+d x])\,dx$$

Optimal (type 3, 123 leaves, 3 steps):

$$\frac{a\,\text{Sin}[c+d\,x]^{1+n}}{d\,(1+n)}+\frac{a\,\text{Sin}[c+d\,x]^{2+n}}{d\,(2+n)}-\frac{2\,a\,\text{Sin}[c+d\,x]^{3+n}}{d\,(3+n)}-\frac{2\,a\,\text{Sin}[c+d\,x]^{4+n}}{d\,(4+n)}+\frac{a\,\text{Sin}[c+d\,x]^{5+n}}{d\,(5+n)}+\frac{a\,\text{Sin}[c+d\,x]^{6+n}}{d\,(6+n)}$$

Result (type 3, 345 leaves):

$$\frac{1}{16\,d\,(1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\,(6+n)}a\,\text{Sin}[c+d\,x]^{1+n}\Big(8544+10520\,n+4888\,n^2+1114\,n^3+128\,n^4+6\,n^5+8\,(336+692\,n+484\,n^2+147\,n^3+20\,n^4+n^5)\,\text{Cos}[2\,(c+d\,x)]+2\,(144+324\,n+260\,n^2+95\,n^3+16\,n^4+n^5)\,\text{Cos}[4\,(c+d\,x)]+2640\,\text{Sin}[c+d\,x]+4468\,n\,\text{Sin}[c+d\,x]+2258\,n^2\,\text{Sin}[c+d\,x]+474\,n^3\,\text{Sin}[c+d\,x]+46\,n^4\,\text{Sin}[c+d\,x]+2\,n^5\,\text{Sin}[c+d\,x]+840\,\text{Sin}[3\,(c+d\,x)]+1798\,n\,\text{Sin}[3\,(c+d\,x)]+1331\,n^2\,\text{Sin}[3\,(c+d\,x)]+431\,n^3\,\text{Sin}[3\,(c+d\,x)]+61\,n^4\,\text{Sin}[3\,(c+d\,x)]+3\,n^5\,\text{Sin}[3\,(c+d\,x)]+120\,\text{Sin}[5\,(c+d\,x)]+274\,n\,\text{Sin}[5\,(c+d\,x)]+225\,n^2\,\text{Sin}[5\,(c+d\,x)]+85\,n^3\,\text{Sin}[5\,(c+d\,x)]+15\,n^4\,\text{Sin}[5\,(c+d\,x)]+n^5\,\text{Sin}[5\,(c+d\,x)]\Big)$$

Problem 570: Unable to integrate problem.

$$\int\frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 5, 85 leaves, 4 steps):

$$-\frac{3\,\text{Sin}[c+d\,x]^{1+n}}{a^3\,d\,(1+n)}+\frac{4\,\text{Hypergeometric2F1}[1,\,1+n,\,2+n,\,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}}{a^3\,d\,(1+n)}+\frac{\text{Sin}[c+d\,x]^{2+n}}{a^3\,d\,(2+n)}$$

Result (type 8, 31 leaves):

$$\int\frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Problem 571: Unable to integrate problem.

$$\int\frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 5, 88 leaves, 4 steps):

$$\frac{\text{Sin}[c+d\,x]^{1+n}}{a^4\,d\,(1+n)}-\frac{4\,\text{Hypergeometric2F1}[1,\,1+n,\,2+n,\,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}}{a^4\,d}+\frac{4\,\text{Sin}[c+d\,x]^{1+n}}{d\,(a^4+a^4\,\text{Sin}[c+d\,x])}$$

Result (type 8, 31 leaves):

$$\int \frac{\text{Cos}[c+d x]^5 \,\text{Sin}[c+d x]^n}{(a+a \,\text{Sin}[c+d x])^4} \, dx$$

Problem 585: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^6 \,\text{Csc}[c+d x]^4 \,(a+a \,\text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 138 leaves, 9 steps):

$$\frac{5 a \,\text{ArcTanh}[\text{Cos}[c+d x]]}{128 d}-\frac{a \,\text{Cot}[c+d x]^7}{7 d}-\frac{a \,\text{Cot}[c+d x]^9}{9 d}+\frac{5 a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]}{128 d}-\frac{5 a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^3}{64 d}+\frac{5 a \,\text{Cot}[c+d x]^3 \,\text{Csc}[c+d x]^3}{48 d}-\frac{a \,\text{Cot}[c+d x]^5 \,\text{Csc}[c+d x]^3}{8 d}$$

Result (type 3, 301 leaves):

$$\frac{2 a \,\text{Cot}[c+d x]}{63 d}+\frac{5 a \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^2}{512 d}-\frac{15 a \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^4}{1024 d}+\frac{7 a \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^6}{1536 d}-\frac{a \,\text{Csc}\left[\frac{1}{2} (c+d x)\right]^8}{2048 d}+\frac{a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^2}{63 d}-\frac{5 a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^4}{21 d}+\frac{19 a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^6}{63 d}-\frac{a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^8}{9 d}+\frac{5 a \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right]}{128 d}-\frac{5 a \,\text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{128 d}-\frac{5 a \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{512 d}+\frac{15 a \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^4}{1024 d}-\frac{7 a \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^6}{1536 d}+\frac{a \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^8}{2048 d}$$

Problem 586: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^6 \,\text{Csc}[c+d x]^5 \,(a+a \,\text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 160 leaves, 10 steps):

$$\frac{3 a \,\text{ArcTanh}[\text{Cos}[c+d x]]}{256 d}-\frac{a \,\text{Cot}[c+d x]^7}{7 d}-\frac{a \,\text{Cot}[c+d x]^9}{9 d}+\frac{3 a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]}{256 d}+\frac{a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^3}{128 d}-\frac{a \,\text{Cot}[c+d x] \,\text{Csc}[c+d x]^5}{32 d}+\frac{a \,\text{Cot}[c+d x]^3 \,\text{Csc}[c+d x]^5}{16 d}-\frac{a \,\text{Cot}[c+d x]^5 \,\text{Csc}[c+d x]^5}{10 d}$$

Result (type 3, 341 leaves):

$$\frac{2\,a\,\text{Cot}[c+d\,x]}{63\,d}+\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1024\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{1024\,d}-\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{2048\,d}+\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4096\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{10\,240\,d}+\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{63\,d}-\frac{5\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{21\,d}+\frac{19\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^6}{63\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^8}{9\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{256\,d}-\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{256\,d}-\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1024\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{1024\,d}+\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{2048\,d}-\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4096\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{10\,240\,d}$$

Problem 587: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^6\,\text{Csc}[c+d\,x]^6\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 176 leaves, 10 steps):

$$-\frac{3\,a\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{256\,d}-\frac{a\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{2\,a\,\text{Cot}[c+d\,x]^9}{9\,d}-\frac{a\,\text{Cot}[c+d\,x]^{11}}{11\,d}+\frac{3\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{256\,d}+\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{128\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5}{32\,d}+\frac{a\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^5}{16\,d}-\frac{a\,\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^5}{10\,d}$$

Result (type 3, 363 leaves):

$$\frac{8\,a\,\text{Cot}[c+d\,x]}{693\,d}+\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1024\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{1024\,d}-\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{2048\,d}+\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4096\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{10\,240\,d}+\frac{4\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{693\,d}+\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{231\,d}-\frac{113\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^6}{693\,d}+\frac{23\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^8}{99\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^{10}}{11\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{256\,d}-\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{256\,d}-\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1024\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{1024\,d}+\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{2048\,d}-\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4096\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{10\,240\,d}$$

Problem 594: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^3 \, \text{Cot}[c+d x]^3 \, (a+a \, \text{Sin}[c+d x])^2 \, dx$$

Optimal (type 3, 140 leaves, 16 steps):

$$-\frac{15 a^2 x}{4}+\frac{3 a^2 \text{ArcTanh}[\text{Cos}[c+d x]]}{2 d}-\frac{a^2 \text{Cos}[c+d x]}{d}+\frac{a^2 \text{Cos}[c+d x]^5}{5 d}-\frac{2 a^2 \text{Cot}[c+d x]}{d}-\frac{a^2 \text{Cot}[c+d x] \, \text{Csc}[c+d x]}{2 d}-\frac{9 a^2 \text{Cos}[c+d x] \, \text{Sin}[c+d x]}{4 d}+\frac{a^2 \text{Cos}[c+d x] \, \text{Sin}[c+d x]^3}{2 d}$$

Result (type 3, 607 leaves):

$$-\frac{15 (c+d x) (a+a \, \text{Sin}[c+d x])^2}{4 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{7 \, \text{Cos}[c+d x] (a+a \, \text{Sin}[c+d x])^2}{8 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{\text{Cos}[3 (c+d x)] (a+a \, \text{Sin}[c+d x])^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{\text{Cos}[5 (c+d x)] (a+a \, \text{Sin}[c+d x])^2}{80 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{\text{Cot}\left[\frac{1}{2} (c+d x)\right] (a+a \, \text{Sin}[c+d x])^2}{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{\text{Csc}\left[\frac{1}{2} (c+d x)\right]^2 (a+a \, \text{Sin}[c+d x])^2}{8 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{3 \, \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right] (a+a \, \text{Sin}[c+d x])^2}{2 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{3 \, \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+a \, \text{Sin}[c+d x])^2}{2 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{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 (a+a \, \text{Sin}[c+d x])^2}{8 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{(a+a \, \text{Sin}[c+d x])^2 \, \text{Sin}[2 (c+d x)]}{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{(a+a \, \text{Sin}[c+d x])^2 \, \text{Sin}[4 (c+d x)]}{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{(a+a \, \text{Sin}[c+d x])^2 \, \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}$$

Problem 600: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^6 \, \text{Csc}[c+d x]^3 \, (a+a \, \text{Sin}[c+d x])^2 \, dx$$

Optimal (type 3, 182 leaves, 13 steps):

$$\frac{45 a^2 \text{ArcTanh}[\text{Cos}[c+d x]]}{128 d}-\frac{2 a^2 \text{Cot}[c+d x]^7}{7 d}-\frac{35 a^2 \text{Cot}[c+d x] \, \text{Csc}[c+d x]}{128 d}+\frac{5 a^2 \text{Cot}[c+d x]^3 \, \text{Csc}[c+d x]}{24 d}-\frac{a^2 \text{Cot}[c+d x]^5 \, \text{Csc}[c+d x]}{6 d}-\frac{5 a^2 \text{Cot}[c+d x] \, \text{Csc}[c+d x]^3}{64 d}+\frac{5 a^2 \text{Cot}[c+d x]^3 \, \text{Csc}[c+d x]^3}{48 d}-\frac{a^2 \text{Cot}[c+d x]^5 \, \text{Csc}[c+d x]^3}{8 d}$$

Result (type 3, 401 leaves):

$$a^2 \left(\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{7 d}-\frac{83 \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{512 d}-\frac{19 \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{224 d}+\frac{17 \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{1024 d}+\frac{5 \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{224 d}+\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^6}{512 d}-\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^6}{448 d}-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^8}{2048 d}+\frac{45 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{128 d}-\frac{45 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{128 d}+\frac{83 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{512 d}-\frac{17 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{1024 d}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^6}{512 d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^8}{2048 d}-\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{7 d}+\frac{19 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{224 d}-\frac{5 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^4 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{224 d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^6 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{448 d}\right)$$

Problem 601: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^6 \,\text{Csc}[c+d x]^4 \,(a+a \,\text{Sin}[c+d x])^2 \, dx$$

Optimal (type 3, 152 leaves, 12 steps):

$$\frac{5 a^2 \text{ArcTanh}[\text{Cos}[c+d x]]}{64 d}-\frac{2 a^2 \text{Cot}[c+d x]^7}{7 d}-\frac{a^2 \text{Cot}[c+d x]^9}{9 d}+\frac{5 a^2 \text{Cot}[c+d x] \,\text{Csc}[c+d x]}{64 d}-\frac{5 a^2 \text{Cot}[c+d x] \,\text{Csc}[c+d x]^3}{32 d}+\frac{5 a^2 \text{Cot}[c+d x]^3 \,\text{Csc}[c+d x]^3}{24 d}-\frac{a^2 \text{Cot}[c+d x]^5 \,\text{Csc}[c+d x]^3}{4 d}$$

Result (type 3, 313 leaves):

$$-\frac{1}{1032192\,d}a^2\,\mathrm{Csc}[c+d\,x]^9\Big(72576\,\mathrm{Cos}[c+d\,x]+37632\,\mathrm{Cos}[3\,(c+d\,x)]+6912\,\mathrm{Cos}[5\,(c+d\,x)]-1728\,\mathrm{Cos}[7\,(c+d\,x)]-704\,\mathrm{Cos}[9\,(c+d\,x)]-39690\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[c+d\,x]+39690\,\mathrm{Log}\Big[\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[c+d\,x]+36540\,\mathrm{Sin}[2\,(c+d\,x)]+26460\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[3\,(c+d\,x)]-26460\,\mathrm{Log}\Big[\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[3\,(c+d\,x)]+20916\,\mathrm{Sin}[4\,(c+d\,x)]-11340\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[5\,(c+d\,x)]+11340\,\mathrm{Log}\Big[\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[5\,(c+d\,x)]+16044\,\mathrm{Sin}[6\,(c+d\,x)]+2835\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[7\,(c+d\,x)]-2835\,\mathrm{Log}\Big[\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[7\,(c+d\,x)]+630\,\mathrm{Sin}[8\,(c+d\,x)]-315\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[9\,(c+d\,x)]+315\,\mathrm{Log}\Big[\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\Big]\,\mathrm{Sin}[9\,(c+d\,x)]\Big)$$

Problem 611: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[c+d\,x]^3\,\mathrm{Cot}[c+d\,x]^3\,(a+a\,\mathrm{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 181 leaves, 17 steps):

$$-\frac{85\,a^3\,x}{16}-\frac{a^3\,\mathrm{ArcTanh}[\mathrm{Cos}[c+d\,x]]}{2\,d}+\frac{a^3\,\mathrm{Cos}[c+d\,x]}{d}+\frac{2\,a^3\,\mathrm{Cos}[c+d\,x]^3}{3\,d}+\frac{3\,a^3\,\mathrm{Cos}[c+d\,x]^5}{5\,d}-\frac{3\,a^3\,\mathrm{Cot}[c+d\,x]}{d}-\frac{a^3\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{2\,d}-\frac{43\,a^3\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{16\,d}+\frac{5\,a^3\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^3}{24\,d}+\frac{a^3\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^5}{6\,d}$$

Result (type 3, 664 leaves):

$$-\frac{85\,(c+d\,x)\,(a+a\,\text{Sin}[c+d\,x])^3}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$

$$\frac{15\,\text{Cos}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^3}{8\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{17\,\text{Cos}[3\,(c+d\,x)]\,(a+a\,\text{Sin}[c+d\,x])^3}{48\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$

$$\frac{3\,\text{Cos}[5\,(c+d\,x)]\,(a+a\,\text{Sin}[c+d\,x])^3}{80\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{3\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\,(a+a\,\text{Sin}[c+d\,x])^3}{2\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-$$

$$\frac{\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a+a\,\text{Sin}[c+d\,x])^3}{8\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\,(a+a\,\text{Sin}[c+d\,x])^3}{2\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$

$$\frac{\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\,(a+a\,\text{Sin}[c+d\,x])^3}{2\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a+a\,\text{Sin}[c+d\,x])^3}{8\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-$$

$$\frac{81\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Sin}[2\,(c+d\,x)]}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{3\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Sin}[4\,(c+d\,x)]}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$

$$\frac{(a+a\,\text{Sin}[c+d\,x])^3\,\text{Sin}[6\,(c+d\,x)]}{192\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{3\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}$$

Problem 618: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^6\,\text{Csc}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 200 leaves, 16 steps):

$$\frac{55\,a^3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{128\,d}-\frac{4\,a^3\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{a^3\,\text{Cot}[c+d\,x]^9}{9\,d}-$$

$$\frac{25\,a^3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{128\,d}+\frac{5\,a^3\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]}{24\,d}-\frac{a^3\,\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]}{6\,d}-$$

$$\frac{15\,a^3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{64\,d}+\frac{5\,a^3\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^3}{16\,d}-\frac{3\,a^3\,\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^3}{8\,d}$$

Result (type 3, 459 leaves):

$$a^3 \left(\frac{29\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{126\,d} - \frac{73\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{512\,d} - \frac{4163\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{32\,256\,d} - \frac{13\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{1024\,d} + \frac{319\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{10\,752\,d} + \frac{17\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{1536\,d} - \frac{53\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{32\,256\,d} - \frac{3\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^8}{2048\,d} - \frac{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^8}{4608\,d} + \frac{55\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{128\,d} - \frac{55\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{128\,d} + \frac{73\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{512\,d} + \frac{13\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4}{1024\,d} - \frac{17\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6}{1536\,d} + \frac{3\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^8}{2048\,d} - \frac{29\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{126\,d} + \frac{4163\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{32\,256\,d} - \frac{319\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{10\,752\,d} + \frac{53\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{32\,256\,d} + \frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^8\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{4608\,d}\right)$$

Problem 624: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]^4}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 159 leaves, 9 steps):

$$\frac{3\,x}{128\,a} + \frac{\text{Cos}[c+d\,x]^5}{5\,a\,d} - \frac{2\,\text{Cos}[c+d\,x]^7}{7\,a\,d} + \frac{\text{Cos}[c+d\,x]^9}{9\,a\,d} + \frac{3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{128\,a\,d} + \frac{\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{64\,a\,d} - \frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]}{16\,a\,d} - \frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^3}{8\,a\,d}$$

Result (type 3, 429 leaves):

$$\frac{1}{645120\, a\, d\, \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}$$
$$\left(2520\, (5\, c+6\, d\, x)\, \text{Cos}\left[\frac{c}{2}\right]+7560\, \text{Cos}\left[\frac{c}{2}+d\, x\right]+7560\, \text{Cos}\left[\frac{3\, c}{2}+d\, x\right]+1680\, \text{Cos}\left[\frac{5\, c}{2}+3\, d\, x\right]+\right.$$
$$1680\, \text{Cos}\left[\frac{7\, c}{2}+3\, d\, x\right]-2520\, \text{Cos}\left[\frac{7\, c}{2}+4\, d\, x\right]+2520\, \text{Cos}\left[\frac{9\, c}{2}+4\, d\, x\right]-1008\, \text{Cos}\left[\frac{9\, c}{2}+5\, d\, x\right]-$$
$$1008\, \text{Cos}\left[\frac{11\, c}{2}+5\, d\, x\right]-180\, \text{Cos}\left[\frac{13\, c}{2}+7\, d\, x\right]-180\, \text{Cos}\left[\frac{15\, c}{2}+7\, d\, x\right]+315\, \text{Cos}\left[\frac{15\, c}{2}+8\, d\, x\right]-$$
$$315\, \text{Cos}\left[\frac{17\, c}{2}+8\, d\, x\right]+140\, \text{Cos}\left[\frac{17\, c}{2}+9\, d\, x\right]+140\, \text{Cos}\left[\frac{19\, c}{2}+9\, d\, x\right]+12600\, \text{Sin}\left[\frac{c}{2}\right]+$$
$$12600\, c\, \text{Sin}\left[\frac{c}{2}\right]+15120\, d\, x\, \text{Sin}\left[\frac{c}{2}\right]-7560\, \text{Sin}\left[\frac{c}{2}+d\, x\right]+7560\, \text{Sin}\left[\frac{3\, c}{2}+d\, x\right]-$$
$$1680\, \text{Sin}\left[\frac{5\, c}{2}+3\, d\, x\right]+1680\, \text{Sin}\left[\frac{7\, c}{2}+3\, d\, x\right]-2520\, \text{Sin}\left[\frac{7\, c}{2}+4\, d\, x\right]-2520\, \text{Sin}\left[\frac{9\, c}{2}+4\, d\, x\right]+$$
$$1008\, \text{Sin}\left[\frac{9\, c}{2}+5\, d\, x\right]-1008\, \text{Sin}\left[\frac{11\, c}{2}+5\, d\, x\right]+180\, \text{Sin}\left[\frac{13\, c}{2}+7\, d\, x\right]-180\, \text{Sin}\left[\frac{15\, c}{2}+7\, d\, x\right]+$$
$$\left.315\, \text{Sin}\left[\frac{15\, c}{2}+8\, d\, x\right]+315\, \text{Sin}\left[\frac{17\, c}{2}+8\, d\, x\right]-140\, \text{Sin}\left[\frac{17\, c}{2}+9\, d\, x\right]+140\, \text{Sin}\left[\frac{19\, c}{2}+9\, d\, x\right]\right)$$

Problem 625: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\, x]^6\, \text{Sin}[c+d\, x]^3}{a+a\, \text{Sin}[c+d\, x]}\, dx$$

Optimal (type 3, 141 leaves, 9 steps):

$$-\frac{3\, x}{128\, a}-\frac{\text{Cos}[c+d\, x]^5}{5\, a\, d}+\frac{\text{Cos}[c+d\, x]^7}{7\, a\, d}-\frac{3\, \text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]}{128\, a\, d}-$$
$$\frac{\text{Cos}[c+d\, x]^3\, \text{Sin}[c+d\, x]}{64\, a\, d}+\frac{\text{Cos}[c+d\, x]^5\, \text{Sin}[c+d\, x]}{16\, a\, d}+\frac{\text{Cos}[c+d\, x]^5\, \text{Sin}[c+d\, x]^3}{8\, a\, d}$$

Result (type 3, 375 leaves):

$$\frac{1}{71680\, a\, d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(1680\,(c-d\,x)\,\text{Cos}\left[\frac{c}{2}\right]-1680\,\text{Cos}\left[\frac{c}{2}+d\,x\right]-1680\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]-560\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]-\right.$$
$$560\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+280\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]-280\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+112\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]+$$
$$112\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]+80\,\text{Cos}\left[\frac{13\,c}{2}+7\,d\,x\right]+80\,\text{Cos}\left[\frac{15\,c}{2}+7\,d\,x\right]-35\,\text{Cos}\left[\frac{15\,c}{2}+8\,d\,x\right]+$$
$$35\,\text{Cos}\left[\frac{17\,c}{2}+8\,d\,x\right]-3360\,\text{Sin}\left[\frac{c}{2}\right]+1680\,c\,\text{Sin}\left[\frac{c}{2}\right]-1680\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]+$$
$$1680\,\text{Sin}\left[\frac{c}{2}+d\,x\right]-1680\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]+560\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]-560\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]+$$
$$280\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]+280\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]-112\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]+112\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]-$$
$$\left.80\,\text{Sin}\left[\frac{13\,c}{2}+7\,d\,x\right]+80\,\text{Sin}\left[\frac{15\,c}{2}+7\,d\,x\right]-35\,\text{Sin}\left[\frac{15\,c}{2}+8\,d\,x\right]-35\,\text{Sin}\left[\frac{17\,c}{2}+8\,d\,x\right]\right)$$

Problem 626: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]^2}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 115 leaves, 8 steps):

$$\frac{x}{16\,a}+\frac{\text{Cos}[c+d\,x]^5}{5\,a\,d}-\frac{\text{Cos}[c+d\,x]^7}{7\,a\,d}+\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{16\,a\,d}+$$
$$\frac{\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{24\,a\,d}-\frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]}{6\,a\,d}$$

Result (type 3, 414 leaves):

$$\frac{1}{13440\, a\, d \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(840\, d\, x\, \text{Cos}\left[\frac{c}{2}\right]+315\, \text{Cos}\left[\frac{c}{2}+d\, x\right]+315\, \text{Cos}\left[\frac{3 c}{2}+d\, x\right]+105\, \text{Cos}\left[\frac{3 c}{2}+2\, d\, x\right]-105\, \text{Cos}\left[\frac{5 c}{2}+2\, d\, x\right]+105\, \text{Cos}\left[\frac{5 c}{2}+3\, d\, x\right]+105\, \text{Cos}\left[\frac{7 c}{2}+3\, d\, x\right]-105\, \text{Cos}\left[\frac{7 c}{2}+4\, d\, x\right]+105\, \text{Cos}\left[\frac{9 c}{2}+4\, d\, x\right]-21\, \text{Cos}\left[\frac{9 c}{2}+5\, d\, x\right]-21\, \text{Cos}\left[\frac{11 c}{2}+5\, d\, x\right]-35\, \text{Cos}\left[\frac{11 c}{2}+6\, d\, x\right]+35\, \text{Cos}\left[\frac{13 c}{2}+6\, d\, x\right]-15\, \text{Cos}\left[\frac{13 c}{2}+7\, d\, x\right]-15\, \text{Cos}\left[\frac{15 c}{2}+7\, d\, x\right]+1050\, \text{Sin}\left[\frac{c}{2}\right]+840\, d\, x\, \text{Sin}\left[\frac{c}{2}\right]-315\, \text{Sin}\left[\frac{c}{2}+d\, x\right]+315\, \text{Sin}\left[\frac{3 c}{2}+d\, x\right]+105\, \text{Sin}\left[\frac{3 c}{2}+2\, d\, x\right]+105\, \text{Sin}\left[\frac{5 c}{2}+2\, d\, x\right]-105\, \text{Sin}\left[\frac{5 c}{2}+3\, d\, x\right]+105\, \text{Sin}\left[\frac{7 c}{2}+3\, d\, x\right]-105\, \text{Sin}\left[\frac{7 c}{2}+4\, d\, x\right]-105\, \text{Sin}\left[\frac{9 c}{2}+4\, d\, x\right]+21\, \text{Sin}\left[\frac{9 c}{2}+5\, d\, x\right]-21\, \text{Sin}\left[\frac{11 c}{2}+5\, d\, x\right]-35\, \text{Sin}\left[\frac{11 c}{2}+6\, d\, x\right]-35\, \text{Sin}\left[\frac{13 c}{2}+6\, d\, x\right]+15\, \text{Sin}\left[\frac{13 c}{2}+7\, d\, x\right]-15\, \text{Sin}\left[\frac{15 c}{2}+7\, d\, x\right]\right)$$

Problem 627: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\, x]^6\, \text{Sin}[c+d\, x]}{a+a\, \text{Sin}[c+d\, x]}\, dx$$

Optimal (type 3, 97 leaves, 7 steps):

$$-\frac{x}{16\, a}-\frac{\text{Cos}[c+d\, x]^5}{5\, a\, d}-\frac{\text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]}{16\, a\, d}-\frac{\text{Cos}[c+d\, x]^3\, \text{Sin}[c+d\, x]}{24\, a\, d}+\frac{\text{Cos}[c+d\, x]^5\, \text{Sin}[c+d\, x]}{6\, a\, d}$$

Result (type 3, 377 leaves):

$$-\frac{1}{1920\,a\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(-30\,(5\,c-4\,d\,x)\,\text{Cos}\left[\frac{c}{2}\right]+120\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+120\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]+15\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]-15\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]+60\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+60\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]-15\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]+15\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+12\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]+12\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]-5\,\text{Cos}\left[\frac{11\,c}{2}+6\,d\,x\right]+5\,\text{Cos}\left[\frac{13\,c}{2}+6\,d\,x\right]+300\,\text{Sin}\left[\frac{c}{2}\right]-150\,c\,\text{Sin}\left[\frac{c}{2}\right]+120\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-120\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+120\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]+15\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]+15\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]-60\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+60\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]-15\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]-15\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]-12\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]+12\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]-5\,\text{Sin}\left[\frac{11\,c}{2}+6\,d\,x\right]-5\,\text{Sin}\left[\frac{13\,c}{2}+6\,d\,x\right]\right)$$

Problem 632: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^5}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 102 leaves, 7 steps):

$$-\frac{x}{a}-\frac{3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,a\,d}-\frac{\text{Cot}[c+d\,x]}{a\,d}+\frac{\text{Cot}[c+d\,x]^3}{3\,a\,d}+\frac{3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,a\,d}-\frac{\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]}{4\,a\,d}$$

Result (type 3, 232 leaves):

$$-\frac{1}{192\,a\,d\,(1+\text{Sin}[c+d\,x])}\text{Csc}[c+d\,x]^4\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\left(72\,c+72\,d\,x+18\,\text{Cos}[c+d\,x]+30\,\text{Cos}[3\,(c+d\,x)]+24\,c\,\text{Cos}[4\,(c+d\,x)]+24\,d\,x\,\text{Cos}[4\,(c+d\,x)]+27\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+9\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-12\,\text{Cos}[2\,(c+d\,x)]\left(8\,c+8\,d\,x+3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)-27\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-9\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+32\,\text{Sin}[2\,(c+d\,x)]-32\,\text{Sin}[4\,(c+d\,x)]\right)$$

Problem 633: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^6}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 82 leaves, 6 steps):

$$\frac{3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,a\,d}-\frac{\text{Cot}[c+d\,x]^5}{5\,a\,d}-\frac{3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,a\,d}+\frac{\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]}{4\,a\,d}$$

Result (type 3, 189 leaves):

$$-\frac{1}{640\,a\,d}\text{Csc}[c+d\,x]^5\left(80\,\text{Cos}[c+d\,x]+40\,\text{Cos}\left[3\,\left(c+d\,x\right)\right]+8\,\text{Cos}\left[5\,\left(c+d\,x\right)\right]-\right.$$
$$150\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}[c+d\,x]+150\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}[c+d\,x]+$$
$$20\,\text{Sin}\left[2\,\left(c+d\,x\right)\right]+75\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[3\,\left(c+d\,x\right)\right]-$$
$$75\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[3\,\left(c+d\,x\right)\right]-50\,\text{Sin}\left[4\,\left(c+d\,x\right)\right]-$$
$$\left.15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[5\,\left(c+d\,x\right)\right]+15\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[5\,\left(c+d\,x\right)\right]\right)$$

Problem 634: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]^3}{\left(a+a\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 135 leaves, 13 steps):

$$-\frac{x}{8\,a^2}-\frac{2\,\text{Cos}[c+d\,x]^3}{3\,a^2\,d}+\frac{3\,\text{Cos}[c+d\,x]^5}{5\,a^2\,d}-\frac{\text{Cos}[c+d\,x]^7}{7\,a^2\,d}-$$
$$\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{8\,a^2\,d}+\frac{\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{4\,a^2\,d}+\frac{\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]^3}{3\,a^2\,d}$$

Result (type 3, 414 leaves):

$$-\frac{1}{13440\,a^2\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}$$
$$\left(1680\,d\,x\,\text{Cos}\left[\frac{c}{2}\right]+1365\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+1365\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]-210\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]+\right.$$
$$210\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]+175\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+175\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]-210\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]+$$
$$210\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]-147\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]-147\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]+70\,\text{Cos}\left[\frac{11\,c}{2}+6\,d\,x\right]-$$
$$70\,\text{Cos}\left[\frac{13\,c}{2}+6\,d\,x\right]+15\,\text{Cos}\left[\frac{13\,c}{2}+7\,d\,x\right]+15\,\text{Cos}\left[\frac{15\,c}{2}+7\,d\,x\right]-420\,\text{Sin}\left[\frac{c}{2}\right]+$$
$$1680\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-1365\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+1365\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]-210\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]-$$
$$210\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]-175\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+175\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]-210\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]-$$
$$210\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]+147\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]-147\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]+$$
$$\left.70\,\text{Sin}\left[\frac{11\,c}{2}+6\,d\,x\right]+70\,\text{Sin}\left[\frac{13\,c}{2}+6\,d\,x\right]-15\,\text{Sin}\left[\frac{13\,c}{2}+7\,d\,x\right]+15\,\text{Sin}\left[\frac{15\,c}{2}+7\,d\,x\right]\right)$$

Problem 635: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^6 \,\text{Sin}[c+d x]^2}{(a+a \,\text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 104 leaves, 6 steps):

$$\frac{3 x}{16 a^2}+\frac{\text{Cos}[c+d x]^5}{10 a^2 d}+\frac{3 \,\text{Cos}[c+d x] \,\text{Sin}[c+d x]}{16 a^2 d}+\frac{\text{Cos}[c+d x]^3 \,\text{Sin}[c+d x]}{8 a^2 d}+\frac{\text{Cos}[c+d x]^3 \,(a-a \,\text{Sin}[c+d x])^3}{6 a^5 d}$$

Result (type 3, 362 leaves):

$$\frac{1}{1920 a^2 d \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)} \left(360 d x \,\text{Cos}\left[\frac{c}{2}\right]+240 \,\text{Cos}\left[\frac{c}{2}+d x\right]+240 \,\text{Cos}\left[\frac{3 c}{2}+d x\right]-15 \,\text{Cos}\left[\frac{3 c}{2}+2 d x\right]+15 \,\text{Cos}\left[\frac{5 c}{2}+2 d x\right]+\right.$$
$$40 \,\text{Cos}\left[\frac{5 c}{2}+3 d x\right]+40 \,\text{Cos}\left[\frac{7 c}{2}+3 d x\right]-45 \,\text{Cos}\left[\frac{7 c}{2}+4 d x\right]+45 \,\text{Cos}\left[\frac{9 c}{2}+4 d x\right]-$$
$$24 \,\text{Cos}\left[\frac{9 c}{2}+5 d x\right]-24 \,\text{Cos}\left[\frac{11 c}{2}+5 d x\right]+5 \,\text{Cos}\left[\frac{11 c}{2}+6 d x\right]-5 \,\text{Cos}\left[\frac{13 c}{2}+6 d x\right]+50 \,\text{Sin}\left[\frac{c}{2}\right]+$$
$$360 d x \,\text{Sin}\left[\frac{c}{2}\right]-240 \,\text{Sin}\left[\frac{c}{2}+d x\right]+240 \,\text{Sin}\left[\frac{3 c}{2}+d x\right]-15 \,\text{Sin}\left[\frac{3 c}{2}+2 d x\right]-15 \,\text{Sin}\left[\frac{5 c}{2}+2 d x\right]-$$
$$40 \,\text{Sin}\left[\frac{5 c}{2}+3 d x\right]+40 \,\text{Sin}\left[\frac{7 c}{2}+3 d x\right]-45 \,\text{Sin}\left[\frac{7 c}{2}+4 d x\right]-45 \,\text{Sin}\left[\frac{9 c}{2}+4 d x\right]+$$
$$\left.24 \,\text{Sin}\left[\frac{9 c}{2}+5 d x\right]-24 \,\text{Sin}\left[\frac{11 c}{2}+5 d x\right]+5 \,\text{Sin}\left[\frac{11 c}{2}+6 d x\right]+5 \,\text{Sin}\left[\frac{13 c}{2}+6 d x\right]\right)$$

Problem 636: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^6 \,\text{Sin}[c+d x]}{(a+a \,\text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 100 leaves, 5 steps):

$$-\frac{x}{4 a^2}-\frac{2 \,\text{Cos}[c+d x]^5}{15 a^2 d}-\frac{\text{Cos}[c+d x] \,\text{Sin}[c+d x]}{4 a^2 d}-\frac{\text{Cos}[c+d x]^3 \,\text{Sin}[c+d x]}{6 a^2 d}-\frac{\text{Cos}[c+d x]^7}{3 d \,(a+a \,\text{Sin}[c+d x])^2}$$

Result (type 3, 258 leaves):

$$\frac{1}{480\, a^2\, d\, \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(-120\, d\, x\, \text{Cos}\left[\frac{c}{2}\right]-90\, \text{Cos}\left[\frac{c}{2}+d\, x\right]-90\, \text{Cos}\left[\frac{3\, c}{2}+d\, x\right]-25\, \text{Cos}\left[\frac{5\, c}{2}+3\, d\, x\right]-25\, \text{Cos}\left[\frac{7\, c}{2}+3\, d\, x\right]+15\, \text{Cos}\left[\frac{7\, c}{2}+4\, d\, x\right]-15\, \text{Cos}\left[\frac{9\, c}{2}+4\, d\, x\right]+3\, \text{Cos}\left[\frac{9\, c}{2}+5\, d\, x\right]+3\, \text{Cos}\left[\frac{11\, c}{2}+5\, d\, x\right]+50\, \text{Sin}\left[\frac{c}{2}\right]-120\, d\, x\, \text{Sin}\left[\frac{c}{2}\right]+90\, \text{Sin}\left[\frac{c}{2}+d\, x\right]-90\, \text{Sin}\left[\frac{3\, c}{2}+d\, x\right]+25\, \text{Sin}\left[\frac{5\, c}{2}+3\, d\, x\right]-25\, \text{Sin}\left[\frac{7\, c}{2}+3\, d\, x\right]+15\, \text{Sin}\left[\frac{7\, c}{2}+4\, d\, x\right]+15\, \text{Sin}\left[\frac{9\, c}{2}+4\, d\, x\right]-3\, \text{Sin}\left[\frac{9\, c}{2}+5\, d\, x\right]+3\, \text{Sin}\left[\frac{11\, c}{2}+5\, d\, x\right]\right)$$

Problem 644: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\, x]^6\, \text{Sin}[c+d\, x]^3}{(a+a\, \text{Sin}[c+d\, x])^3}\, dx$$

Optimal (type 3, 129 leaves, 14 steps):

$$-\frac{23\, x}{16\, a^3}-\frac{4\, \text{Cos}[c+d\, x]}{a^3\, d}+\frac{7\, \text{Cos}[c+d\, x]^3}{3\, a^3\, d}-\frac{3\, \text{Cos}[c+d\, x]^5}{5\, a^3\, d}+\frac{23\, \text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]}{16\, a^3\, d}+\frac{23\, \text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]^3}{24\, a^3\, d}+\frac{\text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]^5}{6\, a^3\, d}$$

Result (type 3, 362 leaves):

$$-\frac{1}{1920\, a^3\, d\, \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(2760\, d\, x\, \text{Cos}\left[\frac{c}{2}\right]+2520\, \text{Cos}\left[\frac{c}{2}+d\, x\right]+2520\, \text{Cos}\left[\frac{3\, c}{2}+d\, x\right]-945\, \text{Cos}\left[\frac{3\, c}{2}+2\, d\, x\right]+945\, \text{Cos}\left[\frac{5\, c}{2}+2\, d\, x\right]-380\, \text{Cos}\left[\frac{5\, c}{2}+3\, d\, x\right]-380\, \text{Cos}\left[\frac{7\, c}{2}+3\, d\, x\right]+135\, \text{Cos}\left[\frac{7\, c}{2}+4\, d\, x\right]-135\, \text{Cos}\left[\frac{9\, c}{2}+4\, d\, x\right]+36\, \text{Cos}\left[\frac{9\, c}{2}+5\, d\, x\right]+36\, \text{Cos}\left[\frac{11\, c}{2}+5\, d\, x\right]-5\, \text{Cos}\left[\frac{11\, c}{2}+6\, d\, x\right]+5\, \text{Cos}\left[\frac{13\, c}{2}+6\, d\, x\right]-18\, \text{Sin}\left[\frac{c}{2}\right]+2760\, d\, x\, \text{Sin}\left[\frac{c}{2}\right]-2520\, \text{Sin}\left[\frac{c}{2}+d\, x\right]+2520\, \text{Sin}\left[\frac{3\, c}{2}+d\, x\right]-945\, \text{Sin}\left[\frac{3\, c}{2}+2\, d\, x\right]-945\, \text{Sin}\left[\frac{5\, c}{2}+2\, d\, x\right]+380\, \text{Sin}\left[\frac{5\, c}{2}+3\, d\, x\right]-380\, \text{Sin}\left[\frac{7\, c}{2}+3\, d\, x\right]+135\, \text{Sin}\left[\frac{7\, c}{2}+4\, d\, x\right]+135\, \text{Sin}\left[\frac{9\, c}{2}+4\, d\, x\right]-36\, \text{Sin}\left[\frac{9\, c}{2}+5\, d\, x\right]+36\, \text{Sin}\left[\frac{11\, c}{2}+5\, d\, x\right]-5\, \text{Sin}\left[\frac{11\, c}{2}+6\, d\, x\right]-5\, \text{Sin}\left[\frac{13\, c}{2}+6\, d\, x\right]\right)$$

Problem 645: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\, x]^6\, \text{Sin}[c+d\, x]^2}{(a+a\, \text{Sin}[c+d\, x])^3}\, dx$$

Optimal (type 3, 105 leaves, 12 steps):

$$\frac{13\,x}{8\,a^3}+\frac{4\,\text{Cos}[c+d\,x]}{a^3\,d}-\frac{5\,\text{Cos}[c+d\,x]^3}{3\,a^3\,d}+\frac{\text{Cos}[c+d\,x]^5}{5\,a^3\,d}-\frac{13\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{8\,a^3\,d}-\frac{3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^3}{4\,a^3\,d}$$

Result (type 3, 310 leaves):

$$\frac{1}{960\,a^3\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(1560\,d\,x\,\text{Cos}\left[\frac{c}{2}\right]+1380\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+1380\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]-480\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]+480\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]-170\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]-170\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+45\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]-45\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+6\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]+6\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]+10\,\text{Sin}\left[\frac{c}{2}\right]+1560\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-1380\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+1380\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]-480\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]-480\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]+170\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]-170\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]+45\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]+45\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]-6\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]+6\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]\right)$$

Problem 646: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 84 leaves, 5 steps):

$$-\frac{15\,x}{8\,a^3}-\frac{4\,\text{Cos}[c+d\,x]}{a^3\,d}+\frac{\text{Cos}[c+d\,x]^3}{a^3\,d}+\frac{15\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{8\,a^3\,d}+\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^3}{4\,a^3\,d}$$

Result (type 3, 252 leaves):

$$-\frac{1}{64\,a^3\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(120\,d\,x\,\text{Cos}\left[\frac{c}{2}\right]+104\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+104\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]-32\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]+32\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]-8\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]-8\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]-\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]-2\,\text{Sin}\left[\frac{c}{2}\right]+120\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-104\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+104\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]-32\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]-32\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]+8\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]-8\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]+\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]+\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]\right)$$

Problem 648: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[c+d x]^4 \operatorname{Cot}[c+d x]^2}{(a+a \operatorname{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 49 leaves, 7 steps):

$$\frac{3 x}{a^3}+\frac{3 \operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{a^3 d}+\frac{\operatorname{Cos}[c+d x]}{a^3 d}-\frac{\operatorname{Cot}[c+d x]}{a^3 d}$$

Result (type 3, 106 leaves):

$$\left(\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6 \left(6 (c+d x)+2 \operatorname{Cos}[c+d x]-\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]+6 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]-6 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right) \Big/ \left(2 d (a+a \operatorname{Sin}[c+d x])^3\right)$$

Problem 649: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[c+d x]^3 \operatorname{Cot}[c+d x]^3}{(a+a \operatorname{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 60 leaves, 8 steps):

$$-\frac{x}{a^3}-\frac{7 \operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{2 a^3 d}+\frac{3 \operatorname{Cot}[c+d x]}{a^3 d}-\frac{\operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]}{2 a^3 d}$$

Result (type 3, 126 leaves):

$$\left(\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6 \left(-8 (c+d x)+12 \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2-28 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+28 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2-12 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right) \Big/ \left(8 d (a+a \operatorname{Sin}[c+d x])^3\right)$$

Problem 651: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[c+d x] \operatorname{Cot}[c+d x]^5}{(a+a \operatorname{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 93 leaves, 12 steps):

$$-\frac{15 \operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{8 a^3 d}+\frac{4 \operatorname{Cot}[c+d x]}{a^3 d}+\frac{\operatorname{Cot}[c+d x]^3}{a^3 d}-\frac{15 \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]}{8 a^3 d}-\frac{\operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^3}{4 a^3 d}$$

Result (type 3, 555 leaves):

$$\frac{3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\frac{15\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{32\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\left(\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)\Big/$$

$$\left(8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3\right)-\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{64\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\frac{15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{15\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{15\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{32\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{64\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\frac{3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/$$
$$\left(8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3\right)$$

Problem 653: Unable to integrate problem.

$$\int \text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]^n\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3\,dx$$

Optimal (type 5, 267 leaves, 6 steps):

$$\left(a^3 \cos[c+d x]\, \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{1+n}{2}, \frac{3+n}{2}, \sin[c+d x]^2\right] \sin[c+d x]^{1+n}\right) \Big/ \left(d\,(1+n) \sqrt{\cos[c+d x]^2}\right) + \left(3 a^3 \cos[c+d x]\, \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{2+n}{2}, \frac{4+n}{2}, \sin[c+d x]^2\right] \sin[c+d x]^{2+n}\right) \Big/ \left(d\,(2+n) \sqrt{\cos[c+d x]^2}\right) + \left(3 a^3 \cos[c+d x]\, \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{3+n}{2}, \frac{5+n}{2}, \sin[c+d x]^2\right] \sin[c+d x]^{3+n}\right) \Big/ \left(d\,(3+n) \sqrt{\cos[c+d x]^2}\right) + \left(a^3 \cos[c+d x]\, \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{4+n}{2}, \frac{6+n}{2}, \sin[c+d x]^2\right] \sin[c+d x]^{4+n}\right) \Big/ \left(d\,(4+n) \sqrt{\cos[c+d x]^2}\right)$$

Result (type 8, 31 leaves):

$$\int \cos[c+d x]^6 \sin[c+d x]^n \left(a+a \sin[c+d x]\right)^3 \, dx$$

Problem 654: Unable to integrate problem.

$$\int \cos[c+d x]^6 \sin[c+d x]^n \left(a+a \sin[c+d x]\right)^2 \, dx$$

Optimal (type 5, 200 leaves, 5 steps):

$$\left(a^2 \cos[c+d x]\, \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{1+n}{2}, \frac{3+n}{2}, \sin[c+d x]^2\right] \sin[c+d x]^{1+n}\right) \Big/ \left(d\,(1+n) \sqrt{\cos[c+d x]^2}\right) + \left(2 a^2 \cos[c+d x]\, \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{2+n}{2}, \frac{4+n}{2}, \sin[c+d x]^2\right] \sin[c+d x]^{2+n}\right) \Big/ \left(d\,(2+n) \sqrt{\cos[c+d x]^2}\right) + \left(a^2 \cos[c+d x]\, \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{3+n}{2}, \frac{5+n}{2}, \sin[c+d x]^2\right] \sin[c+d x]^{3+n}\right) \Big/ \left(d\,(3+n) \sqrt{\cos[c+d x]^2}\right)$$

Result (type 8, 31 leaves):

$$\int \cos[c+d x]^6 \sin[c+d x]^n \left(a+a \sin[c+d x]\right)^2 \, dx$$

Problem 655: Unable to integrate problem.

$$\int \cos[c+d x]^6 \sin[c+d x]^n \left(a+a \sin[c+d x]\right) \, dx$$

Optimal (type 5, 129 leaves, 3 steps):

$$\left(a \operatorname{Cos}[c+d x] \operatorname{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{1+n}{2}, \frac{3+n}{2}, \operatorname{Sin}[c+d x]^2\right] \operatorname{Sin}[c+d x]^{1+n}\right) \Big/ \left(d\,(1+n) \sqrt{\operatorname{Cos}[c+d x]^2}\right) + \left(a \operatorname{Cos}[c+d x] \operatorname{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{2+n}{2}, \frac{4+n}{2}, \operatorname{Sin}[c+d x]^2\right] \operatorname{Sin}[c+d x]^{2+n}\right) \Big/ \left(d\,(2+n) \sqrt{\operatorname{Cos}[c+d x]^2}\right)$$

Result (type 8, 29 leaves):

$$\int \operatorname{Cos}[c+d x]^6 \operatorname{Sin}[c+d x]^n\,(a+a \operatorname{Sin}[c+d x])\,dx$$

Problem 669: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^7 \operatorname{Csc}[c+d x]\,(a+a \operatorname{Sin}[c+d x])\,dx$$

Optimal (type 3, 119 leaves, 4 steps):

$$\frac{a \operatorname{Csc}[c+d x]}{d}-\frac{3 a \operatorname{Csc}[c+d x]^2}{2 d}-\frac{a \operatorname{Csc}[c+d x]^3}{d}+\frac{3 a \operatorname{Csc}[c+d x]^4}{4 d}+\frac{3 a \operatorname{Csc}[c+d x]^5}{5 d}-\frac{a \operatorname{Csc}[c+d x]^6}{6 d}-\frac{a \operatorname{Csc}[c+d x]^7}{7 d}-\frac{a \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}$$

Result (type 3, 278 leaves):

$$\frac{381 a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{1120 d}-\frac{179 a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right] \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{2240 d}+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right] \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{70 d}-\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right] \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^6}{896 d}-\frac{3 a \operatorname{Csc}[c+d x]^2}{2 d}+\frac{3 a \operatorname{Csc}[c+d x]^4}{4 d}-\frac{a \operatorname{Csc}[c+d x]^6}{6 d}-\frac{a \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}+\frac{381 a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{1120 d}-\frac{179 a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2240 d}+\frac{a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^4 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{70 d}-\frac{a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^6 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{896 d}$$

Problem 670: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^7 \operatorname{Csc}[c+d x]^2\,(a+a \operatorname{Sin}[c+d x])\,dx$$

Optimal (type 3, 74 leaves, 6 steps):

$$-\frac{a \operatorname{Cot}[c+d x]^8}{8 d}+\frac{a \operatorname{Csc}[c+d x]}{d}-\frac{a \operatorname{Csc}[c+d x]^3}{d}+\frac{3 a \operatorname{Csc}[c+d x]^5}{5 d}-\frac{a \operatorname{Csc}[c+d x]^7}{7 d}$$

Result (type 3, 233 leaves):

$$\frac{381\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{1120\,d}-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{179\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2240\,d}+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{70\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{896\,d}+\frac{381\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1120\,d}-\frac{179\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2240\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{70\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{896\,d}$$

Problem 671: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^7\,\text{Csc}[c+d\,x]^3\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 81 leaves, 6 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}+\frac{a\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{3\,a\,\text{Csc}[c+d\,x]^5}{5\,d}+\frac{3\,a\,\text{Csc}[c+d\,x]^7}{7\,d}-\frac{a\,\text{Csc}[c+d\,x]^9}{9\,d}$$

Result (type 3, 293 leaves):

$$\frac{1823\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{80640\,d}-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}+\frac{1823\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{161280\,d}-\frac{463\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{53760\,d}+\frac{73\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{32256\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4608\,d}+\frac{1823\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{80640\,d}+\frac{1823\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{161280\,d}-\frac{463\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{53760\,d}+\frac{73\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{32256\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4608\,d}$$

Problem 672: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^7\,\text{Csc}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 97 leaves, 7 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Cot}[c+d\,x]^{10}}{10\,d}+\frac{a\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{3\,a\,\text{Csc}[c+d\,x]^5}{5\,d}+\frac{3\,a\,\text{Csc}[c+d\,x]^7}{7\,d}-\frac{a\,\text{Csc}[c+d\,x]^9}{9\,d}$$

Result (type 3, 341 leaves):

$$\frac{1823\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}+\frac{1823\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{161\,280\,d}-\frac{463\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{53\,760\,d}+\frac{73\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{32\,256\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4608\,d}+\frac{a\,\text{Csc}[c+d\,x]^4}{4\,d}-\frac{a\,\text{Csc}[c+d\,x]^6}{2\,d}+\frac{3\,a\,\text{Csc}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Csc}[c+d\,x]^{10}}{10\,d}+\frac{1823\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}+\frac{1823\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{161\,280\,d}-\frac{463\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{53\,760\,d}+\frac{73\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{32\,256\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4608\,d}$$

Problem 673: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^7\,\text{Csc}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 97 leaves, 7 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Cot}[c+d\,x]^{10}}{10\,d}+\frac{a\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{3\,a\,\text{Csc}[c+d\,x]^7}{7\,d}+\frac{a\,\text{Csc}[c+d\,x]^9}{3\,d}-\frac{a\,\text{Csc}[c+d\,x]^{11}}{11\,d}$$

Result (type 3, 401 leaves):

$$\frac{2911\,a\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{591360\,d}+\frac{2911\,a\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{1182720\,d}+$$
$$\frac{27\,a\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4}{197120\,d}-\frac{485\,a\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^6}{473088\,d}+$$
$$\frac{13\,a\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^8}{33792\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{10}}{22528\,d}+$$
$$\frac{a\,\text{Csc}[c+d\,x]^4}{4\,d}-\frac{a\,\text{Csc}[c+d\,x]^6}{2\,d}+\frac{3\,a\,\text{Csc}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Csc}[c+d\,x]^{10}}{10\,d}+$$
$$\frac{2911\,a\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{591360\,d}+\frac{2911\,a\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1182720\,d}+$$
$$\frac{27\,a\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{197120\,d}-\frac{485\,a\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^6\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{473088\,d}+$$
$$\frac{13\,a\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^8\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{33792\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{10}\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{22528\,d}$$

Problem 674: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^7\,\text{Csc}[c+d\,x]^6\,\left(a+a\,\text{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 113 leaves, 8 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Cot}[c+d\,x]^{10}}{5\,d}-\frac{a\,\text{Cot}[c+d\,x]^{12}}{12\,d}+$$
$$\frac{a\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{3\,a\,\text{Csc}[c+d\,x]^7}{7\,d}+\frac{a\,\text{Csc}[c+d\,x]^9}{3\,d}-\frac{a\,\text{Csc}[c+d\,x]^{11}}{11\,d}$$

Result (type 3, 401 leaves):

$$\frac{2911\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{591\,360\,d}+\frac{2911\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1\,182\,720\,d}+$$
$$\frac{27\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{197\,120\,d}-\frac{485\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{473\,088\,d}+$$
$$\frac{13\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{33\,792\,d}-\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{22\,528\,d}+$$
$$\frac{a\,\mathrm{Csc}[c+d\,x]^6}{6\,d}-\frac{3\,a\,\mathrm{Csc}[c+d\,x]^8}{8\,d}+\frac{3\,a\,\mathrm{Csc}[c+d\,x]^{10}}{10\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^{12}}{12\,d}+$$
$$\frac{2911\,a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{591\,360\,d}+\frac{2911\,a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1\,182\,720\,d}+$$
$$\frac{27\,a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{197\,120\,d}-\frac{485\,a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{473\,088\,d}+$$
$$\frac{13\,a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{33\,792\,d}-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{22\,528\,d}$$

Problem 675: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^7\,\mathrm{Csc}[c+d\,x]^7\,(a+a\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 113 leaves, 8 steps):

$$-\frac{a\,\mathrm{Cot}[c+d\,x]^8}{8\,d}-\frac{a\,\mathrm{Cot}[c+d\,x]^{10}}{5\,d}-\frac{a\,\mathrm{Cot}[c+d\,x]^{12}}{12\,d}+$$
$$\frac{a\,\mathrm{Csc}[c+d\,x]^7}{7\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^9}{3\,d}+\frac{3\,a\,\mathrm{Csc}[c+d\,x]^{11}}{11\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^{13}}{13\,d}$$

Result (type 3, 461 leaves):

$$\frac{10027\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{6150144\,d}+\frac{10027\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{12300288\,d}+$$
$$\frac{755\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{4100096\,d}-\frac{101\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{768768\,d}-$$
$$\frac{101\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{878592\,d}+\frac{79\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{1171456\,d}-$$
$$\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{12}}{106496\,d}+\frac{a\,\text{Csc}[c+d\,x]^6}{6\,d}-\frac{3\,a\,\text{Csc}[c+d\,x]^8}{8\,d}+$$
$$\frac{3\,a\,\text{Csc}[c+d\,x]^{10}}{10\,d}-\frac{a\,\text{Csc}[c+d\,x]^{12}}{12\,d}+\frac{10027\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{6150144\,d}+$$
$$\frac{10027\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{12300288\,d}+\frac{755\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4100096\,d}-$$
$$\frac{101\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{768768\,d}-\frac{101\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{878592\,d}+$$
$$\frac{79\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1171456\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{12}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{106496\,d}$$

Problem 676: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^7\,\text{Csc}[c+d\,x]^8\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 129 leaves, 4 steps):

$$\frac{a\,\text{Csc}[c+d\,x]^7}{7\,d}+\frac{a\,\text{Csc}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Csc}[c+d\,x]^9}{3\,d}-\frac{3\,a\,\text{Csc}[c+d\,x]^{10}}{10\,d}+$$
$$\frac{3\,a\,\text{Csc}[c+d\,x]^{11}}{11\,d}+\frac{a\,\text{Csc}[c+d\,x]^{12}}{4\,d}-\frac{a\,\text{Csc}[c+d\,x]^{13}}{13\,d}-\frac{a\,\text{Csc}[c+d\,x]^{14}}{14\,d}$$

Result (type 3, 461 leaves):

$$\frac{10027\, a\, \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{6150144\, d}+\frac{10027\, a\, \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{12300288\, d}+$$
$$\frac{755\, a\, \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{4100096\, d}-\frac{101\, a\, \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{768768\, d}-$$
$$\frac{101\, a\, \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{878592\, d}+\frac{79\, a\, \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{1171456\, d}-$$
$$\frac{a\, \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{12}}{106496\, d}+\frac{a\,\text{Csc}[c+d\,x]^8}{8\, d}-\frac{3\, a\,\text{Csc}[c+d\,x]^{10}}{10\, d}+$$
$$\frac{a\,\text{Csc}[c+d\,x]^{12}}{4\, d}-\frac{a\,\text{Csc}[c+d\,x]^{14}}{14\, d}+\frac{10027\, a\, \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{6150144\, d}+$$
$$\frac{10027\, a\, \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{12300288\, d}+\frac{755\, a\, \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4100096\, d}-$$
$$\frac{101\, a\, \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{768768\, d}-\frac{101\, a\, \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{878592\, d}+$$
$$\frac{79\, a\, \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1171456\, d}-\frac{a\, \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{12}\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{106496\, d}$$

Problem 697: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]^n\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3\,dx$$

Optimal (type 3, 184 leaves, 3 steps):

$$\frac{a^3\,\text{Sin}[c+d\,x]^{1+n}}{d\,(1+n)}+\frac{3\,a^3\,\text{Sin}[c+d\,x]^{2+n}}{d\,(2+n)}-\frac{8\,a^3\,\text{Sin}[c+d\,x]^{4+n}}{d\,(4+n)}-\frac{6\,a^3\,\text{Sin}[c+d\,x]^{5+n}}{d\,(5+n)}+$$
$$\frac{6\,a^3\,\text{Sin}[c+d\,x]^{6+n}}{d\,(6+n)}+\frac{8\,a^3\,\text{Sin}[c+d\,x]^{7+n}}{d\,(7+n)}-\frac{3\,a^3\,\text{Sin}[c+d\,x]^{9+n}}{d\,(9+n)}-\frac{a^3\,\text{Sin}[c+d\,x]^{10+n}}{d\,(10+n)}$$

Result (type 3, 1019 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}$$
$$\text{Sin}[c+d\,x]^n\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3\left(\frac{3\,\left(11792+2276\,n+260\,n^2+11\,n^3\right)}{256\,(2+n)\,(4+n)\,(6+n)\,(10+n)}+\right.$$
$$\left(\left(28665+4541\,n+471\,n^2+19\,n^3\right)\left(-\frac{1}{256}\,i\,\text{Cos}[c+d\,x]+\frac{1}{256}\,\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left((1+n)\,(5+n)\,(7+n)\,(9+n)\right)+$$
$$\left(\left(28665+4541\,n+471\,n^2+19\,n^3\right)\left(\frac{1}{256}\,i\,\text{Cos}[c+d\,x]+\frac{1}{256}\,\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left((1+n)\,(5+n)\,(7+n)\,(9+n)\right)+$$

$$\left(\left(-21840+2252\,n+492\,n^2+25\,n^3\right)\left(\frac{1}{512}\,\mathrm{Cos}[2\,(c+d\,x)]-\frac{1}{512}\,\mathrm{i}\,\mathrm{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left((2+n)\,(4+n)\,(6+n)\,(10+n)\right)+$$
$$\left(\left(-21840+2252\,n+492\,n^2+25\,n^3\right)\left(\frac{1}{512}\,\mathrm{Cos}[2\,(c+d\,x)]+\frac{1}{512}\,\mathrm{i}\,\mathrm{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left((2+n)\,(4+n)\,(6+n)\,(10+n)\right)+$$
$$\left(\left(735+108\,n+5\,n^2\right)\left(-\frac{3}{128}\,\mathrm{i}\,\mathrm{Cos}[3\,(c+d\,x)]+\frac{3}{128}\,\mathrm{Sin}[3\,(c+d\,x)]\right)\right)\Big/\left((5+n)\,(7+n)\,(9+n)\right)+\frac{\left(735+108\,n+5\,n^2\right)\left(\frac{3}{128}\,\mathrm{i}\,\mathrm{Cos}[3\,(c+d\,x)]+\frac{3}{128}\,\mathrm{Sin}[3\,(c+d\,x)]\right)}{(5+n)\,(7+n)\,(9+n)}+$$
$$\left(\left(-1320-166\,n-7\,n^2\right)\left(\frac{1}{128}\,\mathrm{Cos}[4\,(c+d\,x)]-\frac{1}{128}\,\mathrm{i}\,\mathrm{Sin}[4\,(c+d\,x)]\right)\right)\Big/\left((4+n)\,(6+n)\,(10+n)\right)+$$
$$\left(\left(-1320-166\,n-7\,n^2\right)\left(\frac{1}{128}\,\mathrm{Cos}[4\,(c+d\,x)]+\frac{1}{128}\,\mathrm{i}\,\mathrm{Sin}[4\,(c+d\,x)]\right)\right)\Big/\left((4+n)\,(6+n)\,(10+n)\right)+\frac{\left(63+76\,n+5\,n^2\right)\left(-\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[5\,(c+d\,x)]+\frac{1}{128}\,\mathrm{Sin}[5\,(c+d\,x)]\right)}{(5+n)\,(7+n)\,(9+n)}+$$
$$\frac{\left(63+76\,n+5\,n^2\right)\left(\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[5\,(c+d\,x)]+\frac{1}{128}\,\mathrm{Sin}[5\,(c+d\,x)]\right)}{(5+n)\,(7+n)\,(9+n)}+$$
$$\frac{(230+17\,n)\left(-\frac{3\,\mathrm{Cos}[6\,(c+d\,x)]}{1024}-\frac{3\,\mathrm{i}\,\mathrm{Sin}[6\,(c+d\,x)]}{1024}\right)}{(6+n)\,(10+n)}+\frac{(230+17\,n)\left(-\frac{3\,\mathrm{Cos}[6\,(c+d\,x)]}{1024}+\frac{3\,\mathrm{i}\,\mathrm{Sin}[6\,(c+d\,x)]}{1024}\right)}{(6+n)\,(10+n)}+$$
$$\frac{(99+5\,n)\left(-\frac{1}{512}\,\mathrm{i}\,\mathrm{Cos}[7\,(c+d\,x)]-\frac{1}{512}\,\mathrm{Sin}[7\,(c+d\,x)]\right)}{(7+n)\,(9+n)}+$$
$$\frac{(99+5\,n)\left(\frac{1}{512}\,\mathrm{i}\,\mathrm{Cos}[7\,(c+d\,x)]-\frac{1}{512}\,\mathrm{Sin}[7\,(c+d\,x)]\right)}{(7+n)\,(9+n)}+$$
$$\frac{-\frac{5}{512}\,\mathrm{Cos}[8\,(c+d\,x)]-\frac{5}{512}\,\mathrm{i}\,\mathrm{Sin}[8\,(c+d\,x)]}{10+n}+\frac{-\frac{5}{512}\,\mathrm{Cos}[8\,(c+d\,x)]+\frac{5}{512}\,\mathrm{i}\,\mathrm{Sin}[8\,(c+d\,x)]}{10+n}+$$
$$\frac{-\frac{3}{512}\,\mathrm{i}\,\mathrm{Cos}[9\,(c+d\,x)]-\frac{3}{512}\,\mathrm{Sin}[9\,(c+d\,x)]}{9+n}+\frac{\frac{3}{512}\,\mathrm{i}\,\mathrm{Cos}[9\,(c+d\,x)]-\frac{3}{512}\,\mathrm{Sin}[9\,(c+d\,x)]}{9+n}+$$
$$\left.\frac{\frac{\mathrm{Cos}[10\,(c+d\,x)]}{1024}-\frac{\mathrm{i}\,\mathrm{Sin}[10\,(c+d\,x)]}{1024}}{10+n}+\frac{\frac{\mathrm{Cos}[10\,(c+d\,x)]}{1024}+\frac{\mathrm{i}\,\mathrm{Sin}[10\,(c+d\,x)]}{1024}}{10+n}\right)$$

Problem 698: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[c+d\,x]^7\,\mathrm{Sin}[c+d\,x]^n\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^2\,dx$$

Optimal (type 3, 184 leaves, 3 steps):

$$\frac{a^2 \operatorname{Sin}[c+d x]^{1+n}}{d(1+n)}+\frac{2 a^2 \operatorname{Sin}[c+d x]^{2+n}}{d(2+n)}-\frac{2 a^2 \operatorname{Sin}[c+d x]^{3+n}}{d(3+n)}-\frac{6 a^2 \operatorname{Sin}[c+d x]^{4+n}}{d(4+n)}+\frac{6 a^2 \operatorname{Sin}[c+d x]^{6+n}}{d(6+n)}+\frac{2 a^2 \operatorname{Sin}[c+d x]^{7+n}}{d(7+n)}-\frac{2 a^2 \operatorname{Sin}[c+d x]^{8+n}}{d(8+n)}-\frac{a^2 \operatorname{Sin}[c+d x]^{9+n}}{d(9+n)}$$

Result (type 3, 925 leaves):

$$\frac{1}{d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}\operatorname{Sin}[c+d x]^n\,(a+a \operatorname{Sin}[c+d x])^2\left(\frac{4464+892 n+108 n^2+5 n^3}{64(2+n)(4+n)(6+n)(8+n)}+\right.$$
$$\left(\left(14553+2547 n+295 n^2+13 n^3\right)\left(-\frac{1}{256} i \operatorname{Cos}[c+d x]+\frac{1}{256} \operatorname{Sin}[c+d x]\right)\right)\Big/\left((1+n)(3+n)(7+n)(9+n)\right)+$$
$$\left(\left(14553+2547 n+295 n^2+13 n^3\right)\left(\frac{1}{256} i \operatorname{Cos}[c+d x]+\frac{1}{256} \operatorname{Sin}[c+d x]\right)\right)\Big/\left((1+n)(3+n)(7+n)(9+n)\right)+$$
$$\left(\left(-672+80 n+18 n^2+n^3\right)\left(\frac{1}{32} \operatorname{Cos}[2(c+d x)]-\frac{1}{32} i \operatorname{Sin}[2(c+d x)]\right)\right)\Big/\left((2+n)(4+n)(6+n)(8+n)\right)+$$
$$\left(\left(-672+80 n+18 n^2+n^3\right)\left(\frac{1}{32} \operatorname{Cos}[2(c+d x)]+\frac{1}{32} i \operatorname{Sin}[2(c+d x)]\right)\right)\Big/\left((2+n)(4+n)(6+n)(8+n)\right)+$$
$$\left(\left(1323+218 n+11 n^2\right)\left(-\frac{1}{128} i \operatorname{Cos}[3(c+d x)]+\frac{1}{128} \operatorname{Sin}[3(c+d x)]\right)\right)\Big/\left((3+n)(7+n)(9+n)\right)+$$
$$\left(\left(1323+218 n+11 n^2\right)\left(\frac{1}{128} i \operatorname{Cos}[3(c+d x)]+\frac{1}{128} \operatorname{Sin}[3(c+d x)]\right)\right)\Big/\left((3+n)(7+n)(9+n)\right)+\frac{\left(-168-22 n-n^2\right)\left(\frac{1}{32} \operatorname{Cos}[4(c+d x)]-\frac{1}{32} i \operatorname{Sin}[4(c+d x)]\right)}{(4+n)(6+n)(8+n)}+$$
$$\frac{\left(-168-22 n-n^2\right)\left(\frac{1}{32} \operatorname{Cos}[4(c+d x)]+\frac{1}{32} i \operatorname{Sin}[4(c+d x)]\right)}{(4+n)(6+n)(8+n)}+$$
$$\frac{(63+5 n)\left(-\frac{1}{128} i \operatorname{Cos}[5(c+d x)]+\frac{1}{128} \operatorname{Sin}[5(c+d x)]\right)}{(7+n)(9+n)}+$$
$$\frac{(63+5 n)\left(\frac{1}{128} i \operatorname{Cos}[5(c+d x)]+\frac{1}{128} \operatorname{Sin}[5(c+d x)]\right)}{(7+n)(9+n)}+$$
$$\frac{(-12-n)\left(\frac{1}{32} \operatorname{Cos}[6(c+d x)]-\frac{1}{32} i \operatorname{Sin}[6(c+d x)]\right)}{(6+n)(8+n)}+$$
$$\frac{(-12-n)\left(\frac{1}{32} \operatorname{Cos}[6(c+d x)]+\frac{1}{32} i \operatorname{Sin}[6(c+d x)]\right)}{(6+n)(8+n)}+$$

$$\frac{(-9+n)\left(-\frac{1}{512}\,\mathrm{i}\,\mathrm{Cos}[7\,(c+d\,x)]+\frac{1}{512}\,\mathrm{Sin}[7\,(c+d\,x)]\right)}{(7+n)\,(9+n)}+$$
$$\frac{(-9+n)\left(\frac{1}{512}\,\mathrm{i}\,\mathrm{Cos}[7\,(c+d\,x)]+\frac{1}{512}\,\mathrm{Sin}[7\,(c+d\,x)]\right)}{(7+n)\,(9+n)}+$$
$$\frac{-\frac{1}{128}\,\mathrm{Cos}[8\,(c+d\,x)]-\frac{1}{128}\,\mathrm{i}\,\mathrm{Sin}[8\,(c+d\,x)]}{8+n}+\frac{-\frac{1}{128}\,\mathrm{Cos}[8\,(c+d\,x)]+\frac{1}{128}\,\mathrm{i}\,\mathrm{Sin}[8\,(c+d\,x)]}{8+n}+$$
$$\left.\frac{-\frac{1}{512}\,\mathrm{i}\,\mathrm{Cos}[9\,(c+d\,x)]-\frac{1}{512}\,\mathrm{Sin}[9\,(c+d\,x)]}{9+n}+\frac{\frac{1}{512}\,\mathrm{i}\,\mathrm{Cos}[9\,(c+d\,x)]-\frac{1}{512}\,\mathrm{Sin}[9\,(c+d\,x)]}{9+n}\right)$$

Problem 699: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[c+d\,x]^7\,\mathrm{Sin}[c+d\,x]^n\,(a+a\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 167 leaves, 3 steps):

$$\frac{a\,\mathrm{Sin}[c+d\,x]^{1+n}}{d\,(1+n)}+\frac{a\,\mathrm{Sin}[c+d\,x]^{2+n}}{d\,(2+n)}-\frac{3\,a\,\mathrm{Sin}[c+d\,x]^{3+n}}{d\,(3+n)}-\frac{3\,a\,\mathrm{Sin}[c+d\,x]^{4+n}}{d\,(4+n)}+$$
$$\frac{3\,a\,\mathrm{Sin}[c+d\,x]^{5+n}}{d\,(5+n)}+\frac{3\,a\,\mathrm{Sin}[c+d\,x]^{6+n}}{d\,(6+n)}-\frac{a\,\mathrm{Sin}[c+d\,x]^{7+n}}{d\,(7+n)}-\frac{a\,\mathrm{Sin}[c+d\,x]^{8+n}}{d\,(8+n)}$$

Result (type 3, 966 leaves):

$$\frac{1}{\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^2} a\,\mathrm{Sin}[c+d x]^n \left(1+\mathrm{Sin}[c+d x]\right)$$
$$\left(\frac{4464+892 n+108 n^2+5 n^3}{128 d (2+n)(4+n)(6+n)(8+n)}+\frac{\left(3675+691 n+93 n^2+5 n^3\right)\left(-\frac{i \mathrm{Cos}[c+d x]}{128 d}+\frac{\mathrm{Sin}[c+d x]}{128 d}\right)}{(1+n)(3+n)(5+n)(7+n)}+\right.$$
$$\frac{\left(3675+691 n+93 n^2+5 n^3\right)\left(\frac{i \mathrm{Cos}[c+d x]}{128 d}+\frac{\mathrm{Sin}[c+d x]}{128 d}\right)}{(1+n)(3+n)(5+n)(7+n)}+$$
$$\frac{\left(-672+80 n+18 n^2+n^3\right)\left(\frac{\mathrm{Cos}[2 c+2 d x]}{64 d}-\frac{i \mathrm{Sin}[2 c+2 d x]}{64 d}\right)}{(2+n)(4+n)(6+n)(8+n)}+$$
$$\frac{\left(-672+80 n+18 n^2+n^3\right)\left(\frac{\mathrm{Cos}[2 c+2 d x]}{64 d}+\frac{i \mathrm{Sin}[2 c+2 d x]}{64 d}\right)}{(2+n)(4+n)(6+n)(8+n)}+$$
$$\frac{\left(245+48 n+3 n^2\right)\left(-\frac{3 i \mathrm{Cos}[3 c+3 d x]}{128 d}+\frac{3 \mathrm{Sin}[3 c+3 d x]}{128 d}\right)}{(3+n)(5+n)(7+n)}+$$
$$\frac{\left(245+48 n+3 n^2\right)\left(\frac{3 i \mathrm{Cos}[3 c+3 d x]}{128 d}+\frac{3 \mathrm{Sin}[3 c+3 d x]}{128 d}\right)}{(3+n)(5+n)(7+n)}+$$
$$\frac{\left(168+22 n+n^2\right)\left(-\frac{\mathrm{Cos}[4 c+4 d x]}{64 d}-\frac{i \mathrm{Sin}[4 c+4 d x]}{64 d}\right)}{(4+n)(6+n)(8+n)}+$$
$$\frac{\left(-168-22 n-n^2\right)\left(\frac{\mathrm{Cos}[4 c+4 d x]}{64 d}-\frac{i \mathrm{Sin}[4 c+4 d x]}{64 d}\right)}{(4+n)(6+n)(8+n)}+\frac{(49+5 n)\left(-\frac{i \mathrm{Cos}[5 c+5 d x]}{128 d}+\frac{\mathrm{Sin}[5 c+5 d x]}{128 d}\right)}{(5+n)(7+n)}+$$
$$\frac{(49+5 n)\left(\frac{i \mathrm{Cos}[5 c+5 d x]}{128 d}+\frac{\mathrm{Sin}[5 c+5 d x]}{128 d}\right)}{(5+n)(7+n)}+\frac{(12+n)\left(-\frac{\mathrm{Cos}[6 c+6 d x]}{64 d}-\frac{i \mathrm{Sin}[6 c+6 d x]}{64 d}\right)}{(6+n)(8+n)}+$$
$$\frac{(-12-n)\left(\frac{\mathrm{Cos}[6 c+6 d x]}{64 d}-\frac{i \mathrm{Sin}[6 c+6 d x]}{64 d}\right)}{(6+n)(8+n)}+\frac{-\frac{i \mathrm{Cos}[7 c+7 d x]}{128 d}+\frac{\mathrm{Sin}[7 c+7 d x]}{128 d}}{7+n}+$$
$$\left.\frac{\frac{i \mathrm{Cos}[7 c+7 d x]}{128 d}+\frac{\mathrm{Sin}[7 c+7 d x]}{128 d}}{7+n}+\frac{-\frac{\mathrm{Cos}[8 c+8 d x]}{256 d}-\frac{i \mathrm{Sin}[8 c+8 d x]}{256 d}}{8+n}+\frac{-\frac{\mathrm{Cos}[8 c+8 d x]}{256 d}+\frac{i \mathrm{Sin}[8 c+8 d x]}{256 d}}{8+n}\right)$$

Problem 700: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[c+d x]^7 \mathrm{Sin}[c+d x]^n}{a+a \mathrm{Sin}[c+d x]} \, dx$$

Optimal (type 3, 137 leaves, 3 steps):

$$\frac{\mathrm{Sin}[c+d x]^{1+n}}{a d (1+n)}-\frac{\mathrm{Sin}[c+d x]^{2+n}}{a d (2+n)}-\frac{2 \mathrm{Sin}[c+d x]^{3+n}}{a d (3+n)}+$$
$$\frac{2 \mathrm{Sin}[c+d x]^{4+n}}{a d (4+n)}+\frac{\mathrm{Sin}[c+d x]^{5+n}}{a d (5+n)}-\frac{\mathrm{Sin}[c+d x]^{6+n}}{a d (6+n)}$$

Result (type 3, 380 leaves):

$$-\frac{1}{16\,a\,d\,(1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\,(6+n)\,(1+\text{Sin}[c+d\,x])}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\,\text{Sin}[c+d\,x]^{1+n}\,\Big(-8544-10520\,n-4888\,n^2-1114\,n^3-128\,n^4-6\,n^5-8\,(336+692\,n+484\,n^2+147\,n^3+20\,n^4+n^5)\,\text{Cos}[2\,(c+d\,x)]-2\,(144+324\,n+260\,n^2+95\,n^3+16\,n^4+n^5)\,\text{Cos}[4\,(c+d\,x)]+2640\,\text{Sin}[c+d\,x]+4468\,n\,\text{Sin}[c+d\,x]+2258\,n^2\,\text{Sin}[c+d\,x]+474\,n^3\,\text{Sin}[c+d\,x]+46\,n^4\,\text{Sin}[c+d\,x]+2\,n^5\,\text{Sin}[c+d\,x]+840\,\text{Sin}[3\,(c+d\,x)]+1798\,n\,\text{Sin}[3\,(c+d\,x)]+1331\,n^2\,\text{Sin}[3\,(c+d\,x)]+431\,n^3\,\text{Sin}[3\,(c+d\,x)]+61\,n^4\,\text{Sin}[3\,(c+d\,x)]+3\,n^5\,\text{Sin}[3\,(c+d\,x)]+120\,\text{Sin}[5\,(c+d\,x)]+274\,n\,\text{Sin}[5\,(c+d\,x)]+225\,n^2\,\text{Sin}[5\,(c+d\,x)]+85\,n^3\,\text{Sin}[5\,(c+d\,x)]+15\,n^4\,\text{Sin}[5\,(c+d\,x)]+n^5\,\text{Sin}[5\,(c+d\,x)]\Big)$$

Problem 701: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 92 leaves, 3 steps):

$$\frac{\text{Sin}[c+d\,x]^{1+n}}{a^2\,d\,(1+n)}-\frac{2\,\text{Sin}[c+d\,x]^{2+n}}{a^2\,d\,(2+n)}+\frac{2\,\text{Sin}[c+d\,x]^{4+n}}{a^2\,d\,(4+n)}-\frac{\text{Sin}[c+d\,x]^{5+n}}{a^2\,d\,(5+n)}$$

Result (type 3, 405 leaves):

$$\frac{1}{d\,(a+a\,\text{Sin}[c+d\,x])^2}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\,\text{Sin}[c+d\,x]^n\,\Bigg(-\frac{10+n}{4\,(2+n)\,(4+n)}+\frac{(35+3\,n)\left(-\frac{1}{16}\,i\,\text{Cos}[c+d\,x]+\frac{1}{16}\,\text{Sin}[c+d\,x]\right)}{(1+n)\,(5+n)}+\frac{(35+3\,n)\left(\frac{1}{16}\,i\,\text{Cos}[c+d\,x]+\frac{1}{16}\,\text{Sin}[c+d\,x]\right)}{(1+n)\,(5+n)}+\frac{\text{Cos}[2\,(c+d\,x)]-i\,\text{Sin}[2\,(c+d\,x)]}{(2+n)\,(4+n)}+\frac{\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}{(2+n)\,(4+n)}+\frac{-\frac{5}{32}\,i\,\text{Cos}[3\,(c+d\,x)]+\frac{5}{32}\,\text{Sin}[3\,(c+d\,x)]}{5+n}+\frac{\frac{5}{32}\,i\,\text{Cos}[3\,(c+d\,x)]+\frac{5}{32}\,\text{Sin}[3\,(c+d\,x)]}{5+n}+\frac{\frac{1}{8}\,\text{Cos}[4\,(c+d\,x)]-\frac{1}{8}\,i\,\text{Sin}[4\,(c+d\,x)]}{4+n}+\frac{\frac{1}{8}\,\text{Cos}[4\,(c+d\,x)]+\frac{1}{8}\,i\,\text{Sin}[4\,(c+d\,x)]}{4+n}+\frac{-\frac{1}{32}\,i\,\text{Cos}[5\,(c+d\,x)]-\frac{1}{32}\,\text{Sin}[5\,(c+d\,x)]}{5+n}+\frac{\frac{1}{32}\,i\,\text{Cos}[5\,(c+d\,x)]-\frac{1}{32}\,\text{Sin}[5\,(c+d\,x)]}{5+n}\Bigg)$$

Problem 702: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 92 leaves, 3 steps):

$$\frac{\text{Sin}[c+d\,x]^{1+n}}{a^3\,d\,(1+n)}-\frac{3\,\text{Sin}[c+d\,x]^{2+n}}{a^3\,d\,(2+n)}+\frac{3\,\text{Sin}[c+d\,x]^{3+n}}{a^3\,d\,(3+n)}-\frac{\text{Sin}[c+d\,x]^{4+n}}{a^3\,d\,(4+n)}$$

Result (type 3, 363 leaves):

$$\frac{1}{d\,(a+a\,\text{Sin}[c+d\,x])^3}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6$$
$$\text{Sin}[c+d\,x]^n\left(-\frac{3\,(18+5\,n)}{8\,(2+n)\,(4+n)}+\frac{(21+13\,n)\left(-\frac{1}{8}\,i\,\text{Cos}[c+d\,x]+\frac{1}{8}\,\text{Sin}[c+d\,x]\right)}{(1+n)\,(3+n)}+\right.$$
$$\frac{(21+13\,n)\left(\frac{1}{8}\,i\,\text{Cos}[c+d\,x]+\frac{1}{8}\,\text{Sin}[c+d\,x]\right)}{(1+n)\,(3+n)}+$$
$$\frac{(7+2\,n)\left(\frac{1}{2}\,\text{Cos}[2\,(c+d\,x)]-\frac{1}{2}\,i\,\text{Sin}[2\,(c+d\,x)]\right)}{(2+n)\,(4+n)}+$$
$$\frac{(7+2\,n)\left(\frac{1}{2}\,\text{Cos}[2\,(c+d\,x)]+\frac{1}{2}\,i\,\text{Sin}[2\,(c+d\,x)]\right)}{(2+n)\,(4+n)}+$$
$$\frac{-\frac{3}{8}\,i\,\text{Cos}[3\,(c+d\,x)]-\frac{3}{8}\,\text{Sin}[3\,(c+d\,x)]}{3+n}+\frac{\frac{3}{8}\,i\,\text{Cos}[3\,(c+d\,x)]-\frac{3}{8}\,\text{Sin}[3\,(c+d\,x)]}{3+n}+$$
$$\left.\frac{-\frac{1}{16}\,\text{Cos}[4\,(c+d\,x)]-\frac{1}{16}\,i\,\text{Sin}[4\,(c+d\,x)]}{4+n}+\frac{-\frac{1}{16}\,\text{Cos}[4\,(c+d\,x)]+\frac{1}{16}\,i\,\text{Sin}[4\,(c+d\,x)]}{4+n}\right)$$

Problem 703: Unable to integrate problem.

$$\int \frac{\text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 5, 109 leaves, 8 steps):

$$-\frac{7\,\text{Sin}[c+d\,x]^{1+n}}{a^4\,d\,(1+n)}+\frac{8\,\text{Hypergeometric2F1}[1,\,1+n,\,2+n,\,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}}{a^4\,d\,(1+n)}+$$
$$\frac{4\,\text{Sin}[c+d\,x]^{2+n}}{a^4\,d\,(2+n)}-\frac{\text{Sin}[c+d\,x]^{3+n}}{a^4\,d\,(3+n)}$$

Result (type 8, 31 leaves):

$$\int \frac{\text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]^n}{(a+a\,\text{Sin}[c+d\,x])^4}\,dx$$

Problem 704: Unable to integrate problem.

$$\int \frac{\text{Cos}[c+d x]^7 \, \text{Sin}[c+d x]^n}{(a+a \, \text{Sin}[c+d x])^5} \, dx$$

Optimal (type 5, 160 leaves, 4 steps):

$$-\frac{1}{a^5 d (1+n)} 4 (3+2 n) \, \text{Hypergeometric2F1}[1, 1+n, 2+n, -\text{Sin}[c+d x]] \, \text{Sin}[c+d x]^{1+n} - \frac{\text{Sin}[c+d x]^{1+n} (a-a \, \text{Sin}[c+d x])^2}{d (2+n) (a^7+a^7 \, \text{Sin}[c+d x])} + \frac{\text{Sin}[c+d x]^{1+n} \left(a (27+30 n+8 n^2)+a (7+2 n) \, \text{Sin}[c+d x]\right)}{d (2+3 n+n^2) (a^6+a^6 \, \text{Sin}[c+d x])}$$

Result (type 8, 31 leaves):

$$\int \frac{\text{Cos}[c+d x]^7 \, \text{Sin}[c+d x]^n}{(a+a \, \text{Sin}[c+d x])^5} \, dx$$

Problem 705: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^8 \, \text{Sin}[c+d x]^5}{a+a \, \text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 209 leaves, 11 steps):

$$-\frac{5 x}{1024 a} - \frac{\text{Cos}[c+d x]^7}{7 a d} + \frac{2 \, \text{Cos}[c+d x]^9}{9 a d} - \frac{\text{Cos}[c+d x]^{11}}{11 a d} - \frac{5 \, \text{Cos}[c+d x] \, \text{Sin}[c+d x]}{1024 a d} - \frac{5 \, \text{Cos}[c+d x]^3 \, \text{Sin}[c+d x]}{1536 a d} - \frac{\text{Cos}[c+d x]^5 \, \text{Sin}[c+d x]}{384 a d} + \frac{\text{Cos}[c+d x]^7 \, \text{Sin}[c+d x]}{64 a d} + \frac{\text{Cos}[c+d x]^7 \, \text{Sin}[c+d x]^3}{24 a d} + \frac{\text{Cos}[c+d x]^7 \, \text{Sin}[c+d x]^5}{12 a d}$$

Result (type 3, 1247 leaves):

$$\frac{1}{2048} \left(-\frac{9 x}{a} - \frac{16 \, \text{Cos}[c] \, \text{Cos}[d x]}{a d} + \frac{4 \, \text{Cos}[3 c] \, \text{Cos}[3 d x]}{a d} - \frac{8 \, \text{Cos}[5 c] \, \text{Cos}[5 d x]}{5 a d} + \frac{4 \, \text{Cos}[7 c] \, \text{Cos}[7 d x]}{7 a d} + \frac{7 \, \text{Cos}[2 d x] \, \text{Sin}[2 c]}{a d} - \frac{5 \, \text{Cos}[4 d x] \, \text{Sin}[4 c]}{2 a d} + \frac{\text{Cos}[6 d x] \, \text{Sin}[6 c]}{a d} - \frac{\text{Cos}[8 d x] \, \text{Sin}[8 c]}{4 a d} + \frac{16 \, \text{Sin}[c] \, \text{Sin}[d x]}{a d} + \frac{7 \, \text{Cos}[2 c] \, \text{Sin}[2 d x]}{a d} - \frac{4 \, \text{Sin}[3 c] \, \text{Sin}[3 d x]}{a d} - \frac{5 \, \text{Cos}[4 c] \, \text{Sin}[4 d x]}{2 a d} + \frac{8 \, \text{Sin}[5 c] \, \text{Sin}[5 d x]}{5 a d} + \frac{\text{Cos}[6 c] \, \text{Sin}[6 d x]}{a d} - \frac{4 \, \text{Sin}[7 c] \, \text{Sin}[7 d x]}{7 a d} - \frac{\text{Cos}[8 c] \, \text{Sin}[8 d x]}{4 a d} + \frac{2 \, \text{Sin}\left[\frac{d x}{2}\right]}{a d \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}\right) -$$

$$\frac{1}{24576 a} 5 \left(30 x + \frac{48 \, \text{Cos}[c] \, \text{Cos}[d x]}{d} - \frac{8 \, \text{Cos}[3 c] \, \text{Cos}[3 d x]}{d} - \frac{18 \, \text{Cos}[2 d x] \, \text{Sin}[2 c]}{d} + \right.$$

$$\frac{3\,\text{Cos}[4\,d\,x]\,\text{Sin}[4\,c]}{d}-\frac{48\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}-\frac{18\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}+\frac{8\,\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{d}+$$

$$\left.\frac{3\,\text{Cos}[4\,c]\,\text{Sin}[4\,d\,x]}{d}-\frac{12\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)+$$

$$\frac{1}{4096\,a}25\left(-3\,x-\frac{4\,\text{Cos}[c]\,\text{Cos}[d\,x]}{d}+\frac{\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{d}+\frac{4\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}+\right.$$

$$\left.\frac{\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}+\frac{2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)-$$

$$\frac{1}{61\,440\,a}7\left(-210\,x-\frac{360\,\text{Cos}[c]\,\text{Cos}[d\,x]}{d}+\frac{80\,\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{d}-\frac{24\,\text{Cos}[5\,c]\,\text{Cos}[5\,d\,x]}{d}+\right.$$

$$\frac{150\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{d}-\frac{45\,\text{Cos}[4\,d\,x]\,\text{Sin}[4\,c]}{d}+\frac{10\,\text{Cos}[6\,d\,x]\,\text{Sin}[6\,c]}{d}+$$

$$\frac{360\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}+\frac{150\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}-\frac{80\,\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{d}-$$

$$\frac{45\,\text{Cos}[4\,c]\,\text{Sin}[4\,d\,x]}{d}+\frac{24\,\text{Sin}[5\,c]\,\text{Sin}[5\,d\,x]}{d}+\frac{10\,\text{Cos}[6\,c]\,\text{Sin}[6\,d\,x]}{d}+$$

$$\left.\frac{60\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)+$$

$$\left(5\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right.$$

$$\left.\left((c+d\,x)\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+(-2+c+d\,x)\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/\left(1024\,a\,d\,(1+\text{Sin}[c+d\,x])\right)+$$

$$\frac{1}{1\,720\,320\,a\,d}\left(-13\,860\,(c+d\,x)-25\,200\,\text{Cos}[c+d\,x]+6720\,\text{Cos}[3\,(c+d\,x)]-\right.$$

$$3024\,\text{Cos}[5\,(c+d\,x)]+1440\,\text{Cos}[7\,(c+d\,x)]-560\,\text{Cos}[9\,(c+d\,x)]+$$

$$\frac{2520\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}+11\,340\,\text{Sin}[2\,(c+d\,x)]-4410\,\text{Sin}[4\,(c+d\,x)]+$$

$$\left.2100\,\text{Sin}[6\,(c+d\,x)]-945\,\text{Sin}[8\,(c+d\,x)]+252\,\text{Sin}[10\,(c+d\,x)]\right)+\frac{1}{56\,770\,560\,a\,d}$$

$$\left(180\,180\,(c+d\,x)+332\,640\,\text{Cos}[c+d\,x]-92\,400\,\text{Cos}[3\,(c+d\,x)]+44\,352\,\text{Cos}[5\,(c+d\,x)]-\right.$$

$$23\,760\,\text{Cos}[7\,(c+d\,x)]+12\,320\,\text{Cos}[9\,(c+d\,x)]-5040\,\text{Cos}[11\,(c+d\,x)]-$$

$$\frac{27\,720\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}-152\,460\,\text{Sin}[2\,(c+d\,x)]+62\,370\,\text{Sin}[4\,(c+d\,x)]-$$

$$32340\,\mathrm{Sin}[6(c+dx)]+17325\,\mathrm{Sin}[8(c+dx)]-8316\,\mathrm{Sin}[10(c+dx)]+2310\,\mathrm{Sin}[12(c+dx)]\Big)$$

Problem 706: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+dx]^8\,\mathrm{Sin}[c+dx]^4}{a+a\,\mathrm{Sin}[c+dx]}\,dx$$

Optimal (type 3, 183 leaves, 10 steps):

$$\frac{3x}{256a}+\frac{\mathrm{Cos}[c+dx]^7}{7ad}-\frac{2\,\mathrm{Cos}[c+dx]^9}{9ad}+\frac{\mathrm{Cos}[c+dx]^{11}}{11ad}+\frac{3\,\mathrm{Cos}[c+dx]\,\mathrm{Sin}[c+dx]}{256ad}+\frac{\mathrm{Cos}[c+dx]^3\,\mathrm{Sin}[c+dx]}{128ad}+\frac{\mathrm{Cos}[c+dx]^5\,\mathrm{Sin}[c+dx]}{160ad}-\frac{3\,\mathrm{Cos}[c+dx]^7\,\mathrm{Sin}[c+dx]}{80ad}-\frac{\mathrm{Cos}[c+dx]^7\,\mathrm{Sin}[c+dx]^3}{10ad}$$

Result (type 3, 1084 leaves):

$$\frac{1}{1024}\left(-\frac{8x}{a}-\frac{14\,\mathrm{Cos}[c]\,\mathrm{Cos}[dx]}{ad}+\frac{10\,\mathrm{Cos}[3c]\,\mathrm{Cos}[3dx]}{3ad}-\frac{6\,\mathrm{Cos}[5c]\,\mathrm{Cos}[5dx]}{5ad}+\frac{2\,\mathrm{Cos}[7c]\,\mathrm{Cos}[7dx]}{7ad}+\frac{6\,\mathrm{Cos}[2dx]\,\mathrm{Sin}[2c]}{ad}-\frac{2\,\mathrm{Cos}[4dx]\,\mathrm{Sin}[4c]}{ad}+\frac{2\,\mathrm{Cos}[6dx]\,\mathrm{Sin}[6c]}{3ad}+\frac{14\,\mathrm{Sin}[c]\,\mathrm{Sin}[dx]}{ad}+\frac{6\,\mathrm{Cos}[2c]\,\mathrm{Sin}[2dx]}{ad}-\frac{10\,\mathrm{Sin}[3c]\,\mathrm{Sin}[3dx]}{3ad}-\frac{2\,\mathrm{Cos}[4c]\,\mathrm{Sin}[4dx]}{ad}+\frac{6\,\mathrm{Sin}[5c]\,\mathrm{Sin}[5dx]}{5ad}+\frac{2\,\mathrm{Cos}[6c]\,\mathrm{Sin}[6dx]}{3ad}-\frac{2\,\mathrm{Sin}[7c]\,\mathrm{Sin}[7dx]}{7ad}+\frac{2\,\mathrm{Sin}\left[\frac{dx}{2}\right]}{ad\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)}\right)-$$

$$\frac{1}{2560a}3\left(30x+\frac{50\,\mathrm{Cos}[c]\,\mathrm{Cos}[dx]}{d}-\frac{10\,\mathrm{Cos}[3c]\,\mathrm{Cos}[3dx]}{d}+\frac{2\,\mathrm{Cos}[5c]\,\mathrm{Cos}[5dx]}{d}-\frac{20\,\mathrm{Cos}[2dx]\,\mathrm{Sin}[2c]}{d}+\frac{5\,\mathrm{Cos}[4dx]\,\mathrm{Sin}[4c]}{d}-\frac{50\,\mathrm{Sin}[c]\,\mathrm{Sin}[dx]}{d}-\frac{20\,\mathrm{Cos}[2c]\,\mathrm{Sin}[2dx]}{d}+\frac{10\,\mathrm{Sin}[3c]\,\mathrm{Sin}[3dx]}{d}+\frac{5\,\mathrm{Cos}[4c]\,\mathrm{Sin}[4dx]}{d}-\frac{2\,\mathrm{Sin}[5c]\,\mathrm{Sin}[5dx]}{d}-\frac{10\,\mathrm{Sin}\left[\frac{dx}{2}\right]}{d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)}\right)+$$

$$\frac{1}{128a}\left(x+\frac{\mathrm{Cos}[c]\,\mathrm{Cos}[dx]}{d}-\frac{\mathrm{Sin}[c]\,\mathrm{Sin}[dx]}{d}-\frac{\mathrm{Sin}\left[\frac{dx}{2}\right]}{d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)}\right)-\frac{1}{3072a}$$

$$17\left(-6x-\frac{9\,\text{Cos}[c]\,\text{Cos}[d\,x]}{d}+\frac{\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{d}+\frac{3\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{d}+\frac{9\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}+\frac{3\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}-\frac{\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{d}+\frac{3\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)+$$

$$\frac{7\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{512\,d\,(a+a\,\text{Sin}[c+d\,x])}+\frac{1}{64\,512\,a\,d}$$

$$\left(1260\,(c+d\,x)+2268\,\text{Cos}[c+d\,x]-588\,\text{Cos}[3\,(c+d\,x)]+252\,\text{Cos}[5\,(c+d\,x)]-108\,\text{Cos}[7\,(c+d\,x)]+28\,\text{Cos}[9\,(c+d\,x)]-\frac{252\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}-1008\,\text{Sin}[2\,(c+d\,x)]+378\,\text{Sin}[4\,(c+d\,x)]-168\,\text{Sin}[6\,(c+d\,x)]+63\,\text{Sin}[8\,(c+d\,x)]\right)+$$

$$\frac{1}{2\,365\,440\,a\,d}\left(-13\,860\,(c+d\,x)-25\,410\,\text{Cos}[c+d\,x]+6930\,\text{Cos}[3\,(c+d\,x)]-3234\,\text{Cos}[5\,(c+d\,x)]+1650\,\text{Cos}[7\,(c+d\,x)]-770\,\text{Cos}[9\,(c+d\,x)]+210\,\text{Cos}[11\,(c+d\,x)]+\frac{2310\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}+11\,550\,\text{Sin}[2\,(c+d\,x)]-4620\,\text{Sin}[4\,(c+d\,x)]+2310\,\text{Sin}[6\,(c+d\,x)]-1155\,\text{Sin}[8\,(c+d\,x)]+462\,\text{Sin}[10\,(c+d\,x)]\right)$$

Problem 707: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^8\,\text{Sin}[c+d\,x]^3}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 165 leaves, 10 steps):

$$-\frac{3\,x}{256\,a}-\frac{\text{Cos}[c+d\,x]^7}{7\,a\,d}+\frac{\text{Cos}[c+d\,x]^9}{9\,a\,d}-\frac{3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{256\,a\,d}-\frac{\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{128\,a\,d}-\frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]}{160\,a\,d}+\frac{3\,\text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]}{80\,a\,d}+\frac{\text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]^3}{10\,a\,d}$$

Result (type 3, 1078 leaves):

$$-\frac{1}{1024}5\left(\frac{9\,x}{a}+\frac{16\,\text{Cos}[c]\,\text{Cos}[d\,x]}{a\,d}-\frac{4\,\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{a\,d}+\frac{8\,\text{Cos}[5\,c]\,\text{Cos}[5\,d\,x]}{5\,a\,d}-\right.$$

$$\frac{4\,\text{Cos}[7\,c]\,\text{Cos}[7\,d\,x]}{7\,a\,d}-\frac{7\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{a\,d}+\frac{5\,\text{Cos}[4\,d\,x]\,\text{Sin}[4\,c]}{2\,a\,d}-\frac{\text{Cos}[6\,d\,x]\,\text{Sin}[6\,c]}{a\,d}+$$

$$\frac{\text{Cos}[8\,d\,x]\,\text{Sin}[8\,c]}{4\,a\,d}-\frac{16\,\text{Sin}[c]\,\text{Sin}[d\,x]}{a\,d}-\frac{7\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{a\,d}+\frac{4\,\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{a\,d}+$$

$$\frac{5\,\text{Cos}[4\,c]\,\text{Sin}[4\,d\,x]}{2\,a\,d}-\frac{8\,\text{Sin}[5\,c]\,\text{Sin}[5\,d\,x]}{5\,a\,d}-\frac{\text{Cos}[6\,c]\,\text{Sin}[6\,d\,x]}{a\,d}+\frac{4\,\text{Sin}[7\,c]\,\text{Sin}[7\,d\,x]}{7\,a\,d}+$$

$$\left.\frac{\text{Cos}[8\,c]\,\text{Sin}[8\,d\,x]}{4\,a\,d}-\frac{2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{a\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}\right)+$$

$$\frac{1}{6144\,a}5\left(30\,x+\frac{48\,\text{Cos}[c]\,\text{Cos}[d\,x]}{d}-\frac{8\,\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{d}-\frac{18\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{d}+\right.$$

$$\frac{3\,\text{Cos}[4\,d\,x]\,\text{Sin}[4\,c]}{d}-\frac{48\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}-\frac{18\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}+\frac{8\,\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{d}+$$

$$\left.\frac{3\,\text{Cos}[4\,c]\,\text{Sin}[4\,d\,x]}{d}-\frac{12\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)+$$

$$\frac{1}{512\,a}11\left(-3\,x-\frac{4\,\text{Cos}[c]\,\text{Cos}[d\,x]}{d}+\frac{\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{d}+\frac{4\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}+\right.$$

$$\left.\frac{\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}+\frac{2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)-$$

$$\frac{1}{30\,720\,a}7\left(-210\,x-\frac{360\,\text{Cos}[c]\,\text{Cos}[d\,x]}{d}+\frac{80\,\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{d}-\frac{24\,\text{Cos}[5\,c]\,\text{Cos}[5\,d\,x]}{d}+\right.$$

$$\frac{150\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{d}-\frac{45\,\text{Cos}[4\,d\,x]\,\text{Sin}[4\,c]}{d}+\frac{10\,\text{Cos}[6\,d\,x]\,\text{Sin}[6\,c]}{d}+$$

$$\frac{360\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}+\frac{150\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}-\frac{80\,\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{d}-$$

$$\frac{45\,\text{Cos}[4\,c]\,\text{Sin}[4\,d\,x]}{d}+\frac{24\,\text{Sin}[5\,c]\,\text{Sin}[5\,d\,x]}{d}+\frac{10\,\text{Cos}[6\,c]\,\text{Sin}[6\,d\,x]}{d}+$$

$$\left.\frac{60\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)+$$

$$\left(7\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right.$$

$$\left.\left((c+d\,x)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+(-2+c+d\,x)\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Big/\left(512\,a\,d\,\left(1+\text{Sin}[c+d\,x]\right)\right)-$$

$$\frac{1}{1\,290\,240\,a\,d}\left(-13\,860\,(c+d\,x)-25\,200\,\text{Cos}[c+d\,x]+6720\,\text{Cos}[3\,(c+d\,x)]-\right.$$

$$3024\,\text{Cos}[5\,(c+d\,x)]+1440\,\text{Cos}[7\,(c+d\,x)]-560\,\text{Cos}[9\,(c+d\,x)]+$$

$$\frac{2520\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}+11\,340\,\text{Sin}[2\,(c+d\,x)]-4410\,\text{Sin}[4\,(c+d\,x)]+$$

$$2100\,\mathrm{Sin}[6\,(c+d\,x)] - 945\,\mathrm{Sin}[8\,(c+d\,x)] + 252\,\mathrm{Sin}[10\,(c+d\,x)]\Bigg)$$

Problem 708: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[c+d\,x]^8\,\mathrm{Sin}[c+d\,x]^2}{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 139 leaves, 9 steps):

$$\frac{5\,x}{128\,a}+\frac{\mathrm{Cos}[c+d\,x]^7}{7\,a\,d}-\frac{\mathrm{Cos}[c+d\,x]^9}{9\,a\,d}+\frac{5\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{128\,a\,d}+\frac{5\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}[c+d\,x]}{192\,a\,d}+\frac{\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]}{48\,a\,d}-\frac{\mathrm{Cos}[c+d\,x]^7\,\mathrm{Sin}[c+d\,x]}{8\,a\,d}$$

Result (type 3, 923 leaves):

$$-\frac{3}{256}\left(-\frac{8\,x}{a}-\frac{14\,\mathrm{Cos}[c]\,\mathrm{Cos}[d\,x]}{a\,d}+\frac{10\,\mathrm{Cos}[3\,c]\,\mathrm{Cos}[3\,d\,x]}{3\,a\,d}-\frac{6\,\mathrm{Cos}[5\,c]\,\mathrm{Cos}[5\,d\,x]}{5\,a\,d}+\frac{2\,\mathrm{Cos}[7\,c]\,\mathrm{Cos}[7\,d\,x]}{7\,a\,d}+\frac{6\,\mathrm{Cos}[2\,d\,x]\,\mathrm{Sin}[2\,c]}{a\,d}-\frac{2\,\mathrm{Cos}[4\,d\,x]\,\mathrm{Sin}[4\,c]}{a\,d}+\frac{2\,\mathrm{Cos}[6\,d\,x]\,\mathrm{Sin}[6\,c]}{3\,a\,d}+\frac{14\,\mathrm{Sin}[c]\,\mathrm{Sin}[d\,x]}{a\,d}+\frac{6\,\mathrm{Cos}[2\,c]\,\mathrm{Sin}[2\,d\,x]}{a\,d}-\frac{10\,\mathrm{Sin}[3\,c]\,\mathrm{Sin}[3\,d\,x]}{3\,a\,d}-\frac{2\,\mathrm{Cos}[4\,c]\,\mathrm{Sin}[4\,d\,x]}{a\,d}+\frac{6\,\mathrm{Sin}[5\,c]\,\mathrm{Sin}[5\,d\,x]}{5\,a\,d}+\frac{2\,\mathrm{Cos}[6\,c]\,\mathrm{Sin}[6\,d\,x]}{3\,a\,d}-\frac{2\,\mathrm{Sin}[7\,c]\,\mathrm{Sin}[7\,d\,x]}{7\,a\,d}+\frac{2\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]}{a\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}\right)-\frac{1}{2560\,a}13\left(30\,x+\frac{50\,\mathrm{Cos}[c]\,\mathrm{Cos}[d\,x]}{d}-\frac{10\,\mathrm{Cos}[3\,c]\,\mathrm{Cos}[3\,d\,x]}{d}+\frac{2\,\mathrm{Cos}[5\,c]\,\mathrm{Cos}[5\,d\,x]}{d}-\frac{20\,\mathrm{Cos}[2\,d\,x]\,\mathrm{Sin}[2\,c]}{d}+\frac{5\,\mathrm{Cos}[4\,d\,x]\,\mathrm{Sin}[4\,c]}{d}-\frac{50\,\mathrm{Sin}[c]\,\mathrm{Sin}[d\,x]}{d}-\frac{20\,\mathrm{Cos}[2\,c]\,\mathrm{Sin}[2\,d\,x]}{d}+\frac{10\,\mathrm{Sin}[3\,c]\,\mathrm{Sin}[3\,d\,x]}{d}+\frac{5\,\mathrm{Cos}[4\,c]\,\mathrm{Sin}[4\,d\,x]}{d}-\frac{2\,\mathrm{Sin}[5\,c]\,\mathrm{Sin}[5\,d\,x]}{d}-\frac{10\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]}{d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)+\frac{1}{128\,a}7\left(x+\frac{\mathrm{Cos}[c]\,\mathrm{Cos}[d\,x]}{d}-\frac{\mathrm{Sin}[c]\,\mathrm{Sin}[d\,x]}{d}-\frac{\mathrm{Sin}\left[\frac{d\,x}{2}\right]}{d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)-\frac{1}{96\,a}$$

$$\left(-6\,x-\frac{9\,\text{Cos}[c]\,\text{Cos}[d\,x]}{d}+\frac{\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{d}+\frac{3\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{d}+\frac{9\,\text{Sin}[c]\,\text{Sin}[d\,x]}{d}+\frac{3\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{d}-\frac{\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{d}+\frac{3\,\text{Sin}\left[\frac{d\,x}{2}\right]}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)+$$

$$\frac{7\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{128\,d\,(a+a\,\text{Sin}[c+d\,x])}-$$

$$\frac{1}{64\,512\,a\,d}\left(1260\,(c+d\,x)+2268\,\text{Cos}[c+d\,x]-588\,\text{Cos}[3\,(c+d\,x)]+252\,\text{Cos}[5\,(c+d\,x)]-108\,\text{Cos}[7\,(c+d\,x)]+28\,\text{Cos}[9\,(c+d\,x)]-\frac{252\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}-1008\,\text{Sin}[2\,(c+d\,x)]+378\,\text{Sin}[4\,(c+d\,x)]-168\,\text{Sin}[6\,(c+d\,x)]+63\,\text{Sin}[8\,(c+d\,x)]\right)$$

Problem 709: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^8\,\text{Sin}[c+d\,x]}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 121 leaves, 8 steps):

$$-\frac{5\,x}{128\,a}-\frac{\text{Cos}[c+d\,x]^7}{7\,a\,d}-\frac{5\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{128\,a\,d}-\frac{5\,\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{192\,a\,d}-\frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]}{48\,a\,d}+\frac{\text{Cos}[c+d\,x]^7\,\text{Sin}[c+d\,x]}{8\,a\,d}$$

Result (type 3, 481 leaves):

$$-\frac{1}{43008\,a\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}$$
$$\left(-336\,(7\,c-5\,d\,x)\,\text{Cos}\left[\frac{c}{2}\right]+1680\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+1680\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]+336\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]-\right.$$
$$336\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]+1008\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+1008\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]-168\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]+$$
$$168\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+336\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]+336\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]-112\,\text{Cos}\left[\frac{11\,c}{2}+6\,d\,x\right]+$$
$$112\,\text{Cos}\left[\frac{13\,c}{2}+6\,d\,x\right]+48\,\text{Cos}\left[\frac{13\,c}{2}+7\,d\,x\right]+48\,\text{Cos}\left[\frac{15\,c}{2}+7\,d\,x\right]-21\,\text{Cos}\left[\frac{15\,c}{2}+8\,d\,x\right]+$$
$$21\,\text{Cos}\left[\frac{17\,c}{2}+8\,d\,x\right]+4704\,\text{Sin}\left[\frac{c}{2}\right]-2352\,c\,\text{Sin}\left[\frac{c}{2}\right]+1680\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-$$
$$1680\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+1680\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]+336\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]+336\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]-$$
$$1008\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+1008\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]-168\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]-168\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]-$$
$$336\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]+336\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]-112\,\text{Sin}\left[\frac{11\,c}{2}+6\,d\,x\right]-112\,\text{Sin}\left[\frac{13\,c}{2}+6\,d\,x\right]-$$
$$\left.48\,\text{Sin}\left[\frac{13\,c}{2}+7\,d\,x\right]+48\,\text{Sin}\left[\frac{15\,c}{2}+7\,d\,x\right]-21\,\text{Sin}\left[\frac{15\,c}{2}+8\,d\,x\right]-21\,\text{Sin}\left[\frac{17\,c}{2}+8\,d\,x\right]\right)$$

Problem 716: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^7}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 142 leaves, 9 steps):

$$\frac{x}{a}+\frac{5\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{16\,a\,d}+\frac{\text{Cot}[c+d\,x]}{a\,d}-\frac{\text{Cot}[c+d\,x]^3}{3\,a\,d}+\frac{\text{Cot}[c+d\,x]^5}{5\,a\,d}-$$
$$\frac{5\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{16\,a\,d}+\frac{5\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]}{24\,a\,d}-\frac{\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]}{6\,a\,d}$$

Result (type 3, 317 leaves):

$$-\frac{1}{7680\,a\,d\,(1+\text{Sin}[c+d\,x])}\text{Csc}[c+d\,x]^6\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\Big(-2400\,c-2400\,d\,x+900\,\text{Cos}[c+d\,x]+50\,\text{Cos}[3\,(c+d\,x)]-1440\,c\,\text{Cos}[4\,(c+d\,x)]-1440\,d\,x\,\text{Cos}[4\,(c+d\,x)]+330\,\text{Cos}[5\,(c+d\,x)]+240\,c\,\text{Cos}[6\,(c+d\,x)]+240\,d\,x\,\text{Cos}[6\,(c+d\,x)]-750\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]-450\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]+75\,\text{Cos}[6\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]+225\,\text{Cos}[2\,(c+d\,x)]\left(16\,(c+d\,x)+5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]-5\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)+750\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+450\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-75\,\text{Cos}[6\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-1200\,\text{Sin}[2\,(c+d\,x)]+768\,\text{Sin}[4\,(c+d\,x)]-368\,\text{Sin}[6\,(c+d\,x)]\Big)$$

Problem 717: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^8}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 106 leaves, 7 steps):

$$-\frac{5\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{16\,a\,d}-\frac{\text{Cot}[c+d\,x]^7}{7\,a\,d}+\frac{5\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{16\,a\,d}-\frac{5\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]}{24\,a\,d}+\frac{\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]}{6\,a\,d}$$

Result (type 3, 284 leaves):

$$-\frac{1}{86016\,a\,d\,(1+\text{Sin}[c+d\,x])}\text{Csc}[c+d\,x]^5\left(\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\Big(1680\,\text{Cos}[c+d\,x]+1008\,\text{Cos}[3\,(c+d\,x)]+336\,\text{Cos}[5\,(c+d\,x)]+48\,\text{Cos}[7\,(c+d\,x)]+3675\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]-3675\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]-1190\,\text{Sin}[2\,(c+d\,x)]-2205\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]+2205\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]+392\,\text{Sin}[4\,(c+d\,x)]+735\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]-735\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]-462\,\text{Sin}[6\,(c+d\,x)]-105\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[7\,(c+d\,x)]+105\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[7\,(c+d\,x)]\Big)$$

Problem 718: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^8\,\text{Csc}[c+d\,x]}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 134 leaves, 8 steps):

$$\frac{5\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{128\,a\,d}+\frac{\text{Cot}[c+d\,x]^7}{7\,a\,d}+\frac{5\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{128\,a\,d}-\frac{5\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{64\,a\,d}+\frac{5\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^3}{48\,a\,d}-\frac{\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^3}{8\,a\,d}$$

Result (type 3, 291 leaves):

$$\frac{1}{344064\,a\,d}\text{Csc}[c+d\,x]^8\Big(-24710\,\text{Cos}[c+d\,x]-12530\,\text{Cos}[3\,(c+d\,x)]-5558\,\text{Cos}[5\,(c+d\,x)]-210\,\text{Cos}[7\,(c+d\,x)]+$$
$$3675\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-5880\,\text{Cos}[2\,(c+d\,x)]\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$2940\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-840\,\text{Cos}[6\,(c+d\,x)]\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$105\,\text{Cos}[8\,(c+d\,x)]\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-3675\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$5880\,\text{Cos}[2\,(c+d\,x)]\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-2940\,\text{Cos}[4\,(c+d\,x)]\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$840\,\text{Cos}[6\,(c+d\,x)]\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-105\,\text{Cos}[8\,(c+d\,x)]\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$5376\,\text{Sin}[2\,(c+d\,x)]+5376\,\text{Sin}[4\,(c+d\,x)]+2304\,\text{Sin}[6\,(c+d\,x)]+384\,\text{Sin}[8\,(c+d\,x)]\Big)$$

Problem 719: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^8\,\text{Csc}[c+d\,x]^2}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 152 leaves, 9 steps):

$$-\frac{5\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{128\,a\,d}-\frac{\text{Cot}[c+d\,x]^7}{7\,a\,d}-\frac{\text{Cot}[c+d\,x]^9}{9\,a\,d}-\frac{5\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{128\,a\,d}+\frac{5\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{64\,a\,d}-\frac{5\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^3}{48\,a\,d}+\frac{\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^3}{8\,a\,d}$$

Result (type 3, 313 leaves):

$$-\frac{1}{2064384\,a\,d}\text{Csc}[c+d\,x]^9\Big(129024\,\text{Cos}[c+d\,x]+75264\,\text{Cos}[3\,(c+d\,x)]+23040\,\text{Cos}[5\,(c+d\,x)]+2304\,\text{Cos}[7\,(c+d\,x)]-256\,\text{Cos}[9\,(c+d\,x)]+39690\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[c+d\,x]-39690\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[c+d\,x]-36540\,\text{Sin}[2\,(c+d\,x)]-26460\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]+26460\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]-20916\,\text{Sin}[4\,(c+d\,x)]+11340\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]-11340\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]-16044\,\text{Sin}[6\,(c+d\,x)]-2835\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[7\,(c+d\,x)]+2835\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[7\,(c+d\,x)]-630\,\text{Sin}[8\,(c+d\,x)]+315\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[9\,(c+d\,x)]-315\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\text{Sin}[9\,(c+d\,x)]\Big)$$

Problem 720: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^8\,\text{Csc}[c+d\,x]^3}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 176 leaves, 10 steps):

$$\frac{3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{256\,a\,d}+\frac{\text{Cot}[c+d\,x]^7}{7\,a\,d}+\frac{\text{Cot}[c+d\,x]^9}{9\,a\,d}+\frac{3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{256\,a\,d}+\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{128\,a\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5}{32\,a\,d}+\frac{\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^5}{16\,a\,d}-\frac{\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^5}{10\,a\,d}$$

Result (type 3, 386 leaves):

$$-\frac{1}{165150720\,a\,d\,\left(1+\mathrm{Csc}[c+d\,x]\right)}\mathrm{Csc}[c+d\,x]^9\left(\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2$$
$$\Big(2367540\,\mathrm{Cos}[c+d\,x]+1307880\,\mathrm{Cos}[3\,(c+d\,x)]+436968\,\mathrm{Cos}[5\,(c+d\,x)]+$$
$$18270\,\mathrm{Cos}[7\,(c+d\,x)]-1890\,\mathrm{Cos}[9\,(c+d\,x)]-119070\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$198450\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-113400\,\mathrm{Cos}[4\,(c+d\,x)]$$
$$\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+42525\,\mathrm{Cos}[6\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$9450\,\mathrm{Cos}[8\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+945\,\mathrm{Cos}[10\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$119070\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-198450\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+113400$$
$$\mathrm{Cos}[4\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-42525\,\mathrm{Cos}[6\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$9450\,\mathrm{Cos}[8\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-945\,\mathrm{Cos}[10\,(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$537600\,\mathrm{Sin}[2\,(c+d\,x)]-522240\,\mathrm{Sin}[4\,(c+d\,x)]-$$
$$207360\,\mathrm{Sin}[6\,(c+d\,x)]-25600\,\mathrm{Sin}[8\,(c+d\,x)]+2560\,\mathrm{Sin}[10\,(c+d\,x)]\Big)$$

Problem 722: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^8\,\mathrm{Sin}[c+d\,x]^5}{\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 203 leaves, 15 steps):

$$-\frac{3\,x}{128\,a^2}-\frac{2\,\mathrm{Cos}[c+d\,x]^5}{5\,a^2\,d}+\frac{5\,\mathrm{Cos}[c+d\,x]^7}{7\,a^2\,d}-\frac{4\,\mathrm{Cos}[c+d\,x]^9}{9\,a^2\,d}+$$
$$\frac{\mathrm{Cos}[c+d\,x]^{11}}{11\,a^2\,d}-\frac{3\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{128\,a^2\,d}-\frac{\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}[c+d\,x]}{64\,a^2\,d}+$$
$$\frac{\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]}{16\,a^2\,d}+\frac{\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]^3}{8\,a^2\,d}+\frac{\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]^5}{5\,a^2\,d}$$

Result (type 3, 1469 leaves):

$$-\Big(\left(5\,\left(-3+\mathrm{Cos}[c+d\,x]+\mathrm{Cos}[2\,(c+d\,x)]-4\,\mathrm{Sin}[c+d\,x]+\mathrm{Sin}[2\,(c+d\,x)]\right)\right)\Big/$$
$$\left(3072\,a^2\,d\,\left(1+\mathrm{Sin}[c+d\,x]\right)^2\right)\Big)+$$
$$\frac{1}{86016\,a^2\,d}\Big(27720\,(c+d\,x)+41580\,\mathrm{Cos}[c+d\,x]-7056\,\mathrm{Cos}[3\,(c+d\,x)]+1764\,\mathrm{Cos}[5\,(c+d\,x)]-$$
$$360\,\mathrm{Cos}[7\,(c+d\,x)]+28\,\mathrm{Cos}[9\,(c+d\,x)]+\frac{42\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{21}{\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2}-\frac{15\,204\,\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]}-$$

$$15\,120\,\text{Sin}\left[2\left(c+d\,x\right)\right]+3528\,\text{Sin}\left[4\left(c+d\,x\right)\right]-840\,\text{Sin}\left[6\left(c+d\,x\right)\right]+126\,\text{Sin}\left[8\left(c+d\,x\right)\right]\Bigg)+$$

$$\frac{1}{2\,027\,520\,a^2\,d}\Bigg(-360\,360\left(c+d\,x\right)-566\,280\,\text{Cos}[c+d\,x]+108\,900\,\text{Cos}\left[3\left(c+d\,x\right)\right]-$$

$$33\,264\,\text{Cos}\left[5\left(c+d\,x\right)\right]+9900\,\text{Cos}\left[7\left(c+d\,x\right)\right]-2200\,\text{Cos}\left[9\left(c+d\,x\right)\right]+180\,\text{Cos}\left[11\left(c+d\,x\right)\right]-$$

$$\frac{330\,\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^3}+\frac{165}{\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2}+$$

$$\frac{166\,980\,\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]}+217\,800\,\text{Sin}\left[2\left(c+d\,x\right)\right]-59\,400\,\text{Sin}\left[4\left(c+d\,x\right)\right]+$$

$$18\,480\,\text{Sin}\left[6\left(c+d\,x\right)\right]-4950\,\text{Sin}\left[8\left(c+d\,x\right)\right]+792\,\text{Sin}\left[10\left(c+d\,x\right)\right]\Bigg)+$$

$$\Bigg(25\left(36\,d\,x\,\text{Cos}\left[\frac{d\,x}{2}\right]-21\,\text{Cos}\left[c+\frac{d\,x}{2}\right]+35\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]-12\,d\,x\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]-\right.$$

$$3\,\text{Cos}\left[3\,c+\frac{5\,d\,x}{2}\right]-57\,\text{Sin}\left[\frac{d\,x}{2}\right]+36\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+$$

$$\left.12\,d\,x\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]+9\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]+3\,\text{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(12\,288\,a^2\,d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^3\right)+$$

$$\Bigg(5\left(180\,d\,x\,\text{Cos}\left[\frac{d\,x}{2}\right]-21\,\text{Cos}\left[c+\frac{d\,x}{2}\right]+147\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]-60\,d\,x\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]-\right.$$

$$15\,\text{Cos}\left[3\,c+\frac{5\,d\,x}{2}\right]+3\,\text{Cos}\left[3\,c+\frac{7\,d\,x}{2}\right]+\text{Cos}\left[5\,c+\frac{9\,d\,x}{2}\right]-201\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$

$$180\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+60\,d\,x\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]+73\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]+$$

$$\left.15\,\text{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]+3\,\text{Sin}\left[4\,c+\frac{7\,d\,x}{2}\right]-\text{Sin}\left[4\,c+\frac{9\,d\,x}{2}\right]\right)\Bigg)\Bigg/$$

$$\left(12\,288\,a^2\,d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^3\right)-$$

$$\frac{1}{30\,720\,a^2\,d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^3}$$

$$7\left(2520\,d\,x\,\text{Cos}\left[\frac{d\,x}{2}\right]+165\,\text{Cos}\left[c+\frac{d\,x}{2}\right]+1905\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]-840\,d\,x\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]-\right.$$

$$210\,\text{Cos}\left[3\,c+\frac{5\,d\,x}{2}\right]+42\,\text{Cos}\left[3\,c+\frac{7\,d\,x}{2}\right]+14\,\text{Cos}\left[5\,c+\frac{9\,d\,x}{2}\right]-$$

$$6\,\text{Cos}\left[5\,c+\frac{11\,d\,x}{2}\right]-3\,\text{Cos}\left[7\,c+\frac{13\,d\,x}{2}\right]-2355\,\text{Sin}\left[\frac{d\,x}{2}\right]+2520\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+$$
$$840\,d\,x\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]+1175\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]+210\,\text{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]+$$
$$42\,\text{Sin}\left[4\,c+\frac{7\,d\,x}{2}\right]-14\,\text{Sin}\left[4\,c+\frac{9\,d\,x}{2}\right]-6\,\text{Sin}\left[6\,c+\frac{11\,d\,x}{2}\right]+3\,\text{Sin}\left[6\,c+\frac{13\,d\,x}{2}\right]\Bigg)+$$
$$\frac{1}{43008\,a^2\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}$$
$$\Bigg(7560\,d\,x\,\text{Cos}\left[\frac{d\,x}{2}\right]+1239\,\text{Cos}\left[c+\frac{d\,x}{2}\right]+5467\,\text{Cos}\left[c+\frac{3\,d\,x}{2}\right]-2520\,d\,x\,\text{Cos}\left[2\,c+\frac{3\,d\,x}{2}\right]-$$
$$630\,\text{Cos}\left[3\,c+\frac{5\,d\,x}{2}\right]+126\,\text{Cos}\left[3\,c+\frac{7\,d\,x}{2}\right]+42\,\text{Cos}\left[5\,c+\frac{9\,d\,x}{2}\right]-18\,\text{Cos}\left[5\,c+\frac{11\,d\,x}{2}\right]-$$
$$9\,\text{Cos}\left[7\,c+\frac{13\,d\,x}{2}\right]+5\,\text{Cos}\left[7\,c+\frac{15\,d\,x}{2}\right]+3\,\text{Cos}\left[9\,c+\frac{17\,d\,x}{2}\right]-6321\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$7560\,d\,x\,\text{Sin}\left[c+\frac{d\,x}{2}\right]+2520\,d\,x\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]+3773\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]+$$
$$630\,\text{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]+126\,\text{Sin}\left[4\,c+\frac{7\,d\,x}{2}\right]-42\,\text{Sin}\left[4\,c+\frac{9\,d\,x}{2}\right]-$$
$$18\,\text{Sin}\left[6\,c+\frac{11\,d\,x}{2}\right]+9\,\text{Sin}\left[6\,c+\frac{13\,d\,x}{2}\right]+5\,\text{Sin}\left[8\,c+\frac{15\,d\,x}{2}\right]-3\,\text{Sin}\left[8\,c+\frac{17\,d\,x}{2}\right]\Bigg)$$

Problem 723: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^8\,\text{Sin}[c+d\,x]^4}{(a+a\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 185 leaves, 17 steps):

$$\frac{9\,x}{256\,a^2}+\frac{2\,\text{Cos}[c+d\,x]^5}{5\,a^2\,d}-\frac{4\,\text{Cos}[c+d\,x]^7}{7\,a^2\,d}+\frac{2\,\text{Cos}[c+d\,x]^9}{9\,a^2\,d}+$$
$$\frac{9\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{256\,a^2\,d}+\frac{3\,\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{128\,a^2\,d}-$$
$$\frac{3\,\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]}{32\,a^2\,d}-\frac{3\,\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^3}{16\,a^2\,d}-\frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^5}{10\,a^2\,d}$$

Result (type 3, 585 leaves):

$$\frac{1}{1290240\,a^2\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)}\Bigg(-2520\,(187\,c-18\,d\,x)\,\mathrm{Cos}\left[\frac{c}{2}\right]+30240\,\mathrm{Cos}\left[\frac{c}{2}+d\,x\right]+30240\,\mathrm{Cos}\left[\frac{3\,c}{2}+d\,x\right]-1260\,\mathrm{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]+$$
$$1260\,\mathrm{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]+6720\,\mathrm{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+6720\,\mathrm{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]-7560\,\mathrm{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]+$$
$$7560\,\mathrm{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]-4032\,\mathrm{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]-4032\,\mathrm{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]+630\,\mathrm{Cos}\left[\frac{11\,c}{2}+6\,d\,x\right]-$$
$$630\,\mathrm{Cos}\left[\frac{13\,c}{2}+6\,d\,x\right]-720\,\mathrm{Cos}\left[\frac{13\,c}{2}+7\,d\,x\right]-720\,\mathrm{Cos}\left[\frac{15\,c}{2}+7\,d\,x\right]+945\,\mathrm{Cos}\left[\frac{15\,c}{2}+8\,d\,x\right]-$$
$$945\,\mathrm{Cos}\left[\frac{17\,c}{2}+8\,d\,x\right]+560\,\mathrm{Cos}\left[\frac{17\,c}{2}+9\,d\,x\right]+560\,\mathrm{Cos}\left[\frac{19\,c}{2}+9\,d\,x\right]-126\,\mathrm{Cos}\left[\frac{19\,c}{2}+10\,d\,x\right]+$$
$$126\,\mathrm{Cos}\left[\frac{21\,c}{2}+10\,d\,x\right]+327180\,\mathrm{Sin}\left[\frac{c}{2}\right]-471240\,c\,\mathrm{Sin}\left[\frac{c}{2}\right]+45360\,d\,x\,\mathrm{Sin}\left[\frac{c}{2}\right]-$$
$$30240\,\mathrm{Sin}\left[\frac{c}{2}+d\,x\right]+30240\,\mathrm{Sin}\left[\frac{3\,c}{2}+d\,x\right]-1260\,\mathrm{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]-1260\,\mathrm{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]-$$
$$6720\,\mathrm{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+6720\,\mathrm{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]-7560\,\mathrm{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]-7560\,\mathrm{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]+$$
$$4032\,\mathrm{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]-4032\,\mathrm{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]+630\,\mathrm{Sin}\left[\frac{11\,c}{2}+6\,d\,x\right]+630\,\mathrm{Sin}\left[\frac{13\,c}{2}+6\,d\,x\right]+$$
$$720\,\mathrm{Sin}\left[\frac{13\,c}{2}+7\,d\,x\right]-720\,\mathrm{Sin}\left[\frac{15\,c}{2}+7\,d\,x\right]+945\,\mathrm{Sin}\left[\frac{15\,c}{2}+8\,d\,x\right]+945\,\mathrm{Sin}\left[\frac{17\,c}{2}+8\,d\,x\right]-$$
$$560\,\mathrm{Sin}\left[\frac{17\,c}{2}+9\,d\,x\right]+560\,\mathrm{Sin}\left[\frac{19\,c}{2}+9\,d\,x\right]-126\,\mathrm{Sin}\left[\frac{19\,c}{2}+10\,d\,x\right]-126\,\mathrm{Sin}\left[\frac{21\,c}{2}+10\,d\,x\right]\Bigg)$$

Problem 724: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^8\,\mathrm{Sin}[c+d\,x]^3}{(a+a\,\mathrm{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 159 leaves, 14 steps):

$$-\frac{3\,x}{64\,a^2}-\frac{2\,\mathrm{Cos}[c+d\,x]^5}{5\,a^2\,d}+\frac{3\,\mathrm{Cos}[c+d\,x]^7}{7\,a^2\,d}-\frac{\mathrm{Cos}[c+d\,x]^9}{9\,a^2\,d}-\frac{3\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{64\,a^2\,d}-$$
$$\frac{\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}[c+d\,x]}{32\,a^2\,d}+\frac{\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]}{8\,a^2\,d}+\frac{\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]^3}{4\,a^2\,d}$$

Result (type 3, 429 leaves):

$$-\frac{1}{322560\, a^2\, d\, \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(2520\, (55\, c+6\, d\, x)\, \text{Cos}\left[\frac{c}{2}\right]+11340\, \text{Cos}\left[\frac{c}{2}+d\, x\right]+11340\, \text{Cos}\left[\frac{3\, c}{2}+d\, x\right]+3360\, \text{Cos}\left[\frac{5\, c}{2}+3\, d\, x\right]+\right.$$
$$3360\, \text{Cos}\left[\frac{7\, c}{2}+3\, d\, x\right]-2520\, \text{Cos}\left[\frac{7\, c}{2}+4\, d\, x\right]+2520\, \text{Cos}\left[\frac{9\, c}{2}+4\, d\, x\right]-1008\, \text{Cos}\left[\frac{9\, c}{2}+5\, d\, x\right]-$$
$$1008\, \text{Cos}\left[\frac{11\, c}{2}+5\, d\, x\right]-450\, \text{Cos}\left[\frac{13\, c}{2}+7\, d\, x\right]-450\, \text{Cos}\left[\frac{15\, c}{2}+7\, d\, x\right]+315\, \text{Cos}\left[\frac{15\, c}{2}+8\, d\, x\right]-$$
$$315\, \text{Cos}\left[\frac{17\, c}{2}+8\, d\, x\right]+70\, \text{Cos}\left[\frac{17\, c}{2}+9\, d\, x\right]+70\, \text{Cos}\left[\frac{19\, c}{2}+9\, d\, x\right]-81900\, \text{Sin}\left[\frac{c}{2}\right]+$$
$$138600\, c\, \text{Sin}\left[\frac{c}{2}\right]+15120\, d\, x\, \text{Sin}\left[\frac{c}{2}\right]-11340\, \text{Sin}\left[\frac{c}{2}+d\, x\right]+11340\, \text{Sin}\left[\frac{3\, c}{2}+d\, x\right]-$$
$$3360\, \text{Sin}\left[\frac{5\, c}{2}+3\, d\, x\right]+3360\, \text{Sin}\left[\frac{7\, c}{2}+3\, d\, x\right]-2520\, \text{Sin}\left[\frac{7\, c}{2}+4\, d\, x\right]-2520\, \text{Sin}\left[\frac{9\, c}{2}+4\, d\, x\right]+$$
$$1008\, \text{Sin}\left[\frac{9\, c}{2}+5\, d\, x\right]-1008\, \text{Sin}\left[\frac{11\, c}{2}+5\, d\, x\right]+450\, \text{Sin}\left[\frac{13\, c}{2}+7\, d\, x\right]-450\, \text{Sin}\left[\frac{15\, c}{2}+7\, d\, x\right]+$$
$$\left.315\, \text{Sin}\left[\frac{15\, c}{2}+8\, d\, x\right]+315\, \text{Sin}\left[\frac{17\, c}{2}+8\, d\, x\right]-70\, \text{Sin}\left[\frac{17\, c}{2}+9\, d\, x\right]+70\, \text{Sin}\left[\frac{19\, c}{2}+9\, d\, x\right]\right)$$

Problem 725: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\, x]^8\, \text{Sin}[c+d\, x]^2}{(a+a\, \text{Sin}[c+d\, x])^2}\, dx$$

Optimal (type 3, 141 leaves, 15 steps):

$$\frac{11\, x}{128\, a^2}+\frac{2\, \text{Cos}[c+d\, x]^5}{5\, a^2\, d}-\frac{2\, \text{Cos}[c+d\, x]^7}{7\, a^2\, d}+\frac{11\, \text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]}{128\, a^2\, d}+$$
$$\frac{11\, \text{Cos}[c+d\, x]^3\, \text{Sin}[c+d\, x]}{192\, a^2\, d}-\frac{11\, \text{Cos}[c+d\, x]^5\, \text{Sin}[c+d\, x]}{48\, a^2\, d}-\frac{\text{Cos}[c+d\, x]^5\, \text{Sin}[c+d\, x]^3}{8\, a^2\, d}$$

Result (type 3, 481 leaves):

$$\frac{1}{215040\, a^2\, d \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}
\left(9240\, (15\, c+2\, d\, x)\, \text{Cos}\left[\frac{c}{2}\right]+10080\, \text{Cos}\left[\frac{c}{2}+d\, x\right]+10080\, \text{Cos}\left[\frac{3\, c}{2}+d\, x\right]+1680\, \text{Cos}\left[\frac{3\, c}{2}+2\, d\, x\right]-\right.$$
$$1680\, \text{Cos}\left[\frac{5\, c}{2}+2\, d\, x\right]+3360\, \text{Cos}\left[\frac{5\, c}{2}+3\, d\, x\right]+3360\, \text{Cos}\left[\frac{7\, c}{2}+3\, d\, x\right]-2520\, \text{Cos}\left[\frac{7\, c}{2}+4\, d\, x\right]+$$
$$2520\, \text{Cos}\left[\frac{9\, c}{2}+4\, d\, x\right]-672\, \text{Cos}\left[\frac{9\, c}{2}+5\, d\, x\right]-672\, \text{Cos}\left[\frac{11\, c}{2}+5\, d\, x\right]-560\, \text{Cos}\left[\frac{11\, c}{2}+6\, d\, x\right]+$$
$$560\, \text{Cos}\left[\frac{13\, c}{2}+6\, d\, x\right]-480\, \text{Cos}\left[\frac{13\, c}{2}+7\, d\, x\right]-480\, \text{Cos}\left[\frac{15\, c}{2}+7\, d\, x\right]+105\, \text{Cos}\left[\frac{15\, c}{2}+8\, d\, x\right]-$$
$$105\, \text{Cos}\left[\frac{17\, c}{2}+8\, d\, x\right]-79800\, \text{Sin}\left[\frac{c}{2}\right]+138600\, c\, \text{Sin}\left[\frac{c}{2}\right]+18480\, d\, x\, \text{Sin}\left[\frac{c}{2}\right]-$$
$$10080\, \text{Sin}\left[\frac{c}{2}+d\, x\right]+10080\, \text{Sin}\left[\frac{3\, c}{2}+d\, x\right]+1680\, \text{Sin}\left[\frac{3\, c}{2}+2\, d\, x\right]+1680\, \text{Sin}\left[\frac{5\, c}{2}+2\, d\, x\right]-$$
$$3360\, \text{Sin}\left[\frac{5\, c}{2}+3\, d\, x\right]+3360\, \text{Sin}\left[\frac{7\, c}{2}+3\, d\, x\right]-2520\, \text{Sin}\left[\frac{7\, c}{2}+4\, d\, x\right]-2520\, \text{Sin}\left[\frac{9\, c}{2}+4\, d\, x\right]+$$
$$672\, \text{Sin}\left[\frac{9\, c}{2}+5\, d\, x\right]-672\, \text{Sin}\left[\frac{11\, c}{2}+5\, d\, x\right]-560\, \text{Sin}\left[\frac{11\, c}{2}+6\, d\, x\right]-560\, \text{Sin}\left[\frac{13\, c}{2}+6\, d\, x\right]+$$
$$\left.480\, \text{Sin}\left[\frac{13\, c}{2}+7\, d\, x\right]-480\, \text{Sin}\left[\frac{15\, c}{2}+7\, d\, x\right]+105\, \text{Sin}\left[\frac{15\, c}{2}+8\, d\, x\right]+105\, \text{Sin}\left[\frac{17\, c}{2}+8\, d\, x\right]\right)$$

Problem 726: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\, x]^8\, \text{Sin}[c+d\, x]}{(a+a\, \text{Sin}[c+d\, x])^2}\, dx$$

Optimal (type 3, 124 leaves, 6 steps):

$$-\frac{x}{8\, a^2}-\frac{2\, \text{Cos}[c+d\, x]^7}{35\, a^2\, d}-\frac{\text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]}{8\, a^2\, d}-
\frac{\text{Cos}[c+d\, x]^3\, \text{Sin}[c+d\, x]}{12\, a^2\, d}-\frac{\text{Cos}[c+d\, x]^5\, \text{Sin}[c+d\, x]}{15\, a^2\, d}-\frac{\text{Cos}[c+d\, x]^9}{5\, d\, (a+a\, \text{Sin}[c+d\, x])^2}$$

Result (type 3, 414 leaves):

$$-\frac{1}{13440\, a^2\, d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)}\left(1680\, d\, x\, \mathrm{Cos}\left[\frac{c}{2}\right]+1155\, \mathrm{Cos}\left[\frac{c}{2}+d\, x\right]+1155\, \mathrm{Cos}\left[\frac{3\, c}{2}+d\, x\right]+210\, \mathrm{Cos}\left[\frac{3\, c}{2}+2\, d\, x\right]-\right.$$
$$210\, \mathrm{Cos}\left[\frac{5\, c}{2}+2\, d\, x\right]+525\, \mathrm{Cos}\left[\frac{5\, c}{2}+3\, d\, x\right]+525\, \mathrm{Cos}\left[\frac{7\, c}{2}+3\, d\, x\right]-210\, \mathrm{Cos}\left[\frac{7\, c}{2}+4\, d\, x\right]+$$
$$210\, \mathrm{Cos}\left[\frac{9\, c}{2}+4\, d\, x\right]+63\, \mathrm{Cos}\left[\frac{9\, c}{2}+5\, d\, x\right]+63\, \mathrm{Cos}\left[\frac{11\, c}{2}+5\, d\, x\right]-70\, \mathrm{Cos}\left[\frac{11\, c}{2}+6\, d\, x\right]+$$
$$70\, \mathrm{Cos}\left[\frac{13\, c}{2}+6\, d\, x\right]-15\, \mathrm{Cos}\left[\frac{13\, c}{2}+7\, d\, x\right]-15\, \mathrm{Cos}\left[\frac{15\, c}{2}+7\, d\, x\right]-980\, \mathrm{Sin}\left[\frac{c}{2}\right]+$$
$$1680\, d\, x\, \mathrm{Sin}\left[\frac{c}{2}\right]-1155\, \mathrm{Sin}\left[\frac{c}{2}+d\, x\right]+1155\, \mathrm{Sin}\left[\frac{3\, c}{2}+d\, x\right]+210\, \mathrm{Sin}\left[\frac{3\, c}{2}+2\, d\, x\right]+$$
$$210\, \mathrm{Sin}\left[\frac{5\, c}{2}+2\, d\, x\right]-525\, \mathrm{Sin}\left[\frac{5\, c}{2}+3\, d\, x\right]+525\, \mathrm{Sin}\left[\frac{7\, c}{2}+3\, d\, x\right]-$$
$$210\, \mathrm{Sin}\left[\frac{7\, c}{2}+4\, d\, x\right]-210\, \mathrm{Sin}\left[\frac{9\, c}{2}+4\, d\, x\right]-63\, \mathrm{Sin}\left[\frac{9\, c}{2}+5\, d\, x\right]+63\, \mathrm{Sin}\left[\frac{11\, c}{2}+5\, d\, x\right]-$$
$$\left.70\, \mathrm{Sin}\left[\frac{11\, c}{2}+6\, d\, x\right]-70\, \mathrm{Sin}\left[\frac{13\, c}{2}+6\, d\, x\right]+15\, \mathrm{Sin}\left[\frac{13\, c}{2}+7\, d\, x\right]-15\, \mathrm{Sin}\left[\frac{15\, c}{2}+7\, d\, x\right]\right)$$

Problem 732: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[c+d\, x]^2\, \mathrm{Cot}[c+d\, x]^6}{(a+a\, \mathrm{Sin}[c+d\, x])^2}\, dx$$

Optimal (type 3, 118 leaves, 11 steps):

$$\frac{x}{a^2}+\frac{3\, \mathrm{ArcTanh}[\mathrm{Cos}[c+d\, x]]}{4\, a^2\, d}+\frac{\mathrm{Cot}[c+d\, x]}{a^2\, d}-\frac{\mathrm{Cot}[c+d\, x]^3}{3\, a^2\, d}-$$
$$\frac{\mathrm{Cot}[c+d\, x]^5}{5\, a^2\, d}-\frac{3\, \mathrm{Cot}[c+d\, x]\, \mathrm{Csc}[c+d\, x]}{4\, a^2\, d}+\frac{\mathrm{Cot}[c+d\, x]^3\, \mathrm{Csc}[c+d\, x]}{2\, a^2\, d}$$

Result (type 3, 254 leaves):

$$\frac{1}{960\, a^2\, d}$$
$$\mathrm{Csc}[c+d\, x]^5\left(-40\, \mathrm{Cos}[c+d\, x]-220\, \mathrm{Cos}[3\, (c+d\, x)]+68\, \mathrm{Cos}[5\, (c+d\, x)]+600\, c\, \mathrm{Sin}[c+d\, x]+\right.$$
$$600\, d\, x\, \mathrm{Sin}[c+d\, x]+450\, \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]\right]\, \mathrm{Sin}[c+d\, x]-450\, \mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right]$$
$$\mathrm{Sin}[c+d\, x]-60\, \mathrm{Sin}[2\, (c+d\, x)]-300\, c\, \mathrm{Sin}[3\, (c+d\, x)]-300\, d\, x\, \mathrm{Sin}[3\, (c+d\, x)]-$$
$$225\, \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]\right]\, \mathrm{Sin}[3\, (c+d\, x)]+225\, \mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right]\, \mathrm{Sin}[3\, (c+d\, x)]+$$
$$150\, \mathrm{Sin}[4\, (c+d\, x)]+60\, c\, \mathrm{Sin}[5\, (c+d\, x)]+60\, d\, x\, \mathrm{Sin}[5\, (c+d\, x)]+$$
$$\left.45\, \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]\right]\, \mathrm{Sin}[5\, (c+d\, x)]-45\, \mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right]\, \mathrm{Sin}[5\, (c+d\, x)]\right)$$

Problem 734: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^8}{(a+a \text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 124 leaves, 19 steps):

$$\frac{\text{ArcTanh}[\text{Cos}[c+d x]]}{8 a^2 d}-\frac{2 \text{Cot}[c+d x]^5}{5 a^2 d}-\frac{\text{Cot}[c+d x]^7}{7 a^2 d}+\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]}{8 a^2 d}-\frac{7 \text{Cot}[c+d x] \text{Csc}[c+d x]^3}{12 a^2 d}+\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^5}{3 a^2 d}$$

Result (type 3, 251 leaves):

$$-\frac{1}{53760 a^2 d} \text{Csc}[c+d x]^7 \left(5880 \text{Cos}[c+d x]+2184 \text{Cos}[3 (c+d x)]-168 \text{Cos}[5 (c+d x)]-216 \text{Cos}[7 (c+d x)]-3675 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[c+d x]+3675 \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[c+d x]-2170 \text{Sin}[2 (c+d x)]+2205 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[3 (c+d x)]-2205 \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[3 (c+d x)]-3080 \text{Sin}[4 (c+d x)]-735 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[5 (c+d x)]+735 \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[5 (c+d x)]-210 \text{Sin}[6 (c+d x)]+105 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[7 (c+d x)]-105 \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[7 (c+d x)]\right)$$

Problem 739: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^8 \text{Sin}[c+d x]^3}{(a+a \text{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 161 leaves, 18 steps):

$$-\frac{29 x}{128 a^3}-\frac{4 \text{Cos}[c+d x]^3}{3 a^3 d}+\frac{7 \text{Cos}[c+d x]^5}{5 a^3 d}-\frac{3 \text{Cos}[c+d x]^7}{7 a^3 d}-\frac{29 \text{Cos}[c+d x] \text{Sin}[c+d x]}{128 a^3 d}+\frac{29 \text{Cos}[c+d x]^3 \text{Sin}[c+d x]}{64 a^3 d}+\frac{29 \text{Cos}[c+d x]^3 \text{Sin}[c+d x]^3}{48 a^3 d}+\frac{\text{Cos}[c+d x]^3 \text{Sin}[c+d x]^5}{8 a^3 d}$$

Result (type 3, 481 leaves):

$$\frac{1}{215040\, a^3\, d\, \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}$$
$$\Big(840\,(1287\, c-58\, d\, x)\,\text{Cos}\left[\frac{c}{2}\right]-38640\,\text{Cos}\left[\frac{c}{2}+d\,x\right]-38640\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]+6720\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]-$$
$$6720\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]-3920\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]-3920\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+5880\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]-$$
$$5880\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+4368\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]+4368\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]-2240\,\text{Cos}\left[\frac{11\,c}{2}+6\,d\,x\right]+$$
$$2240\,\text{Cos}\left[\frac{13\,c}{2}+6\,d\,x\right]-720\,\text{Cos}\left[\frac{13\,c}{2}+7\,d\,x\right]-720\,\text{Cos}\left[\frac{15\,c}{2}+7\,d\,x\right]+105\,\text{Cos}\left[\frac{15\,c}{2}+8\,d\,x\right]-$$
$$105\,\text{Cos}\left[\frac{17\,c}{2}+8\,d\,x\right]-998340\,\text{Sin}\left[\frac{c}{2}\right]+1081080\,c\,\text{Sin}\left[\frac{c}{2}\right]-48720\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]+$$
$$38640\,\text{Sin}\left[\frac{c}{2}+d\,x\right]-38640\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]+6720\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]+6720\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]+$$
$$3920\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]-3920\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]+5880\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]+5880\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]-$$
$$4368\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]+4368\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]-2240\,\text{Sin}\left[\frac{11\,c}{2}+6\,d\,x\right]-2240\,\text{Sin}\left[\frac{13\,c}{2}+6\,d\,x\right]+$$
$$720\,\text{Sin}\left[\frac{13\,c}{2}+7\,d\,x\right]-720\,\text{Sin}\left[\frac{15\,c}{2}+7\,d\,x\right]+105\,\text{Sin}\left[\frac{15\,c}{2}+8\,d\,x\right]+105\,\text{Sin}\left[\frac{17\,c}{2}+8\,d\,x\right]\Big)$$

Problem 740: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^8\,\text{Sin}[c+d\,x]^2}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 133 leaves, 16 steps):

$$\frac{5\,x}{16\,a^3}+\frac{4\,\text{Cos}[c+d\,x]^3}{3\,a^3\,d}-\frac{\text{Cos}[c+d\,x]^5}{a^3\,d}+\frac{\text{Cos}[c+d\,x]^7}{7\,a^3\,d}+$$
$$\frac{5\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{16\,a^3\,d}-\frac{5\,\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{8\,a^3\,d}-\frac{\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]^3}{2\,a^3\,d}$$

Result (type 3, 429 leaves):

$$\frac{1}{2688\, a^3\, d\, \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(-168\,(99\,c-5\,d\,x)\,\text{Cos}\left[\frac{c}{2}\right]+609\,\text{Cos}\left[\frac{c}{2}+d\,x\right]+609\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]-63\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]+63\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]+91\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]+91\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]-105\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]+105\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]-63\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]-63\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]+21\,\text{Cos}\left[\frac{11\,c}{2}+6\,d\,x\right]-21\,\text{Cos}\left[\frac{13\,c}{2}+6\,d\,x\right]+3\,\text{Cos}\left[\frac{13\,c}{2}+7\,d\,x\right]+3\,\text{Cos}\left[\frac{15\,c}{2}+7\,d\,x\right]+16996\,\text{Sin}\left[\frac{c}{2}\right]-16632\,c\,\text{Sin}\left[\frac{c}{2}\right]+840\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]-609\,\text{Sin}\left[\frac{c}{2}+d\,x\right]+609\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]-63\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]-63\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]-91\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]+91\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]-105\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]-105\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]+63\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]-63\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]+21\,\text{Sin}\left[\frac{11\,c}{2}+6\,d\,x\right]+21\,\text{Sin}\left[\frac{13\,c}{2}+6\,d\,x\right]-3\,\text{Sin}\left[\frac{13\,c}{2}+7\,d\,x\right]+3\,\text{Sin}\left[\frac{15\,c}{2}+7\,d\,x\right]\right)$$

Problem 741: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^8\,\text{Sin}[c+d\,x]}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 131 leaves, 6 steps):

$$-\frac{7\,x}{16\,a^3}-\frac{7\,\text{Cos}[c+d\,x]^5}{30\,a^3\,d}-\frac{7\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{16\,a^3\,d}-\frac{7\,\text{Cos}[c+d\,x]^3\,\text{Sin}[c+d\,x]}{24\,a^3\,d}-\frac{\text{Cos}[c+d\,x]^9}{3\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{\text{Cos}[c+d\,x]^7}{6\,d\,\left(a^3+a^3\,\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 362 leaves):

$$\frac{1}{1920\, a^3\, d\, \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)}\left(-840\,d\,x\,\text{Cos}\left[\frac{c}{2}\right]-600\,\text{Cos}\left[\frac{c}{2}+d\,x\right]-600\,\text{Cos}\left[\frac{3\,c}{2}+d\,x\right]+15\,\text{Cos}\left[\frac{3\,c}{2}+2\,d\,x\right]-15\,\text{Cos}\left[\frac{5\,c}{2}+2\,d\,x\right]-140\,\text{Cos}\left[\frac{5\,c}{2}+3\,d\,x\right]-140\,\text{Cos}\left[\frac{7\,c}{2}+3\,d\,x\right]+105\,\text{Cos}\left[\frac{7\,c}{2}+4\,d\,x\right]-105\,\text{Cos}\left[\frac{9\,c}{2}+4\,d\,x\right]+36\,\text{Cos}\left[\frac{9\,c}{2}+5\,d\,x\right]+36\,\text{Cos}\left[\frac{11\,c}{2}+5\,d\,x\right]-5\,\text{Cos}\left[\frac{11\,c}{2}+6\,d\,x\right]+5\,\text{Cos}\left[\frac{13\,c}{2}+6\,d\,x\right]+42\,\text{Sin}\left[\frac{c}{2}\right]-840\,d\,x\,\text{Sin}\left[\frac{c}{2}\right]+600\,\text{Sin}\left[\frac{c}{2}+d\,x\right]-600\,\text{Sin}\left[\frac{3\,c}{2}+d\,x\right]+15\,\text{Sin}\left[\frac{3\,c}{2}+2\,d\,x\right]+15\,\text{Sin}\left[\frac{5\,c}{2}+2\,d\,x\right]+140\,\text{Sin}\left[\frac{5\,c}{2}+3\,d\,x\right]-140\,\text{Sin}\left[\frac{7\,c}{2}+3\,d\,x\right]+105\,\text{Sin}\left[\frac{7\,c}{2}+4\,d\,x\right]+105\,\text{Sin}\left[\frac{9\,c}{2}+4\,d\,x\right]-36\,\text{Sin}\left[\frac{9\,c}{2}+5\,d\,x\right]+36\,\text{Sin}\left[\frac{11\,c}{2}+5\,d\,x\right]-5\,\text{Sin}\left[\frac{11\,c}{2}+6\,d\,x\right]-5\,\text{Sin}\left[\frac{13\,c}{2}+6\,d\,x\right]\right)$$

Problem 745: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^4\,\text{Cot}[c+d\,x]^4}{\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 3, 92 leaves, 11 steps):

$$-\frac{3\,x}{a^3}-\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a^3\,d}-\frac{\text{Cos}[c+d\,x]}{a^3\,d}-\frac{3\,\text{Cot}[c+d\,x]}{a^3\,d}-\frac{\text{Cot}[c+d\,x]^3}{3\,a^3\,d}+\frac{3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^3\,d}$$

Result (type 3, 538 leaves):

$$-\frac{3\,(c+d\,x)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-\frac{\text{Cos}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$
$$\frac{4\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{3\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+\frac{3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-$$
$$\left(\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)\Big/\left(24\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3\right)-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$
$$\frac{\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{2\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}-\frac{3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$
$$\frac{4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{3\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}+$$
$$\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/\left(24\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3\right)$$

Problem 746: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^3 \,\text{Cot}[c+d x]^5}{(a+a \,\text{Sin}[c+d x])^3}\, dx$$

Optimal (type 3, 97 leaves, 12 steps):

$$\frac{x}{a^3}+\frac{13\,\text{ArcTanh}[\text{Cos}[c+d x]]}{8 a^3 d}+\frac{\text{Cot}[c+d x]}{a^3 d}+\frac{\text{Cot}[c+d x]^3}{a^3 d}-\frac{11\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]}{8 a^3 d}-\frac{\text{Cot}[c+d x]\,\text{Csc}[c+d x]^3}{4 a^3 d}$$

Result (type 3, 495 leaves):

$$\frac{(c+d x)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{d\,(a+a\,\text{Sin}[c+d x])^3}-\frac{11\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{32 d\,(a+a\,\text{Sin}[c+d x])^3}+$$
$$\left(\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\right)\Big/\left(8 d\,(a+a\,\text{Sin}[c+d x])^3\right)-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{64 d\,(a+a\,\text{Sin}[c+d x])^3}+$$
$$\frac{13\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{8 d\,(a+a\,\text{Sin}[c+d x])^3}-\frac{13\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{8 d\,(a+a\,\text{Sin}[c+d x])^3}+$$
$$\frac{11\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{32 d\,(a+a\,\text{Sin}[c+d x])^3}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{64 d\,(a+a\,\text{Sin}[c+d x])^3}-$$
$$\left(\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(8 d\,(a+a\,\text{Sin}[c+d x])^3\right)$$

Problem 750: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^8\,\text{Csc}[c+d x]}{(a+a\,\text{Sin}[c+d x])^3}\, dx$$

Optimal (type 3, 166 leaves, 18 steps):

$$\frac{29\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{128\,a^3\,d}+\frac{4\,\text{Cot}[c+d\,x]^3}{3\,a^3\,d}+\frac{7\,\text{Cot}[c+d\,x]^5}{5\,a^3\,d}+\frac{3\,\text{Cot}[c+d\,x]^7}{7\,a^3\,d}+\frac{29\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{128\,a^3\,d}+\frac{29\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{192\,a^3\,d}-\frac{23\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5}{48\,a^3\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^7}{8\,a^3\,d}$$

Result (type 3, 1027 leaves) :

$$-\frac{19\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{105\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+\frac{29\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{512\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$

$$\left(83\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\right)\Big/\left(6720\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)+\frac{\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{1024\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\left(23\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\right)\Big/\left(2240\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)-\frac{13\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{1536\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\left(3\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\right)\Big/\left(896\,d\,(a+a\,\text{Sin}[c+d\,x])^3\right)-\frac{\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^8\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{2048\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{29\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{128\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{29\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{128\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{29\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{512\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{1024\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{13\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{1536\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^8\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}{2048\, d\,(a+a\,\mathrm{Sin}[c+d x])^3}+$$
$$\frac{19\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{105\, d\,(a+a\,\mathrm{Sin}[c+d x])^3}+$$
$$\left(83\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(6720\, d\,(a+a\,\mathrm{Sin}[c+d x])^3\right)-$$
$$\left(23\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^4\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(2240\, d\,(a+a\,\mathrm{Sin}[c+d x])^3\right)-$$
$$\left(3\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^6\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(896\, d\,(a+a\,\mathrm{Sin}[c+d x])^3\right)$$

Problem 757: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d x]^3\,\mathrm{Sec}[c+d x]^2\,(a+a\,\mathrm{Sin}[c+d x])\,dx$$

Optimal (type 3, 75 leaves, 8 steps):

$$-\frac{3\,a\,\mathrm{ArcTanh}[\mathrm{Cos}[c+d x]]}{2\,d}-\frac{a\,\mathrm{Cot}[c+d x]}{d}+\frac{3\,a\,\mathrm{Sec}[c+d x]}{2\,d}-\frac{a\,\mathrm{Csc}[c+d x]^2\,\mathrm{Sec}[c+d x]}{2\,d}+\frac{a\,\mathrm{Tan}[c+d x]}{d}$$

Result (type 3, 172 leaves):

$$-\frac{2\,a\,\mathrm{Cot}\left[2\,(c+d x)\right]}{d}-\frac{a\,\mathrm{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{8\,d}-\frac{3\,a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{2\,d}+\frac{3\,a\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{2\,d}+\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{8\,d}+$$
$$\frac{a\,\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]}{d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{a\,\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]}{d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}$$

Problem 758: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d x]^4\,\mathrm{Sec}[c+d x]^2\,(a+a\,\mathrm{Sin}[c+d x])\,dx$$

Optimal (type 3, 91 leaves, 8 steps):

$$-\frac{3\,a\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{2\,a\,\text{Cot}[c+d\,x]}{d}-\frac{a\,\text{Cot}[c+d\,x]^3}{3\,d}+\frac{3\,a\,\text{Sec}[c+d\,x]}{2\,d}-\frac{a\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]}{2\,d}+\frac{a\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 205 leaves):

$$-\frac{5\,a\,\text{Cot}[c+d\,x]}{3\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,d}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}+\frac{a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}+\frac{a\,\text{Tan}[c+d\,x]}{d}$$

Problem 760: Result more than twice size of optimal antiderivative.

$$\int (a+a\,\text{Sin}[c+d\,x])^2\,\text{Tan}[c+d\,x]^2\,dx$$

Optimal (type 3, 71 leaves, 6 steps):

$$-\frac{5\,a^2\,x}{2}+\frac{2\,a^2\,\text{Cos}[c+d\,x]}{d}+\frac{2\,a^2\,\text{Cos}[c+d\,x]}{d\,(1-\text{Sin}[c+d\,x])}+\frac{a^2\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{2\,d}$$

Result (type 3, 145 leaves):

$$-\left(\left(a^2\,(1+\text{Sin}[c+d\,x])^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,(10\,(c+d\,x)-8\,\text{Cos}[c+d\,x]-\text{Sin}[2\,(c+d\,x)])+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(-2\,(8+5\,c+5\,d\,x)+8\,\text{Cos}[c+d\,x]+\text{Sin}[2\,(c+d\,x)])\right)\right)\Big/\left(4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)\right)$$

Problem 761: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^2\,\text{Tan}[c+d\,x]\,dx$$

Optimal (type 3, 43 leaves, 3 steps):

$$-2\,a^2\,x+\frac{2\,a^2\,\text{Cos}[c+d\,x]}{d}+\frac{\text{Sec}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^2}{d}$$

Result (type 3, 90 leaves):

$$\left(\left(-2\,(c+d\,x)+\text{Cos}[c+d\,x]+\frac{4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/\left(d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)$$

Problem 767: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^3\,\text{Tan}[c+d\,x]\,dx$$

Optimal (type 3, 67 leaves, 2 steps):

$$-\frac{9\,a^3\,x}{2}+\frac{6\,a^3\,\text{Cos}[c+d\,x]}{d}+\frac{3\,a^3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{2\,d}+\frac{\text{Sec}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^3}{d}$$

Result (type 3, 145 leaves):

$$-\left(\left(a^3\,(1+\text{Sin}[c+d\,x])^3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,(18\,(c+d\,x)-12\,\text{Cos}[c+d\,x]-\text{Sin}[2\,(c+d\,x)])+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(-2\,(16+9\,c+9\,d\,x)+12\,\text{Cos}[c+d\,x]+\text{Sin}[2\,(c+d\,x)])\right)\right)\Big/\left(4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)\right)$$

Problem 771: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^4\,\text{Sec}[c+d\,x]^2\,(a+a\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 98 leaves, 10 steps):

$$-\frac{11\,a^3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{5\,a^3\,\text{Cot}[c+d\,x]}{d}-\frac{a^3\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{3\,a^3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,d}+\frac{4\,a^3\,\text{Cos}[c+d\,x]}{d\,(1-\text{Sin}[c+d\,x])}$$

Result (type 3, 211 leaves):

$$a^3 \left(-\frac{7\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{3 d}-\frac{3\,\mathrm{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{8 d}-\frac{\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]\mathrm{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{24 d}-\frac{11\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{2 d}+\frac{11\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{2 d}+\frac{3\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{8 d}+\frac{8\,\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]}{d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{7\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{3 d}+\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{24 d}\right)$$

Problem 774: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Tan}[c+d x]^2}{a+a\,\mathrm{Sin}[c+d x]}\,dx$$

Optimal (type 3, 50 leaves, 5 steps):

$$\frac{\mathrm{Sec}[c+d x]}{a d}-\frac{\mathrm{Sec}[c+d x]^3}{3 a d}+\frac{\mathrm{Tan}[c+d x]^3}{3 a d}$$

Result (type 3, 106 leaves):

$$\left(6-10\,\mathrm{Cos}[c+d x]+2\,\mathrm{Cos}\left[2(c+d x)\right]+8\,\mathrm{Sin}[c+d x]-5\,\mathrm{Sin}\left[2(c+d x)\right]\right)\Big/\left(12 a d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(1+\mathrm{Sin}[c+d x])\right)$$

Problem 775: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sec}[c+d x]\,\mathrm{Tan}[c+d x]}{a+a\,\mathrm{Sin}[c+d x]}\,dx$$

Optimal (type 3, 37 leaves, 5 steps):

$$\frac{\mathrm{Sec}[c+d x]^3}{3 a d}-\frac{\mathrm{Tan}[c+d x]^3}{3 a d}$$

Result (type 3, 104 leaves):

$$\left(-3+\mathrm{Cos}[c+d x]+\mathrm{Cos}\left[2(c+d x)\right]-2\,\mathrm{Sin}[c+d x]+\frac{1}{2}\mathrm{Sin}\left[2(c+d x)\right]\right)\Big/\left(6 a d\left(-\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(1+\mathrm{Sin}[c+d x])\right)$$

Problem 777: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^2 \operatorname{Sec}[c+d x]^2}{a+a \operatorname{Sin}[c+d x]} \, dx$$

Optimal (type 3, 93 leaves, 8 steps):

$$\frac{\operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{a d}-\frac{\operatorname{Cot}[c+d x]}{a d}-\frac{\operatorname{Sec}[c+d x]}{a d}-\frac{\operatorname{Sec}[c+d x]^3}{3 a d}+\frac{2 \operatorname{Tan}[c+d x]}{a d}+\frac{\operatorname{Tan}[c+d x]^3}{3 a d}$$

Result (type 3, 245 leaves):

$$-\Big(\Big(\operatorname{Csc}[c+d x]^3 \Big(2+10 \operatorname{Cos}[2 (c+d x)]+8 \operatorname{Cos}[3 (c+d x)]+ 3 \operatorname{Cos}[3 (c+d x)] \operatorname{Log}[\operatorname{Cos}[\tfrac{1}{2} (c+d x)]]-3 \operatorname{Cos}[3 (c+d x)] \operatorname{Log}[\operatorname{Sin}[\tfrac{1}{2} (c+d x)]]+ \operatorname{Cos}[c+d x] \Big(-8-3 \operatorname{Log}[\operatorname{Cos}[\tfrac{1}{2} (c+d x)]]+3 \operatorname{Log}[\operatorname{Sin}[\tfrac{1}{2} (c+d x)]]\Big)+ 4 \operatorname{Sin}[c+d x]-16 \operatorname{Sin}[2 (c+d x)]-6 \operatorname{Log}[\operatorname{Cos}[\tfrac{1}{2} (c+d x)]] \operatorname{Sin}[2 (c+d x)]+ 6 \operatorname{Log}[\operatorname{Sin}[\tfrac{1}{2} (c+d x)]] \operatorname{Sin}[2 (c+d x)]+8 \operatorname{Sin}[3 (c+d x)]\Big)\Big) \Big/ \Big(3 a d \Big(\operatorname{Csc}[\tfrac{1}{2} (c+d x)]-\operatorname{Sec}[\tfrac{1}{2} (c+d x)]\Big) \Big(\operatorname{Csc}[\tfrac{1}{2} (c+d x)]+\operatorname{Sec}[\tfrac{1}{2} (c+d x)]\Big) (1+\operatorname{Sin}[c+d x])\Big)\Big)$$

Problem 785: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^2 \operatorname{Sec}[c+d x]^2}{(a+a \operatorname{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 130 leaves, 12 steps):

$$\frac{2 \operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{a^2 d}-\frac{\operatorname{Cot}[c+d x]}{a^2 d}-\frac{2 \operatorname{Sec}[c+d x]}{a^2 d}- \frac{2 \operatorname{Sec}[c+d x]^3}{3 a^2 d}-\frac{2 \operatorname{Sec}[c+d x]^5}{5 a^2 d}+\frac{4 \operatorname{Tan}[c+d x]}{a^2 d}+\frac{5 \operatorname{Tan}[c+d x]^3}{3 a^2 d}+\frac{2 \operatorname{Tan}[c+d x]^5}{5 a^2 d}$$

Result (type 3, 289 leaves):

$$-\frac{1}{15\,a^2\,d\,\left(\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\,(1+\text{Sin}[c+d\,x])^2}$$

$$\text{Csc}[c+d\,x]^3\,\Big(40+48\,\text{Cos}[2\,(c+d\,x)]+112\,\text{Cos}[3\,(c+d\,x)]-$$
$$28\,\text{Cos}[4\,(c+d\,x)]+60\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$4\,\text{Cos}[c+d\,x]\,\left(28+15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-15\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)-$$
$$60\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+58\,\text{Sin}[c+d\,x]-$$
$$168\,\text{Sin}[2\,(c+d\,x)]-90\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]+$$
$$90\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]+82\,\text{Sin}[3\,(c+d\,x)]+28\,\text{Sin}[4\,(c+d\,x)]+$$
$$15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]-15\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]\Big)$$

Problem 786: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^2}{(a+a\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 158 leaves, 15 steps):

$$-\frac{9\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a^2\,d}+\frac{2\,\text{Cot}[c+d\,x]}{a^2\,d}+\frac{9\,\text{Sec}[c+d\,x]}{2\,a^2\,d}+\frac{3\,\text{Sec}[c+d\,x]^3}{2\,a^2\,d}+\frac{9\,\text{Sec}[c+d\,x]^5}{10\,a^2\,d}-$$
$$\frac{\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]^5}{2\,a^2\,d}-\frac{6\,\text{Tan}[c+d\,x]}{a^2\,d}-\frac{2\,\text{Tan}[c+d\,x]^3}{a^2\,d}-\frac{2\,\text{Tan}[c+d\,x]^5}{5\,a^2\,d}$$

Result (type 3, 328 leaves):

$$-\frac{1}{320\,a^2\,d\,(1+\text{Sin}[c+d\,x])^2}\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]$$
$$\Big(-348+176\,\text{Cos}[2\,(c+d\,x)]-651\,\text{Cos}[3\,(c+d\,x)]+332\,\text{Cos}[4\,(c+d\,x)]+93\,\text{Cos}[5\,(c+d\,x)]-$$
$$630\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+90\,\text{Cos}[5\,(c+d\,x)]\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$18\,\text{Cos}[c+d\,x]\,\Big(31+30\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-30\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]\Big)+$$
$$630\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-90\,\text{Cos}[5\,(c+d\,x)]\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$432\,\text{Sin}[c+d\,x]+744\,\text{Sin}[2\,(c+d\,x)]+720\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]\,\text{Sin}[2\,(c+d\,x)]-$$
$$720\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]\,\text{Sin}[2\,(c+d\,x)]-176\,\text{Sin}[3\,(c+d\,x)]-$$
$$372\,\text{Sin}[4\,(c+d\,x)]-360\,\text{Log}\Big[\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]\,\text{Sin}[4\,(c+d\,x)]+$$
$$360\,\text{Log}\Big[\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]\,\text{Sin}[4\,(c+d\,x)]+128\,\text{Sin}[5\,(c+d\,x)]\Big)$$

Problem 793: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^2}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 151 leaves, 14 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a^3\,d}+\frac{\text{Sec}[c+d\,x]}{a^3\,d}+\frac{\text{Sec}[c+d\,x]^3}{3\,a^3\,d}+\frac{\text{Sec}[c+d\,x]^5}{5\,a^3\,d}+$$
$$\frac{4\,\text{Sec}[c+d\,x]^7}{7\,a^3\,d}-\frac{3\,\text{Tan}[c+d\,x]}{a^3\,d}-\frac{10\,\text{Tan}[c+d\,x]^3}{3\,a^3\,d}-\frac{11\,\text{Tan}[c+d\,x]^5}{5\,a^3\,d}-\frac{4\,\text{Tan}[c+d\,x]^7}{7\,a^3\,d}$$

Result (type 3, 341 leaves):

$$\frac{1}{840\,d\,(a+a\,\mathrm{Sin}[c+d\,x])^3}\left(60-\frac{120\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]}-\right.$$
$$324\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)+$$
$$162\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2-706\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]$$
$$\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3+353\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4-$$
$$2281\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5-$$
$$840\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6+$$
$$840\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6+$$
$$\left.\frac{105\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}{\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]}\right)$$

Problem 794: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Csc}[c+d\,x]^2\,\mathrm{Sec}[c+d\,x]^2}{(a+a\,\mathrm{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 162 leaves, 14 steps):

$$\frac{3\,\mathrm{ArcTanh}[\mathrm{Cos}[c+d\,x]]}{a^3\,d}-\frac{\mathrm{Cot}[c+d\,x]}{a^3\,d}-\frac{3\,\mathrm{Sec}[c+d\,x]}{a^3\,d}-\frac{\mathrm{Sec}[c+d\,x]^3}{a^3\,d}-\frac{3\,\mathrm{Sec}[c+d\,x]^5}{5\,a^3\,d}-$$
$$\frac{4\,\mathrm{Sec}[c+d\,x]^7}{7\,a^3\,d}+\frac{7\,\mathrm{Tan}[c+d\,x]}{a^3\,d}+\frac{5\,\mathrm{Tan}[c+d\,x]^3}{a^3\,d}+\frac{13\,\mathrm{Tan}[c+d\,x]^5}{5\,a^3\,d}+\frac{4\,\mathrm{Tan}[c+d\,x]^7}{7\,a^3\,d}$$

Result (type 3, 351 leaves):

$$\frac{1}{140\, a^3\, d \left(\operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2-\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)(1+\operatorname{Sin}[c+d x])^3}\operatorname{Csc}[c+d x]^3$$
$$\Big(-966-440\operatorname{Cos}[2(c+d x)]-2640\operatorname{Cos}[3(c+d x)]+846\operatorname{Cos}[4(c+d x)]+176\operatorname{Cos}[5(c+d x)]-$$
$$1575\operatorname{Cos}[3(c+d x)]\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+105\operatorname{Cos}[5(c+d x)]\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]+$$
$$14\operatorname{Cos}[c+d x]\left(176+105\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]-105\operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)+$$
$$1575\operatorname{Cos}[3(c+d x)]\operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-105\operatorname{Cos}[5(c+d x)]\operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-$$
$$1316\operatorname{Sin}[c+d x]+3520\operatorname{Sin}[2(c+d x)]+2100\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]\operatorname{Sin}[2(c+d x)]-$$
$$2100\operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\operatorname{Sin}[2(c+d x)]-1380\operatorname{Sin}[3(c+d x)]-$$
$$1056\operatorname{Sin}[4(c+d x)]-630\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]\operatorname{Sin}[4(c+d x)]+$$
$$630\operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\operatorname{Sin}[4(c+d x)]+176\operatorname{Sin}[5(c+d x)]\Big)$$

Problem 803: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[c+d x]^3\operatorname{Sec}[c+d x]^4(a+a\operatorname{Sin}[c+d x])\,dx$$

Optimal (type 3, 110 leaves, 9 steps):

$$-\frac{5\,a\operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{2\,d}-\frac{a\operatorname{Cot}[c+d x]}{d}+\frac{5\,a\operatorname{Sec}[c+d x]}{2\,d}+$$
$$\frac{5\,a\operatorname{Sec}[c+d x]^3}{6\,d}-\frac{a\operatorname{Csc}[c+d x]^2\operatorname{Sec}[c+d x]^3}{2\,d}+\frac{2\,a\operatorname{Tan}[c+d x]}{d}+\frac{a\operatorname{Tan}[c+d x]^3}{3\,d}$$

Result (type 3, 359 leaves):

$$-\frac{a\operatorname{Cot}[c+d x]}{d}-\frac{a\operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{8\,d}-\frac{5\,a\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{2\,d}+$$
$$\frac{5\,a\operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{2\,d}+\frac{a\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{8\,d}+\frac{a}{12\,d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}+$$
$$\frac{a\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{6\,d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}+\frac{13\,a\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{6\,d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}-$$
$$\frac{a\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{6\,d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}+\frac{a}{12\,d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-$$
$$\frac{13\,a\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{6\,d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{5\,a\operatorname{Tan}[c+d x]}{3\,d}+\frac{a\operatorname{Sec}[c+d x]^2\operatorname{Tan}[c+d x]}{3\,d}$$

Problem 818: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^4\,\text{Sec}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 128 leaves, 12 steps):

$$-\frac{17\,a^3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{6\,a^3\,\text{Cot}[c+d\,x]}{d}-\frac{a^3\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{3\,a^3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,d}+\frac{2\,a^3\,\text{Cos}[c+d\,x]}{3\,d\,(1-\text{Sin}[c+d\,x])^2}+\frac{23\,a^3\,\text{Cos}[c+d\,x]}{3\,d\,(1-\text{Sin}[c+d\,x])}$$

Result (type 3, 287 leaves):

$$a^3\left(-\frac{17\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{6\,d}-\frac{3\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{8\,d}-\frac{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{24\,d}-\frac{17\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{2\,d}+\frac{17\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{2\,d}+\frac{3\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{8\,d}+\frac{2}{3\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+\frac{4\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{3\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+\frac{46\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{3\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{17\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{6\,d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{24\,d}\right)$$

Problem 827: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^4}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 115 leaves, 7 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a\,d}+\frac{\text{Sec}[c+d\,x]}{a\,d}+\frac{\text{Sec}[c+d\,x]^3}{3\,a\,d}+\frac{\text{Sec}[c+d\,x]^5}{5\,a\,d}-\frac{\text{Tan}[c+d\,x]}{a\,d}-\frac{2\,\text{Tan}[c+d\,x]^3}{3\,a\,d}-\frac{\text{Tan}[c+d\,x]^5}{5\,a\,d}$$

Result (type 3, 267 leaves):

$$-\frac{1}{120\,a\,d\,\left(1+\text{Sin}[c+d\,x]\right)}\text{Sec}[c+d\,x]^3\left(-100-76\,\text{Cos}\left[2\,\left(c+d\,x\right)\right]+\frac{149}{4}\,\text{Cos}\left[3\,\left(c+d\,x\right)\right]-8\,\text{Cos}\left[4\,\left(c+d\,x\right)\right]+30\,\text{Cos}\left[3\,\left(c+d\,x\right)\right]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]+\text{Cos}[c+d\,x]\,\left(\frac{447}{4}+90\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]-90\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\right)-30\,\text{Cos}\left[3\,\left(c+d\,x\right)\right]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]-22\,\text{Sin}[c+d\,x]+\frac{149}{4}\,\text{Sin}\left[2\,\left(c+d\,x\right)\right]+30\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[2\,\left(c+d\,x\right)\right]-30\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[2\,\left(c+d\,x\right)\right]-14\,\text{Sin}\left[3\,\left(c+d\,x\right)\right]+\frac{149}{8}\,\text{Sin}\left[4\,\left(c+d\,x\right)\right]+15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[4\,\left(c+d\,x\right)\right]-15\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right]\,\text{Sin}\left[4\,\left(c+d\,x\right)\right]\right)$$

Problem 828: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]^4}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 126 leaves, 8 steps):

$$\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a\,d}-\frac{\text{Cot}[c+d\,x]}{a\,d}-\frac{\text{Sec}[c+d\,x]}{a\,d}-\frac{\text{Sec}[c+d\,x]^3}{3\,a\,d}-\frac{\text{Sec}[c+d\,x]^5}{5\,a\,d}+\frac{3\,\text{Tan}[c+d\,x]}{a\,d}+\frac{\text{Tan}[c+d\,x]^3}{a\,d}+\frac{\text{Tan}[c+d\,x]^5}{5\,a\,d}$$

Result (type 3, 341 leaves):

$$-\frac{1}{3840\,a\,d\,\left(1+\text{Sin}[c+d\,x]\right)}\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sec}[c+d\,x]^3$$
$$\left(176+1216\,\text{Cos}[2\,(c+d\,x)]+149\,\text{Cos}[3\,(c+d\,x)]+528\,\text{Cos}[4\,(c+d\,x)]+149\,\text{Cos}[5\,(c+d\,x)]+\right.$$
$$120\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+120\,\text{Cos}[5\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$120\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-120\,\text{Cos}[5\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$\text{Cos}[c+d\,x]\,\left(-298-240\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+240\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+$$
$$352\,\text{Sin}[c+d\,x]-596\,\text{Sin}[2\,(c+d\,x)]-480\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]+$$
$$480\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]+864\,\text{Sin}[3\,(c+d\,x)]-$$
$$298\,\text{Sin}[4\,(c+d\,x)]-240\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]+$$
$$\left.240\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]+384\,\text{Sin}[5\,(c+d\,x)]\right)$$

Problem 836: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^4}{\left(a+a\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 149 leaves, 11 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a^2\,d}+\frac{\text{Sec}[c+d\,x]}{a^2\,d}+\frac{\text{Sec}[c+d\,x]^3}{3\,a^2\,d}+\frac{\text{Sec}[c+d\,x]^5}{5\,a^2\,d}+$$
$$\frac{2\,\text{Sec}[c+d\,x]^7}{7\,a^2\,d}-\frac{2\,\text{Tan}[c+d\,x]}{a^2\,d}-\frac{2\,\text{Tan}[c+d\,x]^3}{a^2\,d}-\frac{6\,\text{Tan}[c+d\,x]^5}{5\,a^2\,d}-\frac{2\,\text{Tan}[c+d\,x]^7}{7\,a^2\,d}$$

Result (type 3, 352 leaves):

$$\left(6216+5312 \operatorname{Cos}[2 (c+d x)]-1677 \operatorname{Cos}[3 (c+d x)]+696 \operatorname{Cos}[4 (c+d x)]+559 \operatorname{Cos}[5 (c+d x)]-1260 \operatorname{Cos}[3 (c+d x)] \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]\right]+420 \operatorname{Cos}[5 (c+d x)] \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]\right]-14 \operatorname{Cos}[c+d x] \left(559+420 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]\right]-420 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)+1260 \operatorname{Cos}[3 (c+d x)] \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-420 \operatorname{Cos}[5 (c+d x)] \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+2464 \operatorname{Sin}[c+d x]-4472 \operatorname{Sin}[2 (c+d x)]-3360 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sin}[2 (c+d x)]+3360 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sin}[2 (c+d x)]+2208 \operatorname{Sin}[3 (c+d x)]-2236 \operatorname{Sin}[4 (c+d x)]-1680 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sin}[4 (c+d x)]+1680 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sin}[4 (c+d x)]+384 \operatorname{Sin}[5 (c+d x)]\right) \Big/ \left(6720 a^2 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^7\right)$$

Problem 837: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^2 \operatorname{Sec}[c+d x]^4}{(a+a \operatorname{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 164 leaves, 12 steps):

$$\frac{2 \operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{a^2 d}-\frac{\operatorname{Cot}[c+d x]}{a^2 d}-\frac{2 \operatorname{Sec}[c+d x]}{a^2 d}-\frac{2 \operatorname{Sec}[c+d x]^3}{3 a^2 d}-\frac{2 \operatorname{Sec}[c+d x]^5}{5 a^2 d}-\frac{2 \operatorname{Sec}[c+d x]^7}{7 a^2 d}+\frac{5 \operatorname{Tan}[c+d x]}{a^2 d}+\frac{3 \operatorname{Tan}[c+d x]^3}{a^2 d}+\frac{7 \operatorname{Tan}[c+d x]^5}{5 a^2 d}+\frac{2 \operatorname{Tan}[c+d x]^7}{7 a^2 d}$$

Result (type 3, 442 leaves):

$$\frac{1}{a^2}16\left(-\frac{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{32\,d}+\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}-\frac{\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\right.$$

$$\frac{1}{768\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+\frac{\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{384\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+$$

$$\frac{13\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{384\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{224\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-$$

$$\frac{1}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{140\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-$$

$$\frac{3}{280\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{997\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{13\,440\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-$$

$$\frac{997}{26\,880\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+$$

$$\left.\frac{4777\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{13\,440\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{32\,d}\right)$$

Problem 852: Result more than twice size of optimal antiderivative.

$$\int (a+a\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]^5\,dx$$

Optimal (type 3, 115 leaves, 3 steps):

$$-\frac{23\,a\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\,d}+\frac{7\,a\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\,d}-\frac{a\,\text{Sin}[c+d\,x]}{d}+$$

$$\frac{a^3}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}-\frac{a^2}{d\,(a-a\,\text{Sin}[c+d\,x])}+\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 246 leaves):

$$-\frac{a\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{15\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{15\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}-\frac{a\,\text{Sec}[c+d\,x]^2}{d}+\frac{a\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{9\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{9\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a\,\text{Sin}[c+d\,x]}{d}$$

Problem 853: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]^4\,dx$$

Optimal (type 3, 105 leaves, 4 steps):

$$-\frac{11\,a\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\,d}-\frac{5\,a\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\,d}+\frac{a^3}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}-\frac{3\,a^2}{4\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 234 leaves):

$$-\frac{a\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}-\frac{a\,\text{Sec}[c+d\,x]^2}{d}+\frac{a\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{5\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{5\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$

Problem 854: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^2\,(a+a\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]^3\,dx$$

Optimal (type 3, 84 leaves, 5 steps):

$$\frac{3\,a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{a^3}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}-\frac{a^2}{2\,d\,(a-a\,\text{Sin}[c+d\,x])}+\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 207 leaves):

$$-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{5\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{5\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+\frac{a\,\text{Tan}[c+d\,x]^4}{4\,d}$$

Problem 855: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\,(a+a\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]^2\,dx$$

Optimal (type 3, 84 leaves, 5 steps):

$$-\frac{a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{a^3}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}-\frac{a^2}{4\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 207 leaves):

$$\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+\frac{a\,\text{Tan}[c+d\,x]^4}{4\,d}$$

Problem 856: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]\,dx$$

Optimal (type 3, 61 leaves, 5 steps):

$$-\frac{a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{a^3}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 207 leaves):

$$\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{a\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}$$

Problem 857: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 117 leaves, 4 steps):

$$-\frac{11\,a\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\,d}+\frac{a\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-\frac{5\,a\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\,d}+\frac{a^3}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{a^2}{2\,d\,(a-a\,\text{Sin}[c+d\,x])}+\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 248 leaves):

$$-\frac{a\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{a\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{a\,\text{Sec}[c+d\,x]^2}{2\,d}+\frac{a\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{3\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{3\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}$$

Problem 858: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d\,x]^2\,\mathrm{Sec}[c+d\,x]^5\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 129 leaves, 4 steps):

$$-\frac{a\,\mathrm{Csc}[c+d\,x]}{d}-\frac{23\,a\,\mathrm{Log}[1-\mathrm{Sin}[c+d\,x]]}{16\,d}+\frac{a\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}+\frac{7\,a\,\mathrm{Log}[1+\mathrm{Sin}[c+d\,x]]}{16\,d}+\frac{a^3}{8\,d\,\left(a-a\,\mathrm{Sin}[c+d\,x]\right)^2}+\frac{3\,a^2}{4\,d\,\left(a-a\,\mathrm{Sin}[c+d\,x]\right)}-\frac{a^2}{8\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}$$

Result (type 3, 284 leaves):

$$-\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d}-\frac{a\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}-\frac{15\,a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{15\,a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{a\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}+\frac{a\,\mathrm{Sec}[c+d\,x]^2}{2\,d}+\frac{a\,\mathrm{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{7\,a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{7\,a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d}$$

Problem 859: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d\,x]^3\,\mathrm{Sec}[c+d\,x]^5\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 143 leaves, 4 steps):

$$-\frac{a\,\mathrm{Csc}[c+d\,x]}{d}-\frac{a\,\mathrm{Csc}[c+d\,x]^2}{2\,d}-\frac{39\,a\,\mathrm{Log}[1-\mathrm{Sin}[c+d\,x]]}{16\,d}+\frac{3\,a\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{9\,a\,\mathrm{Log}[1+\mathrm{Sin}[c+d\,x]]}{16\,d}+\frac{a^3}{8\,d\,\left(a-a\,\mathrm{Sin}[c+d\,x]\right)^2}+\frac{a^2}{d\,\left(a-a\,\mathrm{Sin}[c+d\,x]\right)}+\frac{a^2}{8\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}$$

Result (type 3, 298 leaves):

$$-\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^2}{2\,d}-\frac{3\,a\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}-\frac{15\,a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{15\,a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}+\frac{a\,\mathrm{Sec}[c+d\,x]^2}{d}+\frac{a\,\mathrm{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{7\,a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{7\,a}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d}$$

Problem 860: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d\,x]^4\,\mathrm{Sec}[c+d\,x]^5\,(a+a\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 162 leaves, 4 steps):

$$-\frac{3\,a\,\mathrm{Csc}[c+d\,x]}{d}-\frac{a\,\mathrm{Csc}[c+d\,x]^2}{2\,d}-\frac{a\,\mathrm{Csc}[c+d\,x]^3}{3\,d}-\frac{59\,a\,\mathrm{Log}[1-\mathrm{Sin}[c+d\,x]]}{16\,d}+\frac{3\,a\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}+\frac{11\,a\,\mathrm{Log}[1+\mathrm{Sin}[c+d\,x]]}{16\,d}+\frac{a^3}{8\,d\,(a-a\,\mathrm{Sin}[c+d\,x])^2}+\frac{5\,a^2}{4\,d\,(a-a\,\mathrm{Sin}[c+d\,x])}-\frac{a^2}{8\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}$$

Result (type 3, 358 leaves):

$$-\frac{19\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,d}-\frac{a\,\text{Csc}[c+d\,x]^2}{2\,d}-\frac{3\,a\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{35\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{35\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{a\,\text{Sec}[c+d\,x]^2}{d}+\frac{a\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{11\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{11\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{19\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,d}$$

Problem 863: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^2\,(a+a\,\text{Sin}[c+d\,x])^2\,\text{Tan}[c+d\,x]^3\,dx$$

Optimal (type 3, 87 leaves, 4 steps):

$$-\frac{7\,a^2\,\text{Log}[1-\text{Sin}[c+d\,x]]}{8\,d}-\frac{a^2\,\text{Log}[1+\text{Sin}[c+d\,x]]}{8\,d}+\frac{a^4}{4\,d\,(a-a\,\text{Sin}[c+d\,x])^2}-\frac{5\,a^3}{4\,d\,(a-a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 270 leaves):

$$-\frac{a^2\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{3\,a^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,d}+\frac{3\,a^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{4\,d}-\frac{a^2\,\text{Sec}[c+d\,x]^2}{d}+\frac{a^2\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a^2}{8\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{5\,a^2}{8\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a^2}{8\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{5\,a^2}{8\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{a^2\,\text{Tan}[c+d\,x]^4}{4\,d}$$

Problem 869: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^4\,\text{Sec}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 150 leaves, 4 steps):

$$-\frac{4\,a^2\,\text{Csc}[c+d\,x]}{d}-\frac{a^2\,\text{Csc}[c+d\,x]^2}{d}-\frac{a^2\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{49\,a^2\,\text{Log}[1-\text{Sin}[c+d\,x]]}{8\,d}+\frac{6\,a^2\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{a^2\,\text{Log}[1+\text{Sin}[c+d\,x]]}{8\,d}+\frac{a^4}{4\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{9\,a^3}{4\,d\,(a-a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 652 leaves):

$$-\frac{25\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right](a+a\,\text{Sin}[c+d\,x])^2}{12\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2(a+a\,\text{Sin}[c+d\,x])^2}{4\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-$$
$$\frac{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2(a+a\,\text{Sin}[c+d\,x])^2}{24\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-$$
$$\frac{49\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right](a+a\,\text{Sin}[c+d\,x])^2}{4\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+$$
$$\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right](a+a\,\text{Sin}[c+d\,x])^2}{4\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+$$
$$\frac{6\,\text{Log}[\text{Sin}[c+d\,x]](a+a\,\text{Sin}[c+d\,x])^2}{d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-$$
$$\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a+a\,\text{Sin}[c+d\,x])^2}{4\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+(a+a\,\text{Sin}[c+d\,x])^2\Big/$$
$$\left(4\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\right)+$$
$$\left(9\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(4\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\right)-$$
$$\frac{25\,(a+a\,\text{Sin}[c+d\,x])^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{12\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-$$
$$\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a+a\,\text{Sin}[c+d\,x])^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{24\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}$$

Problem 882: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d\,x]^7}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 130 leaves, 8 steps):

$$-\frac{35\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{128\,a\,d}+\frac{35\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{128\,a\,d}-\frac{35\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^3}{192\,a\,d}+\frac{7\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^5}{48\,a\,d}-\frac{\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^7}{8\,a\,d}+\frac{\text{Tan}[c+d\,x]^8}{8\,a\,d}$$

Result (type 3, 342 leaves):

$$\frac{1}{384\,d\,(a+a\,\text{Sin}[c+d\,x])}\left(-192+\frac{6}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{40}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{114}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+105\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2-105\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{27\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{87\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 883: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^6}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 134 leaves, 8 steps):

$$-\frac{5\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{128\,a\,d}-\frac{5\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{128\,a\,d}+\frac{5\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{64\,a\,d}-\frac{5\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]^3}{48\,a\,d}+\frac{\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]^5}{8\,a\,d}-\frac{\text{Tan}[c+d\,x]^8}{8\,a\,d}$$

Result (type 3, 342 leaves):

$$\frac{1}{384\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}\left(60-\frac{6}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{32}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{66}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+15\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2-15\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+\frac{4\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{21\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{45\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 884: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Sec}[c+d\,x]^2\,\mathrm{Tan}[c+d\,x]^5}{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 152 leaves, 9 steps):

$$\frac{5\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{128\,a\,d}+\frac{5\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{128\,a\,d}-\frac{5\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]}{64\,a\,d}+\frac{5\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^3}{48\,a\,d}-\frac{\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^5}{8\,a\,d}+\frac{\mathrm{Tan}[c+d\,x]^6}{6\,a\,d}+\frac{\mathrm{Tan}[c+d\,x]^8}{8\,a\,d}$$

Result (type 3, 340 leaves):

$$\frac{1}{384\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6 (a+a\,\text{Sin}[c+d\,x])}$$
$$\left(6-24\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+30\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4-\right.$$
$$15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8+$$
$$15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8+$$
$$\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{15\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+$$
$$\left.\frac{15\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 885: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]^4}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 150 leaves, 9 steps):

$$\frac{3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{128\,a\,d}+\frac{3\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{128\,a\,d}+\frac{\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{64\,a\,d}-$$
$$\frac{\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]}{16\,a\,d}+\frac{\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]^3}{8\,a\,d}-\frac{\text{Tan}[c+d\,x]^6}{6\,a\,d}-\frac{\text{Tan}[c+d\,x]^8}{8\,a\,d}$$

Result (type 3, 342 leaves):

$$-\frac{1}{384\,d\,(a+a\,\text{Sin}[c+d\,x])}\left(12+\frac{6}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{16}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{6}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2-9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2-\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{9\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 886: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Sec}[c+d\,x]^4\,\text{Tan}[c+d\,x]^3}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 150 leaves, 9 steps):

$$-\frac{3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{128\,a\,d}-\frac{\text{Sec}[c+d\,x]^6}{6\,a\,d}+\frac{\text{Sec}[c+d\,x]^8}{8\,a\,d}-\frac{3\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{128\,a\,d}-\frac{\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{64\,a\,d}+\frac{\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]}{16\,a\,d}-\frac{\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]^3}{8\,a\,d}$$

Result (type 3, 340 leaves):

$$-\frac{1}{384\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6(a+a\,\text{Sin}[c+d\,x])}\left(-6+8\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+6\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4-\right.$$
$$9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8+$$
$$9\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8-$$
$$\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$
$$\left.\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{9\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 887: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]^2}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 148 leaves, 9 steps):

$$-\frac{5\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{128\,a\,d}+\frac{\text{Sec}[c+d\,x]^6}{6\,a\,d}-\frac{\text{Sec}[c+d\,x]^8}{8\,a\,d}-\frac{5\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{128\,a\,d}-$$
$$\frac{5\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{192\,a\,d}-\frac{\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]}{48\,a\,d}+\frac{\text{Sec}[c+d\,x]^7\,\text{Tan}[c+d\,x]}{8\,a\,d}$$

Result (type 3, 317 leaves):

$$\frac{1}{384\,d\,(a+a\,\text{Sin}[c+d\,x])}\left(12-\frac{6}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{6}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+\right.$$
$$15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2-$$
$$15\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+$$
$$\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$
$$\left.\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 888: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^6 \,\text{Tan}[c+d x]}{a+a \,\text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 130 leaves, 8 steps):

$$\frac{5 \,\text{ArcTanh}[\text{Sin}[c+d x]]}{128 a d}+\frac{\text{Sec}[c+d x]^8}{8 a d}+\frac{5 \,\text{Sec}[c+d x] \,\text{Tan}[c+d x]}{128 a d}+\frac{5 \,\text{Sec}[c+d x]^3 \,\text{Tan}[c+d x]}{192 a d}+\frac{\text{Sec}[c+d x]^5 \,\text{Tan}[c+d x]}{48 a d}-\frac{\text{Sec}[c+d x]^7 \,\text{Tan}[c+d x]}{8 a d}$$

Result (type 3, 340 leaves):

$$\frac{1}{384 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^6 (a+a \,\text{Sin}[c+d x])} \left(6+8 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+6 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4-15 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8+15 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8+\frac{4 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^6}+\frac{9 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{15 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^8}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)$$

Problem 889: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^7}{a+a \,\text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 165 leaves, 4 steps):

$$\frac{35 \,\text{ArcTanh}[\text{Sin}[c+d x]]}{128 a d}+\frac{a^2}{96 d (a-a \,\text{Sin}[c+d x])^3}+\frac{5 a}{128 d (a-a \,\text{Sin}[c+d x])^2}+\frac{15}{128 d (a-a \,\text{Sin}[c+d x])}-\frac{a^3}{64 d (a+a \,\text{Sin}[c+d x])^4}-\frac{a^2}{24 d (a+a \,\text{Sin}[c+d x])^3}-\frac{5 a}{64 d (a+a \,\text{Sin}[c+d x])^2}-\frac{5}{32 d (a+a \,\text{Sin}[c+d x])}$$

Result (type 3, 342 leaves):

$$\frac{1}{384\,d\,(a+a\,\text{Sin}[c+d\,x])}\left(-60-\frac{6}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-\frac{16}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{30}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-105\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+105\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+\frac{4\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{15\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{45\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 891: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]^7}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 217 leaves, 4 steps):

$$-\frac{\text{Csc}[c+d\,x]}{a\,d}-\frac{187\,\text{Log}[1-\text{Sin}[c+d\,x]]}{256\,a\,d}-\frac{\text{Log}[\text{Sin}[c+d\,x]]}{a\,d}+\frac{443\,\text{Log}[1+\text{Sin}[c+d\,x]]}{256\,a\,d}+\frac{a^2}{96\,d\,(a-a\,\text{Sin}[c+d\,x])^3}+\frac{9\,a}{128\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{47}{128\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^3}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^4}-\frac{a^2}{12\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{19\,a}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^2}-\frac{35}{32\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 628 leaves):

$$-\frac{35}{32\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}-\frac{1}{64\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{1}{12\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{19}{64\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\left(187\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$(128\,d\,(a+a\,\mathrm{Sin}[c+d\,x]))+$$
$$\left(443\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$(128\,d\,(a+a\,\mathrm{Sin}[c+d\,x]))-\frac{\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{d\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$
$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{96\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$
$$\frac{9\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$
$$\frac{47\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}$$

Problem 892: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Csc}[c+d\,x]^3\,\mathrm{Sec}[c+d\,x]^7}{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 232 leaves, 4 steps):

$$\frac{\text{Csc}[c+d\,x]}{a\,d}-\frac{\text{Csc}[c+d\,x]^2}{2\,a\,d}-\frac{325\,\text{Log}[1-\text{Sin}[c+d\,x]]}{256\,a\,d}+$$
$$\frac{5\,\text{Log}[\text{Sin}[c+d\,x]]}{a\,d}-\frac{955\,\text{Log}[1+\text{Sin}[c+d\,x]]}{256\,a\,d}+\frac{a^2}{96\,d\,(a-a\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{11\,a}{128\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{69}{128\,d\,(a-a\,\text{Sin}[c+d\,x])}+\frac{a^3}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{5\,a^2}{48\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+\frac{29\,a}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^2}+\frac{2}{d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 734 leaves) :

$$\frac{2}{d\,(a+a\,\text{Sin}[c+d\,x])}+\frac{1}{64\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a+a\,\text{Sin}[c+d\,x])}+$$
$$\frac{5}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+a\,\text{Sin}[c+d\,x])}+$$
$$\frac{29}{64\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+a\,\text{Sin}[c+d\,x])}+$$
$$\frac{\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{2\,d\,(a+a\,\text{Sin}[c+d\,x])}-$$
$$\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}-$$
$$\left(325\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$(128\,d\,(a+a\,\text{Sin}[c+d\,x]))-$$
$$\left(955\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$(128\,d\,(a+a\,\text{Sin}[c+d\,x]))+\frac{5\,\text{Log}[\text{Sin}[c+d\,x]]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{d\,(a+a\,\text{Sin}[c+d\,x])}-$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}+$$
$$\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{96\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a+a\,\text{Sin}[c+d\,x])}+$$
$$\frac{11\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{128\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+a\,\text{Sin}[c+d\,x])}+$$
$$\frac{69\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{128\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+a\,\text{Sin}[c+d\,x])}+$$
$$\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Problem 893: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[c+d\,x]^4\,\text{Sec}[c+d\,x]^7}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 253 leaves, 4 steps):

$$-\frac{5\,\text{Csc}[c+d\,x]}{a\,d}+\frac{\text{Csc}[c+d\,x]^2}{2\,a\,d}-\frac{\text{Csc}[c+d\,x]^3}{3\,a\,d}-\frac{515\,\text{Log}[1-\text{Sin}[c+d\,x]]}{256\,a\,d}-\frac{5\,\text{Log}[\text{Sin}[c+d\,x]]}{a\,d}+\frac{1795\,\text{Log}[1+\text{Sin}[c+d\,x]]}{256\,a\,d}+\frac{a^2}{96\,d\,(a-a\,\text{Sin}[c+d\,x])^3}+\frac{13\,a}{128\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{95}{128\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^3}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^4}-\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{41\,a}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^2}-\frac{105}{32\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 864 leaves) :

$$-\frac{105}{32\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}-\frac{1}{64\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}-$$

$$\frac{1}{8\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}-$$

$$\frac{41}{64\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}-$$

$$\frac{31\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{12\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}+$$

$$\frac{\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{8\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}-$$

$$\left(\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$\left(24\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\right)-$$

$$\left(515\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$\left(128\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\right)+$$

$$\left(1795\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$\left(128\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\right)-\frac{5\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}+$$

$$\frac{\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{8\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}+$$

$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{96\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}+$$

$$\frac{13\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}+$$

$$\frac{95\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}-$$

$$\frac{31\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}-$$

$$\left(\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/$$
$$\left(24\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\right)$$

Problem 897: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[c+d x]\ \text{Tan}[c+d x]^9}{a+a\ \text{Sin}[c+d x]}\, dx$$

Optimal (type 3, 233 leaves, 4 steps):

$$-\frac{193\ \text{Log}[1-\text{Sin}[c+d x]]}{512\ a\ d}-\frac{319\ \text{Log}[1+\text{Sin}[c+d x]]}{512\ a\ d}+\frac{a^3}{256\ d\ (a-a\ \text{Sin}[c+d x])^4}-\frac{7\ a^2}{192\ d\ (a-a\ \text{Sin}[c+d x])^3}+\frac{81\ a}{512\ d\ (a-a\ \text{Sin}[c+d x])^2}-\frac{61}{128\ d\ (a-a\ \text{Sin}[c+d x])}-\frac{a^4}{160\ d\ (a+a\ \text{Sin}[c+d x])^5}+\frac{15\ a^3}{256\ d\ (a+a\ \text{Sin}[c+d x])^4}-\frac{95\ a^2}{384\ d\ (a+a\ \text{Sin}[c+d x])^3}+\frac{325\ a}{512\ d\ (a+a\ \text{Sin}[c+d x])^2}-\frac{315}{256\ d\ (a+a\ \text{Sin}[c+d x])}$$

Result (type 3, 586 leaves):

$$-\frac{315}{256\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)}-\frac{1}{160\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8\,\left(a+a\,\text{Sin}[c+d\,x]\right)}+$$

$$\frac{15}{256\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\left(a+a\,\text{Sin}[c+d\,x]\right)}-$$

$$\frac{95}{384\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)}+$$

$$\frac{325}{512\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a+a\,\text{Sin}[c+d\,x]\right)}-$$

$$\left(193\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$

$$\left(256\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)\right)-$$

$$\left(319\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$

$$\left(256\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)\right)+\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{256\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8\,\left(a+a\,\text{Sin}[c+d\,x]\right)}-$$

$$\frac{7\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{192\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\left(a+a\,\text{Sin}[c+d\,x]\right)}+$$

$$\frac{81\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{512\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)}-$$

$$\frac{61\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{128\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a+a\,\text{Sin}[c+d\,x]\right)}$$

Problem 898: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[c+d\,x]^9}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 154 leaves, 9 steps):

$$\frac{63\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{256\,a\,d}-\frac{63\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{256\,a\,d}+$$

$$\frac{21\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^3}{128\,a\,d}-\frac{21\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^5}{160\,a\,d}+$$

$$\frac{9\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^7}{80\,a\,d}-\frac{\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]^9}{10\,a\,d}+\frac{\text{Tan}[c+d\,x]^{10}}{10\,a\,d}$$

Result (type 3, 417 leaves):

$$\frac{1}{2560\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}\left(1280+\frac{16}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}-\frac{130}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\right.$$
$$\frac{460}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{935}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-$$
$$630\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+$$
$$630\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+$$
$$\frac{10\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}-\frac{80\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$
$$\left.\frac{285\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{650\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 899: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]^8}{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 160 leaves, 9 steps):

$$\frac{7\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{256\,a\,d}+\frac{7\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{256\,a\,d}-\frac{7\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]}{128\,a\,d}+\frac{7\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^3}{96\,a\,d}-\frac{7\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^5}{80\,a\,d}+\frac{\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^7}{10\,a\,d}-\frac{\mathrm{Tan}[c+d\,x]^{10}}{10\,a\,d}$$

Result (type 3, 417 leaves):

$$\frac{1}{7680\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}\left(-1050-\frac{48}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}+\frac{330}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\frac{940}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{1395}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-210\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+210\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+\frac{30\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}-\frac{200\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+\frac{555\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{840\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 900: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sec}[c+d\,x]^2\,\mathrm{Tan}[c+d\,x]^7}{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 178 leaves, 10 steps):

$$-\frac{7\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{256\,a\,d}-\frac{7\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{256\,a\,d}+\frac{7\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]}{128\,a\,d}-\frac{7\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^3}{96\,a\,d}+\frac{7\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^5}{80\,a\,d}-\frac{\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^7}{10\,a\,d}+\frac{\mathrm{Tan}[c+d\,x]^8}{8\,a\,d}+\frac{\mathrm{Tan}[c+d\,x]^{10}}{10\,a\,d}$$

Result (type 3, 415 leaves):

$$\frac{1}{7680\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8 (a+a\,\text{Sin}[c+d x])}$$

$$\left(48-270\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2+\right.$$

$$580\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4-525\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6+$$

$$210\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}-$$

$$210\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}+$$

$$\frac{30\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}-\frac{160\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+$$

$$\left.\frac{315\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{210\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)$$

Problem 901: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^3\, \text{Tan}[c+d x]^6}{a+a\,\text{Sin}[c+d x]}\, dx$$

Optimal (type 3, 176 leaves, 10 steps):

$$-\frac{3\,\text{ArcTanh}[\text{Sin}[c+d x]]}{256\, a\, d}-\frac{3\,\text{Sec}[c+d x]\,\text{Tan}[c+d x]}{256\, a\, d}-\frac{\text{Sec}[c+d x]^3\,\text{Tan}[c+d x]}{128\, a\, d}+\frac{\text{Sec}[c+d x]^5\,\text{Tan}[c+d x]}{32\, a\, d}-\frac{\text{Sec}[c+d x]^5\,\text{Tan}[c+d x]^3}{16\, a\, d}+\frac{\text{Sec}[c+d x]^5\,\text{Tan}[c+d x]^5}{10\, a\, d}-\frac{\text{Tan}[c+d x]^8}{8\, a\, d}-\frac{\text{Tan}[c+d x]^{10}}{10\, a\, d}$$

Result (type 3, 417 leaves):

$$\frac{1}{2560\, d\, (a + a \operatorname{Sin}[c + d x])}\left(50 - \frac{16}{\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^8} + \frac{70}{\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^6} - \frac{100}{\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^4} + \frac{25}{\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^2} + 30 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right]\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^2 - 30 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right]\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^2 + \frac{10\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^2}{\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^8} - \frac{40\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^2}{\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^6} + \frac{45\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^2}{\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^4} + \frac{20\left(\operatorname{Cos}\left[\frac{1}{2}(c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c + d x)\right]\right)^2}{\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 902: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[c + d x]^4 \operatorname{Tan}[c + d x]^5}{a + a \operatorname{Sin}[c + d x]} \, dx$$

Optimal (type 3, 194 leaves, 11 steps):

$$\frac{3 \operatorname{ArcTanh}[\operatorname{Sin}[c + d x]]}{256\, a\, d} + \frac{\operatorname{Sec}[c + d x]^6}{6\, a\, d} - \frac{\operatorname{Sec}[c + d x]^8}{4\, a\, d} + \frac{\operatorname{Sec}[c + d x]^{10}}{10\, a\, d} + \frac{3 \operatorname{Sec}[c + d x] \operatorname{Tan}[c + d x]}{256\, a\, d} + \frac{\operatorname{Sec}[c + d x]^3 \operatorname{Tan}[c + d x]}{128\, a\, d} - \frac{\operatorname{Sec}[c + d x]^5 \operatorname{Tan}[c + d x]}{32\, a\, d} + \frac{\operatorname{Sec}[c + d x]^5 \operatorname{Tan}[c + d x]^3}{16\, a\, d} - \frac{\operatorname{Sec}[c + d x]^5 \operatorname{Tan}[c + d x]^5}{10\, a\, d}$$

Result (type 3, 415 leaves):

$$\frac{1}{7680\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8 (a+a\, \text{Sin}[c+d x])}$$
$$\left(48-150 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2+\right.$$
$$100 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4+75 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6-$$
$$90\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}+$$
$$90\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}+$$
$$\frac{30 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}-\frac{80 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+$$
$$\left.\frac{15 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{90 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)$$

Problem 904: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^6\, \text{Tan}[c+d x]^3}{a+a\, \text{Sin}[c+d x]}\, dx$$

Optimal (type 3, 174 leaves, 10 steps):

$$-\frac{3\, \text{ArcTanh}[\text{Sin}[c+d x]]}{256\, a\, d}-\frac{\text{Sec}[c+d x]^8}{8\, a\, d}+\frac{\text{Sec}[c+d x]^{10}}{10\, a\, d}-$$
$$\frac{3\, \text{Sec}[c+d x]\, \text{Tan}[c+d x]}{256\, a\, d}-\frac{\text{Sec}[c+d x]^3\, \text{Tan}[c+d x]}{128\, a\, d}-$$
$$\frac{\text{Sec}[c+d x]^5\, \text{Tan}[c+d x]}{160\, a\, d}+\frac{3\, \text{Sec}[c+d x]^7\, \text{Tan}[c+d x]}{80\, a\, d}-\frac{\text{Sec}[c+d x]^7\, \text{Tan}[c+d x]^3}{10\, a\, d}$$

Result (type 3, 365 leaves):

$$-\frac{1}{2560\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8 (a+a\,\text{Sin}[c+d x])}$$
$$\left(-16+10\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2+\right.$$
$$20\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4+15\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6-$$
$$30\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}+$$
$$30\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}-$$
$$\frac{10\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8}+$$
$$\left.\frac{15\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{30\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)$$

Problem 905: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^7\,\text{Tan}[c+d x]^2}{a+a\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 172 leaves, 10 steps):

$$-\frac{7\,\text{ArcTanh}[\text{Sin}[c+d x]]}{256\,a\,d}+\frac{\text{Sec}[c+d x]^8}{8\,a\,d}-\frac{\text{Sec}[c+d x]^{10}}{10\,a\,d}-$$
$$\frac{7\,\text{Sec}[c+d x]\,\text{Tan}[c+d x]}{256\,a\,d}-\frac{7\,\text{Sec}[c+d x]^3\,\text{Tan}[c+d x]}{384\,a\,d}-$$
$$\frac{7\,\text{Sec}[c+d x]^5\,\text{Tan}[c+d x]}{480\,a\,d}-\frac{\text{Sec}[c+d x]^7\,\text{Tan}[c+d x]}{80\,a\,d}+\frac{\text{Sec}[c+d x]^9\,\text{Tan}[c+d x]}{10\,a\,d}$$

Result (type 3, 417 leaves):

$$\frac{1}{7680\, d\, (a + a \,\text{Sin}[c + d\, x])}\left(150 - \frac{48}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^8} - \frac{30}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^6} + \frac{20}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^4} + \frac{75}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2} + 210\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2 - 210\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2 + \frac{30\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^8} + \frac{40\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^6} + \frac{15\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^4} - \frac{60\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}\right)$$

Problem 906: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c + d\, x]^8\, \text{Tan}[c + d\, x]}{a + a\, \text{Sin}[c + d\, x]}\, dx$$

Optimal (type 3, 154 leaves, 9 steps):

$$\frac{7\, \text{ArcTanh}[\text{Sin}[c + d\, x]]}{256\, a\, d} + \frac{\text{Sec}[c + d\, x]^{10}}{10\, a\, d} + \frac{7\, \text{Sec}[c + d\, x]\, \text{Tan}[c + d\, x]}{256\, a\, d} + \frac{7\, \text{Sec}[c + d\, x]^3\, \text{Tan}[c + d\, x]}{384\, a\, d} + \frac{7\, \text{Sec}[c + d\, x]^5\, \text{Tan}[c + d\, x]}{480\, a\, d} + \frac{\text{Sec}[c + d\, x]^7\, \text{Tan}[c + d\, x]}{80\, a\, d} - \frac{\text{Sec}[c + d\, x]^9\, \text{Tan}[c + d\, x]}{10\, a\, d}$$

Result (type 3, 415 leaves):

$$\frac{1}{7680\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8(a+a\,\text{Sin}[c+d\,x])}$$

$$\left(48+90\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+\right.$$

$$100\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4+75\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6-$$

$$210\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^{10}+$$

$$210\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^{10}+$$

$$\frac{30\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}+\frac{80\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}+$$

$$\left.\frac{135\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{210\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^{10}}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 909: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]^9}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 262 leaves, 4 steps):

$$-\frac{\text{Csc}[c+d\,x]}{a\,d}-\frac{437\,\text{Log}[1-\text{Sin}[c+d\,x]]}{512\,a\,d}-\frac{\text{Log}[\text{Sin}[c+d\,x]]}{a\,d}+\frac{949\,\text{Log}[1+\text{Sin}[c+d\,x]]}{512\,a\,d}+$$

$$\frac{a^3}{256\,d\,(a-a\,\text{Sin}[c+d\,x])^4}+\frac{5\,a^2}{192\,d\,(a-a\,\text{Sin}[c+d\,x])^3}+\frac{57\,a}{512\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{61}{128\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^4}{160\,d\,(a+a\,\text{Sin}[c+d\,x])^5}-\frac{9\,a^3}{256\,d\,(a+a\,\text{Sin}[c+d\,x])^4}-$$

$$\frac{47\,a^2}{384\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{187\,a}{512\,d\,(a+a\,\text{Sin}[c+d\,x])^2}-\frac{315}{256\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 737 leaves):

$$-\frac{315}{256\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}-\frac{1}{160\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{9}{256\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{47}{384\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{187}{512\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\left(437\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\right)\Big/$$
$$(256\,d\,(a+a\,\mathrm{Sin}[c+d\,x]))+$$
$$\left(949\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\right)\Big/$$
$$(256\,d\,(a+a\,\mathrm{Sin}[c+d\,x]))-\frac{\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{d\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$
$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{256\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8(a+a\,\mathrm{Sin}[c+d\,x])}+$$
$$\frac{5\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{192\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6(a+a\,\mathrm{Sin}[c+d\,x])}+$$
$$\frac{57\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{512\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4(a+a\,\mathrm{Sin}[c+d\,x])}+$$
$$\frac{61\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{128\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2(a+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}$$

Problem 910: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Csc}[c+d\,x]^3\,\mathrm{Sec}[c+d\,x]^9}{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 279 leaves, 4 steps):

$$\frac{\text{Csc}[c+d\,x]}{a\,d}-\frac{\text{Csc}[c+d\,x]^2}{2\,a\,d}-\frac{843\,\text{Log}[1-\text{Sin}[c+d\,x]]}{512\,a\,d}+$$
$$\frac{6\,\text{Log}[\text{Sin}[c+d\,x]]}{a\,d}-\frac{2229\,\text{Log}[1+\text{Sin}[c+d\,x]]}{512\,a\,d}+\frac{a^3}{256\,d\,(a-a\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{a^2}{32\,d\,(a-a\,\text{Sin}[c+d\,x])^3}+\frac{81\,a}{512\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{203}{256\,d\,(a-a\,\text{Sin}[c+d\,x])}+$$
$$\frac{a^4}{160\,d\,(a+a\,\text{Sin}[c+d\,x])^5}+\frac{11\,a^3}{256\,d\,(a+a\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{23\,a^2}{128\,d\,(a+a\,\text{Sin}[c+d\,x])^3}+\frac{325\,a}{512\,d\,(a+a\,\text{Sin}[c+d\,x])^2}+\frac{5}{2\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 845 leaves) :

$$\frac{5}{2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}+\frac{1}{160\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{11}{256\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{23}{128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{325}{512\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$

$$\frac{\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{8\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$

$$\left(843\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$(256\,d\,(a+a\,\mathrm{Sin}[c+d\,x]))-$$
$$\left(2229\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/$$
$$(256\,d\,(a+a\,\mathrm{Sin}[c+d\,x]))+\frac{6\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{d\,(a+a\,\mathrm{Sin}[c+d\,x])}-$$

$$\frac{\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{8\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{256\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{32\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{81\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{512\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{203\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{256\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+a\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d\,(a+a\,\mathrm{Sin}[c+d\,x])}$$

Problem 911: Result more than twice size of optimal antiderivative.

$$\int (g\,\text{Sec}[e+f x])^p\,(d\,\text{Sin}[e+f x])^n\,(a+a\,\text{Sin}[e+f x])^m\,dx$$

Optimal (type 6, 127 leaves, 5 steps):

$$\frac{1}{d f\,(1+n)}\text{AppellF1}\left[1+n,\frac{1+p}{2},\frac{1}{2}\,(1-2m+p),2+n,\text{Sin}[e+f x],-\text{Sin}[e+f x]\right]$$

$$\text{Sec}[e+f x]\,(g\,\text{Sec}[e+f x])^p\,(1-\text{Sin}[e+f x])^{\frac{1+p}{2}}$$

$$(d\,\text{Sin}[e+f x])^{1+n}\,(1+\text{Sin}[e+f x])^{\frac{1}{2}(1-2m+p)}\,(a+a\,\text{Sin}[e+f x])^m$$

Result (type 6, 3577 leaves):

$$\Big(\big(-3+p\big)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\,\Big(\text{Sec}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)^{-m}$$

$$\text{Sec}[e+f x]^{-1+p}\,(g\,\text{Sec}[e+f x])^p\,\text{Sin}[e+f x]^n\,(d\,\text{Sin}[e+f x])^n\,(a+a\,\text{Sin}[e+f x])^m\Big)\Big/$$

$$\Big(f\,(-1+p)\,\Big(\big(-3+p\big)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+$$

$$2\,\Big(n\,\text{AppellF1}\Big[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+(1+m+n-p)\,\text{AppellF1}\Big[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)$$

$$\Big(\Big(n\,(-3+p)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\,\Big(\text{Sec}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)^{-m}\,\text{Sec}[e+f x]^{-2+p}\,\text{Sin}[e+f x]^{-1+n}\Big)\Big/$$

$$\Big((-1+p)\,\Big((-3+p)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+$$

$$2\,\Big(n\,\text{AppellF1}\Big[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,-\text{Tan}\Big[$$

$$\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]+(1+m+n-p)\,\text{AppellF1}\Big[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2\Big)\Big)+$$

$$\Big(\big(-3+p\big)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},\text{Tan}\Big[\frac{1}{2}\Big(-e+\frac{\pi}{2}-f x\Big)\Big]^2,$$

$$-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\left(\operatorname{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-m}\operatorname{Sec}[e+f x]^p\operatorname{Sin}[e+f x]^{1+n}\Bigg)\Bigg/$$

$$\Bigg(\left(-3+p\right)\operatorname{AppellF1}\left[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\left(n\operatorname{AppellF1}\left[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\left(1+m+n-p\right)\operatorname{AppellF1}\left[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},\right.$$

$$\left.\left.\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)+$$

$$\Bigg(m\left(-3+p\right)\operatorname{AppellF1}\left[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(\operatorname{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-m}$$

$$\operatorname{Sec}[e+f x]^{-1+p}\operatorname{Sin}[e+f x]^n\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg/$$

$$\Bigg(\left(-1+p\right)\Bigg(\left(-3+p\right)\operatorname{AppellF1}\left[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\left(n\operatorname{AppellF1}\left[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\right.\right.\right.$$

$$\left.\left.\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\left(1+m+n-p\right)\operatorname{AppellF1}\left[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},\right.$$

$$\left.\left.\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(\left(-3+p\right)\left(\operatorname{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-m}\operatorname{Sec}[e+f x]^{-1+p}\operatorname{Sin}[e+f x]^n$$

$$\Bigg(-\frac{1}{\frac{3}{2}-\frac{p}{2}}n\left(\frac{1}{2}-\frac{p}{2}\right)\operatorname{AppellF1}\left[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\operatorname{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{\frac{3}{2}-\frac{p}{2}}$$

$$\left(1+m+n-p\right)\left(\frac{1}{2}-\frac{p}{2}\right)\operatorname{AppellF1}\left[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\operatorname{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(-1+p\right)\Bigg(\left(-3+p\right)\operatorname{AppellF1}\left[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$

$$2\left(n\,\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(1+m+n-p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)+$$

$$\Bigg((-3+p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{p}{2},-n,1+m+n-p,\frac{3}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-m}\text{Sec}[e+f\,x]^{-1+p}\,\text{Sin}[e+f\,x]^n$$

$$\Bigg(2\left(n\,\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(1+m+n-p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+(-3+p)\Bigg(-\frac{1}{\frac{3}{2}-\frac{p}{2}}n\left(\frac{1}{2}-\frac{p}{2}\right)\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},1-n,1+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{\frac{3}{2}-\frac{p}{2}}(1+m+n-p)$$

$$\left(\frac{1}{2}-\frac{p}{2}\right)\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},-n,2+m+n-p,\frac{5}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg(n\Bigg(-\frac{1}{\frac{5}{2}-\frac{p}{2}}(1+m+n-p)\left(\frac{3}{2}-\frac{p}{2}\right)\text{AppellF1}\left[\frac{5}{2}-\frac{p}{2},1-n,2+m+n-p,\frac{7}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{1}{\frac{5}{2}-\frac{p}{2}}(1-n)\left(\frac{3}{2}-\frac{p}{2}\right)$$

$$\text{AppellF1}\left[\frac{5}{2}-\frac{p}{2},2-n,1+m+n-p,\frac{7}{2}-\frac{p}{2},\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)+$$

$$(1+m+n-p)\Bigg(-\frac{1}{\frac{5}{2}-\frac{p}{2}}n\left(\frac{3}{2}-\frac{p}{2}\right)\text{AppellF1}\left[\frac{5}{2}-\frac{p}{2},1-n,2+m+n-p,\right.$$

$$\frac{7}{2}-\frac{p}{2},\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{\frac{5}{2}-\frac{p}{2}}\left(2+m+n-p\right)$$
$$\left(\frac{3}{2}-\frac{p}{2}\right)\text{AppellF1}\left[\frac{5}{2}-\frac{p}{2},\ -n,\ 3+m+n-p,\ \frac{7}{2}-\frac{p}{2},\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(\left(-1+p\right)\Bigg(\left(-3+p\right)\text{AppellF1}\left[\frac{1}{2}-\frac{p}{2},\ -n,\ 1+m+n-p,\ \frac{3}{2}-\frac{p}{2},\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+2\Bigg(n\,\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},\ 1-n,\ 1+m+n-p,\ \frac{5}{2}-\frac{p}{2},\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\left(1+m+n-p\right)$$
$$\text{AppellF1}\left[\frac{3}{2}-\frac{p}{2},\ -n,\ 2+m+n-p,\ \frac{5}{2}-\frac{p}{2},\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)^2\Bigg)\Bigg)$$

Problem 913: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]\,\left(a+a\,\text{Sin}[e+f\,x]\right)^4\,\left(c+d\,\text{Sin}[e+f\,x]\right)^n\,dx$$

Optimal (type 3, 175 leaves, 3 steps):

$$\frac{a^4\,(c-d)^4\,\left(c+d\,\text{Sin}[e+f\,x]\right)^{1+n}}{d^5\,f\,(1+n)}-\frac{4\,a^4\,(c-d)^3\,\left(c+d\,\text{Sin}[e+f\,x]\right)^{2+n}}{d^5\,f\,(2+n)}+$$
$$\frac{6\,a^4\,(c-d)^2\,\left(c+d\,\text{Sin}[e+f\,x]\right)^{3+n}}{d^5\,f\,(3+n)}-\frac{4\,a^4\,(c-d)\,\left(c+d\,\text{Sin}[e+f\,x]\right)^{4+n}}{d^5\,f\,(4+n)}+\frac{a^4\,\left(c+d\,\text{Sin}[e+f\,x]\right)^{5+n}}{d^5\,f\,(5+n)}$$

Result (type 3, 1209 leaves):

$$\frac{1}{f\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^8}\left(a+a\,\text{Sin}[e+f\,x]\right)^4\left(c+d\,\text{Sin}[e+f\,x]\right)^n$$
$$\Bigg(\Big(192\,c^5-960\,c^4\,d+1920\,c^3\,d^2-1920\,c^2\,d^3+960\,c\,d^4+1320\,d^5-192\,c^4\,d\,n+912\,c^3\,d^2\,n-1744\,c^2\,d^3\,n+$$
$$1730\,c\,d^4\,n+2444\,d^5\,n+144\,c^3\,d^2\,n^2-672\,c^2\,d^3\,n^2+1297\,c\,d^4\,n^2+1436\,d^5\,n^2-80\,c^2\,d^3\,n^3+$$
$$370\,c\,d^4\,n^3+340\,d^5\,n^3+35\,c\,d^4\,n^4+28\,d^5\,n^4\Big)\Big/\left(8\,d^5\,(1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\right)+$$
$$\Big(\big(2520\,d^4-192\,c^4\,n+960\,c^3\,d\,n-1968\,c^2\,d^2\,n+2160\,c\,d^3\,n+4290\,d^4\,n+192\,c^3\,d\,n^2-936\,c^2\,d^2\,n^2+$$
$$1912\,c\,d^3\,n^2+2507\,d^4\,n^2-120\,c^2\,d^2\,n^3+576\,c\,d^3\,n^3+594\,d^4\,n^3+56\,c\,d^3\,n^4+49\,d^4\,n^4\big)$$

$$\left(-\frac{i\,\text{Cos}[e+f x]}{16\,d^4}+\frac{\text{Sin}[e+f x]}{16\,d^4}\right)\Big)\Big/\big((1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\big)+$$

$$\Big(\big(2520\,d^4-192\,c^4\,n+960\,c^3\,d\,n-1968\,c^2\,d^2\,n+2160\,c\,d^3\,n+4290\,d^4\,n+192\,c^3\,d\,n^2-936\,c^2\,d^2\,n^2+$$

$$1912\,c\,d^3\,n^2+2507\,d^4\,n^2-120\,c^2\,d^2\,n^3+576\,c\,d^3\,n^3+594\,d^4\,n^3+56\,c\,d^3\,n^4+49\,d^4\,n^4\big)$$

$$\left(\frac{i\,\text{Cos}[e+f x]}{16\,d^4}+\frac{\text{Sin}[e+f x]}{16\,d^4}\right)\Big)\Big/\big((1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\big)+$$

$$\Big(\big(-360\,d^3-12\,c^3\,n+60\,c^2\,d\,n-126\,c\,d^2\,n-312\,d^3\,n+12\,c^2\,d\,n^2-59\,c\,d^2\,n^2-88\,d^3\,n^2-7\,c\,d^2\,n^3-$$

$$8\,d^3\,n^3\big)\left(\frac{\text{Cos}[2\,(e+f x)]}{4\,d^3}-\frac{i\,\text{Sin}[2\,(e+f x)]}{4\,d^3}\right)\Big)\Big/\big((2+n)\,(3+n)\,(4+n)\,(5+n)\big)+$$

$$\Big(\big(-360\,d^3-12\,c^3\,n+60\,c^2\,d\,n-126\,c\,d^2\,n-312\,d^3\,n+12\,c^2\,d\,n^2-59\,c\,d^2\,n^2-88\,d^3\,n^2-$$

$$7\,c\,d^2\,n^3-8\,d^3\,n^3\big)\left(\frac{\text{Cos}[2\,(e+f x)]}{4\,d^3}+\frac{i\,\text{Sin}[2\,(e+f x)]}{4\,d^3}\right)\Big)\Big/$$

$$\big((2+n)\,(3+n)\,(4+n)\,(5+n)\big)+\Big(\big(540\,d^2-16\,c^2\,n+80\,c\,d\,n+251\,d^2\,n+16\,c\,d\,n^2+29\,d^2\,n^2\big)$$

$$\left(-\frac{i\,\text{Cos}[3\,(e+f x)]}{32\,d^2}-\frac{\text{Sin}[3\,(e+f x)]}{32\,d^2}\right)\Big)\Big/\big((3+n)\,(4+n)\,(5+n)\big)+$$

$$\Big(\big(540\,d^2-16\,c^2\,n+80\,c\,d\,n+251\,d^2\,n+16\,c\,d\,n^2+29\,d^2\,n^2\big)$$

$$\left(\frac{i\,\text{Cos}[3\,(e+f x)]}{32\,d^2}-\frac{\text{Sin}[3\,(e+f x)]}{32\,d^2}\right)\Big)\Big/\big((3+n)\,(4+n)\,(5+n)\big)+$$

$$\frac{(20\,d+c\,n+4\,d\,n)\left(\frac{\text{Cos}[4\,(e+f x)]}{16\,d}-\frac{i\,\text{Sin}[4\,(e+f x)]}{16\,d}\right)}{(4+n)\,(5+n)}+$$

$$\frac{(20\,d+c\,n+4\,d\,n)\left(\frac{\text{Cos}[4\,(e+f x)]}{16\,d}+\frac{i\,\text{Sin}[4\,(e+f x)]}{16\,d}\right)}{(4+n)\,(5+n)}+$$

$$\frac{-\frac{1}{32}\,i\,\text{Cos}[5\,(e+f x)]+\frac{1}{32}\,\text{Sin}[5\,(e+f x)]}{5+n}+$$

$$\left.\frac{\frac{1}{32}\,i\,\text{Cos}[5\,(e+f x)]+\frac{1}{32}\,\text{Sin}[5\,(e+f x)]}{5+n}\right)$$

Problem 914: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^3\,(c+d\,\text{Sin}[e+f x])^n\,dx$$

Optimal (type 3, 139 leaves, 3 steps):

$$-\frac{a^3 (c-d)^3 (c+d\,\text{Sin}[e+f x])^{1+n}}{d^4 f (1+n)}+\frac{3 a^3 (c-d)^2 (c+d\,\text{Sin}[e+f x])^{2+n}}{d^4 f (2+n)}-\frac{3 a^3 (c-d) (c+d\,\text{Sin}[e+f x])^{3+n}}{d^4 f (3+n)}+\frac{a^3 (c+d\,\text{Sin}[e+f x])^{4+n}}{d^4 f (4+n)}$$

Result (type 3, 784 leaves):

$$\frac{1}{f\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^6}(a+a\,\text{Sin}[e+f x])^3 (c+d\,\text{Sin}[e+f x])^n$$
$$\Bigg(\left(-48 c^4+192 c^3 d-288 c^2 d^2+192 c d^3+162 d^4+48 c^3 d n-180 c^2 d^2 n+256 c d^3 n+261 d^4 n-36 c^2 d^2 n^2+132 c d^3 n^2+114 d^4 n^2+20 c d^3 n^3+15 d^4 n^3\right)\Big/\left(8 d^4 (1+n)(2+n)(3+n)(4+n)\right)+$$
$$\left(\left(168 d^3+24 c^3 n-96 c^2 d n+150 c d^2 n+230 d^3 n-24 c^2 d n^2+93 c d^2 n^2+99 d^3 n^2+15 c d^2 n^3+13 d^3 n^3\right)\left(-\frac{i\,\text{Cos}[e+f x]}{8 d^3}+\frac{\text{Sin}[e+f x]}{8 d^3}\right)\right)\Big/\left((1+n)(2+n)(3+n)(4+n)\right)+$$
$$\left(\left(168 d^3+24 c^3 n-96 c^2 d n+150 c d^2 n+230 d^3 n-24 c^2 d n^2+93 c d^2 n^2+99 d^3 n^2+15 c d^2 n^3+13 d^3 n^3\right)\left(\frac{i\,\text{Cos}[e+f x]}{8 d^3}+\frac{\text{Sin}[e+f x]}{8 d^3}\right)\right)\Big/\left((1+n)(2+n)(3+n)(4+n)\right)+$$
$$\left(\left(-42 d^2+3 c^2 n-12 c d n-26 d^2 n-3 c d n^2-4 d^2 n^2\right)\left(\frac{\text{Cos}[2(e+f x)]}{4 d^2}-\frac{i\,\text{Sin}[2(e+f x)]}{4 d^2}\right)\right)\Big/\left((2+n)(3+n)(4+n)\right)+$$
$$\left(\left(-42 d^2+3 c^2 n-12 c d n-26 d^2 n-3 c d n^2-4 d^2 n^2\right)\left(\frac{\text{Cos}[2(e+f x)]}{4 d^2}+\frac{i\,\text{Sin}[2(e+f x)]}{4 d^2}\right)\right)\Big/\left((2+n)(3+n)(4+n)\right)+\frac{(12 d+c n+3 d n)\left(-\frac{i\,\text{Cos}[3(e+f x)]}{8 d}-\frac{\text{Sin}[3(e+f x)]}{8 d}\right)}{(3+n)(4+n)}+$$
$$\frac{(12 d+c n+3 d n)\left(\frac{i\,\text{Cos}[3(e+f x)]}{8 d}-\frac{\text{Sin}[3(e+f x)]}{8 d}\right)}{(3+n)(4+n)}+\frac{\frac{1}{16}\text{Cos}[4(e+f x)]-\frac{1}{16} i\,\text{Sin}[4(e+f x)]}{4+n}+\frac{\frac{1}{16}\text{Cos}[4(e+f x)]+\frac{1}{16} i\,\text{Sin}[4(e+f x)]}{4+n}\Bigg)$$

Problem 917: Unable to integrate problem.

$$\int \frac{\text{Cos}[e+f x] (c+d\,\text{Sin}[e+f x])^n}{a+a\,\text{Sin}[e+f x]}\,dx$$

Optimal (type 5, 60 leaves, 2 steps):

$$-\left(\left(\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{c+d\,\text{Sin}[e+f\,x]}{c-d}\right]\,(c+d\,\text{Sin}[e+f\,x])^{1+n}\right)\Big/\left(a\,(c-d)\,f\,(1+n)\right)\right)$$

Result (type 8, 33 leaves):

$$\int\frac{\text{Cos}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^n}{a+a\,\text{Sin}[e+f\,x]}\,dx$$

Problem 918: Unable to integrate problem.

$$\int\frac{\text{Cos}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^n}{(a+a\,\text{Sin}[e+f\,x])^2}\,dx$$

Optimal (type 5, 60 leaves, 2 steps):

$$\left(d\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,\frac{c+d\,\text{Sin}[e+f\,x]}{c-d}\right]\,(c+d\,\text{Sin}[e+f\,x])^{1+n}\right)\Big/\left(a^2\,(c-d)^2\,f\,(1+n)\right)$$

Result (type 8, 33 leaves):

$$\int\frac{\text{Cos}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^n}{(a+a\,\text{Sin}[e+f\,x])^2}\,dx$$

Problem 919: Unable to integrate problem.

$$\int\frac{\text{Cos}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^n}{(a+a\,\text{Sin}[e+f\,x])^3}\,dx$$

Optimal (type 5, 63 leaves, 2 steps):

$$-\left(\left(d^2\,\text{Hypergeometric2F1}\left[3,\,1+n,\,2+n,\,\frac{c+d\,\text{Sin}[e+f\,x]}{c-d}\right]\,(c+d\,\text{Sin}[e+f\,x])^{1+n}\right)\Big/\left(a^3\,(c-d)^3\,f\,(1+n)\right)\right)$$

Result (type 8, 33 leaves):

$$\int\frac{\text{Cos}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^n}{(a+a\,\text{Sin}[e+f\,x])^3}\,dx$$

Problem 920: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\text{Cos}[e+f\,x]\,(a+a\,\text{Sin}[e+f\,x])^m\,(c+d\,\text{Sin}[e+f\,x])^4\,dx$$

Optimal (type 3, 170 leaves, 3 steps):

$$\frac{(c-d)^4 \left(a+a \operatorname{Sin}[e+f x]\right)^{1+m}}{a f (1+m)}+\frac{4 (c-d)^3 d \left(a+a \operatorname{Sin}[e+f x]\right)^{2+m}}{a^2 f (2+m)}+$$
$$\frac{6 (c-d)^2 d^2 \left(a+a \operatorname{Sin}[e+f x]\right)^{3+m}}{a^3 f (3+m)}+\frac{4 (c-d) d^3 \left(a+a \operatorname{Sin}[e+f x]\right)^{4+m}}{a^4 f (4+m)}+\frac{d^4 \left(a+a \operatorname{Sin}[e+f x]\right)^{5+m}}{a^5 f (5+m)}$$

Result (type 3, 1457 leaves):

$$\frac{1}{f}\left(a \left(1+\operatorname{Sin}[e+f x]\right)\right)^m$$
$$\Bigg(\Big(960 c^4-960 c^3 d+1920 c^2 d^2-600 c d^3+192 d^4+1232 c^4 m+208 c^3 d m+1344 c^2 d^2 m+300 c d^3 m+$$
$$66 d^4 m+568 c^4 m^2+560 c^3 d m^2+792 c^2 d^2 m^2+204 c d^3 m^2+81 d^4 m^2+112 c^4 m^3+176 c^3 d m^3+$$
$$240 c^2 d^2 m^3+84 c d^3 m^3+18 d^4 m^3+8 c^4 m^4+16 c^3 d m^4+24 c^2 d^2 m^4+12 c d^3 m^4+3 d^4 m^4\Big)\Big/$$
$$\left(8 (1+m) (2+m) (3+m) (4+m) (5+m)\right)+\frac{1}{(1+m) (2+m) (3+m) (4+m) (5+m)}$$
$$\Big(960 c^4+1440 c^2 d^2+120 d^4+1232 c^4 m+1920 c^3 d m+888 c^2 d^2 m+1200 c d^3 m+10 d^4 m+$$
$$568 c^4 m^2+1504 c^3 d m^2+900 c^2 d^2 m^2+600 c d^3 m^2+103 d^4 m^2+112 c^4 m^3+384 c^3 d m^3+$$
$$336 c^2 d^2 m^3+192 c d^3 m^3+26 d^4 m^3+8 c^4 m^4+32 c^3 d m^4+36 c^2 d^2 m^4+24 c d^3 m^4+5 d^4 m^4\Big)$$
$$\left(-\frac{1}{16} i \operatorname{Cos}[e+f x]+\frac{1}{16} \operatorname{Sin}[e+f x]\right)+\frac{1}{(1+m) (2+m) (3+m) (4+m) (5+m)}$$
$$\Big(960 c^4+1440 c^2 d^2+120 d^4+1232 c^4 m+1920 c^3 d m+888 c^2 d^2 m+1200 c d^3 m+$$
$$10 d^4 m+568 c^4 m^2+1504 c^3 d m^2+900 c^2 d^2 m^2+600 c d^3 m^2+103 d^4 m^2+$$
$$112 c^4 m^3+384 c^3 d m^3+336 c^2 d^2 m^3+192 c d^3 m^3+26 d^4 m^3+8 c^4 m^4+32 c^3 d m^4+$$
$$36 c^2 d^2 m^4+24 c d^3 m^4+5 d^4 m^4\Big) \left(\frac{1}{16} i \operatorname{Cos}[e+f x]+\frac{1}{16} \operatorname{Sin}[e+f x]\right)+$$
$$\Big(\Big(-240 c^3 d-120 c d^3-188 c^3 d m-120 c^2 d^2 m-64 c d^3 m-18 d^4 m-48 c^3 d m^2-$$
$$54 c^2 d^2 m^2-28 c d^3 m^2-5 d^4 m^2-4 c^3 d m^3-6 c^2 d^2 m^3-4 c d^3 m^3-d^4 m^3\Big)$$
$$\left(\frac{1}{4} \operatorname{Cos}[2 (e+f x)]-\frac{1}{4} i \operatorname{Sin}[2 (e+f x)]\right)\Big)\Big/\left((2+m) (3+m) (4+m) (5+m)\right)+$$
$$\Big(\Big(-240 c^3 d-120 c d^3-188 c^3 d m-120 c^2 d^2 m-64 c d^3 m-18 d^4 m-48 c^3 d m^2-$$
$$54 c^2 d^2 m^2-28 c d^3 m^2-5 d^4 m^2-4 c^3 d m^3-6 c^2 d^2 m^3-4 c d^3 m^3-d^4 m^3\Big)$$
$$\left(\frac{1}{4} \operatorname{Cos}[2 (e+f x)]+\frac{1}{4} i \operatorname{Sin}[2 (e+f x)]\right)\Big)\Big/\left((2+m) (3+m) (4+m) (5+m)\right)+$$
$$\Big(\left(480 c^2 d^2+60 d^4+216 c^2 d^2 m+80 c d^3 m+19 d^4 m+24 c^2 d^2 m^2+16 c d^3 m^2+5 d^4 m^2\right)$$
$$\left(-\frac{1}{32} i \operatorname{Cos}[3 (e+f x)]-\frac{1}{32} \operatorname{Sin}[3 (e+f x)]\right)\Big)\Big/\left((3+m) (4+m) (5+m)\right)+$$
$$\Big(\left(480 c^2 d^2+60 d^4+216 c^2 d^2 m+80 c d^3 m+19 d^4 m+24 c^2 d^2 m^2+16 c d^3 m^2+5 d^4 m^2\right)$$
$$\left(\frac{1}{32} i \operatorname{Cos}[3 (e+f x)]-\frac{1}{32} \operatorname{Sin}[3 (e+f x)]\right)\Big)\Big/\left((3+m) (4+m) (5+m)\right)+$$
$$\frac{1}{(4+m) (5+m)}\left(20 c d^3+4 c d^3 m+d^4 m\right) \left(\frac{1}{16} \operatorname{Cos}[4 (e+f x)]-\frac{1}{16} i \operatorname{Sin}[4 (e+f x)]\right)+$$

$$\frac{1}{(4+m)\ (5+m)}$$
$$\left(20\,c\,d^3+4\,c\,d^3\,m+d^4\,m\right)\left(\frac{1}{16}\,\text{Cos}\left[4\,\left(e+f\,x\right)\right]+\frac{1}{16}\,\mathbb{i}\,\text{Sin}\left[4\,\left(e+f\,x\right)\right]\right)+$$
$$\frac{-\frac{1}{32}\,\mathbb{i}\,d^4\,\text{Cos}\left[5\,\left(e+f\,x\right)\right]+\frac{1}{32}\,d^4\,\text{Sin}\left[5\,\left(e+f\,x\right)\right]}{5+m}+$$
$$\left.\frac{\frac{1}{32}\,\mathbb{i}\,d^4\,\text{Cos}\left[5\,\left(e+f\,x\right)\right]+\frac{1}{32}\,d^4\,\text{Sin}\left[5\,\left(e+f\,x\right)\right]}{5+m}\right)$$

Problem 921: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]\,\left(a+a\,\text{Sin}[e+f\,x]\right)^m\,\left(c+d\,\text{Sin}[e+f\,x]\right)^3\,dx$$

Optimal (type 3, 133 leaves, 3 steps):

$$\frac{(c-d)^3\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{1+m}}{a\,f\,(1+m)}+\frac{3\,(c-d)^2\,d\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{2+m}}{a^2\,f\,(2+m)}+$$
$$\frac{3\,(c-d)\,d^2\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{3+m}}{a^3\,f\,(3+m)}+\frac{d^3\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{4+m}}{a^4\,f\,(4+m)}$$

Result (type 3, 295 leaves):

$$\frac{1}{4\,f\,(1+m)\,(2+m)\,(3+m)\,(4+m)}\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2\,\left(a\,\left(1+\text{Sin}[e+f\,x]\right)\right)^m$$
$$\left(96\,c^3-144\,c^2\,d+144\,c\,d^2-36\,d^3+104\,c^3\,m-84\,c^2\,d\,m+108\,c\,d^2\,m-18\,d^3\,m+36\,c^3\,m^2-12\,c^2\,d\,m^2+\right.$$
$$42\,c\,d^2\,m^2-6\,d^3\,m^2+4\,c^3\,m^3+6\,c\,d^2\,m^3+6\,d^2\,\left(2+3\,m+m^2\right)\,\left(d-c\,(4+m)\right)\,\text{Cos}\left[2\,(e+f\,x)\right]+$$
$$3\,d\,(1+m)\,\left(-8\,c\,d\,(4+m)+d^2\,\left(14+5\,m+m^2\right)+4\,c^2\,\left(12+7\,m+m^2\right)\right)\,\text{Sin}[e+f\,x]-$$
$$\left.6\,d^3\,\text{Sin}\left[3\,(e+f\,x)\right]-11\,d^3\,m\,\text{Sin}\left[3\,(e+f\,x)\right]-6\,d^3\,m^2\,\text{Sin}\left[3\,(e+f\,x)\right]-d^3\,m^3\,\text{Sin}\left[3\,(e+f\,x)\right]\right)$$

Problem 926: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[e+f\,x]\,\left(a+a\,\text{Sin}[e+f\,x]\right)^m}{\left(c+d\,\text{Sin}[e+f\,x]\right)^3}\,dx$$

Optimal (type 5, 59 leaves, 2 steps):

$$\left(\text{Hypergeometric2F1}\left[3,\,1+m,\,2+m,\,-\frac{d\,\left(1+\text{Sin}[e+f\,x]\right)}{c-d}\right]\,\left(a+a\,\text{Sin}[e+f\,x]\right)^{1+m}\right)\Big/$$
$$\left(a\,(c-d)^3\,f\,(1+m)\right)$$

Result (type 5, 203 leaves):

$$\left(2\left(a\left(1+\text{Sin}[e+fx]\right)\right)^m\left(\frac{c-d}{c+d\,\text{Sin}[e+fx]}\right)^m\left(-2d\left(1+m\right)\text{Cos}\left[\frac{1}{4}\left(2e-\pi+2fx\right)\right]^2\right.\right.$$

$$\text{Hypergeometric2F1}\left[m,2+m,3+m,\frac{2d\,\text{Cos}\left[\frac{1}{4}\left(2e-\pi+2fx\right)\right]^2}{c+d\,\text{Sin}[e+fx]}\right]+$$

$$\left.\left(2+m\right)\text{Hypergeometric2F1}\left[m,1+m,2+m,\frac{2d\,\text{Cos}\left[\frac{1}{4}\left(2e-\pi+2fx\right)\right]^2}{c+d\,\text{Sin}[e+fx]}\right]\left(c+d\,\text{Sin}[e+fx]\right)\right)$$

$$\left.\text{Sin}\left[\frac{1}{4}\left(2e+\pi+2fx\right)\right]^2\right)\Big/\left(\left(c-d\right)^2f\left(1+m\right)\left(2+m\right)\left(c+d\,\text{Sin}[e+fx]\right)^2\right)$$

Problem 932: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\text{Cot}[c+dx]\left(a+a\,\text{Sin}[c+dx]\right)^m\,dx$$

Optimal (type 5, 43 leaves, 2 steps):

$$-\frac{1}{a\,d\left(1+m\right)}\text{Hypergeometric2F1}\left[1,1+m,2+m,1+\text{Sin}[c+dx]\right]\left(a+a\,\text{Sin}[c+dx]\right)^{1+m}$$

Result (type 6, 12 204 leaves):

$$-\frac{1}{d}\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^{-2m}$$

$$\left(a+a\,\text{Sin}[c+dx]\right)^m\left(\frac{1}{2m}\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^{2m}\left(-1+\left(-\text{Csc}[c+dx]\right)^m\right.\right.$$

$$\left.\text{Hypergeometric2F1}\left[m,m,1+m,2\,\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\text{Csc}[c+dx]\right]\right)+$$

$$\left(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^{2+2m}\text{Csc}[c+dx]\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)^{-m}\right.$$

$$\left(4m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]+\text{AppellF1}\Big[2m,m,m,$$

$$1+2m,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]},-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]}\Big]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]}\right)^m-$$

$$\text{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\left.\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\right)\right)\Big/$$

$$\left(16\,m\left(-\frac{1}{8}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right.\right.$$

$$\left(4\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\text{AppellF1}\left[2\,m,\,m,\,m,\right.$$

$$\left.1+2\,m,\,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m-$$

$$\text{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\right)+$$

$$\frac{1}{8\,m}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\left(2\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{1+m}+4$$

$$m^2\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2+$$

$$\left(\left(\left((1-i)\,m^2\,\text{AppellF1}\left[1+2\,m,\,m,\,1+m,\,2+2\,m,\,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\right.\right.\right.\right.$$

$$\left.\left.-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/\left((1+2\,m)\right.$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)+\left((1+i)\,m^2\,\text{AppellF1}\left[1+2\,m,\,1+m,\right.\right.$$

$$m,\ 2+2m,\ -\frac{1+i}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\ -\frac{1-i}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Bigg/\left(\left(1+2m\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\Bigg)$$

$$\left(\frac{-i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m+m\,\mathrm{AppellF1}\Big[$$

$$2m,\ m,\ m,\ 1+2m,\ -\frac{1+i}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\ -\frac{1-i}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]$$

$$\left(\frac{-i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}\left(\frac{i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}-\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right.\right.$$

$$\left.\left.\left(-i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\left(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+m$$

$$\mathrm{AppellF1}\Big[2m,\ m,\ m,\ 1+2m,\ -\frac{1+i}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},$$

$$-\frac{1-i}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]\left(\frac{-i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m$$

$$\left(\frac{i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}-\right.$$

$$\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/$$

$$\left.\left(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)-\left(\frac{-i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m$$

$$\left(\frac{i+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\Bigg(-\Bigg(\Bigg(\Bigg(\left(1+i\right)m^2\,\mathrm{AppellF1}\Big[1+2m,\ m,\ 1+m,$$

$$2+2m,\ \frac{1-i}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\ \frac{1+i}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Bigg/\left(\left(1+2m\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\Bigg)-$$

$$\left((1-i)\, m^2\, \text{AppellF1}\left[1+2m, 1+m, m, 2+2m, \frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}, \frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right] \text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right) \Big/ \left((1+2m)\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right) - m\, \text{AppellF1}\left[2m, m, m, 1+2m, \frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}, \frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{-1+m} \left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{m}$$

$$\left(-\left(\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2 \left(-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)\right) \Big/ \left(2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)\right) + \frac{\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)}\right) - m\, \text{AppellF1}\left[2m, m, m, 1+2m, \frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}, \frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{m} \left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{-1+m}$$

$$\left(-\left(\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2 \left(i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)\right) \Big/ \left(2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)\right) + \frac{\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)}\right) + 2$$

$$m\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)^{1+m} \left(-\text{Hypergeometric2F1}\left[\frac{1}{2}, 1+m, \frac{3}{2}, -\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] + \left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)^{-1-m}\right)\Bigg)\Bigg)\Bigg) -$$

$$\Bigg(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^{2m} \text{Csc}[c+d x] \left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)^{-m}$$

$$\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2$$

$$\left(4\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-$$

$$\text{AppellF1}\left[2\,m,m,m,1+2\,m,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\right.$$

$$\left.-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m+$$

$$\text{AppellF1}\left[2\,m,m,m,1+2\,m,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\left.\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\right)\right)\Big/$$

$$\left(16\,m\left(\frac{1}{8}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right.\right.$$

$$\left(4\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{AppellF1}\left[2\,m,m,m,\right.$$

$$\left.1+2\,m,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m+$$

$$\text{AppellF1}\left[2\,m,m,m,1+2\,m,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\right)-$$

$$\frac{1}{8\,m}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\left(2\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{1+m}+4$$

$$m^2\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\left(\operatorname{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)^m \operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2-$$

$$\left(\left(\left((1-i)\, m^2\, \text{AppellF1}\left[1+2m,\, m,\, 1+m,\, 2+2m,\, -\frac{1+i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]},\right.\right.\right.\right.$$

$$\left.-\frac{1-i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right] \operatorname{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\Bigg) \Bigg/ \Bigg((1+2m)$$

$$\left(-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\Bigg)+\Bigg((1+i)\, m^2\, \text{AppellF1}\Big[1+2m,\, 1+m,$$

$$m,\, 2+2m,\, -\frac{1+i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]},\, -\frac{1-i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\Big]$$

$$\operatorname{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\Bigg) \Bigg/ \left((1+2m)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)\Bigg)$$

$$\left(\frac{-i+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m \left(\frac{i+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m - m$$

$$\text{AppellF1}\Big[2m,\, m,\, m,\, 1+2m,\, -\frac{1+i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]},$$

$$-\frac{1-i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\Big] \left(\frac{-i+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{-1+m}$$

$$\left(\frac{i+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m \left(\frac{\operatorname{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}{2\left(-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)} - \right.$$

$$\left(\operatorname{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\left(-i+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)\right) \Big/$$

$$\left.\left(2\left(-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)\right) - m\, \text{AppellF1}\Big[2m,\, m,\, m,$$

$$1+2m,\, -\frac{1+i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]},\, -\frac{1-i}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\Big]$$

$$\left(\frac{-i+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m \left(\frac{i+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{-1+m}$$

$$\left(\frac{\operatorname{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}{2\left(-1+\operatorname{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)} - \left(\operatorname{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right.\right.$$

$$\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\left(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+$$

$$\left(\frac{-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m$$

$$\left(-\left(\left(\left(1+\mathrm{i}\right)m^2\,\mathrm{AppellF1}\left[1+2m,m,1+m,2+2m,\frac{1-\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\right.\right.\right.\right.$$

$$\left.\frac{1+\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/$$

$$\left(\left(1+2m\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)-\left(\left(1-\mathrm{i}\right)m^2\,\mathrm{AppellF1}\left[1+2m,\right.\right.$$

$$\left.1+m,m,2+2m,\frac{1-\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\frac{1+\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/\left(\left(1+2m\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+m$$

$$\mathrm{AppellF1}\left[2m,m,m,1+2m,\frac{1-\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\right.$$

$$\left.\frac{1+\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]\left(\frac{-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}$$

$$\left(\frac{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(-\left(\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right.\right.\right.$$

$$\left.\left.\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\left(2\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+$$

$$\left.\frac{\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}\right)+m\,\mathrm{AppellF1}\left[2m,m,m,1+2m,\right.$$

$$\left.\frac{1-\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\frac{1+\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}$$

$$\left(-\left(\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\right.\right.$$

$$\left(2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+\frac{\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}\right)+2$$

$$m\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{1+m}\left(-\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-1-m}\right)\right)\right)\right)\right)+$$

$$\frac{1}{d}\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{-2m}\left(a+a\,\text{Sin}[c+d\,x]\right)^m$$

$$\left(-\frac{1}{2m}\right.$$

$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2m}$$

$$\left(-1+\right.$$

$$\left(-\text{Csc}[c+d\,x]\right)^m$$

$$\text{Hypergeometric2F1}\left[m,m,1+m,\right.$$

$$\left.\left.2\,\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Csc}[c+d\,x]\right]\right)+$$

$$\left(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2+2m}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\right.$$

$$\left(4\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+$$

$$\text{AppellF1}\left[2m,m,m,1+2m,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m-$$

$$\text{AppellF1}\left[2m,m,m,1+2m,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\left.\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\right)\right)\Big/$$

$$\left(16\,m\left(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\right.$$

$$\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Bigg)$$

$$\Bigg(-\frac{1}{8}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

$$\Bigg(4\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\text{AppellF1}\Big[2\,m,m,m,1+$$

$$2\,m,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m-$$

$$\text{AppellF1}\Big[2\,m,m,m,1+2\,m,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\Bigg)+$$

$$\frac{1}{8\,m}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\Bigg(2\,m\,\text{Hypergeometric2F1}\Big[\frac{1}{2},1+m,\frac{3}{2},$$

$$-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{1+m}+$$

$$4\,m^2\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+m,\frac{3}{2},-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2+$$

$$\Bigg(\Bigg(\left(1-i\right)\,m^2\,\text{AppellF1}\Big[1+2\,m,m,1+m,2+2\,m,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},$$

$$-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]\,\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Big/$$

$$\left(\left(1+2\,m\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)+\Bigg(\left(1+i\right)\,m^2\,\text{AppellF1}\Big[1+2\,m,1+m,$$

$$m,2+2\,m,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Big/\left(\left(1+2\,m\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\Bigg)$$

$$\left(\frac{-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m+$$

$$m\,\mathrm{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,-\frac{1+\mathrm{i}}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\right.$$

$$\left.-\frac{1-\mathrm{i}}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]\left(\frac{-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}$$

$$\left(\frac{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}-\right.$$

$$\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/$$

$$\left.\left(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+m\,\mathrm{AppellF1}\left[2\,m,\,m,\,m,\right.$$

$$\left.1+2\,m,\,-\frac{1+\mathrm{i}}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,-\frac{1-\mathrm{i}}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}-\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right.\right.$$

$$\left.\left.\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\left(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)-$$

$$\left(\frac{-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m$$

$$\left(-\left(\left(\left(1+\mathrm{i}\right)m^2\,\mathrm{AppellF1}\left[1+2\,m,\,m,\,1+m,\,2+2\,m,\,\frac{1-\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\right.\right.\right.\right.$$

$$\left.\left.\frac{1+\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/$$

$$\left.\left(\left(1+2\,m\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)-\left(\left(1-\mathrm{i}\right)m^2\,\mathrm{AppellF1}\left[1+2\,m,\right.\right.$$

$$\left.1+m,\,m,\,2+2\,m,\,\frac{1-\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+\mathrm{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg/\left((1+2\,m)\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\Bigg)-m$$

$$\text{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{m}$$

$$\Bigg(-\left(\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\right.$$

$$\left.\left(2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+\frac{\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}\Bigg)-m$$

$$\text{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{m}\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}$$

$$\Bigg(-\left(\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\right.$$

$$\left.\left(2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+\frac{\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}\Bigg)+$$

$$2\,m\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{1+m}\Bigg(-\text{Hypergeometric2F1}\Big[\frac{1}{2},\,1+m,\,\frac{3}{2},$$

$$-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-1-m}\Bigg)\Bigg)\Bigg)\Bigg)-$$

$$\Bigg(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

$$\Bigg(4\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{m}\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-$$

$$\text{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m+$$

$$\text{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\left.\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\right)\right)\Big/$$

$$\left(16\,m\left(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\right.$$

$$\left.\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)$$

$$\left(\frac{1}{8}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right.$$

$$\left(4\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{AppellF1}\left[2\,m,\,m,\,m,\,1+\right.$$

$$\left.2\,m,\,-\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,-\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m+$$

$$\text{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+i}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\right)-$$

$$\frac{1}{8\,m}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}\left(2\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{1+m}+$$

$$4\,m^2\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2-$$

$$\Bigg(\Bigg(\Bigg((1-i)\, m^2\, \text{AppellF1}\Big[1+2m, m, 1+m, 2+2m, -\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}, -\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\Big]\, \text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\Bigg)\Big/$$

$$\left((1+2m)\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)+\Bigg((1+i)\, m^2\, \text{AppellF1}\Big[1+2m, 1+m, m, 2+2m, -\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}, -\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\Bigg)\Big/\left((1+2m)\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)\Bigg)$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m-$$

$$m\, \text{AppellF1}\Big[2m, m, m, 1+2m, -\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}, -\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\Big]\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{-1+m}$$

$$\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m\Bigg(\frac{\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)}-$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\left(-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)\right)\Big/$$

$$\left(2\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)\Bigg)-m\, \text{AppellF1}\Big[2m, m, m,$$

$$1+2m, -\frac{1+i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}, -\frac{1-i}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\Big]$$

$$\left(\frac{-i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^m\left(\frac{i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}{-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]}\right)^{-1+m}$$

$$\Bigg(\frac{\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)}-\Bigg(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]^2$$

$$\left(i+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)\Bigg)\Big/\left(2\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right)\right]\right)^2\right)\Bigg)+$$

$$\left(\frac{-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m \left(\frac{\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m$$

$$\left(-\left(\left(\left(1+\mathbb{i}\right) m^2\,\mathrm{AppellF1}\left[1+2\,m,\,m,\,1+m,\,2+2\,m,\,\frac{1-\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\right.\right.\right.\right.$$

$$\left.\left.\frac{1+\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/$$

$$\left.\left(\left(1+2\,m\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)-\left(\left(1-\mathbb{i}\right) m^2\,\mathrm{AppellF1}\left[1+2\,m,\right.\right.$$

$$\left.1+m,\,m,\,2+2\,m,\,\frac{1-\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left.\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/\left(\left(1+2\,m\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+m$$

$$\mathrm{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}\left(\frac{\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m$$

$$\left(-\left(\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\right.\right.$$

$$\left.\left.\left(2\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+\frac{\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}\right)+m$$

$$\mathrm{AppellF1}\left[2\,m,\,m,\,m,\,1+2\,m,\,\frac{1-\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]},\,\frac{1+\mathbb{i}}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right]$$

$$\left(\frac{-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^m\left(\frac{\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]}\right)^{-1+m}$$

$$\left(-\left(\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/\right.\right.$$

$$\left.\left.\left(2\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)^2\right)\right)+\frac{\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{2\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)}\right)+$$

$$2\,m\left(\mathrm{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{1+m}\left(-\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,1+m,\,\frac{3}{2},\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+\left(1+\mathrm{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-1-m}\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 933: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^m\,dx$$

Optimal (type 5, 42 leaves, 3 steps):

$$\frac{1}{a\,d\,(1+m)}\mathrm{Hypergeometric2F1}[2,\,1+m,\,2+m,\,1+\mathrm{Sin}[c+d\,x]]\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{1+m}$$

Result (type 6, 20 340 leaves): Display of huge result suppressed!

Problem 934: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^m\,dx$$

Optimal (type 5, 43 leaves, 3 steps):

$$-\frac{1}{a\,d\,(1+m)}\mathrm{Hypergeometric2F1}[3,\,1+m,\,2+m,\,1+\mathrm{Sin}[c+d\,x]]\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{1+m}$$

Result (type 6, 35 073 leaves): Display of huge result suppressed!

Problem 936: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\mathrm{Cos}[e+f\,x]^2}{\left(a+a\,\mathrm{Sin}[e+f\,x]\right)^{3/2}\,\left(c+d\,\mathrm{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 3, 123 leaves, 6 steps):

$$-\frac{2\,\sqrt{2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Cos}[e+f\,x]}{\sqrt{2}\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}}\right]}{a^{3/2}\,(c-d)\,f}+\frac{2\,\sqrt{c+d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{d}\,\mathrm{Cos}[e+f\,x]}{\sqrt{c+d}\,\sqrt{a+a\,\mathrm{Sin}[e+f\,x]}}\right]}{a^{3/2}\,(c-d)\,\sqrt{d}\,f}$$

Result (type 3, 220 leaves):

$$\frac{1}{\sqrt{d}\,(-c+d)\,f\,(a\,(1+\text{Sin}[e+f\,x]))^{3/2}}$$
$$(-1)^{3/4}\left((-4-4\,i)\sqrt{d}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}(e+f\,x)\right]\right)\right]+(-1)^{1/4}\sqrt{c+d}\right.$$
$$\left(\text{Log}\left[\text{Sec}\left[\frac{1}{4}(e+f\,x)\right]^2\left(\sqrt{c+d}+\sqrt{d}\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]-\sqrt{d}\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]-\right.$$
$$\left.\left.\text{Log}\left[\text{Sec}\left[\frac{1}{4}(e+f\,x)\right]^2\left(\sqrt{c+d}-\sqrt{d}\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]+\sqrt{d}\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]\right)\right)$$
$$\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]+\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^3$$

Problem 937: Humongous result has more than 200000 leaves.

$$\int\frac{\text{Cos}[e+f\,x]^2}{(a+a\,\text{Sin}[e+f\,x])^{3/2}\sqrt{c+d\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 3, 141 leaves, 6 steps):

$$\frac{2\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{d}\,\text{Cos}[e+f\,x]}{\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c+d\,\text{Sin}[e+f\,x]}}\right]}{a^{3/2}\sqrt{d}\,f}-\frac{2\sqrt{2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{c-d}\,\text{Cos}[e+f\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[e+f\,x]}\,\sqrt{c+d\,\text{Sin}[e+f\,x]}}\right]}{a^{3/2}\sqrt{c-d}\,f}$$

Result (type ?, 208 404 leaves): Display of huge result suppressed!

Problem 938: Result more than twice size of optimal antiderivative.

$$\int\text{Cos}[e+f\,x]^2\,(a+a\,\text{Sin}[e+f\,x])^m\,(c+d\,\text{Sin}[e+f\,x])^n\,dx$$

Optimal (type 6, 135 leaves, 4 steps):

$$\left(2\sqrt{2}\,\text{AppellF1}\left[\frac{3}{2}+m,-\frac{1}{2},-n,\frac{5}{2}+m,\frac{1}{2}(1+\text{Sin}[e+f\,x]),-\frac{d\,(1+\text{Sin}[e+f\,x])}{c-d}\right]\right.$$
$$\left.\text{Cos}[e+f\,x]\,(a+a\,\text{Sin}[e+f\,x])^{1+m}\,(c+d\,\text{Sin}[e+f\,x])^n\left(\frac{c+d\,\text{Sin}[e+f\,x]}{c-d}\right)^{-n}\right)\Big/$$
$$\left(a\,f\,(3+2\,m)\sqrt{1-\text{Sin}[e+f\,x]}\right)$$

Result (type 6, 391 leaves):

$$\left(10\,(c+d)\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-m,-n,\frac{5}{2},\text{Cos}\left[\frac{1}{4}\,(2\,e+\pi+2\,f\,x)\right]^2,\frac{2\,d\,\text{Sin}\left[\frac{1}{4}\,(2\,e-\pi+2\,f\,x)\right]^2}{c+d}\right]\right.$$
$$\left(\text{Cos}\left[\frac{1}{4}\,(2\,e-\pi+2\,f\,x)\right]^2\right)^{\frac{1}{2}+m}\text{Cos}\left[\frac{1}{4}\,(2\,e+\pi+2\,f\,x)\right]^2\text{Csc}[e+f\,x]\,(a\,(1+\text{Sin}[e+f\,x]))^m$$
$$\left.(c+d\,\text{Sin}[e+f\,x])^n\,\text{Sin}[2\,(e+f\,x)]\,\left(\text{Sin}\left[\frac{1}{4}\,(2\,e+\pi+2\,f\,x)\right]^2\right)^{-\frac{1}{2}-m}\right)\Big/\left(3\,f\,\left(-5\,(c+d)\right.\right.$$
$$\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-m,-n,\frac{5}{2},\text{Cos}\left[\frac{1}{4}\,(2\,e+\pi+2\,f\,x)\right]^2,\frac{2\,d\,\text{Sin}\left[\frac{1}{4}\,(2\,e-\pi+2\,f\,x)\right]^2}{c+d}\right]+$$
$$\left(4\,d\,n\,\text{AppellF1}\left[\frac{5}{2},-\frac{1}{2}-m,1-n,\frac{7}{2},\text{Cos}\left[\frac{1}{4}\,(2\,e+\pi+2\,f\,x)\right]^2,\frac{2\,d\,\text{Sin}\left[\frac{1}{4}\,(2\,e-\pi+2\,f\,x)\right]^2}{c+d}\right]+\right.$$
$$(c+d)\,(1+2\,m)\,\text{AppellF1}\left[\frac{5}{2},\frac{1}{2}-m,-n,\frac{7}{2},\text{Cos}\left[\frac{1}{4}\,(2\,e+\pi+2\,f\,x)\right]^2,\right.$$
$$\left.\left.\left.\frac{2\,d\,\text{Sin}\left[\frac{1}{4}\,(2\,e-\pi+2\,f\,x)\right]^2}{c+d}\right]\right)\,\text{Sin}\left[\frac{1}{4}\,(2\,e-\pi+2\,f\,x)\right]^2\right)\right)$$

Problem 939: Attempted integration timed out after 120 seconds.

$$\int \text{Cos}[e+f\,x]^2\,(a+a\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Sin}[e+f\,x])^n\,dx$$

Optimal (type 6, 119 leaves, 3 steps):

$$-\left(\left(16\,\sqrt{2}\,a^3\,\text{AppellF1}\left[\frac{3}{2},-\frac{7}{2},-n,\frac{5}{2},\frac{1}{2}\,(1-\text{Sin}[e+f\,x]),\frac{d\,(1-\text{Sin}[e+f\,x])}{c+d}\right]\text{Cos}[e+f\,x]\right.\right.$$
$$\left.\left.(1-\text{Sin}[e+f\,x])\,(c+d\,\text{Sin}[e+f\,x])^n\left(\frac{c+d\,\text{Sin}[e+f\,x]}{c+d}\right)^{-n}\right)\Big/\left(3\,f\,\sqrt{1+\text{Sin}[e+f\,x]}\right)\right)$$

Result (type 1, 1 leaves):

???

Problem 940: Unable to integrate problem.

$$\int \text{Cos}[e+f\,x]^2\,(a+a\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Sin}[e+f\,x])^n\,dx$$

Optimal (type 6, 119 leaves, 3 steps):

$$-\left(\left(8\,\sqrt{2}\,a^2\,\text{AppellF1}\left[\frac{3}{2},-\frac{5}{2},-n,\frac{5}{2},\frac{1}{2}\,(1-\text{Sin}[e+f\,x]),\frac{d\,(1-\text{Sin}[e+f\,x])}{c+d}\right]\text{Cos}[e+f\,x]\right.\right.$$
$$\left.\left.(1-\text{Sin}[e+f\,x])\,(c+d\,\text{Sin}[e+f\,x])^n\left(\frac{c+d\,\text{Sin}[e+f\,x]}{c+d}\right)^{-n}\right)\Big/\left(3\,f\,\sqrt{1+\text{Sin}[e+f\,x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int \text{Cos}[e+f x]^2 (a+a \text{Sin}[e+f x])^2 (c+d \text{Sin}[e+f x])^n \, dx$$

Problem 941: Unable to integrate problem.

$$\int \text{Cos}[e+f x]^2 (a+a \text{Sin}[e+f x]) (c+d \text{Sin}[e+f x])^n \, dx$$

Optimal (type 6, 117 leaves, 3 steps):

$$-\left(\left(4 \sqrt{2} \text{ a AppellF1}\left[\frac{3}{2}, -\frac{3}{2}, -n, \frac{5}{2}, \frac{1}{2} (1-\text{Sin}[e+f x]), \frac{d (1-\text{Sin}[e+f x])}{c+d}\right] \text{Cos}[e+f x] (1-\text{Sin}[e+f x]) (c+d \text{Sin}[e+f x])^n \left(\frac{c+d \text{Sin}[e+f x]}{c+d}\right)^{-n}\right) \Big/ \left(3 f \sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 33 leaves):

$$\int \text{Cos}[e+f x]^2 (a+a \text{Sin}[e+f x]) (c+d \text{Sin}[e+f x])^n \, dx$$

Problem 943: Unable to integrate problem.

$$\int \frac{\text{Cos}[e+f x]^2 (c+d \text{Sin}[e+f x])^n}{(a+a \text{Sin}[e+f x])^2} \, dx$$

Optimal (type 6, 119 leaves, 3 steps):

$$-\left(\left(\text{AppellF1}\left[\frac{3}{2}, \frac{3}{2}, -n, \frac{5}{2}, \frac{1}{2} (1-\text{Sin}[e+f x]), \frac{d (1-\text{Sin}[e+f x])}{c+d}\right] \text{Cos}[e+f x] (1-\text{Sin}[e+f x]) (c+d \text{Sin}[e+f x])^n \left(\frac{c+d \text{Sin}[e+f x]}{c+d}\right)^{-n}\right) \Big/ \left(3 \sqrt{2} a^2 f \sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int \frac{\text{Cos}[e+f x]^2 (c+d \text{Sin}[e+f x])^n}{(a+a \text{Sin}[e+f x])^2} \, dx$$

Problem 944: Unable to integrate problem.

$$\int \frac{\text{Cos}[e+f x]^2 (c+d \text{Sin}[e+f x])^n}{(a+a \text{Sin}[e+f x])^3} \, dx$$

Optimal (type 6, 119 leaves, 3 steps):

$$-\left(\left(\text{AppellF1}\left[\frac{3}{2}, \frac{5}{2}, -n, \frac{5}{2}, \frac{1}{2} (1-\text{Sin}[e+f x]), \frac{d (1-\text{Sin}[e+f x])}{c+d}\right] \text{Cos}[e+f x] (1-\text{Sin}[e+f x]) (c+d \text{Sin}[e+f x])^n \left(\frac{c+d \text{Sin}[e+f x]}{c+d}\right)^{-n}\right) \Big/ \left(6 \sqrt{2} a^3 f \sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int \frac{\text{Cos}[e+f x]^2 \, (c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^3} \, dx$$

Problem 945: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^4 \, (a+a\,\text{Sin}[e+f x])^m \, (c+d\,\text{Sin}[e+f x])^n \, dx$$

Optimal (type 6, 135 leaves, 4 steps):

$$\left(4\sqrt{2}\,\text{AppellF1}\left[\frac{5}{2}+m,\,-\frac{3}{2},\,-n,\,\frac{7}{2}+m,\,\frac{1}{2}\,(1+\text{Sin}[e+f x]),\,-\frac{d\,(1+\text{Sin}[e+f x])}{c-d}\right]\right.$$
$$\left.\text{Cos}[e+f x]\,(a+a\,\text{Sin}[e+f x])^{2+m}\,(c+d\,\text{Sin}[e+f x])^n\left(\frac{c+d\,\text{Sin}[e+f x]}{c-d}\right)^{-n}\right)\Bigg/$$
$$\left(a^2 f\,(5+2m)\,\sqrt{1-\text{Sin}[e+f x]}\right)$$

Result (type 6, 455 leaves):

$$\left(224\,(c+d)\,\text{AppellF1}\left[\frac{5}{2},\,-\frac{3}{2}-m,\,-n,\,\frac{7}{2},\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,\frac{2\,d\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\right.$$
$$\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^3\left(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{\frac{1}{2}(-3-2m)}\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^5$$
$$\left.\left(1-\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{\frac{3}{2}+m}\left(c+d-2\,d\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^n\,(a+a\,\text{Sin}[e+f x])^m\right)\Bigg/$$
$$\left(5 f\left(-7\,(c+d)\,\text{AppellF1}\left[\frac{5}{2},\,-\frac{3}{2}-m,\,-n,\,\frac{7}{2},\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,\frac{2\,d\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]+\right.\right.$$
$$\left(4\,d\,n\,\text{AppellF1}\left[\frac{7}{2},\,-\frac{3}{2}-m,\,1-n,\,\frac{9}{2},\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,\frac{2\,d\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]+\right.$$
$$(c+d)\,(3+2m)\,\text{AppellF1}\left[\frac{7}{2},\,-\frac{1}{2}-m,\,-n,\,\frac{9}{2},\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.\left.\frac{2\,d\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\right)\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)$$

Problem 946: Unable to integrate problem.

$$\int \text{Cos}[e+f x]^4 \, (a+a\,\text{Sin}[e+f x])^2 \, (c+d\,\text{Sin}[e+f x])^n \, dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$-\left(\left(16\sqrt{2}\,a^2\,\text{AppellF1}\left[\frac{5}{2},-\frac{7}{2},-n,\frac{7}{2},\frac{1}{2}\left(1-\text{Sin}[e+f x]\right),\frac{d\left(1-\text{Sin}[e+f x]\right)}{c+d}\right]\text{Cos}[e+f x]\left(1-\text{Sin}[e+f x]\right)^2\left(c+d\,\text{Sin}[e+f x]\right)^n\left(\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right)^{-n}\right)\Big/\left(5 f\sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int \text{Cos}[e+f x]^4\left(a+a\,\text{Sin}[e+f x]\right)^2\left(c+d\,\text{Sin}[e+f x]\right)^n\,dx$$

Problem 947: Unable to integrate problem.

$$\int \text{Cos}[e+f x]^4\left(a+a\,\text{Sin}[e+f x]\right)\left(c+d\,\text{Sin}[e+f x]\right)^n\,dx$$

Optimal (type 6, 119 leaves, 3 steps):

$$-\left(\left(8\sqrt{2}\,a\,\text{AppellF1}\left[\frac{5}{2},-\frac{5}{2},-n,\frac{7}{2},\frac{1}{2}\left(1-\text{Sin}[e+f x]\right),\frac{d\left(1-\text{Sin}[e+f x]\right)}{c+d}\right]\text{Cos}[e+f x]^3\left(1-\text{Sin}[e+f x]\right)\left(c+d\,\text{Sin}[e+f x]\right)^n\left(\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right)^{-n}\right)\Big/\left(5 f\left(1+\text{Sin}[e+f x]\right)^{3/2}\right)\right)$$

Result (type 8, 33 leaves):

$$\int \text{Cos}[e+f x]^4\left(a+a\,\text{Sin}[e+f x]\right)\left(c+d\,\text{Sin}[e+f x]\right)^n\,dx$$

Problem 948: Unable to integrate problem.

$$\int \frac{\text{Cos}[e+f x]^4\left(c+d\,\text{Sin}[e+f x]\right)^n}{a+a\,\text{Sin}[e+f x]}\,dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$-\left(\left(2\sqrt{2}\,\text{AppellF1}\left[\frac{5}{2},-\frac{1}{2},-n,\frac{7}{2},\frac{1}{2}\left(1-\text{Sin}[e+f x]\right),\frac{d\left(1-\text{Sin}[e+f x]\right)}{c+d}\right]\text{Cos}[e+f x]\left(1-\text{Sin}[e+f x]\right)^2\left(c+d\,\text{Sin}[e+f x]\right)^n\left(\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right)^{-n}\right)\Big/\left(5 a f\sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int \frac{\text{Cos}[e+f x]^4\left(c+d\,\text{Sin}[e+f x]\right)^n}{a+a\,\text{Sin}[e+f x]}\,dx$$

Problem 949: Unable to integrate problem.

$$\int \frac{\text{Cos}[e+f x]^4\left(c+d\,\text{Sin}[e+f x]\right)^n}{\left(a+a\,\text{Sin}[e+f x]\right)^2}\,dx$$

Optimal (type 6, 121 leaves, 4 steps):

$$-\left(\left(\sqrt{2}\ \text{AppellF1}\left[\frac{5}{2},\frac{1}{2},-n,\frac{7}{2},\frac{1}{2}(1-\text{Sin}[e+f x]),\frac{d(1-\text{Sin}[e+f x])}{c+d}\right]\text{Cos}[e+f x]\right.\right.$$
$$\left.\left.(1-\text{Sin}[e+f x])^2(c+d\,\text{Sin}[e+f x])^n\left(\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right)^{-n}\right)\Big/\left(5\,a^2 f\sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int\frac{\text{Cos}[e+f x]^4(c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^2}\,dx$$

Problem 950: Unable to integrate problem.

$$\int\frac{\text{Cos}[e+f x]^4(c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^3}\,dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$-\left(\left(\text{AppellF1}\left[\frac{5}{2},\frac{3}{2},-n,\frac{7}{2},\frac{1}{2}(1-\text{Sin}[e+f x]),\frac{d(1-\text{Sin}[e+f x])}{c+d}\right]\right.\right.$$
$$\text{Cos}[e+f x](1-\text{Sin}[e+f x])^2(c+d\,\text{Sin}[e+f x])^n$$
$$\left.\left.\left(\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right)^{-n}\right)\Big/\left(5\sqrt{2}\ a^3 f\sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int\frac{\text{Cos}[e+f x]^4(c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^3}\,dx$$

Problem 951: Unable to integrate problem.

$$\int\frac{\text{Cos}[e+f x]^4(c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^4}\,dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$-\left(\left(\text{AppellF1}\left[\frac{5}{2},\frac{5}{2},-n,\frac{7}{2},\frac{1}{2}(1-\text{Sin}[e+f x]),\frac{d(1-\text{Sin}[e+f x])}{c+d}\right]\right.\right.$$
$$\text{Cos}[e+f x](1-\text{Sin}[e+f x])^2(c+d\,\text{Sin}[e+f x])^n$$
$$\left.\left.\left(\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right)^{-n}\right)\Big/\left(10\sqrt{2}\ a^4 f\sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int\frac{\text{Cos}[e+f x]^4(c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^4}\,dx$$

Problem 952: Unable to integrate problem.

$$\int \frac{\text{Cos}[e+f x]^4 \,(c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^5}\,dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$-\left(\left(\text{AppellF1}\left[\frac{5}{2},\frac{7}{2},-n,\frac{7}{2},\frac{1}{2}(1-\text{Sin}[e+f x]),\frac{d\,(1-\text{Sin}[e+f x])}{c+d}\right]\,\text{Cos}[e+f x]\,(1-\text{Sin}[e+f x])^2\,(c+d\,\text{Sin}[e+f x])^n\left(\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right)^{-n}\right)\Big/\left(20\sqrt{2}\,a^5 f\sqrt{1+\text{Sin}[e+f x]}\right)\right)$$

Result (type 8, 35 leaves):

$$\int \frac{\text{Cos}[e+f x]^4 \,(c+d\,\text{Sin}[e+f x])^n}{(a+a\,\text{Sin}[e+f x])^5}\,dx$$

Problem 957: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]\,(a+a\,\text{Sin}[c+d x])\,(A+B\,\text{Sin}[c+d x])\,dx$$

Optimal (type 3, 34 leaves, 3 steps):

$$-\frac{a\,(A+B)\,\text{Log}[1-\text{Sin}[c+d x]]}{d}-\frac{a\,B\,\text{Sin}[c+d x]}{d}$$

Result (type 3, 172 leaves):

$$-\frac{a\,A\,\text{Log}[\text{Cos}[c+d x]]}{d}-\frac{a\,B\,\text{Log}[\text{Cos}[c+d x]]}{d}-\frac{a\,A\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}+\frac{a\,A\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}-\frac{a\,B\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}+\frac{a\,B\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}-\frac{a\,B\,\text{Sin}[c+d x]}{d}$$

Problem 958: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^3\,(a+a\,\text{Sin}[c+d x])\,(A+B\,\text{Sin}[c+d x])\,dx$$

Optimal (type 3, 47 leaves, 4 steps):

$$\frac{a\,(A-B)\,\text{ArcTanh}[\text{Sin}[c+d x]]}{2\,d}+\frac{a^2\,(A+B)}{2\,d\,(a-a\,\text{Sin}[c+d x])}$$

Result (type 3, 260 leaves):

$$\frac{1}{4\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$
$$a\left(2\,A+2\,B+i\,A\,d\,x-i\,B\,d\,x-2\,A\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$
$$2\,B\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+A\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]-$$
$$B\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]+2\,i\,(A-B)\,\text{ArcTan}\left[\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]$$
$$(-1+\text{Sin}[c+d\,x])+(A-B)\left(-i\,d\,x+2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\right.$$
$$\left.\left.\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]\right)\text{Sin}[c+d\,x]\right)$$

Problem 959: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])\,(A+B\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 100 leaves, 4 steps):

$$\frac{a\,(3\,A-B)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+$$
$$\frac{a^3\,(A+B)}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{a^2\,A}{4\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^2\,(A-B)}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 357 leaves):

$$\frac{1}{16\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}$$
$$a\left(\frac{2\,(-A+B)}{d}+i\,(3\,A-B)\,x\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-\frac{1}{d}\right.$$
$$2\,i\,(3\,A-B)\,\text{ArcTan}\left[\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-\frac{1}{d}$$
$$2\,(3\,A-B)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+$$
$$\frac{1}{d}(3\,A-B)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+$$
$$\frac{2\,(A+B)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+$$
$$\left.\frac{4\,A\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)(1+\text{Sin}[c+d\,x])$$

Problem 960: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^7 \, (a+a \,\text{Sin}[c+d x]) \, (A+B \,\text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 157 leaves, 4 steps):

$$\frac{a\,(5 A-B)\,\text{ArcTanh}[\text{Sin}[c+d x]]}{16 d}+\frac{a^4\,(A+B)}{24 d\,(a-a\,\text{Sin}[c+d x])^3}+\frac{a^3\,(3 A+B)}{32 d\,(a-a\,\text{Sin}[c+d x])^2}+\frac{3 a^2 A}{16 d\,(a-a\,\text{Sin}[c+d x])}-\frac{a^3\,(A-B)}{32 d\,(a+a\,\text{Sin}[c+d x])^2}-\frac{a^2\,(2 A-B)}{16 d\,(a+a\,\text{Sin}[c+d x])}$$

Result (type 3, 451 leaves):

$$\frac{1}{96\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}$$
$$a\left(\frac{3\,(-A+B)}{d}-\frac{6\,(2 A-B)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}{d}+\right.$$
$$3\,i\,(5 A-B)\,x\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4-\frac{1}{d}$$
$$6\,i\,(5 A-B)\,\text{ArcTan}\left[\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4-\frac{1}{d}$$
$$6\,(5 A-B)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4+\frac{1}{d}$$
$$3\,(5 A-B)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4+$$
$$\frac{4\,(A+B)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}{d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+$$
$$\frac{3\,(3 A+B)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}{d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+$$
$$\left.\frac{18 A\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}{d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)(1+\text{Sin}[c+d x])$$

Problem 964: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^2 \, (a+a \,\text{Sin}[c+d x]) \, (A+B \,\text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 29 leaves, 2 steps):

$$-a\,B\,x+\frac{(A+B)\,\mathrm{Sec}[c+d\,x]\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}{d}$$

Result (type 3, 85 leaves):

$$\frac{a\left(-B\,d\,x\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]+2\,(A+B)\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]+B\,d\,x\,\mathrm{Sin}\left[c+\frac{d\,x}{2}\right]\right)}{d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}$$

Problem 966: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^6\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\,\left(A+B\,\mathrm{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 73 leaves, 3 steps):

$$\frac{(A+B)\,\mathrm{Sec}[c+d\,x]^5\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}{5\,d}+\frac{a\,(4\,A-B)\,\mathrm{Tan}[c+d\,x]}{5\,d}+\frac{a\,(4\,A-B)\,\mathrm{Tan}[c+d\,x]^3}{15\,d}$$

Result (type 3, 223 leaves):

$$\Big(a\,\mathrm{Sec}[c]\,\big(240\,B\,\mathrm{Cos}[c]-54\,(A+B)\,\mathrm{Cos}[c+d\,x]-18\,A\,\mathrm{Cos}\left[3\,(c+d\,x)\right]-18\,B\,\mathrm{Cos}\left[3\,(c+d\,x)\right]+128\,A\,\mathrm{Cos}[c+2\,d\,x]-32\,B\,\mathrm{Cos}[c+2\,d\,x]+64\,A\,\mathrm{Cos}[3\,c+4\,d\,x]-16\,B\,\mathrm{Cos}[3\,c+4\,d\,x]+384\,A\,\mathrm{Sin}[d\,x]-96\,B\,\mathrm{Sin}[d\,x]+18\,A\,\mathrm{Sin}\left[2\,(c+d\,x)\right]+18\,B\,\mathrm{Sin}\left[2\,(c+d\,x)\right]+9\,A\,\mathrm{Sin}\left[4\,(c+d\,x)\right]+9\,B\,\mathrm{Sin}\left[4\,(c+d\,x)\right]+128\,A\,\mathrm{Sin}[2\,c+3\,d\,x]-32\,B\,\mathrm{Sin}[2\,c+3\,d\,x]\big)\Big)\Big/\left(960\,d\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)$$

Problem 967: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^8\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\,\left(A+B\,\mathrm{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 96 leaves, 3 steps):

$$\frac{(A+B)\,\mathrm{Sec}[c+d\,x]^7\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}{7\,d}+\frac{a\,(6\,A-B)\,\mathrm{Tan}[c+d\,x]}{7\,d}+\frac{2\,a\,(6\,A-B)\,\mathrm{Tan}[c+d\,x]^3}{21\,d}+\frac{a\,(6\,A-B)\,\mathrm{Tan}[c+d\,x]^5}{35\,d}$$

Result (type 3, 315 leaves):

$$\Big(a\,\mathrm{Sec}[c]\,\big(8960\,B\,\mathrm{Cos}[c]-1500\,(A+B)\,\mathrm{Cos}[c+d\,x]-750\,A\,\mathrm{Cos}\left[3\,(c+d\,x)\right]-750\,B\,\mathrm{Cos}\left[3\,(c+d\,x)\right]-150\,A\,\mathrm{Cos}\left[5\,(c+d\,x)\right]-150\,B\,\mathrm{Cos}\left[5\,(c+d\,x)\right]+3840\,A\,\mathrm{Cos}[c+2\,d\,x]-640\,B\,\mathrm{Cos}[c+2\,d\,x]+3072\,A\,\mathrm{Cos}[3\,c+4\,d\,x]-512\,B\,\mathrm{Cos}[3\,c+4\,d\,x]+768\,A\,\mathrm{Cos}[5\,c+6\,d\,x]-128\,B\,\mathrm{Cos}[5\,c+6\,d\,x]+15\,360\,A\,\mathrm{Sin}[d\,x]-2560\,B\,\mathrm{Sin}[d\,x]+375\,A\,\mathrm{Sin}\left[2\,(c+d\,x)\right]+375\,B\,\mathrm{Sin}\left[2\,(c+d\,x)\right]+300\,A\,\mathrm{Sin}\left[4\,(c+d\,x)\right]+300\,B\,\mathrm{Sin}\left[4\,(c+d\,x)\right]+75\,A\,\mathrm{Sin}\left[6\,(c+d\,x)\right]+75\,B\,\mathrm{Sin}\left[6\,(c+d\,x)\right]+7680\,A\,\mathrm{Sin}[2\,c+3\,d\,x]-1280\,B\,\mathrm{Sin}[2\,c+3\,d\,x]+1536\,A\,\mathrm{Sin}[4\,c+5\,d\,x]-256\,B\,\mathrm{Sin}[4\,c+5\,d\,x]\big)\Big)\Big/\left(53\,760\,d\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\right)$$

Problem 968: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^{10}\,(a+a\,\mathrm{Sin}[c+d\,x])\,(A+B\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 119 leaves, 3 steps):

$$\frac{(A+B)\,\mathrm{Sec}[c+d\,x]^9\,(a+a\,\mathrm{Sin}[c+d\,x])}{9\,d}+\frac{a\,(8\,A-B)\,\mathrm{Tan}[c+d\,x]}{9\,d}+\frac{a\,(8\,A-B)\,\mathrm{Tan}[c+d\,x]^3}{9\,d}+\frac{a\,(8\,A-B)\,\mathrm{Tan}[c+d\,x]^5}{15\,d}+\frac{a\,(8\,A-B)\,\mathrm{Tan}[c+d\,x]^7}{63\,d}$$

Result (type 3, 1683 leaves):

$$a\left(\frac{\left(A\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]-B\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])}{112\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^9}+\right.$$

$$\frac{\left(-A\,\mathrm{Cos}\left[\frac{c}{2}\right]+B\,\mathrm{Cos}\left[\frac{c}{2}\right]+A\,\mathrm{Sin}\left[\frac{c}{2}\right]-B\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])}{224\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^8}+$$

$$\frac{\left(41\,A\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]-27\,B\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])}{1120\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^7}+$$

$$\left(\left(-41\,A\,\mathrm{Cos}\left[\frac{c}{2}\right]+27\,B\,\mathrm{Cos}\left[\frac{c}{2}\right]+41\,A\,\mathrm{Sin}\left[\frac{c}{2}\right]-27\,B\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])\right)\Big/$$
$$\left(2240\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^6\right)+$$

$$\frac{\left(689\,A\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]-283\,B\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])}{6720\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^5}+$$

$$\left(\left(-689\,A\,\mathrm{Cos}\left[\frac{c}{2}\right]+283\,B\,\mathrm{Cos}\left[\frac{c}{2}\right]+689\,A\,\mathrm{Sin}\left[\frac{c}{2}\right]-283\,B\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])\right)\Big/$$
$$\left(13\,440\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^4\right)+$$

$$\frac{\left(5053\,A\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]-1091\,B\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])}{13\,440\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^3}+$$

$$\left(\left(A\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]+B\,\mathrm{Sin}\left[\frac{d\,x}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])\right)\Big/$$
$$\left(72\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^9\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$

$$\left(\left(A\,\mathrm{Cos}\left[\frac{c}{2}\right]+B\,\mathrm{Cos}\left[\frac{c}{2}\right]+A\,\mathrm{Sin}\left[\frac{c}{2}\right]+B\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(1+\mathrm{Sin}[c+d\,x])\right)\Big/$$
$$\left(144\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^8\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$

$$\left(\left(22\,A\,\text{Sin}\left[\frac{d\,x}{2}\right]+13\,B\,\text{Sin}\left[\frac{d\,x}{2}\right]\right)\left(1+\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(504\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^7\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$
$$\left(\left(22\,A\,\text{Cos}\left[\frac{c}{2}\right]+13\,B\,\text{Cos}\left[\frac{c}{2}\right]+22\,A\,\text{Sin}\left[\frac{c}{2}\right]+13\,B\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(1+\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(1008\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^6\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$
$$\left(\left(149\,A\,\text{Sin}\left[\frac{d\,x}{2}\right]+47\,B\,\text{Sin}\left[\frac{d\,x}{2}\right]\right)\left(1+\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(1680\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^5\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$
$$\left(\left(149\,A\,\text{Cos}\left[\frac{c}{2}\right]+47\,B\,\text{Cos}\left[\frac{c}{2}\right]+149\,A\,\text{Sin}\left[\frac{c}{2}\right]+47\,B\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(1+\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(3360\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^4\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$
$$\left(\left(823\,A\,\text{Sin}\left[\frac{d\,x}{2}\right]+94\,B\,\text{Sin}\left[\frac{d\,x}{2}\right]\right)\left(1+\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(5040\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^3\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$
$$\left(\left(823\,A\,\text{Cos}\left[\frac{c}{2}\right]+94\,B\,\text{Cos}\left[\frac{c}{2}\right]+823\,A\,\text{Sin}\left[\frac{c}{2}\right]+94\,B\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(1+\text{Sin}[c+d\,x]\right)\right)\Big/\left(10\,080\right.$$
$$\left.d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)+$$
$$\left(\left(17\,609\,A\,\text{Sin}\left[\frac{d\,x}{2}\right]-823\,B\,\text{Sin}\left[\frac{d\,x}{2}\right]\right)\left(1+\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(40\,320\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\right)\Bigg)$$

Problem 974: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\left(a+a\,\text{Sin}[c+d\,x]\right)^2\left(A+B\,\text{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 43 leaves, 3 steps):

$$\frac{a^2\,B\,\text{Log}[1-\text{Sin}[c+d\,x]]}{d}+\frac{a^3\,(A+B)}{d\left(a-a\,\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 95 leaves):

$$\left(a^2 \left(A+B+2 B \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-2 B \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[c+d x]\right)\right)\Big/\left(d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2\right)$$

Problem 976: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^7 (a+a \text{Sin}[c+d x])^2 (A+B \text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 132 leaves, 4 steps):

$$\frac{a^2 (2 A-B) \text{ArcTanh}[\text{Sin}[c+d x]]}{8 d}+\frac{a^5 (A+B)}{12 d (a-a \text{Sin}[c+d x])^3}+\frac{a^4 A}{8 d (a-a \text{Sin}[c+d x])^2}+\frac{a^3 (3 A-B)}{16 d (a-a \text{Sin}[c+d x])}-\frac{a^3 (A-B)}{16 d (a+a \text{Sin}[c+d x])}$$

Result (type 3, 319 leaves):

$$\frac{1}{48 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^6}\left(3 (-A+B)+6 (-2 A+B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+6 (2 A-B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+\frac{4 (A+B) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^6}+\frac{6 A \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{3 (3 A-B) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right) (a+a \text{Sin}[c+d x])^2$$

Problem 984: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^{10} (a+a \text{Sin}[c+d x])^2 (A+B \text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 154 leaves, 4 steps):

$$\frac{a^2 (7 A-2 B) \text{Sec}[c+d x]^7}{63 d}+\frac{(A+B) \text{Sec}[c+d x]^9 (a+a \text{Sin}[c+d x])^2}{9 d}+\frac{a^2 (7 A-2 B) \text{Tan}[c+d x]}{9 d}+\frac{a^2 (7 A-2 B) \text{Tan}[c+d x]^3}{9 d}+\frac{a^2 (7 A-2 B) \text{Tan}[c+d x]^5}{15 d}+\frac{a^2 (7 A-2 B) \text{Tan}[c+d x]^7}{63 d}$$

Result (type 3, 324 leaves):

$$-\frac{1}{1290240\,d}a^2\,\text{Sec}[c+d\,x]^9\,(1+\text{Sin}[c+d\,x])^2\\ (-184320\,B+1125\,(49\,A+13\,B)\,\text{Cos}[c+d\,x]-20480\,(7\,A-2\,B)\,\text{Cos}[2\,(c+d\,x)]+\\ 23275\,A\,\text{Cos}[3\,(c+d\,x)]+6175\,B\,\text{Cos}[3\,(c+d\,x)]-114688\,A\,\text{Cos}[4\,(c+d\,x)]+\\ 32768\,B\,\text{Cos}[4\,(c+d\,x)]+1225\,A\,\text{Cos}[5\,(c+d\,x)]+325\,B\,\text{Cos}[5\,(c+d\,x)]-\\ 28672\,A\,\text{Cos}[6\,(c+d\,x)]+8192\,B\,\text{Cos}[6\,(c+d\,x)]-1225\,A\,\text{Cos}[7\,(c+d\,x)]-\\ 325\,B\,\text{Cos}[7\,(c+d\,x)]-322560\,A\,\text{Sin}[c+d\,x]+92160\,B\,\text{Sin}[c+d\,x]-\\ 24500\,A\,\text{Sin}[2\,(c+d\,x)]-6500\,B\,\text{Sin}[2\,(c+d\,x)]-136192\,A\,\text{Sin}[3\,(c+d\,x)]+\\ 38912\,B\,\text{Sin}[3\,(c+d\,x)]-19600\,A\,\text{Sin}[4\,(c+d\,x)]-5200\,B\,\text{Sin}[4\,(c+d\,x)]-\\ 7168\,A\,\text{Sin}[5\,(c+d\,x)]+2048\,B\,\text{Sin}[5\,(c+d\,x)]-4900\,A\,\text{Sin}[6\,(c+d\,x)]-\\ 1300\,B\,\text{Sin}[6\,(c+d\,x)]+7168\,A\,\text{Sin}[7\,(c+d\,x)]-2048\,B\,\text{Sin}[7\,(c+d\,x)])$$

Problem 985: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^{12}\,(a+a\,\text{Sin}[c+d\,x])^2\,(A+B\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 179 leaves, 4 steps):

$$\frac{a^2\,(9\,A-2\,B)\,\text{Sec}[c+d\,x]^9}{99\,d}+\frac{(A+B)\,\text{Sec}[c+d\,x]^{11}\,(a+a\,\text{Sin}[c+d\,x])^2}{11\,d}+\\ \frac{a^2\,(9\,A-2\,B)\,\text{Tan}[c+d\,x]}{11\,d}+\frac{4\,a^2\,(9\,A-2\,B)\,\text{Tan}[c+d\,x]^3}{33\,d}+\\ \frac{6\,a^2\,(9\,A-2\,B)\,\text{Tan}[c+d\,x]^5}{55\,d}+\frac{4\,a^2\,(9\,A-2\,B)\,\text{Tan}[c+d\,x]^7}{77\,d}+\frac{a^2\,(9\,A-2\,B)\,\text{Tan}[c+d\,x]^9}{99\,d}$$

Result (type 3, 1349 leaves):

$$\frac{(-A+B)\,(a+a\,\text{Sin}[c+d\,x])^2}{448\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{10}}+\frac{(-24\,A+17\,B)\,(a+a\,\text{Sin}[c+d\,x])^2}{2240\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{8}}+\\ \frac{(-927\,A+451\,B)\,(a+a\,\text{Sin}[c+d\,x])^2}{26880\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{6}}+\left((A+B)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/\\ \left(176\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{10}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+\\ \left((27\,A+16\,B)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/\\ \left(1584\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{8}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+\\ \left((711\,A+227\,B)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/\\ \left(22176\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{6}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+\\ \left((1866\,A+227\,B)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/\\ \left(36960\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{4}\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+$$

$$\left((70281\,A-2143\,B)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(887040\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+$$
$$\left(\left(167301\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-26398\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(443520\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+$$
$$\left(\left(70281\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-2143\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(443520\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+$$
$$\left(\left(3867\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-1186\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(13440\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\right)+$$
$$\left(\left(927\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-451\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(13440\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\frac{\left(24\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-17\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2}{1120\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^9}+$$
$$\frac{\left(A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2}{224\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{11}}+$$
$$\left(\left(A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(88\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{11}\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+$$
$$\left(\left(27\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+16\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(792\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^9\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+$$
$$\left(\left(711\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+227\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(11088\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)+$$
$$\left(\left(1866\,A\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+227\,B\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Big/$$
$$\left(18480\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)$$

Problem 989: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 51 leaves, 3 steps):

$$\frac{(A-B)\,(a+a\,\text{Sin}[c+d\,x])^4}{4\,a\,d}+\frac{B\,(a+a\,\text{Sin}[c+d\,x])^5}{5\,a^2\,d}$$

Result (type 3, 116 leaves):

$$\Big((a+a\,\text{Sin}[c+d\,x])^3\,\big(-20\,(7\,A+5\,B)\,\text{Cos}[2\,(c+d\,x)]+5\,(A+3\,B)\,\text{Cos}[4\,(c+d\,x)]+140\,(2\,A+B)\,\text{Sin}[c+d\,x]-10\,(4\,A+5\,B)\,\text{Sin}[3\,(c+d\,x)]+2\,B\,\text{Sin}[5\,(c+d\,x)]\big)\Big)\Big/\left(160\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)$$

Problem 994: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^9\,(a+a\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 162 leaves, 4 steps):

$$\frac{a^3\,(5\,A-3\,B)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{32\,d}+\frac{a^7\,(A+B)}{16\,d\,(a-a\,\text{Sin}[c+d\,x])^4}+\frac{a^6\,A}{12\,d\,(a-a\,\text{Sin}[c+d\,x])^3}+\frac{a^5\,(3\,A-B)}{32\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{a^4\,(2\,A-B)}{16\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^4\,(A-B)}{32\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 378 leaves):

$$\frac{1}{96\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8}\Bigg(3\,(-A+B)+3\,(-5\,A+3\,B)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+3\,(5\,A-3\,B)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+\frac{6\,(A+B)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8}+\frac{8\,A\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{3\,(3\,A-B)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{6\,(2\,A-B)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\Bigg)\,(a+a\,\text{Sin}[c+d\,x])^3$$

Problem 1007: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x] \left(A+B \text{Sin}[c+d x]\right)}{a+a \text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 45 leaves, 4 steps):

$$\frac{(A+B) \text{ArcTanh}[\text{Sin}[c+d x]]}{2 a d}-\frac{A-B}{2 d \left(a+a \text{Sin}[c+d x]\right)}$$

Result (type 3, 126 leaves):

$$\left(-A+B-(A+B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+(A+B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2\right) \Big/ \left(2 a d \left(1+\text{Sin}[c+d x]\right)\right)$$

Problem 1008: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^3 \left(A+B \text{Sin}[c+d x]\right)}{a+a \text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 91 leaves, 4 steps):

$$\frac{(3 A+B) \text{ArcTanh}[\text{Sin}[c+d x]]}{8 a d}+\frac{A+B}{8 d \left(a-a \text{Sin}[c+d x]\right)}-\frac{a (A-B)}{8 d \left(a+a \text{Sin}[c+d x]\right)^2}-\frac{A}{4 d \left(a+a \text{Sin}[c+d x]\right)}$$

Result (type 3, 210 leaves):

$$\left(-2 A+\frac{-A+B}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-(3 A+B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+(3 A+B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+\frac{(A+B) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right) \Big/ \left(8 a d \left(1+\text{Sin}[c+d x]\right)\right)$$

Problem 1009: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^5 \left(A+B \text{Sin}[c+d x]\right)}{a+a \text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 146 leaves, 4 steps):

$$\frac{(5A+B)\,\text{ArcTanh}[\text{Sin}[c+dx]]}{16\,a\,d}+\frac{a\,(A+B)}{32\,d\,(a-a\,\text{Sin}[c+dx])^2}+\frac{2A+B}{16\,d\,(a-a\,\text{Sin}[c+dx])}-\frac{a^2\,(A-B)}{24\,d\,(a+a\,\text{Sin}[c+dx])^3}-\frac{a\,(3A-B)}{32\,d\,(a+a\,\text{Sin}[c+dx])^2}-\frac{3A}{16\,d\,(a+a\,\text{Sin}[c+dx])}$$

Result (type 3, 298 leaves):

$$\frac{1}{96\,a\,d\,(1+\text{Sin}[c+dx])}\left(-18A+\frac{4\,(-A+B)}{\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^4}+\frac{3\,(-3A+B)}{\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}-\right.$$
$$6\,(5A+B)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2+$$
$$6\,(5A+B)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2+$$
$$\frac{3\,(A+B)\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^4}+$$
$$\left.\frac{6\,(2A+B)\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}\right)$$

Problem 1014: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+dx]\,(A+B\,\text{Sin}[c+dx])}{(a+a\,\text{Sin}[c+dx])^2}\,dx$$

Optimal (type 3, 44 leaves, 3 steps):

$$\frac{B\,\text{Log}[1+\text{Sin}[c+dx]]}{a^2\,d}-\frac{A-B}{d\,(a^2+a^2\,\text{Sin}[c+dx])}$$

Result (type 3, 92 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2\right.$$
$$\left.\left(-A+B+2B\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2\right)\right)\Big/$$
$$\left(d\,(a+a\,\text{Sin}[c+dx])^2\right)$$

Problem 1015: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x] (A+B \text{Sin}[c+d x])}{(a+a \text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 71 leaves, 4 steps):

$$\frac{(A+B) \text{ArcTanh}[\text{Sin}[c+d x]]}{4 a^2 d}-\frac{A-B}{4 d (a+a \text{Sin}[c+d x])^2}-\frac{A+B}{4 d \left(a^2+a^2 \text{Sin}[c+d x]\right)}$$

Result (type 3, 153 leaves):

$$-\left(\left(A-B+(A+B) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+(A+B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4-(A+B) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4\right) \Big/ \left(4 a^2 d (1+\text{Sin}[c+d x])^2\right)\right)$$

Problem 1020: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^7 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Optimal (type 3, 159 leaves, 3 steps):

$$\frac{8 (A-B) (a+a \text{Sin}[e+f x])^{4+m}}{a^4 f (4+m)}-\frac{4 (3 A-5 B) (a+a \text{Sin}[e+f x])^{5+m}}{a^5 f (5+m)}+\frac{6 (A-3 B) (a+a \text{Sin}[e+f x])^{6+m}}{a^6 f (6+m)}-\frac{(A-7 B) (a+a \text{Sin}[e+f x])^{7+m}}{a^7 f (7+m)}-\frac{B (a+a \text{Sin}[e+f x])^{8+m}}{a^8 f (8+m)}$$

Result (type 3, 1361 leaves):

$$\frac{1}{f} (a (1+\text{Sin}[e+f x]))^m \left(\left(393216 A-29400 B+118528 A m+26822 B m+16160 A m^2+2407 B m^2+1256 A m^3+166 B m^3+40 A m^4+5 B m^4\right) \Big/ (128 (4+m) (5+m) (6+m) (7+m) (8+m))+\left(\left(235200 A+50024 A m+29400 B m+3946 A m^2+2578 B m^2+211 A m^3+171 B m^3+5 A m^4+5 B m^4\right) \left(-\frac{1}{128} i \text{Cos}[e+f x]+\frac{1}{128} \text{Sin}[e+f x]\right)\right) \Big/ ((4+m) (5+m) (6+m) (7+m) (8+m))+\left(\left(235200 A+50024 A m+29400 B m+3946 A m^2+2578 B m^2+211 A m^3+171 B m^3+5 A m^4+5 B m^4\right)\right.\right.$$

$$\left(\frac{1}{128}\,\mathbb{i}\,\mathrm{Cos}[e+f x]+\frac{1}{128}\,\mathrm{Sin}[e+f x]\right)\Big)\Big/\left((4+m)\,(5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(-11760\,B+19296\,A\,m-8932\,B\,m+5028\,A\,m^2-94\,B\,m^2+447\,A\,m^3+19\,B\,m^3+15\,A\,m^4+B\,m^4\right)$$

$$\left(\frac{1}{64}\,\mathrm{Cos}[2\,(e+f x)]-\frac{1}{64}\,\mathbb{i}\,\mathrm{Sin}[2\,(e+f x)]\right)\Big)\Big/\left((4+m)\,(5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(-11760\,B+19296\,A\,m-8932\,B\,m+5028\,A\,m^2-94\,B\,m^2+447\,A\,m^3+19\,B\,m^3+15\,A\,m^4+B\,m^4\right)$$

$$\left(\frac{1}{64}\,\mathrm{Cos}[2\,(e+f x)]+\frac{1}{64}\,\mathbb{i}\,\mathrm{Sin}[2\,(e+f x)]\right)\Big)\Big/\left((4+m)\,(5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(15680\,A+10520\,A\,m+1960\,B\,m+1814\,A\,m^2+1070\,B\,m^2+117\,A\,m^3+93\,B\,m^3+3\,A\,m^4+3\,B\,m^4\right)$$

$$\left(-\frac{3}{128}\,\mathbb{i}\,\mathrm{Cos}[3\,(e+f x)]+\frac{3}{128}\,\mathrm{Sin}[3\,(e+f x)]\right)\Big)\Big/$$

$$\left((4+m)\,(5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(15680\,A+10520\,A\,m+1960\,B\,m+1814\,A\,m^2+1070\,B\,m^2+117\,A\,m^3+93\,B\,m^3+3\,A\,m^4+3\,B\,m^4\right)$$

$$\left(\frac{3}{128}\,\mathbb{i}\,\mathrm{Cos}[3\,(e+f x)]+\frac{3}{128}\,\mathrm{Sin}[3\,(e+f x)]\right)\Big)\Big/\left((4+m)\,(5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(-5880\,B+2112\,A\,m-4466\,B\,m+1080\,A\,m^2-989\,B\,m^2+150\,A\,m^3-52\,B\,m^3+6\,A\,m^4-B\,m^4\right)$$

$$\left(\frac{1}{64}\,\mathrm{Cos}[4\,(e+f x)]-\frac{1}{64}\,\mathbb{i}\,\mathrm{Sin}[4\,(e+f x)]\right)\Big)\Big/\left((4+m)\,(5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(-5880\,B+2112\,A\,m-4466\,B\,m+1080\,A\,m^2-989\,B\,m^2+150\,A\,m^3-52\,B\,m^3+6\,A\,m^4-B\,m^4\right)$$

$$\left(\frac{1}{64}\,\mathrm{Cos}[4\,(e+f x)]+\frac{1}{64}\,\mathbb{i}\,\mathrm{Sin}[4\,(e+f x)]\right)\Big)\Big/\left((4+m)\,(5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(2352\,A+1118\,A\,m+294\,B\,m+143\,A\,m^2+103\,B\,m^2+5\,A\,m^3+5\,B\,m^3\right)$$

$$\left(-\frac{1}{128}\,\mathbb{i}\,\mathrm{Cos}[5\,(e+f x)]+\frac{1}{128}\,\mathrm{Sin}[5\,(e+f x)]\right)\Big)\Big/\left((5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(2352\,A+1118\,A\,m+294\,B\,m+143\,A\,m^2+103\,B\,m^2+5\,A\,m^3+5\,B\,m^3\right)$$

$$\left(\frac{1}{128}\,\mathbb{i}\,\mathrm{Cos}[5\,(e+f x)]+\frac{1}{128}\,\mathrm{Sin}[5\,(e+f x)]\right)\Big)\Big/\left((5+m)\,(6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(-84\,B+8\,A\,m-26\,B\,m+A\,m^2-B\,m^2\right)\left(\frac{1}{64}\,\mathrm{Cos}[6\,(e+f x)]-\frac{1}{64}\,\mathbb{i}\,\mathrm{Sin}[6\,(e+f x)]\right)\Big)\Big/$$

$$\left((6+m)\,(7+m)\,(8+m)\right)+$$

$$\Big(\left(-84\,B+8\,A\,m-26\,B\,m+A\,m^2-B\,m^2\right)\left(\frac{1}{64}\,\mathrm{Cos}[6\,(e+f x)]+\frac{1}{64}\,\mathbb{i}\,\mathrm{Sin}[6\,(e+f x)]\right)\Big)\Big/$$

$$\left((6+m)\,(7+m)\,(8+m)\right)+\frac{(8\,A+A\,m+B\,m)\left(-\frac{1}{128}\,\mathbb{i}\,\mathrm{Cos}[7\,(e+f x)]+\frac{1}{128}\,\mathrm{Sin}[7\,(e+f x)]\right)}{(7+m)\,(8+m)}+$$

$$\frac{(8\,A+A\,m+B\,m)\left(\frac{1}{128}\,\mathbb{i}\,\mathrm{Cos}[7\,(e+f x)]+\frac{1}{128}\,\mathrm{Sin}[7\,(e+f x)]\right)}{(7+m)\,(8+m)}+$$

$$\left.\frac{-\frac{1}{256}\,B\,\text{Cos}\big[8\,(e+f\,x)\big]-\frac{1}{256}\,\mathrm{i}\,B\,\text{Sin}\big[8\,(e+f\,x)\big]}{8+m}+\frac{-\frac{1}{256}\,B\,\text{Cos}\big[8\,(e+f\,x)\big]+\frac{1}{256}\,\mathrm{i}\,B\,\text{Sin}\big[8\,(e+f\,x)\big]}{8+m}\right)$$

Problem 1021: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]^5\,(a+a\,\text{Sin}[e+f\,x])^m\,(A+B\,\text{Sin}[e+f\,x])\,dx$$

Optimal (type 3, 123 leaves, 3 steps):

$$\frac{4\,(A-B)\,(a+a\,\text{Sin}[e+f\,x])^{3+m}}{a^3\,f\,(3+m)}-\frac{4\,(A-2\,B)\,(a+a\,\text{Sin}[e+f\,x])^{4+m}}{a^4\,f\,(4+m)}+\frac{(A-5\,B)\,(a+a\,\text{Sin}[e+f\,x])^{5+m}}{a^5\,f\,(5+m)}+\frac{B\,(a+a\,\text{Sin}[e+f\,x])^{6+m}}{a^6\,f\,(6+m)}$$

Result (type 3, 869 leaves):

$$\frac{1}{f}\left(a\left(1+\text{Sin}[e+f x]\right)\right)^m\left(\frac{3072\,A-300\,B+1004\,A\,m+277\,B\,m+118\,A\,m^2+22\,B\,m^2+6\,A\,m^3+B\,m^3}{16\,(3+m)\,(4+m)\,(5+m)\,(6+m)}+\right.$$

$$\left(\left(1800\,A+438\,A\,m+300\,B\,m+29\,A\,m^2+23\,B\,m^2+A\,m^3+B\,m^3\right)\left(-\frac{1}{16}\,\text{i}\,\text{Cos}[e+f x]+\frac{1}{16}\,\text{Sin}[e+f x]\right)\right)\Big/\left((3+m)\,(4+m)\,(5+m)\,(6+m)\right)+$$

$$\left(\left(1800\,A+438\,A\,m+300\,B\,m+29\,A\,m^2+23\,B\,m^2+A\,m^3+B\,m^3\right)\left(\frac{1}{16}\,\text{i}\,\text{Cos}[e+f x]+\frac{1}{16}\,\text{Sin}[e+f x]\right)\right)\Big/\left((3+m)\,(4+m)\,(5+m)\,(6+m)\right)+$$

$$\left(\left(-900\,B+1056\,A\,m-705\,B\,m+272\,A\,m^2-4\,B\,m^2+16\,A\,m^3+B\,m^3\right)\left(\frac{1}{64}\,\text{Cos}[2\,(e+f x)]-\frac{1}{64}\,\text{i}\,\text{Sin}[2\,(e+f x)]\right)\right)\Big/\left((3+m)\,(4+m)\,(5+m)\,(6+m)\right)+$$

$$\left(\left(-900\,B+1056\,A\,m-705\,B\,m+272\,A\,m^2-4\,B\,m^2+16\,A\,m^3+B\,m^3\right)\left(\frac{1}{64}\,\text{Cos}[2\,(e+f x)]+\frac{1}{64}\,\text{i}\,\text{Sin}[2\,(e+f x)]\right)\right)\Big/\left((3+m)\,(4+m)\,(5+m)\,(6+m)\right)+$$

$$\left(\left(600\,A+418\,A\,m+100\,B\,m+71\,A\,m^2+53\,B\,m^2+3\,A\,m^3+3\,B\,m^3\right)\left(-\frac{1}{32}\,\text{i}\,\text{Cos}[3\,(e+f x)]+\frac{1}{32}\,\text{Sin}[3\,(e+f x)]\right)\right)\Big/\left((3+m)\,(4+m)\,(5+m)\,(6+m)\right)+$$

$$\left(\left(600\,A+418\,A\,m+100\,B\,m+71\,A\,m^2+53\,B\,m^2+3\,A\,m^3+3\,B\,m^3\right)\left(\frac{1}{32}\,\text{i}\,\text{Cos}[3\,(e+f x)]+\frac{1}{32}\,\text{Sin}[3\,(e+f x)]\right)\right)\Big/\left((3+m)\,(4+m)\,(5+m)\,(6+m)\right)+$$

$$\left(\left(-60\,B+12\,A\,m-27\,B\,m+2\,A\,m^2-B\,m^2\right)\left(\frac{1}{32}\,\text{Cos}[4\,(e+f x)]-\frac{1}{32}\,\text{i}\,\text{Sin}[4\,(e+f x)]\right)\right)\Big/\left((4+m)\,(5+m)\,(6+m)\right)+$$

$$\left(\left(-60\,B+12\,A\,m-27\,B\,m+2\,A\,m^2-B\,m^2\right)\left(\frac{1}{32}\,\text{Cos}[4\,(e+f x)]+\frac{1}{32}\,\text{i}\,\text{Sin}[4\,(e+f x)]\right)\right)\Big/\left((4+m)\,(5+m)\,(6+m)\right)+\frac{(6\,A+A\,m+B\,m)\left(-\frac{1}{32}\,\text{i}\,\text{Cos}[5\,(e+f x)]+\frac{1}{32}\,\text{Sin}[5\,(e+f x)]\right)}{(5+m)\,(6+m)}+$$

$$\frac{(6\,A+A\,m+B\,m)\left(\frac{1}{32}\,\text{i}\,\text{Cos}[5\,(e+f x)]+\frac{1}{32}\,\text{Sin}[5\,(e+f x)]\right)}{(5+m)\,(6+m)}+$$

$$\frac{-\frac{1}{64}\,B\,\text{Cos}[6\,(e+f x)]-\frac{1}{64}\,\text{i}\,B\,\text{Sin}[6\,(e+f x)]}{6+m}+$$

$$\left.\frac{-\frac{1}{64}\,B\,\text{Cos}[6\,(e+f x)]+\frac{1}{64}\,\text{i}\,B\,\text{Sin}[6\,(e+f x)]}{6+m}\right)$$

Problem 1024: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sec}[e+f x] \,(a+a \text{Sin}[e+f x])^m\, (A+B \text{Sin}[e+f x])\, dx$$

Optimal (type 5, 80 leaves, 3 steps):

$$\frac{(A-B)\,(a+a \text{Sin}[e+f x])^m}{2 f m}+\frac{1}{4 a f (1+m)}(A+B)\, \text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{1}{2}(1+\text{Sin}[e+f x])\right](a+a \text{Sin}[e+f x])^{1+m}$$

Result (type 6, 16 323 leaves):

$$-\Bigg(\Bigg(\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2 m} \text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+a \text{Sin}[e+f x])^m$$

$$\left(\left(A \,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m}\right) \Big/ \left(\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)\right.\right.$$

$$\left.\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]+\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)\right)+\left(B \,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m}\right.$$

$$\left.\text{Sin}[e+f x]\right) \Big/ \left(\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)\right.$$

$$\left.\left.\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]+\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)\right)\right)\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2 m}$$

$$\left(\left(2 A \,\text{AppellF1}\left[1,1-2 m,2 m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\right) \Big/ \left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right.$$

$$\left(-2 \,\text{AppellF1}\left[1,1-2 m,2 m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\right.$$

$$\left(2 m \,\text{AppellF1}\left[2,1-2 m,1+2 m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+2 m)\, \text{AppellF1}\left[2,2-2 m,2 m,3,\right.$$

$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)-$$

$$\left(2 B \,\text{AppellF1}\left[1,1-2 m,2 m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\right) \Big/ \left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right.$$

$$\left(-2 \,\text{AppellF1}\left[1,1-2 m,2 m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\right.$$

$$\left(2 m \,\text{AppellF1}\left[2,1-2 m,1+2 m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+\left(-1+2\,m\right)\,\text{AppellF1}\Big[2,\,2-2\,m,\,2\,m,\,3,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)+$$

$$\Big(4\,B\,\text{AppellF1}\Big[1,\,-2\,m,\,1+2\,m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\Big)\Big/\,\Big(\Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)$$

$$\Big(-2\,\text{AppellF1}\Big[1,\,-2\,m,\,1+2\,m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$\Big(2\,m\,\text{AppellF1}\Big[2,\,1-2\,m,\,1+2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+\left(1+2\,m\right)\,\text{AppellF1}\Big[2,\,-2\,m,\,2+2\,m,\,3,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)+$$

$$\Big(A\,\left(1+m\right)\,\text{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)\Big/$$

$$\Big(\left(1+2\,m\right)\,\Big(2\,\left(1+m\right)\,\text{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2\,m,\,2\,m,\,2,\,3+2\,m,$$

$$\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+m$$

$$\text{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)\Big)+$$

$$\Big(B\,\left(1+m\right)\,\text{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)\Big/$$

$$\Big(\left(1+2\,m\right)\,\Big(2\,\left(1+m\right)\,\text{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2\,m,\,2\,m,\,2,\,3+2\,m,$$

$$\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+m$$

$$\text{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)\Big)\Big)\Big/$$

$$\left(f\left(-\frac{1}{2}\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\text{Csc}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}\right.\right.$$

$$\left(\left(2\,A\,\text{AppellF1}\left[1,1-2m,2m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Big)\Big/\left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\left(-2\,\text{AppellF1}\left[1,1-2m,\right.\right.\right.$$

$$2m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\left(2\,m\,\text{AppellF1}\left[2,\right.\right.$$

$$1-2m,1+2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(-1+2m)\,\text{AppellF1}\left[2,2-2m,2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)-$$

$$\left(2\,B\,\text{AppellF1}\left[1,1-2m,2m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Big)\Big/\left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\left(-2\,\text{AppellF1}\left[1,1-2m,\right.\right.\right.$$

$$2m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\left(2\,m\,\text{AppellF1}\left[2,\right.\right.$$

$$1-2m,1+2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(-1+2m)\,\text{AppellF1}\left[2,2-2m,2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)+$$

$$\left(4\,B\,\text{AppellF1}\left[1,-2m,1+2m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Big)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\left(-2\,\text{AppellF1}\left[1,-2m,\right.\right.\right.$$

$$1+2m,2,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\left(2\,m\,\text{AppellF1}\left[2,\right.\right.$$

$$1-2m,1+2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+2m)\,\text{AppellF1}\left[2,-2m,2+2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)+$$

$$\left(A\,(1+m)\,\text{AppellF1}\left[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big)\Big/$$

$$\left((1+2m)\left(2\,(1+m)\,\text{AppellF1}\left[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2\,m,\,2\,m,\,2,\,3+2\,m,$$

$$\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$m\,\text{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big)\Big)+$$

$$\Big(B\,(1+m)\,\text{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big)\Big/$$

$$\Big((1+2\,m)\,\Big(2\,(1+m)\,\text{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2\,m,\,2\,m,\,2,\,3+2\,m,$$

$$\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$m\,\text{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big)\Big)\Big)+$$

$$2\,m\,\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{-1+2\,m}$$

$$\Bigg(-\Big(\Big(\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big)\Big/$$

$$\Big(2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2\Big)\Big)-\frac{\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{2\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)}\Bigg)$$

$$\Big(\Big(2\,A\,\text{AppellF1}\Big[1,\,1-2\,m,\,2\,m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\Big)\Big/\Big(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big(-2\,\text{AppellF1}\Big[1,\,1-2\,m,$$

$$2\,m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+\Big(2\,m\,\text{AppellF1}\Big[2,$$

$$1-2\,m,\,1+2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$(-1+2\,m)\,\text{AppellF1}\Big[2,\,2-2\,m,\,2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\Big)-$$

$$\Big(2\,B\,\text{AppellF1}\Big[1,\,1-2\,m,\,2\,m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Big)\Big/\Big(\Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\ \Big(-2\,\text{AppellF1}\Big[1,\,1-2m,$$

$$2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\Big(2\,m\,\text{AppellF1}\Big[2,$$

$$1-2m,\,1+2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(-1+2m)\ \text{AppellF1}\Big[2,\,2-2m,\,2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$

$$\Big(4\,B\,\text{AppellF1}\Big[1,\,-2m,\,1+2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Big)\Big/\Big(\Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\ \Big(-2\,\text{AppellF1}\Big[1,\,-2m,$$

$$1+2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\Big(2\,m\,\text{AppellF1}\Big[2,$$

$$1-2m,\,1+2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+2m)\ \text{AppellF1}\Big[2,\,-2m,\,2+2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+$$

$$\Big(A\ (1+m)\ \text{AppellF1}\Big[1+2m,\,2m,\,1,\,2+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big/$$

$$\Big(\big(1+2m\big)\ \Big(2\ (1+m)\ \text{AppellF1}\Big[1+2m,\,2m,\,1,\,2+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2m,\,2m,\,2,\,3+2m,$$

$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$m\,\text{AppellF1}\Big[2+2m,\,1+2m,\,1,\,3+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big)+$$

$$\Big(B\ (1+m)\ \text{AppellF1}\Big[1+2m,\,2m,\,1,\,2+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)\Big/$$

$$\Big(\big(1+2m\big)\ \Big(2\ (1+m)\ \text{AppellF1}\Big[1+2m,\,2m,\,1,\,2+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2m,\,2m,\,2,\,3+2m,$$

$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$m\,\text{AppellF1}\left[2+2m,\,1+2m,\,1,\,3+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$

$$\left.\left.\left.\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\right)\right)+$$

$$\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{2m}$$

$$\left(-\left(\left(A\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^5\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2\left(-2\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+\left(2m\,\text{AppellF1}\left[2,\right.\right.$$

$$\left.1-2m,\,1+2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$

$$(-1+2m)\,\text{AppellF1}\left[2,\,2-2m,\,2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)\right)+$$

$$\left(B\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^5\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^2\left(-2\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+\left(2m\,\text{AppellF1}\left[2,\right.\right.$$

$$\left.1-2m,\,1+2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$

$$(-1+2m)\,\text{AppellF1}\left[2,\,2-2m,\,2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)+$$

$$\left(2A\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right.$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^3\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\left(-2\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+\left(2m\,\text{AppellF1}\left[2,\right.\right.$$

$$1-2m,\,1+2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+$$

$$\left(-1+2\,m\right)\,\text{AppellF1}\left[2,\,2-2\,m,\,2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)\right)-$$

$$\left(2\,B\,\text{AppellF1}\left[1,\,1-2\,m,\,2\,m,\,2,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]\right.$$

$$\left.\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{3}\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)\,\left(-2\,\text{AppellF1}\left[1,\,1-2\,m,\,2\,m,\,2,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]+\left(2\,m\,\text{AppellF1}\left[2,\right.\right.$$

$$1-2\,m,\,1+2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]+$$

$$\left(-1+2\,m\right)\,\text{AppellF1}\left[2,\,2-2\,m,\,2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)\right)+$$

$$\left(2\,A\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{4}\,\left(-\frac{1}{2}\,m\,\text{AppellF1}\left[2,\,1-2\,m,\,1+2\,m,\,3,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]$$

$$\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{1}{4}\,\left(1-2\,m\right)$$

$$\text{AppellF1}\left[2,\,2-2\,m,\,2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]$$

$$\left.\left.\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)\,\left(-2\,\text{AppellF1}\left[1,\,1-2\,m,\,2\,m,\,2,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]+\left(2\,m\,\text{AppellF1}\left[2,\right.\right.$$

$$1-2\,m,\,1+2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]+$$

$$\left(-1+2\,m\right)\,\text{AppellF1}\left[2,\,2-2\,m,\,2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]\right)\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right)\right)-$$

$$\left(2\,B\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{4}\,\left(-\frac{1}{2}\,m\,\text{AppellF1}\left[2,\,1-2\,m,\,1+2\,m,\,3,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]$$

$$\text{Sec}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{1}{4}\,\left(1-2\,m\right)$$

$$\text{AppellF1}\left[2,\,2-2\,m,\,2\,m,\,3,\,\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2},\,-\text{Tan}\left[\frac{1}{4}\,\left(-e+\frac{\pi}{2}-f\,x\right)\right]^{2}\right]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(-1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg(-2\,\mathrm{AppellF1}\Big[1,\,1-2m,\,2m,\,2,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\Bigg(2m\,\mathrm{AppellF1}\Big[2,\,1-2m,\,1+2m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(-1+2m)\,\mathrm{AppellF1}\Big[2,\,2-2m,\,2m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(2\,B\,\mathrm{AppellF1}\Big[1,\,-2m,\,1+2m,\,2,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^5\Bigg)\Bigg/$$

$$\Bigg(\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Bigg(-2\,\mathrm{AppellF1}\Big[1,\,-2m,\,1+2m,\,2,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\Bigg(2m\,\mathrm{AppellF1}\Big[2,\,1-2m,\,1+2m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(1+2m)\,\mathrm{AppellF1}\Big[2,\,-2m,\,2+2m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(4\,B\,\mathrm{AppellF1}\Big[1,\,-2m,\,1+2m,\,2,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^3\Bigg)\Bigg/$$

$$\Bigg(\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Bigg(-2\,\mathrm{AppellF1}\Big[1,\,-2m,\,1+2m,\,2,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\Bigg(2m\,\mathrm{AppellF1}\Big[2,\,1-2m,\,1+2m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(1+2m)\,\mathrm{AppellF1}\Big[2,\,-2m,\,2+2m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(4\,B\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Bigg(-\frac{1}{2}\,m\,\mathrm{AppellF1}\Big[2,\,1-2m,\,1+2m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{4}\,(1+2m)$$

$$\text{AppellF1}\left[2,-2m,2+2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\Bigg)\Bigg)\Bigg/$$
$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg(-2\,\text{AppellF1}\Big[1,-2m,1+2m,2,$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+\Big(2m\,\text{AppellF1}\Big[2,$$
$$1-2m,1+2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+$$
$$(1+2m)\,\text{AppellF1}\Big[2,-2m,2+2m,3,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Bigg)\Bigg)+$$
$$\Bigg(A\,(1+m)\,\text{AppellF1}\Big[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\Bigg)\Bigg/$$
$$\Bigg(2\,(1+2m)\,\Bigg(2\,(1+m)\,\text{AppellF1}\Big[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2m,2m,2,3+2m,$$
$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+$$
$$m\,\text{AppellF1}\Big[2+2m,1+2m,1,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\Big)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg)\Bigg)+$$
$$\Bigg(B\,(1+m)\,\text{AppellF1}\Big[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\Bigg)\Bigg/$$
$$\Bigg(2\,(1+2m)\,\Bigg(2\,(1+m)\,\text{AppellF1}\Big[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2m,2m,2,3+2m,$$
$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]+$$
$$m\,\text{AppellF1}\Big[2+2m,1+2m,1,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\Big)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg)\Bigg)+$$
$$\Bigg(A\,(1+m)\,\Bigg(-\frac{1}{2\,(2+2m)}(1+2m)\,\text{AppellF1}\Big[2+2m,2m,2,3+2m,\frac{1}{2}-\frac{1}{2}$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{2\,(2+2\,m)}m\,(1+2\,m)\,\mathrm{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\left(-1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Bigg)\Bigg/$$

$$\Bigg(\Big((1+2\,m)\,\Big(2\,(1+m)\,\mathrm{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-\Big(\mathrm{AppellF1}\Big[2+2\,m,\,2\,m,\,2,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$m\,\mathrm{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\left(-1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big)\Big)\Bigg)+$$

$$\Bigg(B\,(1+m)\,\Bigg(-\frac{1}{2\,(2+2\,m)}(1+2\,m)\,\mathrm{AppellF1}\Big[2+2\,m,\,2\,m,\,2,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-\frac{1}{2\,(2+2\,m)}m\,(1+2\,m)\,\mathrm{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\left(-1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Bigg)\Bigg/$$

$$\Bigg(\Big((1+2\,m)\,\Big(2\,(1+m)\,\mathrm{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-\Big(\mathrm{AppellF1}\Big[2+2\,m,\,2\,m,\,2,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$m\,\mathrm{AppellF1}\Big[2+2\,m,\,1+2\,m,\,1,\,3+2\,m,\,\frac{1}{2}-\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\left(-1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big)\Big)\Bigg)-$$

$$\Bigg(2\,A\,\mathrm{AppellF1}\Big[1,\,1-2\,m,\,2\,m,\,2,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\Bigg(\frac{1}{2}\Big(2\,m\,\mathrm{AppellF1}\Big[2,\,1-2\,m,\,1+2\,m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+(-1+2\,m)\,\mathrm{AppellF1}\Big[$$

$$2,\,2-2\,m,\,2\,m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-2\left(-\frac{1}{2}\,m\,\mathrm{AppellF1}\left[2,\right.\right.$$
$$1-2\,m,\,1+2\,m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{1}{4}\,(1-2\,m)\,\mathrm{AppellF1}\Big[$$
$$2,\,2-2\,m,\,2\,m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\Big(2\,m\,\Big(-\frac{1}{3}\,(1+2\,m)\,\mathrm{AppellF1}\Big[3,\,1-2\,m,\,2+2\,m,\,4,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\Big[$$
$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]+\frac{1}{3}\,(1-2\,m)\,\mathrm{AppellF1}\Big[3,\,2-2\,m,\,1+2\,m,\,4,\,\mathrm{Tan}\Big[\frac{1}{4}$$
$$\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)+(-1+2\,m)\,\Big(-\frac{2}{3}\,m\,\mathrm{AppellF1}\Big[3,\,2-2\,m,$$
$$1+2\,m,\,4,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{1}{3}\,(2-2\,m)\,\mathrm{AppellF1}\Big[$$
$$3,\,3-2\,m,\,2\,m,\,4,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$
$$\Big(\Big(-1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)\,\Big(-2\,\mathrm{AppellF1}\Big[1,\,1-2\,m,\,2\,m,\,2,$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+\Big(2\,m\,\mathrm{AppellF1}\Big[2,$$
$$1-2\,m,\,1+2\,m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$
$$(-1+2\,m)\,\mathrm{AppellF1}\Big[2,\,2-2\,m,\,2\,m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)^2\Big)+$$
$$\Big(2\,B\,\mathrm{AppellF1}\Big[1,\,1-2\,m,\,2\,m,\,2,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\,\Big(\frac{1}{2}\,\Big(2\,m\,\mathrm{AppellF1}\Big[2,\,1-2\,m,\,1+2\,m,\,3,$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+(-1+2\,m)\,\mathrm{AppellF1}\Big[$$
$$2,\,2-2\,m,\,2\,m,\,3,\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-2\left(-\frac{1}{2} m \,\text{AppellF1}\left[2,\right.\right.$$

$$1-2 m, 1+2 m, 3, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{4}(1-2 m) \,\text{AppellF1}\Big[$$

$$2, 2-2 m, 2 m, 3, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\left(2 m\left(-\frac{1}{3}(1+2 m) \,\text{AppellF1}\left[3, 1-2 m, 2+2 m, 4, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] \,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]+\frac{1}{3}(1-2 m) \,\text{AppellF1}\Big[3, 2-2 m, 1+2 m, 4, \text{Tan}\Big[\frac{1}{4}$$

$$\left(-e+\frac{\pi}{2}-f x\right)\Big]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] \,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+(-1+2 m)\left(-\frac{2}{3} m \,\text{AppellF1}\left[3, 2-2 m,\right.\right.$$

$$1+2 m, 4, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{3}(2-2 m) \,\text{AppellF1}\Big[$$

$$3, 3-2 m, 2 m, 4, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\left.\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\right) \Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\left(-2 \,\text{AppellF1}\left[1, 1-2 m, 2 m, 2,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\left(2 m \,\text{AppellF1}\left[2,\right.\right.$$

$$1-2 m, 1+2 m, 3, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(-1+2 m) \,\text{AppellF1}\left[2, 2-2 m, 2 m, 3, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\right)-$$

$$\left(4 B \,\text{AppellF1}\left[1, -2 m, 1+2 m, 2, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\left(\frac{1}{2}\left(2 m \,\text{AppellF1}\left[2, 1-2 m, 1+2 m, 3,\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+2 m) \,\text{AppellF1}\left[2, -2 m, 2+2 m, 3, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-2$$

$$\Big(-\frac{1}{2}\, m\, \text{AppellF1}\Big[2,\ 1-2 m,\ 1+2 m,\ 3,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-$$

$$\frac{1}{4}\,(1+2 m)\ \text{AppellF1}\Big[2,\ -2 m,\ 2+2 m,\ 3,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)+$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \Big(2 m\ \Big(-\frac{1}{3}\,(1+2 m)\ \text{AppellF1}\Big[3,\ 1-2 m,\ 2+2 m,$$

$$4,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{3}\,(1-2 m)\ \text{AppellF1}\Big[$$

$$3,\ 2-2 m,\ 1+2 m,\ 4,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)+$$

$$(1+2 m)\ \Big(-\frac{2}{3}\, m\, \text{AppellF1}\Big[3,\ 1-2 m,\ 2+2 m,\ 4,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{3}\,(2+2 m)\ \text{AppellF1}\Big[3,\ -2 m,\ 3+2 m,$$

$$4,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\Big(1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\ \Big(-2\, \text{AppellF1}\Big[1,\ -2 m,\ 1+2 m,\ 2,$$

$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+\Big(2 m\, \text{AppellF1}\Big[2,$$

$$1-2 m,\ 1+2 m,\ 3,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$(1+2 m)\ \text{AppellF1}\Big[2,\ -2 m,\ 2+2 m,\ 3,\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^2\Big)-$$

$$\Big(A\ (1+m)\ \text{AppellF1}\Big[1+2 m,\ 2 m,\ 1,\ 2+2 m,\ \frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\ \Big(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)$$

$$\Big(-\frac{1}{2}\ \Big(\text{AppellF1}\Big[2+2 m,\ 2 m,\ 2,\ 3+2 m,\ \frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+m\,\text{AppellF1}\Big[2+2m,1+2m,1,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+2\left(1+m\right)$$

$$\Big(-\frac{1}{2\left(2+2m\right)}\left(1+2m\right)\text{AppellF1}\Big[2+2m,2m,2,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{2\left(2+2m\right)}$$

$$m\left(1+2m\right)\text{AppellF1}\Big[2+2m,1+2m,1,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)-$$

$$\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big(-\frac{1}{3+2m}\left(2+2m\right)\text{AppellF1}\Big[3+2m,2m,$$

$$3,4+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{2\left(3+2m\right)}$$

$$m\left(2+2m\right)\text{AppellF1}\Big[3+2m,1+2m,2,4+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$

$$m\Big(-\frac{1}{2\left(3+2m\right)}\left(2+2m\right)\text{AppellF1}\Big[3+2m,1+2m,2,4+2m,$$

$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\frac{1}{4\left(3+2m\right)}$$

$$\left(1+2m\right)\left(2+2m\right)\text{AppellF1}\Big[3+2m,2+2m,1,4+2m,$$

$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\left(1+2m\right)\Big(2\left(1+m\right)\text{AppellF1}\Big[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-\Big(\text{AppellF1}\Big[2+2m,2m,2,3+2m,$$

$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$

$$m\,\text{AppellF1}\left[2+2m,1+2m,1,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)^2\Bigg)-$$
$$\Bigg(B\,(1+m)\,\text{AppellF1}\left[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)$$
$$\Bigg(-\frac{1}{2}\Bigg(\text{AppellF1}\left[2+2m,2m,2,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+m\,\text{AppellF1}\Big[2+2m,1+2m,1,3+2m,$$
$$\left.\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\Bigg)$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]+2\,(1+m)$$
$$\Bigg(-\frac{1}{2\,(2+2m)}(1+2m)\,\text{AppellF1}\Big[2+2m,2m,2,3+2m,$$
$$\left.\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]-\frac{1}{2\,(2+2m)}$$
$$m\,(1+2m)\,\text{AppellF1}\left[2+2m,1+2m,1,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\Bigg)-$$
$$\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg(-\frac{1}{3+2m}(2+2m)\,\text{AppellF1}\Big[3+2m,2m,$$
$$\left.3,4+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]-\frac{1}{2\,(3+2m)}$$
$$m\,(2+2m)\,\text{AppellF1}\left[3+2m,1+2m,2,4+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]+$$
$$m\,\Bigg(-\frac{1}{2\,(3+2m)}(2+2m)\,\text{AppellF1}\Big[3+2m,1+2m,2,4+2m,$$
$$\left.\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]-\frac{1}{4\,(3+2m)}$$
$$(1+2m)\,(2+2m)\,\text{AppellF1}\Big[3+2m,2+2m,1,4+2m,$$

$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ 1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(\left(1+2 m\right)\Bigg(2\left(1+m\right)\text{AppellF1}\Big[1+2 m,\ 2 m,\ 1,\ 2+2 m,\ \frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]-\Bigg(\text{AppellF1}\Big[2+2 m,\ 2 m,\ 2,\ 3+2 m,$$
$$\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ 1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$
$$m\,\text{AppellF1}\Big[2+2 m,\ 1+2 m,\ 1,\ 3+2 m,\ \frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 1025: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sec}[e+f x]^3\left(a+a\,\text{Sin}[e+f x]\right)^m\left(A+B\,\text{Sin}[e+f x]\right)dx$$

Optimal (type 5, 100 leaves, 3 steps):

$$-\frac{1}{4 f\left(1-m\right)}a\left(A\left(2-m\right)-B m\right)\text{Hypergeometric2F1}\Big[1,\ -1+m,\ m,\ \frac{1}{2}\left(1+\text{Sin}[e+f x]\right)\Big]$$
$$\left(a+a\,\text{Sin}[e+f x]\right)^{-1+m}+\frac{a^2\left(A+B\right)\left(a+a\,\text{Sin}[e+f x]\right)^{-1+m}}{2 f\left(a-a\,\text{Sin}[e+f x]\right)}$$

Result (type 6, 46 238 leaves): Display of huge result suppressed!

Problem 1026: Unable to integrate problem.

$$\int \text{Sec}[e+f x]^5\left(a+a\,\text{Sin}[e+f x]\right)^m\left(A+B\,\text{Sin}[e+f x]\right)dx$$

Optimal (type 5, 104 leaves, 3 steps):

$$-\frac{1}{16 f\left(2-m\right)}a^2\left(A\left(4-m\right)-B m\right)\text{Hypergeometric2F1}\Big[2,\ -2+m,\ -1+m,\ \frac{1}{2}\left(1+\text{Sin}[e+f x]\right)\Big]$$
$$\left(a+a\,\text{Sin}[e+f x]\right)^{-2+m}+\frac{a^4\left(A+B\right)\left(a+a\,\text{Sin}[e+f x]\right)^{-2+m}}{4 f\left(a-a\,\text{Sin}[e+f x]\right)^2}$$

Result (type 8, 33 leaves):

$$\int \text{Sec}[e+f x]^5\left(a+a\,\text{Sin}[e+f x]\right)^m\left(A+B\,\text{Sin}[e+f x]\right)dx$$

Problem 1027: Unable to integrate problem.

$$\int \text{Cos}[e+f x]^6 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Optimal (type 5, 129 leaves, 4 steps):

$$-\frac{1}{7 f (7+m)} 2^{\frac{7}{2}+m} a^3 (B m+A (7+m)) \text{Cos}[e+f x]^7 \text{Hypergeometric2F1}\left[\frac{7}{2}, -\frac{5}{2}-m, \frac{9}{2}, \frac{1}{2} (1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{2}-m} (a+a \text{Sin}[e+f x])^{-3+m} - \frac{B \text{Cos}[e+f x]^7 (a+a \text{Sin}[e+f x])^m}{f (7+m)}$$

Result (type 8, 33 leaves):

$$\int \text{Cos}[e+f x]^6 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Problem 1028: Unable to integrate problem.

$$\int \text{Cos}[e+f x]^4 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Optimal (type 5, 129 leaves, 4 steps):

$$-\frac{1}{5 f (5+m)} 2^{\frac{5}{2}+m} a^2 (B m+A (5+m)) \text{Cos}[e+f x]^5 \text{Hypergeometric2F1}\left[\frac{5}{2}, -\frac{3}{2}-m, \frac{7}{2}, \frac{1}{2} (1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{2}-m} (a+a \text{Sin}[e+f x])^{-2+m} - \frac{B \text{Cos}[e+f x]^5 (a+a \text{Sin}[e+f x])^m}{f (5+m)}$$

Result (type 8, 33 leaves):

$$\int \text{Cos}[e+f x]^4 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Problem 1029: Attempted integration timed out after 120 seconds.

$$\int \text{Cos}[e+f x]^2 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Optimal (type 5, 127 leaves, 4 steps):

$$-\frac{1}{3 f (3+m)} 2^{\frac{3}{2}+m} a (B m+A (3+m)) \text{Cos}[e+f x]^3 \text{Hypergeometric2F1}\left[\frac{3}{2}, -\frac{1}{2}-m, \frac{5}{2}, \frac{1}{2} (1-\text{Sin}[e+f x])\right] (1+\text{Sin}[e+f x])^{-\frac{1}{2}-m} (a+a \text{Sin}[e+f x])^{-1+m} - \frac{B \text{Cos}[e+f x]^3 (a+a \text{Sin}[e+f x])^m}{f (3+m)}$$

Result (type 1, 1 leaves):

???

Problem 1030: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[e+f x]^2 (a+a \mathrm{Sin}[e+f x])^m (A+B \mathrm{Sin}[e+f x])\, dx$$

Optimal (type 5, 123 leaves, 4 steps):

$$\frac{B \mathrm{Sec}[e+f x] (a+a \mathrm{Sin}[e+f x])^m}{f (1-m)}+\frac{1}{f (1-m)} 2^{-\frac{1}{2}+m} (A (1-m)-B m) \mathrm{Hypergeometric2F1}\left[-\frac{1}{2},\frac{3}{2}-m,\frac{1}{2},\frac{1}{2} (1-\mathrm{Sin}[e+f x])\right] \mathrm{Sec}[e+f x] (1+\mathrm{Sin}[e+f x])^{\frac{1}{2}-m} (a+a \mathrm{Sin}[e+f x])^m$$

Result (type 6, 12 366 leaves):

$$-\left(\left(\mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{-2 m} \mathrm{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right] (a+a \mathrm{Sin}[e+f x])^m\right.\right.$$
$$\left(\left(A \mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m}\right)\Big/\left(\left(\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^2\right.\right.$$
$$\left.\left(\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]+\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^2\right)+\left(B \mathrm{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^{2 m}\right.$$
$$\mathrm{Sin}[e+f x]\Big)\Big/\left(\left(\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]-\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^2\right.$$
$$\left.\left.\left(\mathrm{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]+\mathrm{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right)\right]\right)^2\right)\right)$$
$$\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2 (-1+m)}\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2 m}$$
$$\left(-\left(\left(15 (A+B) \mathrm{AppellF1}\left[-\frac{1}{2},2-2 m,2 m,\frac{1}{2},\right.\right.\right.\right.$$
$$\left.\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\Big/$$
$$\left(\mathrm{AppellF1}\left[-\frac{1}{2},2-2 m,2 m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-\right.$$
$$4\left(m \mathrm{AppellF1}\left[\frac{1}{2},2-2 m,1+2 m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+m) \mathrm{AppellF1}\left[\frac{1}{2},3-2 m,2 m,\frac{3}{2},\right.$$
$$\left.\left.\left.\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right) \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)+$$

$$\left(45\,(3A-5B)\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-4\left(m\,\text{AppellF1}\left[\frac{3}{2},2-2m,1+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{3}{2},3-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)+$$

$$\left(25\,(3A-5B)\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^4\right)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]-4\left(m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{5}{2},3-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)-$$

$$\left(21\,(A+B)\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^6\right)\Big/$$

$$\left(-7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+4\left(m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\Bigg)\Bigg)\Big/$$

$$\left(60\,f\left(-\frac{1}{60}(-1+m)\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)^{-1+2(-1+m)}\right.\right.$$

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2}\right)^{2m}$$

$$\left(-\left(\left(15\,(A+B)\,\text{AppellF1}\left[-\frac{1}{2},2-2m,2m,\frac{1}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.\right.\right.$$

$$
\begin{aligned}
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big) \Big/ \Big(\text{AppellF1}\Big[-\frac{1}{2}, 2-2m, 2m, \frac{1}{2},\\
&\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] - 4\Big(m\,\text{AppellF1}\Big[\frac{1}{2},\\
&2-2m, 1+2m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] +\\
&(-1+m)\,\text{AppellF1}\Big[\frac{1}{2}, 3-2m, 2m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big) +\\
&\Big(45\,(3A-5B)\,\text{AppellF1}\Big[\frac{1}{2}, 2-2m, 2m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big) \Big/\\
&\Big(3\,\text{AppellF1}\Big[\frac{1}{2}, 2-2m, 2m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] -\\
&4\Big(m\,\text{AppellF1}\Big[\frac{3}{2}, 2-2m, 1+2m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + (-1+m)\,\text{AppellF1}\Big[\frac{3}{2}, 3-2m, 2m, \frac{5}{2},\\
&\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big) +\\
&\Big(25\,(3A-5B)\,\text{AppellF1}\Big[\frac{3}{2}, 2-2m, 2m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Big) \Big/\\
&\Big(5\,\text{AppellF1}\Big[\frac{3}{2}, 2-2m, 2m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] -\\
&4\Big(m\,\text{AppellF1}\Big[\frac{5}{2}, 2-2m, 1+2m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + (-1+m)\,\text{AppellF1}\Big[\frac{5}{2}, 3-2m, 2m, \frac{7}{2},\\
&\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big) -\\
&\Big(21\,(A+B)\,\text{AppellF1}\Big[\frac{5}{2}, 2-2m, 2m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^6\Big) \Big/\\
&\Big(-7\,\text{AppellF1}\Big[\frac{5}{2}, 2-2m, 2m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] +\\
&4\Big(m\,\text{AppellF1}\Big[\frac{7}{2}, 2-2m, 1+2m, \frac{9}{2}, \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big] + (-1+m)\,\text{AppellF1}\Big[\frac{7}{2}, 3-2m, 2m, \frac{9}{2}, \text{Tan}\Big[\\
&\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]^2, -\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big) -
\end{aligned}
$$

$$\frac{1}{240}\,\text{Csc}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\,\Big(1-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)^{2\,(-1+m)}$$

$$\left(\frac{1}{1+\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2}\right)^{2\,m}$$

$$\Big(-\Big(\Big(15\,(A+B)\,\text{AppellF1}\Big[-\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{1}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)\Big/\Big(\text{AppellF1}\Big[-\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{1}{2},$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]-4\,\Big(m\,\text{AppellF1}\Big[\frac{1}{2},$$

$$2-2\,m,\,1+2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+$$

$$(-1+m)\,\text{AppellF1}\Big[\frac{1}{2},\,3-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)\Big)+$$

$$\Big(45\,(3\,A-5\,B)\,\text{AppellF1}\Big[\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)\Big/$$

$$\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]-$$

$$4\,\Big(m\,\text{AppellF1}\Big[\frac{3}{2},\,2-2\,m,\,1+2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+(-1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,3-2\,m,\,2\,m,\,\frac{5}{2},$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)+$$

$$\Big(25\,(3\,A-5\,B)\,\text{AppellF1}\Big[\frac{3}{2},\,2-2\,m,\,2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^4\Big)\Big/$$

$$\Big(5\,\text{AppellF1}\Big[\frac{3}{2},\,2-2\,m,\,2\,m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]-$$

$$4\,\Big(m\,\text{AppellF1}\Big[\frac{5}{2},\,2-2\,m,\,1+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]+(-1+m)\,\text{AppellF1}\Big[\frac{5}{2},\,3-2\,m,\,2\,m,\,\frac{7}{2},$$

$$\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big)-$$

$$\Big(21\,(A+B)\,\text{AppellF1}\Big[\frac{5}{2},\,2-2\,m,\,2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{4}\Big(-e+\frac{\pi}{2}-f\,x\Big)\Big]^6\Big)\Big/$$

$$\left(-7\,\text{AppellF1}\left[\frac{5}{2},\,2-2\,m,\,2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+\right.$$

$$4\left(m\,\text{AppellF1}\left[\frac{7}{2},\,2-2\,m,\,1+2\,m,\,\frac{9}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{7}{2},\,3-2\,m,\,2\,m,\,\frac{9}{2},\,\text{Tan}\left[\right.\right.$$

$$\left.\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)-$$

$$\frac{1}{60}\,m\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{2\,(-1+m)}$$

$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right)^{1+2\,m}$$

$$\left(-\left(\left(15\,(A+B)\,\text{AppellF1}\left[-\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{1}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\Big/\left(\text{AppellF1}\left[-\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{1}{2},\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-4\left(m\,\text{AppellF1}\left[\frac{1}{2},\right.\right.$$

$$\left.2-2\,m,\,1+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+$$

$$(-1+m)\,\text{AppellF1}\left[\frac{1}{2},\,3-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)+$$

$$\left(45\,(3\,A-5\,B)\,\text{AppellF1}\left[\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-\right.$$

$$4\left(m\,\text{AppellF1}\left[\frac{3}{2},\,2-2\,m,\,1+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,3-2\,m,\,2\,m,\,\frac{5}{2},\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)+$$

$$\left(25\,(3\,A-5\,B)\,\text{AppellF1}\left[\frac{3}{2},\,2-2\,m,\,2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\right)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},\,2-2\,m,\,2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-\right.$$

$$4\left(m\,\text{AppellF1}\left[\frac{5}{2},\,2-2\,m,\,1+2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$
\begin{aligned}
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{5}{2},3-2m,2m,\frac{7}{2},\\
&\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)-\\
&\left(21\,(A+B)\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^6\Bigg)\Bigg/\\
&\left(-7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+\right.\\
&4\left(m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\left[\right.\right.\\
&\left.\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)+\\
&\frac{1}{60}\text{Cot}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(1-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{2(-1+m)}\\
&\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right)^{2m}\\
&\left(-\left(\left(15\,(A+B)\left(m\,\text{AppellF1}\left[\frac{1}{2},2-2m,1+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.\right.\right.\\
&-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-\\
&\frac{1}{2}(2-2m)\,\text{AppellF1}\left[\frac{1}{2},3-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg/\\
&\left(\text{AppellF1}\left[-\frac{1}{2},2-2m,2m,\frac{1}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-\right.\\
&4\left(m\,\text{AppellF1}\left[\frac{1}{2},2-2m,1+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\right.\right.\right.\\
&\left.\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{1}{2},3-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\right.\right.\right.\\
&\left.\left.\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)+\\
&\left(45\,(3A-5B)\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\\
&\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg/\\
&\left(2\left(3\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-\right.\right.\\
&4\left(m\,\text{AppellF1}\left[\frac{3}{2},2-2m,1+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.
\end{aligned}
$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(-1+m)\,\text{AppellF1}\left[\frac{3}{2},3-2m,\right.$$
$$\left.2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)\Big)+\Big(45\,(3A-5B)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\Big(-\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},2-2m,1+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{6}$$
$$(2-2m)\,\text{AppellF1}\left[\frac{3}{2},3-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big/$$
$$\Big(3\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$
$$4\Big(m\,\text{AppellF1}\left[\frac{3}{2},2-2m,1+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{3}{2},3-2m,2m,\frac{5}{2},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$
$$\Big(25\,(3A-5B)\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^3\Big)\Big/$$
$$\Big(5\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$
$$4\Big(m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{5}{2},3-2m,2m,\frac{7}{2},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)+$$
$$\Big(25\,(3A-5B)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\Big(-\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\right.$$
$$\left.\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{3}{10}(2-2m)$$
$$\text{AppellF1}\left[\frac{5}{2},3-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big/$$
$$\Big(5\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-$$

$$4\left(m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{5}{2},3-2m,2m,\frac{7}{2},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)-$$
$$\left(63\,(A+B)\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^5\right)\Big/$$
$$\left(2\left(-7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+4\left(m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\right.\right.$$
$$\left.\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+$$
$$(-1+m)\,\text{AppellF1}\left[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)\right)-$$
$$\left(21\,(A+B)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^6\left(-\frac{5}{7}m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\right.\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]+\frac{5}{14}(2-2m)$$
$$\text{AppellF1}\left[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]\right)\right)\Big/$$
$$\left(-7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+\right.$$
$$4\left(m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{7}{2},3-2m,2m,\frac{9}{2},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right)+$$
$$\left(15\,(A+B)\,\text{AppellF1}\left[-\frac{1}{2},2-2m,2m,\frac{1}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]\left(m\,\text{AppellF1}\left[\frac{1}{2},2-2m,1+2m,\right.\right.$$
$$\left.\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-fx\right)\right]-\frac{1}{2}(2-2m)$$

$$\text{AppellF1}\left[\frac{1}{2},\,3-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-2\,\left(m\,\text{AppellF1}\left[\frac{1}{2},\,2-2\,m,\,1+2\,m,\right.\right.$$

$$\left.\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\right.$$

$$\left.\left.\frac{1}{2},\,3-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]-4\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\left(m\,\left(-\frac{1}{6}\,(1+2\,m)\,\text{AppellF1}\left[\frac{3}{2},\,2-2\,m,\,2+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\right.\right.\right.$$

$$\left.\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+$$

$$\frac{1}{6}\,(2-2\,m)\,\text{AppellF1}\left[\frac{3}{2},\,3-2\,m,\,1+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)+(-1+m)\,\left(-\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{2},\,3-2\,m,\right.\right.$$

$$\left.1+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{1}{6}\,(3-2\,m)\,\text{AppellF1}\left[\right.$$

$$\left.\frac{3}{2},\,4-2\,m,\,2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\right)\right)\right)\Big/$$

$$\left(\text{AppellF1}\left[-\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{1}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]-\right.$$

$$4\,\left(m\,\text{AppellF1}\left[\frac{1}{2},\,2-2\,m,\,1+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\right.\right.\right.$$

$$\left.\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+(-1+m)\,\text{AppellF1}\left[\frac{1}{2},\,3-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^2-$$

$$\left(45\,(3\,A-5\,B)\,\text{AppellF1}\left[\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\left(-2\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,2-2\,m,\,1+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,3-2\,m,\right.$$

$$\left.\left.2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+3\left(-\frac{1}{3} m\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$2-2 m,1+2 m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{1}{6}(2-2 m)\,\text{AppellF1}\Big[$$
$$\frac{3}{2},3-2 m,2 m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)-4\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\left(m\left(-\frac{3}{10}(1+2 m)\,\text{AppellF1}\left[\frac{5}{2},2-2 m,2+2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\Big[$$
$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\Big]+\frac{3}{10}(2-2 m)\,\text{AppellF1}\Big[\frac{5}{2},3-2 m,1+2 m,\frac{7}{2},\text{Tan}\Big[\frac{1}{4}$$
$$\left(-e+\frac{\pi}{2}-f x\right)\Big]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)+(-1+m)\left(-\frac{3}{5} m\,\text{AppellF1}\Big[\frac{5}{2},3-2 m,\right.$$
$$1+2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{3}{10}(3-2 m)\,\text{AppellF1}\Big[$$
$$\frac{5}{2},4-2 m,2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right)\right)\right)\Big/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},2-2 m,2 m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]-\right.$$
$$4\left(m\,\text{AppellF1}\left[\frac{3}{2},2-2 m,1+2 m,\frac{5}{2},\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+$$
$$(-1+m)\,\text{AppellF1}\left[\frac{3}{2},3-2 m,2 m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^2-$$
$$\left(25(3 A-5 B)\,\text{AppellF1}\left[\frac{3}{2},2-2 m,2 m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^4$$
$$\left(-2\left(m\,\text{AppellF1}\left[\frac{5}{2},2-2 m,1+2 m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{5}{2},3-2 m,\right.$$

$$2\,m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+5\left(-\frac{3}{5}\,m\,\mathrm{AppellF1}\Big[\frac{5}{2},\right.$$

$$2-2\,m,\ 1+2\,m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{3}{10}\,(2-2\,m)\,\mathrm{AppellF1}\Big[$$

$$\frac{5}{2},\ 3-2\,m,\ 2\,m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\left.\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)-4\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\Big(m\,\Big(-\frac{5}{14}\,(1+2\,m)\,\mathrm{AppellF1}\Big[\frac{7}{2},\ 2-2\,m,\ 2+2\,m,\ \frac{9}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\Big[$$

$$\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]+\frac{5}{14}\,(2-2\,m)\,\mathrm{AppellF1}\Big[\frac{7}{2},\ 3-2\,m,\ 1+2\,m,\ \frac{9}{2},\ \mathrm{Tan}\Big[\frac{1}{4}$$

$$\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)+(-1+m)\,\Big(-\frac{5}{7}\,m\,\mathrm{AppellF1}\Big[\frac{7}{2},\ 3-2\,m,$$

$$1+2\,m,\ \frac{9}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+\frac{5}{14}\,(3-2\,m)\,\mathrm{AppellF1}\Big[$$

$$\frac{7}{2},\ 4-2\,m,\ 2\,m,\ \frac{9}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(5\,\mathrm{AppellF1}\Big[\frac{3}{2},\ 2-2\,m,\ 2\,m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]-$$

$$4\,\Big(m\,\mathrm{AppellF1}\Big[\frac{5}{2},\ 2-2\,m,\ 1+2\,m,\ \frac{7}{2},$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]+$$

$$(-1+m)\,\mathrm{AppellF1}\Big[\frac{5}{2},\ 3-2\,m,\ 2\,m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big)^2+$$

$$\Big(21\,(A+B)\,\mathrm{AppellF1}\Big[\frac{5}{2},\ 2-2\,m,\ 2\,m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Big]\,\mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^6$$

$$\Big(2\,\Big(m\,\mathrm{AppellF1}\Big[\frac{7}{2},\ 2-2\,m,\ 1+2\,m,\ \frac{9}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+(-1+m)\,\text{AppellF1}\Big[\frac{7}{2},3-2m,$$
$$2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]-7$$
$$\Big(-\frac{5}{7}m\,\text{AppellF1}\Big[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+$$
$$\frac{5}{14}(2-2m)\,\text{AppellF1}\Big[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)+4$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big(m\Big(-\frac{7}{18}(1+2m)\,\text{AppellF1}\Big[\frac{9}{2},2-2m,2+2m,$$
$$\frac{11}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{18}(2-2m)\,\text{AppellF1}\Big[\frac{9}{2},$$
$$3-2m,1+2m,\frac{11}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)+(-1+m)$$
$$\Big(-\frac{7}{9}m\,\text{AppellF1}\Big[\frac{9}{2},3-2m,1+2m,\frac{11}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]+\frac{7}{18}(3-2m)\,\text{AppellF1}\Big[\frac{9}{2},4-2m,$$
$$2m,\frac{11}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]\Big)\Big)\Big)\Big)\Big/$$
$$\Big(-7\,\text{AppellF1}\Big[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+4\Big(m\,\text{AppellF1}\Big[\frac{7}{2},2-2m,1+2m,$$
$$\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]+$$
$$(-1+m)\,\text{AppellF1}\Big[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Big)^2\Big)\Big)\Big)\Big)$$

Problem 1031: Unable to integrate problem.

$$\int \text{Sec}[e+f x]^4 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Optimal (type 5, 135 leaves, 4 steps):

$$\frac{B \text{Sec}[e+f x]^3 (a+a \text{Sin}[e+f x])^m}{f (3-m)} + \frac{1}{3 a f (3-m)}$$
$$2^{-\frac{3}{2}+m} (A (3-m) - B m) \text{Hypergeometric2F1}\left[-\frac{3}{2}, \frac{5}{2}-m, -\frac{1}{2}, \frac{1}{2} (1-\text{Sin}[e+f x])\right]$$
$$\text{Sec}[e+f x]^3 (1+\text{Sin}[e+f x])^{\frac{1}{2}-m} (a+a \text{Sin}[e+f x])^{1+m}$$

Result (type 8, 33 leaves):

$$\int \text{Sec}[e+f x]^4 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Problem 1032: Unable to integrate problem.

$$\int \text{Sec}[e+f x]^6 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Optimal (type 5, 135 leaves, 4 steps):

$$\frac{B \text{Sec}[e+f x]^5 (a+a \text{Sin}[e+f x])^m}{f (5-m)} + \frac{1}{5 a^2 f (5-m)}$$
$$2^{-\frac{5}{2}+m} (A (5-m) - B m) \text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{7}{2}-m, -\frac{3}{2}, \frac{1}{2} (1-\text{Sin}[e+f x])\right]$$
$$\text{Sec}[e+f x]^5 (1+\text{Sin}[e+f x])^{\frac{1}{2}-m} (a+a \text{Sin}[e+f x])^{2+m}$$

Result (type 8, 33 leaves):

$$\int \text{Sec}[e+f x]^6 (a+a \text{Sin}[e+f x])^m (A+B \text{Sin}[e+f x]) \, dx$$

Problem 1033: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (g \text{Cos}[e+f x])^p (A+B \text{Sin}[e+f x]) (c-c \text{Sin}[e+f x])^{-4-p} \, dx$$

Optimal (type 3, 239 leaves, 4 steps):

$$\frac{(A+B)\,(g\,\mathrm{Cos}[e+f\,x])^{1+p}\,(c-c\,\mathrm{Sin}[e+f\,x])^{-4-p}}{f\,g\,(7+p)}+\frac{(3\,A-B\,(4+p))\,(g\,\mathrm{Cos}[e+f\,x])^{1+p}\,(c-c\,\mathrm{Sin}[e+f\,x])^{-3-p}}{c\,f\,g\,(5+p)\,(7+p)}+\frac{2\,(3\,A-B\,(4+p))\,(g\,\mathrm{Cos}[e+f\,x])^{1+p}\,(c-c\,\mathrm{Sin}[e+f\,x])^{-2-p}}{c^2\,f\,g\,(3+p)\,(5+p)\,(7+p)}+\frac{2\,(3\,A-B\,(4+p))\,(g\,\mathrm{Cos}[e+f\,x])^{1+p}\,(c-c\,\mathrm{Sin}[e+f\,x])^{-1-p}}{c^3\,f\,g\,(1+p)\,(3+p)\,(5+p)\,(7+p)}$$

Result (type 5, 1100 leaves):

$$\frac{1}{f\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^7}\mathrm{Cos}[e+f\,x]^{-p}\,(g\,\mathrm{Cos}[e+f\,x])^p\left(\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-2\,(-4-p)-2\,p}$$
$$(c-c\,\mathrm{Sin}[e+f\,x])^{-4-p}\left(\frac{1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\sqrt{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}}\right)^{2\,p}\left(\frac{1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^p$$
$$\left(\frac{1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}\right)^{-2\,p}\left(-\frac{A\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^6\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{1+p}-\frac{1}{7+p}2^{4+p}\,A\right.$$
$$\mathrm{Hypergeometric2F1}\left[-7-p,-p,-6-p,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-p}-$$
$$\frac{1}{7+p}2^{4+p}\,B\,\mathrm{Hypergeometric2F1}\left[-7-p,-p,-6-p,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]$$
$$\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-p}-\frac{1}{6+p}3\times 2^{4+p}\,A\,\mathrm{Hypergeometric2F1}\left[-6-p,-p,-5-p,\right.$$
$$\left.\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-p}-$$
$$\frac{1}{6+p}3\times 2^{4+p}\,B\,\mathrm{Hypergeometric2F1}\left[-6-p,-p,-5-p,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]$$
$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-p}-\frac{1}{5+p}$$
$$9\times 2^{3+p}\,A\,\mathrm{Hypergeometric2F1}\left[-5-p,-p,-4-p,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]$$
$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^{-p}-\frac{1}{5+p}$$
$$2^{6+p}\,B\,\mathrm{Hypergeometric2F1}\left[-5-p,-p,-4-p,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{-p} - \frac{1}{4+p}$$

$$2^{6+p} \text{ A Hypergeometric2F1}\left[-4-p, -p, -3-p, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{-p} - \frac{1}{4+p}$$

$$3 \times 2^{4+p} \text{ B Hypergeometric2F1}\left[-4-p, -p, -3-p, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{-p} - \frac{1}{3+p}$$

$$9 \times 2^{2+p} \text{ A Hypergeometric2F1}\left[-3-p, -p, -2-p, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^4 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{-p} - \frac{1}{3+p}$$

$$5 \times 2^{2+p} \text{ B Hypergeometric2F1}\left[-3-p, -p, -2-p, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^4 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{-p} - \frac{1}{2+p}$$

$$3 \times 2^{2+p} \text{ A Hypergeometric2F1}\left[-2-p, -p, -1-p, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^5 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{-p} - \frac{1}{2+p}$$

$$2^{2+p} \text{ B Hypergeometric2F1}\left[-2-p, -p, -1-p, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right]$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^5 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{-p}\right)$$

Problem 1036: Unable to integrate problem.

$$\int (g \text{ Cos}[e+f x])^p (A+B \text{ Sin}[e+f x]) (c-c \text{ Sin}[e+f x])^{-1-p} \, dx$$

Optimal (type 5, 151 leaves, 4 steps):

$$\frac{(A+B) (g \text{ Cos}[e+f x])^{1+p} (c-c \text{ Sin}[e+f x])^{-1-p}}{f g (1+p)} - \frac{1}{f g (1+p)}$$

$$2^{\frac{1}{2}-\frac{p}{2}} B (g \text{ Cos}[e+f x])^{1+p} \text{ Hypergeometric2F1}\left[\frac{1+p}{2}, \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2}(1+\text{Sin}[e+f x])\right]$$

$$(1-\text{Sin}[e+f x])^{\frac{1+p}{2}} (c-c \text{ Sin}[e+f x])^{-1-p}$$

Result (type 8, 40 leaves):

$$\int (g \text{ Cos}[e+f x])^p (A+B \text{ Sin}[e+f x]) (c-c \text{ Sin}[e+f x])^{-1-p} \, dx$$

Problem 1037: Unable to integrate problem.

$$\int (g \operatorname{Cos}[e+f x])^p (A+B \operatorname{Sin}[e+f x]) (c-c \operatorname{Sin}[e+f x])^{-p} \, dx$$

Optimal (type 5, 147 leaves, 4 steps):

$$\frac{1}{f g (1+p)} 2^{\frac{1}{2}-\frac{p}{2}} c (A+B p) (g \operatorname{Cos}[e+f x])^{1+p} \operatorname{Hypergeometric2F1}\left[\frac{1+p}{2}, \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2} (1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{\frac{1+p}{2}} (c-c \operatorname{Sin}[e+f x])^{-1-p} - \frac{B (g \operatorname{Cos}[e+f x])^{1+p} (c-c \operatorname{Sin}[e+f x])^{-p}}{f g}$$

Result (type 8, 38 leaves):

$$\int (g \operatorname{Cos}[e+f x])^p (A+B \operatorname{Sin}[e+f x]) (c-c \operatorname{Sin}[e+f x])^{-p} \, dx$$

Problem 1038: Unable to integrate problem.

$$\int (g \operatorname{Cos}[e+f x])^p (A+B \operatorname{Sin}[e+f x]) (c-c \operatorname{Sin}[e+f x])^{1-p} \, dx$$

Optimal (type 5, 160 leaves, 4 steps):

$$\frac{1}{f g (1+p)} 2^{\frac{1}{2}-\frac{p}{2}} c^2 (2 A-B (1-p)) (g \operatorname{Cos}[e+f x])^{1+p} \operatorname{Hypergeometric2F1}\left[\frac{1}{2} (-1+p), \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2} (1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{\frac{1+p}{2}} (c-c \operatorname{Sin}[e+f x])^{-1-p} - \frac{B (g \operatorname{Cos}[e+f x])^{1+p} (c-c \operatorname{Sin}[e+f x])^{1-p}}{2 f g}$$

Result (type 8, 40 leaves):

$$\int (g \operatorname{Cos}[e+f x])^p (A+B \operatorname{Sin}[e+f x]) (c-c \operatorname{Sin}[e+f x])^{1-p} \, dx$$

Problem 1039: Attempted integration timed out after 120 seconds.

$$\int (g \operatorname{Cos}[e+f x])^p (A+B \operatorname{Sin}[e+f x]) (c-c \operatorname{Sin}[e+f x])^{2-p} \, dx$$

Optimal (type 5, 163 leaves, 4 steps):

$$\frac{1}{3 f g (1+p)} 2^{\frac{5}{2}-\frac{p}{2}} c^3 (3 A-B (2-p)) (g \operatorname{Cos}[e+f x])^{1+p} \operatorname{Hypergeometric2F1}\left[\frac{1}{2} (-3+p), \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2} (1+\operatorname{Sin}[e+f x])\right] (1-\operatorname{Sin}[e+f x])^{\frac{1+p}{2}} (c-c \operatorname{Sin}[e+f x])^{-1-p} - \frac{B (g \operatorname{Cos}[e+f x])^{1+p} (c-c \operatorname{Sin}[e+f x])^{2-p}}{3 f g}$$

Result (type 1, 1 leaves):

???

Problem 1042: Result more than twice size of optimal antiderivative.

$$\int (g \operatorname{Cos}[e+f x])^p (a+a \operatorname{Sin}[e+f x])^m (c+d \operatorname{Sin}[e+f x])^n \, dx$$

Optimal (type 6, 168 leaves, 4 steps):

$$\frac{1}{a f (1+2 m+p)} 2^{\frac{1+p}{2}} g \operatorname{AppellF1}\left[\frac{1}{2}(1+2 m+p), \frac{1-p}{2}, -n, \frac{1}{2}(3+2 m+p), \frac{1}{2}(1+\operatorname{Sin}[e+f x]), -\frac{d (1+\operatorname{Sin}[e+f x])}{c-d}\right] (g \operatorname{Cos}[e+f x])^{-1+p} (1-\operatorname{Sin}[e+f x])^{\frac{1-p}{2}} (a+a \operatorname{Sin}[e+f x])^{1+m} (c+d \operatorname{Sin}[e+f x])^n \left(\frac{c+d \operatorname{Sin}[e+f x]}{c-d}\right)^{-n}$$

Result (type 6, 4377 leaves):

$$-\Bigg(\Bigg(\Bigg(2 (c+d) (3+p) \operatorname{AppellF1}\left[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d) \operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] \operatorname{Cos}[e+f x]^p (g \operatorname{Cos}[e+f x])^p \left(\operatorname{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1-m} (a+a \operatorname{Sin}[e+f x])^m (c+d \operatorname{Sin}[e+f x])^{2 n} \operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg/$$

$$\Bigg(f (1+p) \Bigg((c+d) (3+p) \operatorname{AppellF1}\left[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d) \operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] - 2 \Bigg((-c+d) n \operatorname{AppellF1}\left[\frac{3+p}{2}, 1+m+n+p, 1-n, \frac{5+p}{2}, -\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d) \operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] + (c+d) (1+m+n+p) \operatorname{AppellF1}\left[\frac{3+p}{2}, 2+m+n+p, -n, \frac{5+p}{2}, -\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d) \operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\Bigg)$$

$$\operatorname{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg) \Bigg(\Bigg((c+d) (3+p) \operatorname{AppellF1}\left[\frac{1+p}{2}, 1+m+n+p, -n,\right.$$

$$\frac{3+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]$$

$$\mathrm{Cos}[e+f x]^p\left(\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-m}(c+d\,\mathrm{Sin}[e+f x])^n\Bigg)\Bigg/$$

$$\Bigg((1+p)\Bigg((c+d)\,(3+p)\,\mathrm{AppellF1}\Big[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]-2\Bigg((-c+d)\,n\,\mathrm{AppellF1}\Big[\frac{3+p}{2}, 1+m+n+p, 1-n,$$

$$\frac{5+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]+(c+d)$$

$$(1+m+n+p)\,\mathrm{AppellF1}\Big[\frac{3+p}{2}, 2+m+n+p, -n, \frac{5+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(2\,d\,(c+d)\,n\,(3+p)\,\mathrm{AppellF1}\Big[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]\,\mathrm{Cos}[e+f x]^{1+p}$$

$$\left(\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1-m}(c+d\,\mathrm{Sin}[e+f x])^{-1+n}\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg/$$

$$\Bigg((1+p)\Bigg((c+d)\,(3+p)\,\mathrm{AppellF1}\Big[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]-2\Bigg((-c+d)\,n\,\mathrm{AppellF1}\Big[\frac{3+p}{2}, 1+m+n+p, 1-n,$$

$$\frac{5+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]+(c+d)$$

$$(1+m+n+p)\,\mathrm{AppellF1}\Big[\frac{3+p}{2}, 2+m+n+p, -n, \frac{5+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,(c+d)\,p\,(3+p)\,\mathrm{AppellF1}\Big[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,$$

$$-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]\,\text{Cos}[e+f\,x]^{-1+p}\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1-m}$$

$$\text{Sin}[e+f\,x]\,\left(c+d\,\text{Sin}[e+f\,x]\right)^n\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Big/$$

$$\Bigg((1+p)\,\Bigg((c+d)\,(3+p)\,\text{AppellF1}\left[\frac{1+p}{2},\,1+m+n+p,\,-n,\,\frac{3+p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]-2\,\Bigg((-c+d)\,n\,\text{AppellF1}\left[\frac{3+p}{2},\,1+m+n+p,\,1-n,\right.$$

$$\left.\frac{5+p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]+(c+d)$$

$$(1+m+n+p)\,\text{AppellF1}\left[\frac{3+p}{2},\,2+m+n+p,\,-n,\,\frac{5+p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,(c+d)\,(-1-m)\,(3+p)\,\text{AppellF1}\left[\frac{1+p}{2},\,1+m+n+p,\,-n,\,\frac{3+p}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]\,\text{Cos}[e+f\,x]^p$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1-m}\,\left(c+d\,\text{Sin}[e+f\,x]\right)^n\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Big/$$

$$\Bigg((1+p)\,\Bigg((c+d)\,(3+p)\,\text{AppellF1}\left[\frac{1+p}{2},\,1+m+n+p,\,-n,\,\frac{3+p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]-2\,\Bigg((-c+d)\,n\,\text{AppellF1}\left[\frac{3+p}{2},\,1+m+n+p,\,1-n,\right.$$

$$\left.\frac{5+p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]+(c+d)$$

$$(1+m+n+p)\,\text{AppellF1}\left[\frac{3+p}{2},\,2+m+n+p,\,-n,\,\frac{5+p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,(c+d)\,(3+p)\,\text{Cos}[e+f\,x]^p\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1-m}\left(c+d\,\text{Sin}[e+f\,x]\right)^n$$

$$\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(\left(\left((c-d)\, n\, (1+p)\, \text{AppellF1}\left[1+\frac{1+p}{2}, 1+m+n+p, 1-n,\right.\right.\right.\right.$$

$$\left.1+\frac{3+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\right) \Big/ \left((c+d)\,(3+p)\right) -$$

$$\frac{1}{3+p}(1+p)\,(1+m+n+p)\,\text{AppellF1}\left[1+\frac{1+p}{2}, 2+m+n+p, -n, 1+\frac{3+p}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]$$

$$\left.\left.\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right) \Big/$$

$$\left((1+p)\left((c+d)\,(3+p)\,\text{AppellF1}\left[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]-2\left((-c+d)\, n\, \text{AppellF1}\left[\frac{3+p}{2}, 1+m+n+p, 1-n,\right.\right.$$

$$\left.\frac{5+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]+(c+d)$$

$$(1+m+n+p)\,\text{AppellF1}\left[\frac{3+p}{2}, 2+m+n+p, -n, \frac{5+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\right) \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right) -$$

$$\left(2\,(c+d)\,(3+p)\,\text{AppellF1}\left[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\text{Cos}[e+f x]^p$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1-m}(c+d\,\text{Sin}[e+f x])^n\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\left(-2\left((-c+d)\, n\, \text{AppellF1}\left[\frac{3+p}{2}, 1+m+n+p, 1-n, \frac{5+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]+(c+d)\,(1+m+n+p)\,\text{AppellF1}\left[\frac{3+p}{2}, 2+m+\right.$$

$$n+p,\ -n,\ \frac{5+p}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]\Bigg)$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+(c+d)\,(3+p)$$

$$\Bigg(\Bigg((c-d)\,n\,(1+p)\,\mathrm{AppellF1}\Big[1+\frac{1+p}{2},\ 1+m+n+p,\ 1-n,\ 1+\frac{3+p}{2},$$

$$-\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Big/\ ((c+d)\,(3+p))\ -$$

$$\frac{1}{3+p}(1+p)\,(1+m+n+p)\,\mathrm{AppellF1}\Big[1+\frac{1+p}{2},\ 2+m+n+p,\ -n,$$

$$1+\frac{3+p}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)-2\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\Bigg((-c+d)\,n\,\Bigg(-\Bigg(\Bigg((c-d)\,(1-n)\,(3+p)\,\mathrm{AppellF1}\Big[1+\frac{3+p}{2},\ 1+m+n+p,\ 2-n,$$

$$1+\frac{5+p}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Big/\ ((c+d)\ (5+p))\Bigg)\ -$$

$$\frac{1}{5+p}(3+p)\,(1+m+n+p)\,\mathrm{AppellF1}\Big[1+\frac{3+p}{2},\ 2+m+n+p,\ 1-n,$$

$$1+\frac{5+p}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)+(c+d)\,(1+m+n+p)$$

$$\Bigg(\Bigg((c-d)\,n\,(3+p)\,\mathrm{AppellF1}\Big[1+\frac{3+p}{2},\ 2+m+n+p,\ 1-n,\ 1+\frac{5+p}{2},$$

$$-\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\ -\frac{(c-d)\,\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg) \Bigg/ \left(\left(c+d\right)\left(5+p\right)\right) -$$

$$\frac{1}{5+p}\left(3+p\right)\left(2+m+n+p\right) \text{AppellF1}\left[1+\frac{3+p}{2}, 3+m+n+p, -n,\right.$$

$$\left.1+\frac{5+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{\left(c-d\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(1+p\right)\Bigg(\left(c+d\right)\left(3+p\right) \text{AppellF1}\left[\frac{1+p}{2}, 1+m+n+p, -n, \frac{3+p}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{\left(c-d\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] -$$

$$2\Bigg(\left(-c+d\right) n \,\text{AppellF1}\left[\frac{3+p}{2}, 1+m+n+p, 1-n, \frac{5+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\frac{\left(c-d\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] + \left(c+d\right)\left(1+m+n+p\right)$$

$$\text{AppellF1}\left[\frac{3+p}{2}, 2+m+n+p, -n, \frac{5+p}{2}, -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\frac{\left(c-d\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\Bigg) \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 1043: Unable to integrate problem.

$$\int\left(g \,\text{Cos}\left[e+f x\right]\right)^p \left(a+a \,\text{Sin}\left[e+f x\right]\right)^2 \left(c+d \,\text{Sin}\left[e+f x\right]\right)^n \, dx$$

Optimal (type 6, 149 leaves, 3 steps):

$$-\frac{1}{f g\left(1+p\right)}$$

$$2^{\frac{5}{2}+\frac{p}{2}} a^2 \,\text{AppellF1}\left[\frac{1+p}{2}, \frac{1}{2}\left(-3-p\right), -n, \frac{3+p}{2}, \frac{1}{2}\left(1-\text{Sin}\left[e+f x\right]\right), \frac{d\left(1-\text{Sin}\left[e+f x\right]\right)}{c+d}\right]$$

$$\left(g \,\text{Cos}\left[e+f x\right]\right)^{1+p}\left(1+\text{Sin}\left[e+f x\right]\right)^{2+\frac{1}{2}\left(-5-p\right)}\left(c+d \,\text{Sin}\left[e+f x\right]\right)^n \left(\frac{c+d \,\text{Sin}\left[e+f x\right]}{c+d}\right)^{-n}$$

Result (type 8, 37 leaves):

$$\int\left(g \,\text{Cos}\left[e+f x\right]\right)^p \left(a+a \,\text{Sin}\left[e+f x\right]\right)^2 \left(c+d \,\text{Sin}\left[e+f x\right]\right)^n \, dx$$

Problem 1044: Unable to integrate problem.

$$\int (g \operatorname{Cos}[e+f x])^p (a+a \operatorname{Sin}[e+f x]) (c+d \operatorname{Sin}[e+f x])^n \, dx$$

Optimal (type 6, 145 leaves, 3 steps):

$$-\frac{1}{f g (1+p)} 2^{\frac{3}{2}+\frac{p}{2}} a \operatorname{AppellF1}\left[\frac{1+p}{2}, \frac{1}{2}(-1-p), -n, \frac{3+p}{2}, \frac{1}{2}(1-\operatorname{Sin}[e+f x]), \frac{d (1-\operatorname{Sin}[e+f x])}{c+d}\right] (g \operatorname{Cos}[e+f x])^{1+p} (1+\operatorname{Sin}[e+f x])^{\frac{1}{2}(-1-p)} (c+d \operatorname{Sin}[e+f x])^n \left(\frac{c+d \operatorname{Sin}[e+f x]}{c+d}\right)^{-n}$$

Result (type 8, 35 leaves):

$$\int (g \operatorname{Cos}[e+f x])^p (a+a \operatorname{Sin}[e+f x]) (c+d \operatorname{Sin}[e+f x])^n \, dx$$

Problem 1045: Unable to integrate problem.

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{a+a \operatorname{Sin}[e+f x]} \, dx$$

Optimal (type 6, 149 leaves, 3 steps):

$$-\frac{1}{a f g (1+p)} 2^{-\frac{1}{2}+\frac{p}{2}} \operatorname{AppellF1}\left[\frac{1+p}{2}, \frac{3-p}{2}, -n, \frac{3+p}{2}, \frac{1}{2}(1-\operatorname{Sin}[e+f x]), \frac{d (1-\operatorname{Sin}[e+f x])}{c+d}\right] (g \operatorname{Cos}[e+f x])^{1+p} (1+\operatorname{Sin}[e+f x])^{-1+\frac{1-p}{2}} (c+d \operatorname{Sin}[e+f x])^n \left(\frac{c+d \operatorname{Sin}[e+f x]}{c+d}\right)^{-n}$$

Result (type 8, 37 leaves):

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{a+a \operatorname{Sin}[e+f x]} \, dx$$

Problem 1046: Unable to integrate problem.

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{(a+a \operatorname{Sin}[e+f x])^2} \, dx$$

Optimal (type 6, 149 leaves, 3 steps):

$$-\frac{1}{a^2 f g (1+p)} 2^{-\frac{3}{2}+\frac{p}{2}} \operatorname{AppellF1}\left[\frac{1+p}{2}, \frac{5-p}{2}, -n, \frac{3+p}{2}, \frac{1}{2}(1-\operatorname{Sin}[e+f x]), \frac{d (1-\operatorname{Sin}[e+f x])}{c+d}\right] (g \operatorname{Cos}[e+f x])^{1+p} (1+\operatorname{Sin}[e+f x])^{-2+\frac{3-p}{2}} (c+d \operatorname{Sin}[e+f x])^n \left(\frac{c+d \operatorname{Sin}[e+f x]}{c+d}\right)^{-n}$$

Result (type 8, 37 leaves):

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{(a+a \operatorname{Sin}[e+f x])^2} \, dx$$

Problem 1047: Unable to integrate problem.

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{(a+a \operatorname{Sin}[e+f x])^3} \, dx$$

Optimal (type 6, 149 leaves, 3 steps):

$$-\frac{1}{a^3 f g (1+p)} 2^{-\frac{5}{2}+\frac{p}{2}} \text{AppellF1}\left[\frac{1+p}{2}, \frac{7-p}{2}, -n, \frac{3+p}{2}, \frac{1}{2} (1-\operatorname{Sin}[e+f x]), \frac{d (1-\operatorname{Sin}[e+f x])}{c+d}\right] (g \operatorname{Cos}[e+f x])^{1+p} (1+\operatorname{Sin}[e+f x])^{-3+\frac{5-p}{2}} (c+d \operatorname{Sin}[e+f x])^n \left(\frac{c+d \operatorname{Sin}[e+f x]}{c+d}\right)^{-n}$$

Result (type 8, 37 leaves):

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{(a+a \operatorname{Sin}[e+f x])^3} \, dx$$

Problem 1048: Unable to integrate problem.

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{(a+a \operatorname{Sin}[e+f x])^4} \, dx$$

Optimal (type 6, 149 leaves, 3 steps):

$$-\frac{1}{a^4 f g (1+p)} 2^{-\frac{7}{2}+\frac{p}{2}} \text{AppellF1}\left[\frac{1+p}{2}, \frac{9-p}{2}, -n, \frac{3+p}{2}, \frac{1}{2} (1-\operatorname{Sin}[e+f x]), \frac{d (1-\operatorname{Sin}[e+f x])}{c+d}\right] (g \operatorname{Cos}[e+f x])^{1+p} (1+\operatorname{Sin}[e+f x])^{-4+\frac{7-p}{2}} (c+d \operatorname{Sin}[e+f x])^n \left(\frac{c+d \operatorname{Sin}[e+f x]}{c+d}\right)^{-n}$$

Result (type 8, 37 leaves):

$$\int \frac{(g \operatorname{Cos}[e+f x])^p (c+d \operatorname{Sin}[e+f x])^n}{(a+a \operatorname{Sin}[e+f x])^4} \, dx$$

Problem 1049: Result more than twice size of optimal antiderivative.

$$\int (g \operatorname{Sec}[e+f x])^p (a+a \operatorname{Sin}[e+f x])^m (c+d \operatorname{Sin}[e+f x])^n \, dx$$

Optimal (type 6, 175 leaves, 5 steps):

$$\frac{1}{a\,f\,(1+2\,m-p)}2^{\frac{1}{2}-\frac{p}{2}}$$
$$\text{AppellF1}\Big[\frac{1}{2}\,(1+2\,m-p),\,\frac{1+p}{2},\,-n,\,\frac{1}{2}\,(3+2\,m-p),\,\frac{1}{2}\,(1+\text{Sin}[e+f\,x]),\,-\frac{d\,(1+\text{Sin}[e+f\,x])}{c-d}\Big]$$
$$\text{Sec}[e+f\,x]\,(g\,\text{Sec}[e+f\,x])^{p}\,(1-\text{Sin}[e+f\,x])^{\frac{1+p}{2}}$$
$$(a+a\,\text{Sin}[e+f\,x])^{1+m}\,(c+d\,\text{Sin}[e+f\,x])^{n}\left(\frac{c+d\,\text{Sin}[e+f\,x]}{c-d}\right)^{-n}$$

Result (type 6, 4680 leaves) :

$$-\Bigg(\Bigg(2\,(c+d)\,(-3+p)\,\text{AppellF1}\Big[\frac{1-p}{2},\,1+m+n-p,\,-n,\,\frac{3-p}{2},\,-\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2},$$
$$-\frac{(c-d)\,\text{Tan}\big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\big]^{2}}{c+d}\Big]\left(\text{Sec}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2}\right)^{-1-m}\text{Sec}[e+f\,x]^{p}$$
$$(g\,\text{Sec}[e+f\,x])^{p}\,(a+a\,\text{Sin}[e+f\,x])^{m}\,(c+d\,\text{Sin}[e+f\,x])^{2\,n}\,\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]\Bigg)\Bigg/$$
$$\Bigg(f\,(1-p)\,\Bigg((c+d)\,(-3+p)\,\text{AppellF1}\Big[\frac{1-p}{2},\,1+m+n-p,\,-n,\,\frac{3-p}{2},$$
$$-\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2},\,-\frac{(c-d)\,\text{Tan}\big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\big]^{2}}{c+d}\Big]-$$
$$2\,\Bigg((c-d)\,n\,\text{AppellF1}\Big[\frac{3-p}{2},\,1+m+n-p,\,1-n,\,\frac{5-p}{2},\,-\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2},$$
$$-\frac{(c-d)\,\text{Tan}\big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\big]^{2}}{c+d}\Big]-(c+d)\,(1+m+n-p)\,\text{AppellF1}\Big[\frac{3-p}{2},$$
$$2+m+n-p,\,-n,\,\frac{5-p}{2},\,-\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2},\,-\frac{(c-d)\,\text{Tan}\big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\big]^{2}}{c+d}\Big]\Bigg)$$
$$\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2}\Bigg)\Bigg(\Bigg(\Bigg((c+d)\,(-3+p)\,\text{AppellF1}\Big[\frac{1-p}{2},\,1+m+n-p,\,-n,$$
$$\frac{3-p}{2},\,-\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2},\,-\frac{(c-d)\,\text{Tan}\big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\big]^{2}}{c+d}\Big]$$
$$\left(\text{Sec}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2}\right)^{-m}\text{Sec}[e+f\,x]^{p}\,(c+d\,\text{Sin}[e+f\,x])^{n}\Bigg)\Bigg/\Bigg((1-p)$$
$$\Bigg((c+d)\,(-3+p)\,\text{AppellF1}\Big[\frac{1-p}{2},\,1+m+n-p,\,-n,\,\frac{3-p}{2},\,-\text{Tan}\Big[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\Big]^{2},$$

$$-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]-2\left((c-d)\,n\,\text{AppellF1}\left[\frac{3-p}{2},1+m+n-p,1-n,\right.\right.$$

$$\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]-(c+d)$$

$$(1+m+n-p)\,\text{AppellF1}\left[\frac{3-p}{2},2+m+n-p,-n,\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)-$$

$$\left(2\,d\,(c+d)\,n\,(-3+p)\,\text{AppellF1}\left[\frac{1-p}{2},1+m+n-p,-n,\frac{3-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1-m}$$

$$\left.\text{Sec}[e+f\,x]^{-1+p}\,(c+d\,\text{Sin}[e+f\,x])^{-1+n}\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big/\left((1-p)\right.$$

$$\left((c+d)\,(-3+p)\,\text{AppellF1}\left[\frac{1-p}{2},1+m+n-p,-n,\frac{3-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]-2\left((c-d)\,n\,\text{AppellF1}\left[\frac{3-p}{2},1+m+n-p,1-n,\right.\right.$$

$$\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]-(c+d)$$

$$(1+m+n-p)\,\text{AppellF1}\left[\frac{3-p}{2},2+m+n-p,-n,\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.$$

$$\left.\left.\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)\right)-$$

$$\left(2\,(c+d)\,(-3+p)\,p\,\text{AppellF1}\left[\frac{1-p}{2},1+m+n-p,-n,\frac{3-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\right.\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\right]\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\right)^{-1-m}$$

$$\left.\text{Sec}[e+f\,x]^{1+p}\,\text{Sin}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^{n}\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\right)\Big/$$

$$\left((1-p)\left((c+d)\,(-3+p)\,\text{AppellF1}\left[\frac{1-p}{2},1+m+n-p,-n,\frac{3-p}{2},\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]-$$

$$2\left((c-d)\,n\,\text{AppellF1}\left[\frac{3-p}{2},1+m+n-p,1-n,\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]-(c+d)\,(1+m+n-p)$$

$$\text{AppellF1}\left[\frac{3-p}{2},2+m+n-p,-n,\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+$$

$$\left(2\,(c+d)\,(-1-m)\,(-3+p)\,\text{AppellF1}\left[\frac{1-p}{2},1+m+n-p,-n,\frac{3-p}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]$$

$$\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1-m}\text{Sec}[e+f x]^p\,(c+d\,\text{Sin}[e+f x])^n$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\Big/$$

$$\left((1-p)\left((c+d)\,(-3+p)\,\text{AppellF1}\left[\frac{1-p}{2},1+m+n-p,-n,\frac{3-p}{2},\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]-$$

$$2\left((c-d)\,n\,\text{AppellF1}\left[\frac{3-p}{2},1+m+n-p,1-n,\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]-(c+d)\,(1+m+n-p)$$

$$\text{AppellF1}\left[\frac{3-p}{2},2+m+n-p,-n,\frac{5-p}{2},-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\right)\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right)+$$

$$\left(2\,(c+d)\,(-3+p)\,\left(\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1-m}\text{Sec}[e+f x]^p\,(c+d\,\text{Sin}[e+f x])^n\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\left(\left(\left(c-d\right) n \left(1-p\right) \mathrm{AppellF1}\left[1+\frac{1-p}{2}, 1+m+n-p, 1-n,\right.\right.\right.$$

$$\left.1+\frac{3-p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{\left(c-d\right) \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]$$

$$\left.\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\right) \Big/ \left(\left(c+d\right) \left(3-p\right)\right) -$$

$$\frac{1}{3-p}\left(1-p\right) \left(1+m+n-p\right) \mathrm{AppellF1}\left[1+\frac{1-p}{2}, 2+m+n-p, -n, 1+\frac{3-p}{2},\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{\left(c-d\right) \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]$$

$$\left.\left.\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\right)\right) \Big/$$

$$\left(\left(1-p\right) \left(\left(c+d\right) \left(-3+p\right) \mathrm{AppellF1}\left[\frac{1-p}{2}, 1+m+n-p, -n, \frac{3-p}{2},\right.\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2, -\frac{\left(c-d\right) \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] -$$

$$2 \left(\left(c-d\right) n \mathrm{AppellF1}\left[\frac{3-p}{2}, 1+m+n-p, 1-n, \frac{5-p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\frac{\left(c-d\right) \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] - \left(c+d\right) \left(1+m+n-p\right)$$

$$\mathrm{AppellF1}\left[\frac{3-p}{2}, 2+m+n-p, -n, \frac{5-p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.\left.\left.-\frac{\left(c-d\right) \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\right) \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)\right) -$$

$$\left(2 \left(c+d\right) \left(-3+p\right) \mathrm{AppellF1}\left[\frac{1-p}{2}, 1+m+n-p, -n, \frac{3-p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.$$

$$\left.-\frac{\left(c-d\right) \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right] \left(\mathrm{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\right)^{-1-m}$$

$$\mathrm{Sec}\left[e+f x\right]^p \left(c+d \,\mathrm{Sin}\left[e+f x\right]\right)^n \mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]$$

$$\left(-2 \left(\left(c-d\right) n \mathrm{AppellF1}\left[\frac{3-p}{2}, 1+m+n-p, 1-n, \frac{5-p}{2}, -\mathrm{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.\right.\right.$$

$$-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Bigg]-(c+d)\,(1+m+n-p)\,\text{AppellF1}\Big[\frac{3-p}{2},\,2+m+n-p,\,-n,\,\frac{5-p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]+(c+d)\,(-3+p)$$

$$\Bigg(\Bigg(\Bigg((c-d)\,n\,(1-p)\,\text{AppellF1}\Big[1+\frac{1-p}{2},\,1+m+n-p,\,1-n,\,1+\frac{3-p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Big/\left((c+d)\,(3-p)\right)-$$

$$\frac{1}{3-p}(1-p)\,(1+m+n-p)\,\text{AppellF1}\Big[1+\frac{1-p}{2},\,2+m+n-p,\,-n,\,1+\frac{3-p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)-2\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2$$

$$\Bigg((c-d)\,n\,\Bigg(-\Bigg(\Bigg(\Bigg((c-d)\,(1-n)\,(3-p)\,\text{AppellF1}\Big[1+\frac{3-p}{2},\,1+m+n-p,\,2-n,\,1+\frac{5-p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)\Big/\left((c+d)\,(5-p)\right)\Bigg)-$$

$$\frac{1}{5-p}(3-p)\,(1+m+n-p)\,\text{AppellF1}\Big[1+\frac{3-p}{2},\,2+m+n-p,\,1-n,\,1+\frac{5-p}{2},\,-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2,\,-\frac{(c-d)\,\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{c+d}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\Bigg)-(c+d)\,(1+m+n-p)$$

$$\Bigg(\Bigg((c-d)\,n\,(3-p)\,\text{AppellF1}\Big[1+\frac{3-p}{2},\,2+m+n-p,\,1-n,\,1+\frac{5-p}{2},$$

$$-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\frac{(c-d)\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\Bigg]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg/\ \Big(\big(c+d\big)\ (5-p)\Big)\ -$$

$$\frac{1}{5-p}\left(3-p\right)\ \left(2+m+n-p\right)\ \text{AppellF1}\left[1+\frac{3-p}{2},\ 3+m+n-p,\ -n,\right.$$

$$\left.1+\frac{5-p}{2},\ -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\frac{(c-d)\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]$$

$$\text{Sec}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(1-p\right)\ \Bigg(\left(c+d\right)\ \left(-3+p\right)\ \text{AppellF1}\left[\frac{1-p}{2},\ 1+m+n-p,\ -n,\ \frac{3-p}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\ -\frac{(c-d)\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\ -$$

$$2\ \Bigg(\left(c-d\right)\ n\ \text{AppellF1}\left[\frac{3-p}{2},\ 1+m+n-p,\ 1-n,\ \frac{5-p}{2},\ -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\frac{(c-d)\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\ -\ \left(c+d\right)\ \left(1+m+n-p\right)$$

$$\text{AppellF1}\left[\frac{3-p}{2},\ 2+m+n-p,\ -n,\ \frac{5-p}{2},\ -\text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2,\right.$$

$$\left.-\frac{(c-d)\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{c+d}\right]\Bigg)\ \text{Tan}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 1065: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^2\ \text{Csc}[c+d\,x]^2\ \left(a+b\,\text{Sin}[c+d\,x]\right)^2\,dx$$

Optimal (type 3, 96 leaves, 6 steps):

$$-b^2\,x+\frac{a\,b\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{d}+\frac{\left(a^2-2\,b^2\right)\ \text{Cot}[c+d\,x]}{3\,d}-$$

$$\frac{a\,b\,\text{Cot}[c+d\,x]\ \text{Csc}[c+d\,x]}{3\,d}-\frac{\text{Cot}[c+d\,x]\ \text{Csc}[c+d\,x]^2\ \left(a+b\,\text{Sin}[c+d\,x]\right)^2}{3\,d}$$

Result (type 3, 538 leaves):

$$-\frac{b^2\,(c+d\,x)\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2}{d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$
$$\left(\left(a^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-3\,b^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2\right)\Big/$$
$$\left(6\,d\,(a+b\,\text{Sin}[c+d\,x])^2\right)-\frac{a\,b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2}{4\,d\,(a+b\,\text{Sin}[c+d\,x])^2}-$$
$$\left(a^2\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2\right)\Big/$$
$$\left(24\,d\,(a+b\,\text{Sin}[c+d\,x])^2\right)+\frac{a\,b\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]^2}{d\,(a+b\,\text{Sin}[c+d\,x])^2}-$$
$$\frac{a\,b\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]^2}{d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{a\,b\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sin}[c+d\,x]^2}{4\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+\left((b+a\,\text{Csc}[c+d\,x])^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\right.$$
$$\left.\left(-a^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+3\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Sin}[c+d\,x]^2\right)\Big/\left(6\,d\,(a+b\,\text{Sin}[c+d\,x])^2\right)+$$
$$\left(a^2\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sin}[c+d\,x]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/$$
$$\left(24\,d\,(a+b\,\text{Sin}[c+d\,x])^2\right)$$

Problem 1066: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 123 leaves, 8 steps):

$$\frac{(a^2+4\,b^2)\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,d}+\frac{2\,a\,b\,\text{Cot}[c+d\,x]}{3\,d}+\frac{(a^2-2\,b^2)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,d}-$$
$$\frac{a\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{6\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^2}{4\,d}$$

Result (type 3, 579 leaves):

$$\frac{a\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2}{3\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{(a^2-4\,b^2)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2}{32\,d\,(a+b\,\text{Sin}[c+d\,x])^2}-$$

$$\left(a\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2\right)\Big/$$

$$\left(12\,d\,(a+b\,\text{Sin}[c+d\,x])^2\right)-\frac{a^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2}{64\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{(a^2+4\,b^2)\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]^2}{8\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{(-a^2-4\,b^2)\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]^2}{8\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{(-a^2+4\,b^2)\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sin}[c+d\,x]^2}{32\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{a^2\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]^2}{64\,d\,(a+b\,\text{Sin}[c+d\,x])^2}-$$

$$\frac{a\,b\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sin}[c+d\,x]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{3\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+$$

$$\left(a\,b\,(b+a\,\text{Csc}[c+d\,x])^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sin}[c+d\,x]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/$$

$$\left(12\,d\,(a+b\,\text{Sin}[c+d\,x])^2\right)$$

Problem 1074: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 138 leaves, 7 steps):

$$-3\,a\,b^2\,x+\frac{b\,(3\,a^2-2\,b^2)\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}+\frac{11\,b^3\,\text{Cos}[c+d\,x]}{6\,d}+\frac{a\,(a^2-3\,b^2)\,\text{Cot}[c+d\,x]}{3\,d}-$$

$$\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,(a+b\,\text{Sin}[c+d\,x])^2}{2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^3}{3\,d}$$

Result (type 3, 615 leaves):

$$-\frac{3\,a\,b^2\,(c+d\,x)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$
$$\frac{b^3\,\mathrm{Cos}[c+d\,x]\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$
$$\left(\left(a^3\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-9\,a\,b^2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]\right.$$
$$\left.(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3\right)\Big/\left(6\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)-$$
$$\frac{3\,a^2\,b\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-$$
$$\left(a^3\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3\right)\Big/$$
$$\left(24\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)+$$
$$\left(\left(3\,a^2\,b-2\,b^3\right)(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\mathrm{Sin}[c+d\,x]^3\right)\Big/$$
$$\left(2\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)+$$
$$\left(\left(-3\,a^2\,b+2\,b^3\right)(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\mathrm{Sin}[c+d\,x]^3\right)\Big/$$
$$\left(2\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)+\frac{3\,a^2\,b\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Sin}[c+d\,x]^3}{8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$
$$\left((b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\left(-a^3\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+9\,a\,b^2\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right.$$
$$\left.\mathrm{Sin}[c+d\,x]^3\right)\Big/\left(6\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)+$$
$$\left(a^3\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Sin}[c+d\,x]^3\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/$$
$$\left(24\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)$$

Problem 1075: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^2\,\mathrm{Csc}[c+d\,x]^3\,(a+b\,\mathrm{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 152 leaves, 7 steps):

$$-b^3\,x+\frac{a\,\left(a^2+12\,b^2\right)\mathrm{ArcTanh}[\mathrm{Cos}[c+d\,x]]}{8\,d}+$$
$$\frac{b\,\left(2\,a^2-b^2\right)\mathrm{Cot}[c+d\,x]}{2\,d}+\frac{a\,\left(a^2-2\,b^2\right)\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{8\,d}-$$
$$\frac{b\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\,(a+b\,\mathrm{Sin}[c+d\,x])^2}{4\,d}-\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^3\,(a+b\,\mathrm{Sin}[c+d\,x])^3}{4\,d}$$

Result (type 3, 690 leaves):

$$-\frac{b^3 (c+d x) (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sin}[c+d x]^3}{d (a+b \operatorname{Sin}[c+d x])^3}+$$
$$\left(\left(a^2 b \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-b^3 \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]\right) \operatorname{Csc}\left[\frac{1}{2} (c+d x)\right] (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sin}[c+d x]^3\right) \Big/$$
$$\left(2 d (a+b \operatorname{Sin}[c+d x])^3\right)+\frac{\left(a^3-12 a b^2\right) \operatorname{Csc}\left[\frac{1}{2} (c+d x)\right]^2 (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sin}[c+d x]^3}{32 d (a+b \operatorname{Sin}[c+d x])^3}-$$
$$\left(a^2 b \operatorname{Cot}\left[\frac{1}{2} (c+d x)\right] \operatorname{Csc}\left[\frac{1}{2} (c+d x)\right]^2 (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sin}[c+d x]^3\right) \Big/$$
$$\left(8 d (a+b \operatorname{Sin}[c+d x])^3\right)-\frac{a^3 \operatorname{Csc}\left[\frac{1}{2} (c+d x)\right]^4 (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sin}[c+d x]^3}{64 d (a+b \operatorname{Sin}[c+d x])^3}+$$
$$\left(\left(a^3+12 a b^2\right) (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sin}[c+d x]^3\right) \Big/$$
$$\left(8 d (a+b \operatorname{Sin}[c+d x])^3\right)+$$
$$\left(\left(-a^3-12 a b^2\right) (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sin}[c+d x]^3\right) \Big/$$
$$\left(8 d (a+b \operatorname{Sin}[c+d x])^3\right)+\frac{\left(-a^3+12 a b^2\right) (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \operatorname{Sin}[c+d x]^3}{32 d (a+b \operatorname{Sin}[c+d x])^3}+$$
$$\frac{a^3 (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sec}\left[\frac{1}{2} (c+d x)\right]^4 \operatorname{Sin}[c+d x]^3}{64 d (a+b \operatorname{Sin}[c+d x])^3}+\left((b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sec}\left[\frac{1}{2} (c+d x)\right]\right.$$
$$\left.\left(-a^2 b \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]+b^3 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \operatorname{Sin}[c+d x]^3\right) \Big/ \left(2 d (a+b \operatorname{Sin}[c+d x])^3\right)+$$
$$\left(a^2 b (b+a \operatorname{Csc}[c+d x])^3 \operatorname{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \operatorname{Sin}[c+d x]^3 \operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \Big/$$
$$\left(8 d (a+b \operatorname{Sin}[c+d x])^3\right)$$

Problem 1091: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[e+f x]^2}{\sqrt{d \operatorname{Sin}[e+f x]} (a+b \operatorname{Sin}[e+f x])^{5/2}} \, dx$$

Optimal (type 4, 347 leaves, 5 steps):

$$\frac{2\,\mathrm{Cos}[e+f\,x]\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}{3\,a\,d\,f\,(a+b\,\mathrm{Sin}[e+f\,x])^{3/2}}+\frac{4\,b\,\mathrm{Cos}[e+f\,x]}{3\,a\,(a^2-b^2)\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}-$$

$$\frac{1}{3\,a^3\,\sqrt{a+b}\,\sqrt{d}\,f}4\,b\,\sqrt{\frac{a\,(1-\mathrm{Csc}[e+f\,x])}{a+b}}\,\sqrt{\frac{a\,(1+\mathrm{Csc}[e+f\,x])}{a-b}}$$

$$\mathrm{EllipticE}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}\Big],-\frac{a+b}{a-b}\Big]\,\mathrm{Tan}[e+f\,x]-$$

$$\frac{1}{3\,a^2\,\sqrt{a+b}\,\sqrt{d}\,f}4\,\sqrt{\frac{a\,(1-\mathrm{Csc}[e+f\,x])}{a+b}}\,\sqrt{\frac{a\,(1+\mathrm{Csc}[e+f\,x])}{a-b}}$$

$$\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}\Big],-\frac{a+b}{a-b}\Big]\,\mathrm{Tan}[e+f\,x]$$

Result (type 4, 4525 leaves):

$$\left(\mathrm{Sin}[e+f\,x]\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\,\left(\frac{2\,\mathrm{Cos}[e+f\,x]}{3\,a\,(a+b\,\mathrm{Sin}[e+f\,x])^2}-\frac{4\,b^2\,\mathrm{Cos}[e+f\,x]}{3\,a^2\,(a^2-b^2)\,(a+b\,\mathrm{Sin}[e+f\,x])}\right)\right)\Big/$$

$$\left(f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right)+$$

$$\Bigg(2\,\sqrt{\mathrm{Sin}[e+f\,x]}\,\left(\frac{2\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{3\,a\,(a^2-b^2)\,\sqrt{\mathrm{Sin}[e+f\,x]}}-\frac{4\,b\,\sqrt{\mathrm{Sin}[e+f\,x]}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{3\,a^2\,(a^2-b^2)}\right)$$

$$\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}$$

$$\Bigg(-\frac{2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}+\Bigg(2\,\sqrt{-a^2+b^2}\,\sqrt{\frac{a\,\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}{a^2-b^2}}$$

$$\Bigg(-b\,\mathrm{EllipticE}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\Big],\frac{2\,\sqrt{-a^2+b^2}}{-b+\sqrt{-a^2+b^2}}\Big]\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+$$

$$a\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\right]$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-b+\sqrt{-a^2+b^2}}}\ \sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\ \Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-b+\sqrt{-a^2+b^2}}}\ \left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Bigg)\Bigg)\Bigg/$$

$$\left(3\,a^2\left(a^2-b^2\right) f\sqrt{d\,\text{Sin}[e+f x]}\ \sqrt{\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{2+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right.$$

$$\left(-\frac{1}{3\,a^2\left(a^2-b^2\right)\left(\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{2+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{3/2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right.$$

$$\left(-\frac{2\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(2+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(2+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}\right)$$

$$\left(-\frac{2\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}+\right.$$

$$\left(2\sqrt{-a^2+b^2}\sqrt{\frac{a\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\right)}{a^2-b^2}}\right.$$

$$\left(-b\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{-a^2+b^2}}{-b+\sqrt{-a^2+b^2}}\right]\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]+a\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\frac{2\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\right]\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{-b+\sqrt{-a^2+b^2}}}\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{b+\sqrt{-a^2+b^2}}}\right)\right)\Big/$$

$$\left.\left(\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{-b+\sqrt{-a^2+b^2}}}\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\right)\right)\right)+\left(1\Big/\left(3\,a^2\right.\right.$$

$$\left.\left(a^2-b^2\right)\sqrt{\frac{\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{2+2\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2}}\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2}}\right)\right)$$

$$\left(\frac{b\,\mathrm{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2+a\,\mathrm{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2}-\right.$$

$$\left(\mathrm{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\right)\right)\Big/$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)^2\Bigg)\left(-\frac{2\,b\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}+\right.$$

$$\left(2\sqrt{-a^2+b^2}\,\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)}{a^2-b^2}}\right.$$

$$\left(-b\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{-a^2+b^2}}{-b+\sqrt{-a^2+b^2}}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]+a\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\frac{2\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\right]\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{-b+\sqrt{-a^2+b^2}}}\,\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{b+\sqrt{-a^2+b^2}}}\right)\right)\Bigg/$$

$$\left.\left(\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{-b+\sqrt{-a^2+b^2}}}\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2\right)\right)\right)+$$

$$\frac{1}{3\,a^2\left(a^2-b^2\right)\sqrt{\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{2+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}}\,2\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}}$$

$$\left(\frac{2\,b\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}-\frac{2\,b\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}+\right.$$

$$\left(a\,\sqrt{-a^2+b^2}\,\left(b\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\right.$$

$$\left(-b\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{-a^2+b^2}}{-b+\sqrt{-a^2+b^2}}\right]\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],$$

$$\left.\left.\frac{2\,\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\right]\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\,\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right)\right)\Big/$$

$$\left((a^2-b^2)\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\,\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right.$$

$$\left.\sqrt{\frac{a\,\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}{a^2-b^2}}\right)-$$

$$\left(1\Big/\left(\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\,\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\right)\right)$$

$$2\sqrt{-a^2+b^2}\left(b\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2+a\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)$$

$$\sqrt{\frac{a\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)}{a^2-b^2}}$$

$$\left(-b\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a^2+b^2}}{-b+\sqrt{-a^2+b^2}}\right]\mathrm{Tan}\left[\right.\right.$$

$$\left.\frac{1}{2}(e+fx)\right]+a\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\frac{2\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\right]\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{-b+\sqrt{-a^2+b^2}}}\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{b+\sqrt{-a^2+b^2}}}\right)-$$

$$\left(a\sqrt{-a^2+b^2}\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\sqrt{\frac{a\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)}{a^2-b^2}}\right.$$

$$\left(-b\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a^2+b^2}}{-b+\sqrt{-a^2+b^2}}\right]\mathrm{Tan}\left[\right.\right.$$

$$\left.\frac{1}{2}(e+fx)\right]+a\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\right]$$

$$\left.\left.\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\;\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right)\right)\Bigg/\left(2\left(-b+\sqrt{-a^2+b^2}\right)\right.$$

$$\left.\left(\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}\right)^{3/2}\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(1\Bigg/\left(\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)\right)$$

$$2\,\sqrt{-a^2+b^2}\;\sqrt{\frac{a\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}{a^2-b^2}}$$

$$\left(-\frac{1}{2}\,b\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\;\frac{2\,\sqrt{-a^2+b^2}}{-b+\sqrt{-a^2+b^2}}\right]\right.$$

$$\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2-\left(a^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\right.\right.$$

$$\left.\left.\frac{2\,\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\right]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\right)\Bigg/\left(4\left(b+\sqrt{-a^2+b^2}\right)\right.$$

$$\left.\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right)+\left(a^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}}{\sqrt{2}}\right],\right.\right.$$

$$\frac{2\sqrt{-a^2+b^2}}{b+\sqrt{-a^2+b^2}}\Bigg]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\;\Bigg)\Bigg/$$

$$\Bigg(4\left(-b+\sqrt{-a^2+b^2}\right)\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\;\Bigg)+\Bigg(a\,b\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\sqrt{1-\frac{-b+\sqrt{-a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\;\Bigg)\Bigg/$$

$$\Bigg(4\sqrt{2}\,\sqrt{-a^2+b^2}\,\sqrt{\frac{-b+\sqrt{-a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}$$

$$\sqrt{1-\frac{-b+\sqrt{-a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{2\sqrt{-a^2+b^2}}}\;\Bigg)+\Bigg(a^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-b+\sqrt{-a^2+b^2}}}\,\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\;\Bigg)\Bigg/\Bigg(4\sqrt{2}\,\sqrt{-a^2+b^2}$$

$$\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{2\sqrt{-a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\;\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 1103: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]^4\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 114 leaves, 8 steps):

$$-\frac{b\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{16\,d}-\frac{a\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{16\,d}+\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{8\,d}-\frac{b\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^3}{6\,d}$$

Result (type 3, 239 leaves):

$$-\frac{2\,a\,\text{Cot}[c+d\,x]}{35\,d}-\frac{b\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{64\,d}+\frac{b\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{64\,d}-\frac{b\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{384\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{35\,d}+\frac{8\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{35\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^6}{7\,d}-\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{16\,d}+\frac{b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{16\,d}+\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{64\,d}-\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4}{64\,d}+\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6}{384\,d}$$

Problem 1104: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]^5\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 136 leaves, 9 steps):

$$-\frac{3\,a\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{128\,d}-\frac{b\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{b\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{3\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{128\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{64\,d}+\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5}{16\,d}-\frac{a\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]^5}{8\,d}$$

Result (type 3, 279 leaves):

$$-\frac{2\,b\,\text{Cot}[c+d\,x]}{35\,d}-\frac{3\,a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{512\,d}+\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{1024\,d}+\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{512\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^8}{2048\,d}-\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{35\,d}+\frac{8\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{35\,d}-\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^6}{7\,d}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{128\,d}+\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{128\,d}+\frac{3\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{512\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4}{1024\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6}{512\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^8}{2048\,d}$$

Problem 1111: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^4\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 133 leaves, 13 steps):

$$a^2 x - \frac{3 b^2 x}{2} + \frac{3 a b \text{ArcTanh}[\text{Cos}[c + d x]]}{d} - \frac{3 a b \text{Cos}[c + d x]}{d} + \frac{a^2 \text{Cot}[c + d x]}{d} - \frac{3 b^2 \text{Cot}[c + d x]}{2 d} + \frac{b^2 \text{Cos}[c + d x]^2 \text{Cot}[c + d x]}{2 d} - \frac{a b \text{Cos}[c + d x] \text{Cot}[c + d x]^2}{d} - \frac{a^2 \text{Cot}[c + d x]^3}{3 d}$$

Result (type 3, 293 leaves) :

$$\frac{\left(2 a^2 - 3 b^2\right) (c + d x)}{2 d} - \frac{2 a b \text{Cos}[c + d x]}{d} + \frac{\left(4 a^2 \text{Cos}\left[\frac{1}{2} (c + d x)\right] - 3 b^2 \text{Cos}\left[\frac{1}{2} (c + d x)\right]\right) \text{Csc}\left[\frac{1}{2} (c + d x)\right]}{6 d} - \frac{a b \text{Csc}\left[\frac{1}{2} (c + d x)\right]^2}{4 d} - \frac{a^2 \text{Cot}\left[\frac{1}{2} (c + d x)\right] \text{Csc}\left[\frac{1}{2} (c + d x)\right]^2}{24 d} + \frac{3 a b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c + d x)\right]\right]}{d} - \frac{3 a b \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c + d x)\right]\right]}{d} + \frac{a b \text{Sec}\left[\frac{1}{2} (c + d x)\right]^2}{4 d} + \frac{\text{Sec}\left[\frac{1}{2} (c + d x)\right] \left(-4 a^2 \text{Sin}\left[\frac{1}{2} (c + d x)\right] + 3 b^2 \text{Sin}\left[\frac{1}{2} (c + d x)\right]\right)}{6 d} - \frac{b^2 \text{Sin}[2 (c + d x)]}{4 d} + \frac{a^2 \text{Sec}\left[\frac{1}{2} (c + d x)\right]^2 \text{Tan}\left[\frac{1}{2} (c + d x)\right]}{24 d}$$

Problem 1122: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c + d x]^4 \text{Csc}[c + d x] (a + b \text{Sin}[c + d x])^3 \, dx$$

Optimal (type 3, 187 leaves, 7 steps) :

$$\frac{3}{2} b \left(2 a^2 - b^2\right) x - \frac{3 a \left(a^2 - 12 b^2\right) \text{ArcTanh}[\text{Cos}[c + d x]]}{8 d} - \frac{b^2 \left(73 a^2 - 2 b^2\right) \text{Cos}[c + d x]}{8 a d} - \frac{13 b^3 \text{Cos}[c + d x] \text{Sin}[c + d x]}{4 d} + \frac{17 b \text{Cot}[c + d x] (a + b \text{Sin}[c + d x])^2}{8 d} + \frac{5 \text{Cot}[c + d x] \text{Csc}[c + d x] (a + b \text{Sin}[c + d x])^3}{8 d} - \frac{\text{Cot}[c + d x] \text{Csc}[c + d x]^3 (a + b \text{Sin}[c + d x])^4}{4 a d}$$

Result (type 3, 381 leaves) :

$$-\frac{3 b \left(-2 a^2+b^2\right) (c+d x)}{2 d}-\frac{3 a b^2 \operatorname{Cos}[c+d x]}{d}+\frac{\left(4 a^2 b \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-b^3 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right) \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]}{2 d}+\frac{\left(5 a^3-12 a b^2\right) \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{32 d}-\frac{a^2 b \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right] \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{8 d}-\frac{a^3 \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{64 d}-\frac{3\left(a^3-12 a b^2\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d}+\frac{3\left(a^3-12 a b^2\right) \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d}+\frac{\left(-5 a^3+12 a b^2\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{32 d}+\frac{a^3 \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{64 d}+\frac{\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]\left(-4 a^2 b \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]+b^3 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{2 d}-\frac{b^3 \operatorname{Sin}[2(c+d x)]}{4 d}+\frac{a^2 b \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{8 d}$$

Problem 1135: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[c+d x]^4 \operatorname{Sin}[c+d x]^3}{(a+b \operatorname{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 331 leaves, 9 steps):

$$\frac{3\left(40 a^4-24 a^2 b^2+b^4\right) x}{8 b^7}-\frac{3 a\left(10 a^4-11 a^2 b^2+2 b^4\right) \operatorname{ArcTan}\left[\frac{b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{b^7 \sqrt{a^2-b^2}\, d}+\frac{a\left(30 a^2-13 b^2\right) \operatorname{Cos}[c+d x]}{2 b^6 d}-\frac{3\left(20 a^2-7 b^2\right) \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]}{8 b^5 d}+\frac{\left(10 a^2-3 b^2\right) \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]^2}{2 a b^4 d}-\frac{\left(15 a^2-4 b^2\right) \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]^3}{4 a^2 b^3 d}-\frac{\left(a^2-b^2\right) \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]^4}{2 a b^2 d (a+b \operatorname{Sin}[c+d x])^2}+\frac{\left(7 a^2-2 b^2\right) \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]^4}{2 a^2 b^2 d (a+b \operatorname{Sin}[c+d x])}$$

Result (type 3, 1264 leaves):

$$\frac{1}{128 b^3 d} 3 \left(-8 (c+d x)+\frac{2 a\left(8 a^4-20 a^2 b^2+15 b^4\right) \operatorname{ArcTan}\left[\frac{b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}+\frac{a b\left(4 a^2-3 b^2\right) \operatorname{Cos}[c+d x]}{(a-b)(a+b)(a+b \operatorname{Sin}[c+d x])^2}-\frac{3 b\left(4 a^4-7 a^2 b^2+2 b^4\right) \operatorname{Cos}[c+d x]}{(a-b)^2(a+b)^2(a+b \operatorname{Sin}[c+d x])}\right)-$$

$$\frac{3\left(\frac{6\,a\,b\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{\sqrt{a^2-b^2}}+\frac{\text{Cos}[c+d\,x]\,\left(a\,\left(2\,a^2+b^2\right)+b\,\left(a^2+2\,b^2\right)\,\text{Sin}[c+d\,x]\right)}{(a+b\,\text{Sin}[c+d\,x])^2}\right)}{128\,(a-b)^2\,(a+b)^2\,d}-\frac{1}{128\,b^5\,d}$$

$$\left(-24\,\left(-8\,a^2+b^2\right)\,(c+d\,x)-\frac{6\,a\,\left(64\,a^6-168\,a^4\,b^2+140\,a^2\,b^4-35\,b^6\right)\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}+\right.$$

$$96\,a\,b\,\text{Cos}[c+d\,x]+\frac{a\,b\,\left(-16\,a^4+20\,a^2\,b^2-5\,b^4\right)\,\text{Cos}[c+d\,x]}{(a-b)\,(a+b)\,(a+b\,\text{Sin}[c+d\,x])^2}+$$

$$\left.\frac{b\,\left(112\,a^6-220\,a^4\,b^2+115\,a^2\,b^4-10\,b^6\right)\,\text{Cos}[c+d\,x]}{(a-b)^2\,(a+b)^2\,(a+b\,\text{Sin}[c+d\,x])}-8\,b^2\,\text{Sin}[2\,(c+d\,x)]\right)-$$

$$\frac{1}{256\,b^7\,d}\left(\frac{1}{\left(a^2-b^2\right)^{5/2}}12\,a\,\left(640\,a^8-1920\,a^6\,b^2+2016\,a^4\,b^4-840\,a^2\,b^6+105\,b^8\right)\right.$$

$$\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]+$$

$$\frac{1}{\left(a^2-b^2\right)^2\,(a+b\,\text{Sin}[c+d\,x])^2}\,\left(-3840\,a^{10}\,(c+d\,x)+7680\,a^8\,b^2\,(c+d\,x)-2976\,a^6\,b^4\,(c+d\,x)-\right.$$

$$1776\,a^4\,b^6\,(c+d\,x)+960\,a^2\,b^8\,(c+d\,x)-48\,b^{10}\,(c+d\,x)-3840\,a^9\,b\,\text{Cos}[c+d\,x]+$$

$$8640\,a^7\,b^3\,\text{Cos}[c+d\,x]-5696\,a^5\,b^5\,\text{Cos}[c+d\,x]+788\,a^3\,b^7\,\text{Cos}[c+d\,x]+114\,a\,b^9\,\text{Cos}[c+d\,x]+$$

$$1920\,a^8\,b^2\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-4800\,a^6\,b^4\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$

$$3888\,a^4\,b^6\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-1056\,a^2\,b^8\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$

$$48\,b^{10}\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+320\,a^7\,b^3\,\text{Cos}[3\,(c+d\,x)]-760\,a^5\,b^5\,\text{Cos}[3\,(c+d\,x)]+$$

$$560\,a^3\,b^7\,\text{Cos}[3\,(c+d\,x)]-120\,a\,b^9\,\text{Cos}[3\,(c+d\,x)]-8\,a^5\,b^5\,\text{Cos}[5\,(c+d\,x)]+$$

$$16\,a^3\,b^7\,\text{Cos}[5\,(c+d\,x)]-8\,a\,b^9\,\text{Cos}[5\,(c+d\,x)]-7680\,a^9\,b\,(c+d\,x)\,\text{Sin}[c+d\,x]+$$

$$19200\,a^7\,b^3\,(c+d\,x)\,\text{Sin}[c+d\,x]-15552\,a^5\,b^5\,(c+d\,x)\,\text{Sin}[c+d\,x]+$$

$$4224\,a^3\,b^7\,(c+d\,x)\,\text{Sin}[c+d\,x]-192\,a\,b^9\,(c+d\,x)\,\text{Sin}[c+d\,x]-$$

$$2880\,a^8\,b^2\,\text{Sin}[2\,(c+d\,x)]+6880\,a^6\,b^4\,\text{Sin}[2\,(c+d\,x)]-5182\,a^4\,b^6\,\text{Sin}[2\,(c+d\,x)]+$$

$$1221\,a^2\,b^8\,\text{Sin}[2\,(c+d\,x)]-36\,b^{10}\,\text{Sin}[2\,(c+d\,x)]-40\,a^6\,b^4\,\text{Sin}[4\,(c+d\,x)]+$$

$$88\,a^4\,b^6\,\text{Sin}[4\,(c+d\,x)]-56\,a^2\,b^8\,\text{Sin}[4\,(c+d\,x)]+8\,b^{10}\,\text{Sin}[4\,(c+d\,x)]+$$

$$\left.\left.2\,a^4\,b^6\,\text{Sin}[6\,(c+d\,x)]-4\,a^2\,b^8\,\text{Sin}[6\,(c+d\,x)]+2\,b^{10}\,\text{Sin}[6\,(c+d\,x)]\right)\right)$$

Problem 1136: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^2}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 284 leaves, 8 steps):

$$\frac{a\left(9-\frac{20\,a^2}{b^2}\right)x}{2\,b^4}+\frac{\left(20\,a^4-19\,a^2\,b^2+2\,b^4\right)\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{b^6\,\sqrt{a^2-b^2}\,d}-\frac{\left(60\,a^2-17\,b^2\right)\,\text{Cos}[c+d\,x]}{6\,b^5\,d}+$$
$$\frac{\left(5\,a^2-b^2\right)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{a\,b^4\,d}-\frac{\left(20\,a^2-3\,b^2\right)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^2}{6\,a^2\,b^3\,d}-$$
$$\frac{\left(a^2-b^2\right)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^3}{2\,a\,b^2\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{\left(6\,a^2-b^2\right)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^3}{2\,a^2\,b^2\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 1030 leaves):

$$\frac{1}{384\,d}\left(-\frac{1}{b^4}12\left(-48\,a\,(c+d\,x)+\frac{6\,(16\,a^6-40\,a^4\,b^2+30\,a^2\,b^4-5\,b^6)\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{(a^2-b^2)^{5/2}}-16\,b\,\text{Cos}[c+d\,x]+\frac{b\,(8\,a^4-8\,a^2\,b^2+b^4)\,\text{Cos}[c+d\,x]}{(a-b)\,(a+b)\,(a+b\,\text{Sin}[c+d\,x])^2}+\frac{a\,b\,(-40\,a^4+72\,a^2\,b^2-29\,b^4)\,\text{Cos}[c+d\,x]}{(a-b)^2\,(a+b)^2\,(a+b\,\text{Sin}[c+d\,x])}\right)+\right.$$

$$12\left(\frac{2\,(2\,a^2+b^2)\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{(a^2-b^2)^{5/2}}+\frac{b\,\text{Cos}[c+d\,x]\,(4\,a^2-b^2+3\,a\,b\,\text{Sin}[c+d\,x])}{(a-b)^2\,(a+b)^2\,(a+b\,\text{Sin}[c+d\,x])^2}\right)+$$

$$\frac{1}{(a-b)^2\,(a+b)^2}6\left(-\frac{6\,b^2\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{\sqrt{a^2-b^2}}+\frac{\text{Cos}[c+d\,x]\,(-b\,(2\,a^2+b^2)+a\,(2\,a^2-5\,b^2)\,\text{Sin}[c+d\,x])}{(a+b\,\text{Sin}[c+d\,x])^2}\right)-$$

$$\frac{1}{b^6}\left(-\frac{1}{(a^2-b^2)^{5/2}}12\,(640\,a^8-1792\,a^6\,b^2+1680\,a^4\,b^4-560\,a^2\,b^6+35\,b^8)\right.$$

$$\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]+\frac{1}{(a^2-b^2)^2\,(a+b\,\text{Sin}[c+d\,x])^2}$$

$$(3840\,a^9\,(c+d\,x)-6912\,a^7\,b^2\,(c+d\,x)+1728\,a^5\,b^4\,(c+d\,x)+1920\,a^3\,b^6\,(c+d\,x)-$$
$$576\,a\,b^8\,(c+d\,x)+3840\,a^8\,b\,\text{Cos}[c+d\,x]-7872\,a^6\,b^3\,\text{Cos}[c+d\,x]+4256\,a^4\,b^5\,\text{Cos}[c+d\,x]-$$
$$172\,a^2\,b^7\,\text{Cos}[c+d\,x]-70\,b^9\,\text{Cos}[c+d\,x]-1920\,a^7\,b^2\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$
$$4416\,a^5\,b^4\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-3072\,a^3\,b^6\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$
$$576\,a\,b^8\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-320\,a^6\,b^3\,\text{Cos}[3\,(c+d\,x)]+696\,a^4\,b^5\,\text{Cos}[3\,(c+d\,x)]-$$
$$432\,a^2\,b^7\,\text{Cos}[3\,(c+d\,x)]+56\,b^9\,\text{Cos}[3\,(c+d\,x)]+8\,a^4\,b^5\,\text{Cos}[5\,(c+d\,x)]-$$
$$16\,a^2\,b^7\,\text{Cos}[5\,(c+d\,x)]+8\,b^9\,\text{Cos}[5\,(c+d\,x)]+7680\,a^8\,b\,(c+d\,x)\,\text{Sin}[c+d\,x]-$$
$$17664\,a^6\,b^3\,(c+d\,x)\,\text{Sin}[c+d\,x]+12288\,a^4\,b^5\,(c+d\,x)\,\text{Sin}[c+d\,x]-$$
$$2304\,a^2\,b^7\,(c+d\,x)\,\text{Sin}[c+d\,x]+2880\,a^7\,b^2\,\text{Sin}[2\,(c+d\,x)]-$$
$$6304\,a^5\,b^4\,\text{Sin}[2\,(c+d\,x)]+4022\,a^3\,b^6\,\text{Sin}[2\,(c+d\,x)]-607\,a\,b^8\,\text{Sin}[2\,(c+d\,x)]+$$
$$\left.\left.40\,a^5\,b^4\,\text{Sin}[4\,(c+d\,x)]-80\,a^3\,b^6\,\text{Sin}[4\,(c+d\,x)]+40\,a\,b^8\,\text{Sin}[4\,(c+d\,x)])\right)\right)$$

Problem 1145: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\,x]^3\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 4, 338 leaves, 10 steps):

$$-\frac{2\left(8\,a^2-45\,b^2\right)\text{Cos}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{105\,b^2\,d}+\frac{8\,a\,\text{Cos}[c+d\,x]\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{35\,b^2\,d}-\frac{2\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{7\,b\,d}+\frac{2\,a\left(8\,a^2-51\,b^2\right)\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{a+b\,\text{Sin}[c+d\,x]}}{105\,b^3\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}-\left(2\left(8\,a^4-53\,a^2\,b^2-60\,b^4\right)\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(105\,b^3\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+\frac{2\,a\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 435 leaves):

$$\frac{1}{210\, b^2\, d}\left(\frac{1}{b^2\sqrt{-\frac{1}{a+b}}}\right.$$

$$2\, i\, \left(-8\, a^2+51\, b^2\right)\left(-2\, a\, (a-b)\, \text{EllipticE}\left[i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\right],\, \frac{a+b}{a-b}\right]+\right.$$

$$b\left(-2\, a\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\right],\, \frac{a+b}{a-b}\right]+\right.$$

$$\left.\left.b\, \text{EllipticPi}\left[\frac{a+b}{a},\, i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\right],\, \frac{a+b}{a-b}\right]\right)\right)$$

$$\text{Sec}[c+d\, x]\, \sqrt{-\frac{b\, (-1+\text{Sin}[c+d\, x])}{a+b}}\, \sqrt{\frac{b\, (1+\text{Sin}[c+d\, x])}{-a+b}}\, -$$

$$\frac{8\, b\, \left(a^2+30\, b^2\right)\, \text{EllipticF}\left[\frac{1}{4}\, (-2\, c+\pi-2\, d\, x),\, \frac{2\, b}{a+b}\right]\, \sqrt{\frac{a+b\, \text{Sin}[c+d\, x]}{a+b}}}{\sqrt{a+b\, \text{Sin}[c+d\, x]}}\, -$$

$$\left(2\, a\, \left(8\, a^2+159\, b^2\right)\, \text{EllipticPi}\left[2,\, \frac{1}{4}\, (-2\, c+\pi-2\, d\, x),\, \frac{2\, b}{a+b}\right]\, \sqrt{\frac{a+b\, \text{Sin}[c+d\, x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\, \text{Sin}[c+d\, x]}\right)+$$

$$\left.2\, \text{Cos}[c+d\, x]\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\, \left(8\, a^2+75\, b^2+15\, b^2\, \text{Cos}[2\, (c+d\, x)]-6\, a\, b\, \text{Sin}[c+d\, x]\right)\right)$$

Problem 1146: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\, x]^2\, \text{Cot}[c+d\, x]^2\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\, dx$$

Optimal (type 4, 323 leaves, 10 steps):

$$\frac{\left(4\,a^2+15\,b^2\right)\,\text{Cos}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{15\,a\,b\,d}-$$

$$\frac{2\,\text{Cos}[c+d\,x]\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{5\,b\,d}-\frac{\text{Cot}[c+d\,x]\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{a\,d}-$$

$$\frac{\left(4\,a^2+57\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{15\,b^2\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}+$$

$$\frac{a\,\left(4\,a^2+11\,b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{15\,b^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{b\,\text{EllipticPi}\left[2,\,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 541 leaves) :

$$\frac{1}{60\,b\,d}\left(\frac{184\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(-4\,a^2-27\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathbb{i}\left(4\,a^2+57\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}[2\,(c+d\,x)]\right.$$

$$\left(2\,a\,(a-b)\,\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\text{Sin}[c+d\,x])-2\,(a+b\,\text{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\text{Sin}[c+d\,x])+(a+b\,\text{Sin}[c+d\,x])^2}{b^2}}\right)\right)+$$

$$\frac{\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(-\frac{2\,a\,\text{Cos}[c+d\,x]}{15\,b}-\text{Cot}[c+d\,x]-\frac{1}{5}\,\text{Sin}[2\,(c+d\,x)]\right)}{d}$$

Problem 1147: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^3\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\,\mathrm{d}x$$

Optimal (type 4, 345 leaves, 10 steps):

$$-\frac{\left(8 a^2+3 b^2\right) \text{Cos}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{12 a^2 d}+$$

$$\frac{b \text{Cot}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{4 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{2 a d}+$$

$$\frac{\left(8 a^2-3 b^2\right) \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{12 a b d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-$$

$$\frac{\left(8 a^2+31 b^2\right) \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{12 b d \sqrt{a+b \text{Sin}[c+d x]}}-$$

$$\frac{\left(12 a^2+b^2\right) \text{EllipticPi}\left[2, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{4 a d \sqrt{a+b \text{Sin}[c+d x]}}$$

Result (type 4, 547 leaves) :

$$\frac{1}{d}\left(-\frac{2}{3}\,\text{Cos}[c+d\,x]-\frac{b\,\text{Cot}[c+d\,x]}{4\,a}-\frac{1}{2}\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}-$$

$$\frac{1}{48\,a\,d}\left(-\frac{136\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(64\,a^2+9\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathrm{i}\left(8\,a^2-3\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\,(a-b)\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\text{Sin}[c+d\,x])-2\,(a+b\,\text{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\text{Sin}[c+d\,x])+(a+b\,\text{Sin}[c+d\,x])^2}{b^2}}\right)\right)$$

Problem 1148: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cot}[c+d\,x]^4\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\,\mathrm{d}x$$

Optimal (type 4, 351 leaves, 10 steps):

$$\frac{\left(32\,a^2-3\,b^2\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{24\,a^2\,d}+\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{4\,a^2\,d}-$$

$$\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{3\,a\,d}+$$

$$\frac{\left(80\,a^2+3\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{24\,a^2\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}-$$

$$\frac{\left(32\,a^2+b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{24\,a\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{b\,\left(12\,a^2-b^2\right)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{8\,a^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 593 leaves) :

$$\frac{1}{d}\left(\frac{\left(32\,a^2\,\mathrm{Cos}[c+d\,x]+3\,b^2\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]}{24\,a^2}-\frac{b\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{12\,a}-\frac{1}{3}\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\right)\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}+$$

$$\frac{1}{96\,a^2\,d}\left(-\frac{2\left(96\,a^3+4\,a\,b^2\right)\mathrm{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(8\,a^2\,b+9\,b^3\right)\mathrm{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right)-\left(2\,i\left(-80\,a^2\,b-3\,b^3\right)\mathrm{Cos}[c+d\,x]\,\mathrm{Cos}[2\,(c+d\,x)]\right.$$

$$\left(2\,a\,(a-b)\,\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\mathrm{EllipticPi}\left[\frac{a+b}{a},i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\mathrm{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\mathrm{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\mathrm{Sin}[c+d\,x])-2\,(a+b\,\mathrm{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\mathrm{Sin}[c+d\,x])+(a+b\,\mathrm{Sin}[c+d\,x])^2}{b^2}}\right)\right)$$

Problem 1149: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Cot}[c+d\,x]^4\,\mathrm{Csc}[c+d\,x]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\;dx$$

Optimal (type 4, 412 leaves, 11 steps):

$$\frac{b\left(68 a^2-15 b^2\right) \text{Cot}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{192 a^3 d}+$$
$$\frac{5\left(4 a^2-b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{32 a^2 d}+$$
$$\frac{5 b \text{Cot}[c+d x] \text{Csc}[c+d x]^2 (a+b \text{Sin}[c+d x])^{3/2}}{24 a^2 d}-$$
$$\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^3 (a+b \text{Sin}[c+d x])^{3/2}}{4 a d}+$$
$$\frac{b\left(68 a^2-15 b^2\right) \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{192 a^3 d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}+$$
$$\frac{b\left(196 a^2+5 b^2\right) \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{192 a^2 d \sqrt{a+b \text{Sin}[c+d x]}}+$$
$$\left(\left(48 a^4+24 a^2 b^2-5 b^4\right) \text{EllipticPi}\left[2, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}\right) \Big/$$
$$\left(64 a^3 d \sqrt{a+b \text{Sin}[c+d x]}\right)$$

Result (type 4, 643 leaves) :

$$\frac{1}{d}\left(\frac{\left(68 a^2 b \operatorname{Cos}[c+d x]-15 b^3 \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]}{192 a^3}+\frac{5\left(12 a^2 \operatorname{Cos}[c+d x]+b^2 \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]^2}{96 a^2}-\frac{b \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^2}{24 a}-\frac{1}{4} \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^3\right) \sqrt{a+b \operatorname{Sin}[c+d x]}+$$

$$\frac{1}{768 a^3 d}\left(-\left(\left(2\left(528 a^3 b-20 a b^3\right) \operatorname{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right) \Big/ \left(\sqrt{a+b \operatorname{Sin}[c+d x]}\right)\right)-\left(2\left(288 a^4+212 a^2 b^2-45 b^4\right) \operatorname{EllipticPi}\left[2, \frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right) \Big/ \left(\sqrt{a+b \operatorname{Sin}[c+d x]}\right)-\left(2 i\left(-68 a^2 b^2+15 b^4\right) \operatorname{Cos}[c+d x] \operatorname{Cos}[2(c+d x)]\left(2 a(a-b) \operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b \operatorname{Sin}[c+d x]}\right], \frac{a+b}{a-b}\right]+b\left(2 a \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b \operatorname{Sin}[c+d x]}\right], \frac{a+b}{a-b}\right]-b \operatorname{EllipticPi}\left[\frac{a+b}{a}, i \operatorname{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b \operatorname{Sin}[c+d x]}\right], \frac{a+b}{a-b}\right]\right)\right) \sqrt{\frac{b-b \operatorname{Sin}[c+d x]}{a+b}} \sqrt{-\frac{b+b \operatorname{Sin}[c+d x]}{a-b}}\right) \Big/ \left(a \sqrt{-\frac{1}{a+b}} \sqrt{1-\operatorname{Sin}[c+d x]^2}\left(-2 a^2+b^2+4 a(a+b \operatorname{Sin}[c+d x])-2(a+b \operatorname{Sin}[c+d x])^2\right) \sqrt{-\frac{a^2-b^2-2 a(a+b \operatorname{Sin}[c+d x])+(a+b \operatorname{Sin}[c+d x])^2}{b^2}}\right)\right)$$

Problem 1150: Result unnecessarily involves imaginary or complex numbers.

$$\int \operatorname{Cot}[c+d x]^4 \operatorname{Csc}[c+d x]^2 \sqrt{a+b \operatorname{Sin}[c+d x]}\, dx$$

Optimal (type 4, 484 leaves, 12 steps):

$$-\frac{\left(384\,a^4+332\,a^2\,b^2-105\,b^4\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{1920\,a^4\,d}+$$
$$\frac{b\,\left(108\,a^2-35\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{960\,a^3\,d}+$$
$$\frac{\left(96\,a^2-35\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{240\,a^2\,d}+$$
$$\frac{7\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{40\,a^2\,d}-$$
$$\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{5\,a\,d}-$$
$$\left(\left(384\,a^4+332\,a^2\,b^2-105\,b^4\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(1920\,a^4\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)+$$
$$\left(\left(384\,a^4+116\,a^2\,b^2-35\,b^4\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$
$$\left(1920\,a^3\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+$$
$$\left(b\,\left(48\,a^4-24\,a^2\,b^2+7\,b^4\right)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$
$$\left(128\,a^4\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)$$

Result (type 4, 702 leaves) :

$$\frac{1}{d}\left(\frac{1}{1920\,a^4}\left(-384\,a^4\,\text{Cos}[c+d\,x]-332\,a^2\,b^2\,\text{Cos}[c+d\,x]+105\,b^4\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]+\frac{\left(108\,a^2\,b\,\text{Cos}[c+d\,x]-35\,b^3\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^2}{960\,a^3}+\frac{\left(96\,a^2\,\text{Cos}[c+d\,x]+7\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3}{240\,a^2}-\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{40\,a}-\frac{1}{5}\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}+$$

$$\frac{1}{7680\,a^4\,d}\,b\left(-\left(\left(2\left(-432\,a^3\,b+140\,a\,b^3\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\left(2\left(1056\,a^4-1052\,a^2\,b^2+315\,b^4\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\right.$$

$$\left(2\,i\left(384\,a^4+332\,a^2\,b^2-105\,b^4\right)\text{Cos}[c+d\,x]\,\text{Cos}[2\,(c+d\,x)]\left(2\,a\,(a-b)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\left(-2\,a^2+b^2+4\,a\,(a+b\,\text{Sin}[c+d\,x])-2\,(a+b\,\text{Sin}[c+d\,x])^2\right)\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\text{Sin}[c+d\,x])+(a+b\,\text{Sin}[c+d\,x])^2}{b^2}}\right)\right)$$

Problem 1151: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^4 \,\text{Sin}[c+d x]^2 \,(a+b\,\text{Sin}[c+d x])^{3/2}\, dx$$

Optimal (type 4, 528 leaves, 11 steps):

$$\frac{8\left(64 a^6-174 a^4 b^2+81 a^2 b^4-195 b^6\right) \text{Cos}[c+d x] \sqrt{a+b\,\text{Sin}[c+d x]}}{45045\, b^5 d}+\frac{16 a\left(32 a^4-47 a^2 b^2-27 b^4\right) \text{Cos}[c+d x]\,(a+b\,\text{Sin}[c+d x])^{3/2}}{45045\, b^5 d}-\frac{8\left(160 a^4-375 a^2 b^2+117 b^4\right) \text{Cos}[c+d x]\,(a+b\,\text{Sin}[c+d x])^{5/2}}{45045\, b^5 d}+\frac{8 a\left(8 a^2-21 b^2\right) \text{Cos}[c+d x]\,\text{Sin}[c+d x]\,(a+b\,\text{Sin}[c+d x])^{5/2}}{1287\, b^4 d}-\frac{2\left(80 a^2-221 b^2\right) \text{Cos}[c+d x]\,\text{Sin}[c+d x]^2\,(a+b\,\text{Sin}[c+d x])^{5/2}}{2145\, b^3 d}+\frac{4 a\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]^3\,(a+b\,\text{Sin}[c+d x])^{5/2}}{39\, b^2 d}-\frac{2\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]^4\,(a+b\,\text{Sin}[c+d x])^{5/2}}{15\, b\, d}-\left(16 a\left(32 a^6-111 a^4 b^2+102 a^2 b^4-471 b^6\right) \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b\,\text{Sin}[c+d x]}\right) \Big/ \left(45045\, b^6 d \sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}\right)+\left(8\left(64 a^8-238 a^6 b^2+255 a^4 b^4-276 a^2 b^6+195 b^8\right) \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}\right) \Big/ \left(45045\, b^6 d \sqrt{a+b\,\text{Sin}[c+d x]}\right)$$

Result (type 4, 1987 leaves):

$$-\frac{a\,\text{EllipticE}\left[\frac{1}{4}(-2 c+\pi-2 d x), \frac{2 b}{a+b}\right] \sqrt{a+b\,\text{Sin}[c+d x]}}{8 d \sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}}-$$

$$\left(b\,\text{Cos}[c+d x]\,(a+b\,\text{Sin}[c+d x])+a(a+b)\,\text{EllipticE}\left[\frac{1}{4}(-2 c+\pi-2 d x), \frac{2 b}{a+b}\right]\right.$$

$$\sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}-\left(a^2-b^2\right) \text{EllipticF}\left[\frac{1}{4}(-2 c+\pi-2 d x), \frac{2 b}{a+b}\right]$$

$$\left.\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(24\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+$$

$$\left(a\left(-2\left(4\,a^3+4\,a^2\,b-3\,a\,b^2-3\,b^3\right)\text{EllipticE}\left[\frac{1}{4}\left(-2\,c+\pi-2\,d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}+\right.\right.$$

$$8\,a\left(a^2-b^2\right)\text{EllipticF}\left[\frac{1}{4}\left(-2\,c+\pi-2\,d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}+2\,b\,\text{Cos}[c+d\,x]$$

$$\left.\left.\left(2\,a^2+3\,b^2-3\,b^2\,\text{Cos}\left[2\left(c+d\,x\right)\right]+8\,a\,b\,\text{Sin}[c+d\,x]\right)\right)\right)\Big/\left(480\,b^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+$$

$$\left(2\,a\left(16\,a^3+16\,a^2\,b+3\,a\,b^2+3\,b^3\right)\text{EllipticE}\left[\frac{1}{4}\left(-2\,c+\pi-2\,d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}-\right.$$

$$2\left(16\,a^4-a^2\,b^2-15\,b^4\right)\text{EllipticF}\left[\frac{1}{4}\left(-2\,c+\pi-2\,d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}+$$

$$b\,\text{Cos}[c+d\,x]\left(-16\,a^3+66\,a\,b^2-36\,a\,b^2\,\text{Cos}\left[2\left(c+d\,x\right)\right]+\right.$$

$$\left.\left.\left(-4\,a^2\,b+75\,b^3\right)\text{Sin}[c+d\,x]-15\,b^3\,\text{Sin}\left[3\left(c+d\,x\right)\right]\right)\right)\Big/$$

$$\left(3360\,b^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+\frac{1}{2520\,b^4\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

$$a\left(b\left(-32\,a^3\,b+27\,a\,b^3\right)\text{EllipticF}\left[\frac{1}{4}\left(-2\,c+\pi-2\,d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}-\right.$$

$$\left(128\,a^4-144\,a^2\,b^2+21\,b^4\right)$$

$$\left(\left(a+b\right)\text{EllipticE}\left[\frac{1}{4}\left(-2\,c+\pi-2\,d\,x\right),\frac{2\,b}{a+b}\right]-a\,\text{EllipticF}\left[\frac{1}{4}\left(-2\,c+\pi-2\,d\,x\right),\frac{2\,b}{a+b}\right]\right)$$

$$\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}-2\,b\,\text{Cos}[c+d\,x]\left(a+b\,\text{Sin}[c+d\,x]\right)\left(-32\,a^3+22\,a\,b^2+\right.$$

$$\left.\left.10\,a\,b^2\,\text{Cos}\left[2\left(c+d\,x\right)\right]+b\left(24\,a^2-49\,b^2\right)\text{Sin}[c+d\,x]+35\,b^3\,\text{Sin}\left[3\left(c+d\,x\right)\right]\right)\right)-$$

$$\frac{1}{55440\,b^4\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}\left(-2\,a\left(1024\,a^5+1024\,a^4\,b-864\,a^3\,b^2-864\,a^2\,b^3-93\,a\,b^4-93\,b^5\right)\right.$$

$$\text{EllipticE}\left[\frac{1}{4}\left(-2c+\pi-2dx\right),\frac{2b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+dx]}{a+b}}+$$

$$2\left(1024a^6-1120a^4b^2+51a^2b^4+45b^6\right)\text{EllipticF}\left[\frac{1}{4}\left(-2c+\pi-2dx\right),\frac{2b}{a+b}\right]$$

$$\sqrt{\frac{a+b\,\text{Sin}[c+dx]}{a+b}}-$$

$$b\,\text{Cos}[c+dx]\left(-1024a^5+800a^3b^2+1034ab^4-32\left(2a^3b^2+57ab^4\right)\text{Cos}\left[2\left(c+dx\right)\right]+\right.$$
$$700ab^4\,\text{Cos}\left[4\left(c+dx\right)\right]-256a^4b\,\text{Sin}[c+dx]+164a^2b^3\,\text{Sin}[c+dx]+1980b^5\,\text{Sin}[c+dx]+$$
$$\left.\left.20a^2b^3\,\text{Sin}\left[3\left(c+dx\right)\right]-1215b^5\,\text{Sin}\left[3\left(c+dx\right)\right]+315b^5\,\text{Sin}\left[5\left(c+dx\right)\right]\right)\right)-$$

$$\frac{1}{720720\,b^6\,d\,\sqrt{a+b\,\text{Sin}[c+dx]}}\,a\left(-b\left(10240a^5b-13504a^3b^3+3579ab^5\right)\right.$$

$$\text{EllipticF}\left[\frac{1}{4}\left(-2c+\pi-2dx\right),\frac{2b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+dx]}{a+b}}-$$

$$\left(40960a^6-65536a^4b^2+26508a^2b^4-1617b^6\right)\left(\left(a+b\right)\text{EllipticE}\left[\frac{1}{4}\left(-2c+\pi-2dx\right),\frac{2b}{a+b}\right]-\right.$$

$$\left.a\,\text{EllipticF}\left[\frac{1}{4}\left(-2c+\pi-2dx\right),\frac{2b}{a+b}\right]\right)\sqrt{\frac{a+b\,\text{Sin}[c+dx]}{a+b}}+b\left(a+b\,\text{Sin}[c+dx]\right)$$

$$\left(2a\left(10240a^4-13504a^2b^2+3579b^4\right)\text{Cos}[c+dx]-10ab^2\left(320a^2-257b^2\right)\text{Cos}\left[3\left(c+dx\right)\right]+\right.$$
$$630ab^4\,\text{Cos}\left[5\left(c+dx\right)\right]-2b\left(3840a^4-4064a^2b^2+539b^4\right)\text{Sin}\left[2\left(c+dx\right)\right]+$$
$$\left.\left.70b^3\left(20a^2-11b^2\right)\text{Sin}\left[4\left(c+dx\right)\right]+3465b^5\,\text{Sin}\left[6\left(c+dx\right)\right]\right)\right)-$$

$$\frac{1}{1441440\,b^6\,d\,\sqrt{a+b\,\text{Sin}[c+dx]}}\left(2a\left(32768a^7+32768a^6b-47104a^5b^2-47104a^4b^3+\right.\right.$$

$$\left.13968a^3b^4+13968a^2b^5+711ab^6+711b^7\right)\text{EllipticE}\left[\frac{1}{4}\left(-2c+\pi-2dx\right),\frac{2b}{a+b}\right]$$

$$\sqrt{\frac{a+b\,\text{Sin}[c+dx]}{a+b}}-2\left(32768a^8-55296a^6b^2+23440a^4b^4-717a^2b^6-195b^8\right)$$

$$\text{EllipticF}\left[\frac{1}{4}\left(-2c+\pi-2dx\right),\frac{2b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+dx]}{a+b}}+$$

$$b\,\text{Cos}[c+dx]\left(-32768a^7+45056a^5b^2-12208a^3b^4+7018ab^6-\right.$$
$$16\left(128a^5b^2-124a^3b^4+969ab^6\right)\text{Cos}\left[2\left(c+dx\right)\right]+112\left(2a^3b^4+137ab^6\right)\text{Cos}\left[4\left(c+dx\right)\right]-$$
$$6468ab^6\,\text{Cos}\left[6\left(c+dx\right)\right]-8192a^6b\,\text{Sin}[c+dx]+10112a^4b^3\,\text{Sin}[c+dx]-$$

$$1796\, a^2 b^5 \operatorname{Sin}[c+d x]+15444\, b^7 \operatorname{Sin}[c+d x]+640\, a^4 b^3 \operatorname{Sin}[3(c+d x)]-452\, a^2 b^5 \operatorname{Sin}[3(c+d x)]-15756\, b^7 \operatorname{Sin}[3(c+d x)]-84\, a^2 b^5 \operatorname{Sin}[5(c+d x)]+10647\, b^7 \operatorname{Sin}[5(c+d x)]-3003\, b^7 \operatorname{Sin}[7(c+d x)]\Big)\Bigg)$$

Problem 1153: Result unnecessarily involves imaginary or complex numbers.

$$\int \operatorname{Cos}[c+d x]^3 \operatorname{Cot}[c+d x]\,(a+b \operatorname{Sin}[c+d x])^{3/2}\, dx$$

Optimal (type 4, 390 leaves, 11 steps):

$$-\frac{2 a\left(8 a^2-87 b^2\right) \operatorname{Cos}[c+d x] \sqrt{a+b \operatorname{Sin}[c+d x]}}{315 b^2 d}-\frac{2\left(8 a^2-77 b^2\right) \operatorname{Cos}[c+d x]\,(a+b \operatorname{Sin}[c+d x])^{3/2}}{315 b^2 d}+\frac{8 a \operatorname{Cos}[c+d x]\,(a+b \operatorname{Sin}[c+d x])^{5/2}}{63 b^2 d}-\frac{2 \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]\,(a+b \operatorname{Sin}[c+d x])^{5/2}}{9 b d}+\left(2\left(8 a^4-93 a^2 b^2+84 b^4\right) \operatorname{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \operatorname{Sin}[c+d x]}\right) \Big/ \left(315 b^3 d \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right)-\left(2 a\left(8 a^4-95 a^2 b^2-228 b^4\right) \operatorname{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right) \Big/ \left(315 b^3 d \sqrt{a+b \operatorname{Sin}[c+d x]}\right)+\frac{2 a^2 \operatorname{EllipticPi}\left[2, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}}{d \sqrt{a+b \operatorname{Sin}[c+d x]}}$$

Result (type 4, 611 leaves):

$$-\frac{1}{630\,b^2\,d}\left(-\left(\left(2\left(-4\,a^3\,b-624\,a\,b^3\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\right.$$

$$\left(2\left(-8\,a^4-537\,a^2\,b^2-84\,b^4\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathrm{i}\left(8\,a^4-93\,a^2\,b^2+84\,b^4\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)+$$

$$\frac{1}{d}\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(\frac{a\left(8\,a^2+303\,b^2\right)\text{Cos}[c+d\,x]}{315\,b^2}+\frac{5}{63}\,a\,\text{Cos}\left[3\left(c+d\,x\right)\right]+\right.$$

$$\frac{\left(-6\,a^2+119\,b^2\right)\text{Sin}\left[2\left(c+d\,x\right)\right]}{630\,b}+$$

$$\left.\frac{1}{36}\,b\,\text{Sin}\left[4\left(c+d\,x\right)\right]\right)$$

Problem 1154: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\,x]^2\,\text{Cot}[c+d\,x]^2\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}\,\mathrm{d}x$$

Optimal (type 4, 374 leaves, 11 steps):

$$\frac{\left(4 a^2+65 b^2\right) \text{Cos}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{35 b d}+\frac{\left(4 a^2+35 b^2\right) \text{Cos}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{35 a b d}-\frac{2 \text{Cos}[c+d x] (a+b \text{Sin}[c+d x])^{5/2}}{7 b d}-\frac{\text{Cot}[c+d x] (a+b \text{Sin}[c+d x])^{5/2}}{a d}-\frac{a \left(4 a^2+167 b^2\right) \text{EllipticE}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{35 b^2 d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}+\frac{\left(4 a^4+61 a^2 b^2+40 b^4\right) \text{EllipticF}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{35 b^2 d \sqrt{a+b \text{Sin}[c+d x]}}+\frac{3 a b \text{EllipticPi}\left[2,\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{d \sqrt{a+b \text{Sin}[c+d x]}}$$

Result (type 4, 578 leaves):

$$\frac{1}{140\, b\, d}\left(-\left(\left(\left(2\left(-212\, a^2 b+80\, b^3\right) \text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\, x\right), \frac{2\, b}{a+b}\right] \sqrt{\frac{a+b\, \text{Sin}[c+d\, x]}{a+b}}\right)\Big/\left(\sqrt{a+b\, \text{Sin}[c+d\, x]}\right)\right)-\left(2\left(-4\, a^3+43\, a\, b^2\right) \text{EllipticPi}\left[2, \frac{1}{2}\left(-c+\frac{\pi}{2}-d\, x\right), \frac{2\, b}{a+b}\right] \sqrt{\frac{a+b\, \text{Sin}[c+d\, x]}{a+b}}\right)\Big/\left(\sqrt{a+b\, \text{Sin}[c+d\, x]}\right)-\left(2\, i\left(4\, a^3+167\, a\, b^2\right) \text{Cos}[c+d\, x]\, \text{Cos}[2\left(c+d\, x\right)]\left(2\, a\left(a-b\right) \text{EllipticE}\left[i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b\, \text{Sin}[c+d\, x]}\right], \frac{a+b}{a-b}\right]+b\left(2\, a\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b\, \text{Sin}[c+d\, x]}\right], \frac{a+b}{a-b}\right]-b\, \text{EllipticPi}\left[\frac{a+b}{a}, i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b\, \text{Sin}[c+d\, x]}\right], \frac{a+b}{a-b}\right]\right)\right) \sqrt{\frac{b-b\, \text{Sin}[c+d\, x]}{a+b}} \sqrt{-\frac{b+b\, \text{Sin}[c+d\, x]}{a-b}}\right)\Big/\left(a \sqrt{-\frac{1}{a+b}} \sqrt{1-\text{Sin}[c+d\, x]^2}\left(-2\, a^2+b^2+4\, a\left(a+b\, \text{Sin}[c+d\, x]\right)-2\left(a+b\, \text{Sin}[c+d\, x]\right)^2\right) \sqrt{-\frac{a^2-b^2-2\, a\left(a+b\, \text{Sin}[c+d\, x]\right)+\left(a+b\, \text{Sin}[c+d\, x]\right)^2}{b^2}}\right)\right)+$$

$$\frac{1}{d}\sqrt{a+b\, \text{Sin}[c+d\, x]}\left(\frac{\left(-4\, a^2+55\, b^2\right) \text{Cos}[c+d\, x]}{70\, b}+\frac{1}{14}\, b\, \text{Cos}[3\left(c+d\, x\right)]-a\, \text{Cot}[c+d\, x]-\frac{8}{35}\, a\, \text{Sin}[2\left(c+d\, x\right)]\right)$$

Problem 1155: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\, x]\, \text{Cot}[c+d\, x]^3\left(a+b\, \text{Sin}[c+d\, x]\right)^{3/2} dx$$

Optimal (type 4, 383 leaves, 11 steps):

$$-\frac{\left(8 a^2-15 b^2\right) \text{Cos}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{20 a d}-\frac{\left(8 a^2-5 b^2\right) \text{Cos}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{20 a^2 d}-$$

$$\frac{b \text{Cot}[c+d x] (a+b \text{Sin}[c+d x])^{5/2}}{4 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x] (a+b \text{Sin}[c+d x])^{5/2}}{2 a d}+$$

$$\frac{\left(8 a^2-81 b^2\right) \text{EllipticE}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{20 b d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-$$

$$\frac{a \left(8 a^2+37 b^2\right) \text{EllipticF}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{20 b d \sqrt{a+b \text{Sin}[c+d x]}}-$$

$$\frac{3 \left(4 a^2-b^2\right) \text{EllipticPi}\left[2,\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{4 d \sqrt{a+b \text{Sin}[c+d x]}}$$

Result (type 4, 434 leaves) :

$$\frac{1}{80\,d}\left(\frac{1}{a\,b^2\sqrt{-\frac{1}{a+b}}}\right.$$

$$2\,\mathrm{i}\,\left(-8\,a^2+81\,b^2\right)\left(-2\,a\,(a-b)\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\,\frac{a+b}{a-b}\right]+\right.$$

$$b\left(-2\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\,\frac{a+b}{a-b}\right]+\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\,\frac{a+b}{a-b}\right]\right)\right)$$

$$\text{Sec}[c+d\,x]\,\sqrt{-\frac{b\,(-1+\text{Sin}[c+d\,x])}{a+b}}\,\sqrt{-\frac{b\,(1+\text{Sin}[c+d\,x])}{a-b}}\,+$$

$$\frac{472\,a\,b\,\text{EllipticF}\left[\frac{1}{4}\,(-2\,c+\pi-2\,d\,x),\,\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}+$$

$$\left(2\,\left(112\,a^2+51\,b^2\right)\,\text{EllipticPi}\left[2,\,\frac{1}{4}\,(-2\,c+\pi-2\,d\,x),\,\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+4\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}$$

$$\left.(-18\,a+8\,a\,\text{Cos}[2\,(c+d\,x)]-31\,b\,\text{Sin}[c+d\,x]+2\,b\,\text{Sin}[3\,(c+d\,x)])\vphantom{\frac{1}{1}}\right)$$

Problem 1156: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cot}[c+d\,x]^4\,(a+b\,\text{Sin}[c+d\,x])^{3/2}\,dx$$

Optimal (type 4, 386 leaves, 11 steps):

$$-\frac{b\left(16 a^2+b^2\right) \text{Cos}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{8 a^2 d}+\frac{\left(32 a^2+b^2\right) \text{Cot}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{24 a^2 d}+\frac{b \text{Cot}[c+d x] \text{Csc}[c+d x] (a+b \text{Sin}[c+d x])^{5/2}}{12 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^2 (a+b \text{Sin}[c+d x])^{5/2}}{3 a d}+\frac{\left(32 a^2-b^2\right) \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{8 a d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-\frac{\left(16 a^2+21 b^2\right) \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{8 d \sqrt{a+b \text{Sin}[c+d x]}}-\frac{b\left(36 a^2+b^2\right) \text{EllipticPi}\left[2, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{8 a d \sqrt{a+b \text{Sin}[c+d x]}}$$

Result (type 4, 600 leaves) :

$$\frac{1}{d}\left(-\frac{2}{3}\,b\,\mathrm{Cos}[c+d\,x]+\frac{\left(32\,a^2\,\mathrm{Cos}[c+d\,x]-3\,b^2\,\mathrm{Cos}[c+d\,x]\right)\,\mathrm{Csc}[c+d\,x]}{24\,a}-\frac{7}{12}\,b\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]-\frac{1}{3}\,a\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\right)\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}+$$

$$\frac{1}{32\,a\,d}\left(-\left(\left(2\,\left(32\,a^3-44\,a\,b^2\right)\,\mathrm{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right)\right)-\right.$$

$$\left(2\,\left(-40\,a^2\,b-3\,b^3\right)\,\mathrm{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right)-\left(2\,i\,\left(-32\,a^2\,b+b^3\right)\,\mathrm{Cos}[c+d\,x]\,\mathrm{Cos}[2\,(c+d\,x)]\right.$$

$$\left(2\,a\,(a-b)\,\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\,\left(2\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\mathrm{EllipticPi}\left[\frac{a+b}{a},i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\mathrm{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\mathrm{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\mathrm{Sin}[c+d\,x])-2\,(a+b\,\mathrm{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\mathrm{Sin}[c+d\,x])+(a+b\,\mathrm{Sin}[c+d\,x])^2}{b^2}}\right)\right)$$

Problem 1157: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Cot}[c+d\,x]^4\,\mathrm{Csc}[c+d\,x]\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}\,dx$$

Optimal (type 4, 408 leaves, 11 steps):

$$\frac{b\left(68 a^2-3 b^2\right) \text{Cot}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{64 a^2 d}+$$

$$\frac{\left(20 a^2-b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{32 a^2 d}+$$

$$\frac{b \text{Cot}[c+d x] \text{Csc}[c+d x]^2 (a+b \text{Sin}[c+d x])^{5/2}}{8 a^2 d}-$$

$$\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^3 (a+b \text{Sin}[c+d x])^{5/2}}{4 a d}+$$

$$\frac{b\left(236 a^2+3 b^2\right) \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{64 a^2 d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-$$

$$\frac{b\left(20 a^2+b^2\right) \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{64 a d \sqrt{a+b \text{Sin}[c+d x]}}+$$

$$\left(3\left(16 a^4-24 a^2 b^2+b^4\right) \text{EllipticPi}\left[2, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}\right) \Big/$$

$$\left(64 a^2 d \sqrt{a+b \text{Sin}[c+d x]}\right)$$

Result (type 4, 641 leaves) :

$$\frac{1}{d}\left(\frac{3\left(36 a^2 b \operatorname{Cos}[c+d x]+b^3 \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]}{64 a^2}+\frac{\left(20 a^2 \operatorname{Cos}[c+d x]-b^2 \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]^2}{32 a}-\frac{3}{8} b \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^2-\frac{1}{4} a \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^3\right) \sqrt{a+b \operatorname{Sin}[c+d x]}+$$

$$\frac{1}{256 a^2 d}\left(-\left(\left(2\left(432 a^3 b+4 a b^3\right) \operatorname{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right) \Big/ \left(\sqrt{a+b \operatorname{Sin}[c+d x]}\right)\right)-\right.$$

$$\left(2\left(96 a^4+92 a^2 b^2+9 b^4\right) \operatorname{EllipticPi}\left[2, \frac{1}{2}\left(-c+\frac{\pi}{2}-d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right) \Big/$$

$$\left(\sqrt{a+b \operatorname{Sin}[c+d x]}\right)-\left(2 i\left(-236 a^2 b^2-3 b^4\right) \operatorname{Cos}[c+d x] \operatorname{Cos}[2(c+d x)]\right.$$

$$\left(2 a(a-b) \operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b \operatorname{Sin}[c+d x]}\right], \frac{a+b}{a-b}\right]+\right.$$

$$b\left(2 a \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b \operatorname{Sin}[c+d x]}\right], \frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b \operatorname{EllipticPi}\left[\frac{a+b}{a}, i \operatorname{ArcSinh}\left[\sqrt{-\frac{1}{a+b}} \sqrt{a+b \operatorname{Sin}[c+d x]}\right], \frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b \operatorname{Sin}[c+d x]}{a+b}} \sqrt{-\frac{b+b \operatorname{Sin}[c+d x]}{a-b}}\right) \Big/ \left(a \sqrt{-\frac{1}{a+b}} \sqrt{1-\operatorname{Sin}[c+d x]^2}\right.$$

$$\left(-2 a^2+b^2+4 a(a+b \operatorname{Sin}[c+d x])-2(a+b \operatorname{Sin}[c+d x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2 a(a+b \operatorname{Sin}[c+d x])+(a+b \operatorname{Sin}[c+d x])^2}{b^2}}\right)\right)$$

Problem 1158: Result unnecessarily involves imaginary or complex numbers.

$$\int \operatorname{Cot}[c+d x]^4 \operatorname{Csc}[c+d x]^2 (a+b \operatorname{Sin}[c+d x])^{3/2} \, dx$$

Optimal (type 4, 484 leaves, 12 steps):

$$-\frac{\left(128 a^4-116 a^2 b^2+15 b^4\right) \text{Cot}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{640 a^3 d}+\frac{3 b \left(36 a^2-5 b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{320 a^2 d}+\frac{\left(32 a^2-5 b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x]^2 (a+b \text{Sin}[c+d x])^{3/2}}{80 a^2 d}+\frac{b \text{Cot}[c+d x] \text{Csc}[c+d x]^3 (a+b \text{Sin}[c+d x])^{5/2}}{8 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^4 (a+b \text{Sin}[c+d x])^{5/2}}{5 a d}-\left(\left(128 a^4-116 a^2 b^2+15 b^4\right) \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}\right)\Big/\left(640 a^3 d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}\right)+\left(\left(128 a^4+692 a^2 b^2+5 b^4\right) \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}\right)\Big/\left(640 a^2 d \sqrt{a+b \text{Sin}[c+d x]}\right)+\left(3 b \left(48 a^4+8 a^2 b^2-b^4\right) \text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}\right)\Big/\left(128 a^3 d \sqrt{a+b \text{Sin}[c+d x]}\right)$$

Result (type 4, 700 leaves) :

$$\frac{1}{d}\left(\frac{1}{640\,a^3}\left(-128\,a^4\,\text{Cos}[c+d\,x]+116\,a^2\,b^2\,\text{Cos}[c+d\,x]-15\,b^4\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]+\frac{\left(236\,a^2\,b\,\text{Cos}[c+d\,x]+5\,b^3\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^2}{320\,a^2}+\frac{\left(32\,a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3}{80\,a}-\frac{11}{40}\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3-\frac{1}{5}\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}+$$

$$\frac{1}{2560\,a^3\,d}\,b\left(-\left(\left(2\left(1616\,a^3\,b-20\,a\,b^3\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\left(2\left(1312\,a^4+356\,a^2\,b^2-45\,b^4\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,i\left(128\,a^4-116\,a^2\,b^2+15\,b^4\right)\text{Cos}[c+d\,x]\,\text{Cos}[2\,(c+d\,x)]\left(2\,a\,(a-b)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\left(-2\,a^2+b^2+4\,a\,(a+b\,\text{Sin}[c+d\,x])-2\,(a+b\,\text{Sin}[c+d\,x])^2\right)\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\text{Sin}[c+d\,x])+(a+b\,\text{Sin}[c+d\,x])^2}{b^2}}\right)\right)$$

Problem 1159: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cot}[c+d x]^4 \,\text{Csc}[c+d x]^3 \,(a+b \,\text{Sin}[c+d x])^{3/2}\, dx$$

Optimal (type 4, 551 leaves, 13 steps):

$$-\frac{b\,(2064\,a^4+512\,a^2\,b^2-105\,b^4)\,\text{Cot}[c+d x]\,\sqrt{a+b\,\text{Sin}[c+d x]}}{7680\,a^4\,d}-\frac{1}{3840\,a^3\,d}(240\,a^4-168\,a^2\,b^2+35\,b^4)\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]\,\sqrt{a+b\,\text{Sin}[c+d x]}+\frac{b\,(156\,a^2-35\,b^2)\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]^2\,\sqrt{a+b\,\text{Sin}[c+d x]}}{960\,a^2\,d}+\frac{7\,(4\,a^2-b^2)\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]^3\,(a+b\,\text{Sin}[c+d x])^{3/2}}{96\,a^2\,d}+\frac{7\,b\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]^4\,(a+b\,\text{Sin}[c+d x])^{5/2}}{60\,a^2\,d}-\frac{\text{Cot}[c+d x]\,\text{Csc}[c+d x]^5\,(a+b\,\text{Sin}[c+d x])^{5/2}}{6\,a\,d}-\left(b\,(2064\,a^4+512\,a^2\,b^2-105\,b^4)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2\,b}{a+b}\right]\sqrt{a+b\,\text{Sin}[c+d x]}\right)\Big/\left(7680\,a^4\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}\right)+\left(b\,(2544\,a^4+176\,a^2\,b^2-35\,b^4)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}\right)\Big/\left(7680\,a^3\,d\,\sqrt{a+b\,\text{Sin}[c+d x]}\right)+\left((64\,a^6+144\,a^4\,b^2-36\,a^2\,b^4+7\,b^6)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}\right)\Big/\left(512\,a^4\,d\,\sqrt{a+b\,\text{Sin}[c+d x]}\right)$$

Result (type 4, 771 leaves):

$$\frac{1}{d}\left(\frac{1}{7680\,a^4}\left(-2064\,a^4\,b\,\text{Cos}[c+d\,x]-512\,a^2\,b^3\,\text{Cos}[c+d\,x]+105\,b^5\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]+\frac{1}{3840\,a^3}\left(-240\,a^4\,\text{Cos}[c+d\,x]+168\,a^2\,b^2\,\text{Cos}[c+d\,x]-35\,b^4\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^2+\frac{\left(436\,a^2\,b\,\text{Cos}[c+d\,x]+7\,b^3\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3}{960\,a^2}+\frac{\left(140\,a^2\,\text{Cos}[c+d\,x]-3\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^4}{480\,a}-\frac{13}{60}\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4-\frac{1}{6}\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}+\frac{1}{30\,720\,a^4\,d}$$

$$\left(-\left(\left(2\left(960\,a^5\,b-672\,a^3\,b^3+140\,a\,b^5\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\left(2\left(1920\,a^6+2256\,a^4\,b^2-1592\,a^2\,b^4+315\,b^6\right)\right.\right.$$

$$\left.\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-$$

$$\left(2\,i\left(2064\,a^4\,b^2+512\,a^2\,b^4-105\,b^6\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1161: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d x]^3 \,\text{Cot}[c+d x] \,(a+b \,\text{Sin}[c+d x])^{5/2} \, dx$$

Optimal (type 4, 447 leaves, 12 steps):

$$-\frac{2 \left(8 a^4-141 a^2 b^2+36 b^4\right) \text{Cos}[c+d x] \sqrt{a+b \,\text{Sin}[c+d x]}}{693 b^2 d}-\frac{2 a \left(8 a^2-131 b^2\right) \text{Cos}[c+d x] (a+b \,\text{Sin}[c+d x])^{3/2}}{693 b^2 d}-\frac{2 \left(8 a^2-117 b^2\right) \text{Cos}[c+d x] (a+b \,\text{Sin}[c+d x])^{5/2}}{693 b^2 d}+\frac{8 a \,\text{Cos}[c+d x] (a+b \,\text{Sin}[c+d x])^{7/2}}{99 b^2 d}-\frac{2 \,\text{Cos}[c+d x] \,\text{Sin}[c+d x] (a+b \,\text{Sin}[c+d x])^{7/2}}{11 b d}+\left(2 a \left(8 a^4-147 a^2 b^2+444 b^4\right) \text{EllipticE}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \,\text{Sin}[c+d x]}\right) \Bigg/ \left(693 b^3 d \sqrt{\frac{a+b \,\text{Sin}[c+d x]}{a+b}}\right)-\left(2 \left(8 a^6-149 a^4 b^2-516 a^2 b^4-36 b^6\right) \text{EllipticF}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \,\text{Sin}[c+d x]}{a+b}}\right) \Bigg/ \left(693 b^3 d \sqrt{a+b \,\text{Sin}[c+d x]}\right)+\frac{2 a^3 \,\text{EllipticPi}\left[2, \frac{1}{2} \left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \,\text{Sin}[c+d x]}{a+b}}}{d \sqrt{a+b \,\text{Sin}[c+d x]}}$$

Result (type 4, 654 leaves):

$$-\frac{1}{1386 b^2 d}\left(-\left(\left(2 \left(-4 a^4 b-1920 a^2 b^3-72 b^5\right) \text{EllipticF}\left[\frac{1}{2} \left(-c+\frac{\pi}{2}-d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \,\text{Sin}[c+d x]}{a+b}}\right) \Bigg/ \left(\sqrt{a+b \,\text{Sin}[c+d x]}\right)-\left(2 \left(-8 a^5-1239 a^3 b^2-444 a b^4\right) \text{EllipticPi}\left[2, \frac{1}{2} \left(-c+\frac{\pi}{2}-d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \,\text{Sin}[c+d x]}{a+b}}\right) \Bigg/ \left(\sqrt{a+b \,\text{Sin}[c+d x]}\right)-\left(2 i \left(8 a^5-147 a^3 b^2+444 a b^4\right) \text{Cos}[c+d x] \,\text{Cos}\left[2 (c+d x)\right]\right.\right.\right.$$

$$\left(2\,a\,(a-b)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Bigg/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\text{Sin}[c+d\,x])-2\,(a+b\,\text{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\text{Sin}[c+d\,x])+(a+b\,\text{Sin}[c+d\,x])^2}{b^2}}\right)\right)+$$

$$\frac{1}{d}\sqrt{a+b\,\text{Sin}[c+d\,x]}\,\left(-\frac{\left(-32\,a^4-2886\,a^2\,b^2+117\,b^4\right)\,\text{Cos}[c+d\,x]}{2772\,b^2}+\right.$$

$$\frac{\left(452\,a^2-279\,b^2\right)\,\text{Cos}[3\,(c+d\,x)]}{5544}-$$

$$\frac{1}{88}\,b^2\,\text{Cos}[5\,(c+d\,x)]-$$

$$\frac{a\,\left(6\,a^2-569\,b^2\right)\,\text{Sin}[2\,(c+d\,x)]}{1386\,b}+$$

$$\left.\frac{23}{396}\,a\,b\,\text{Sin}[4\,(c+d\,x)]\right)$$

Problem 1162: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\,x]^2\,\text{Cot}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^{5/2}\,dx$$

Optimal (type 4, 426 leaves, 12 steps):

$$\frac{a\left(20 a^2+759 b^2\right) \operatorname{Cos}[c+d x] \sqrt{a+b \operatorname{Sin}[c+d x]}}{315 b d}+\frac{\left(20 a^2+469 b^2\right) \operatorname{Cos}[c+d x](a+b \operatorname{Sin}[c+d x])^{3/2}}{315 b d}+\frac{\left(4 a^2+63 b^2\right) \operatorname{Cos}[c+d x](a+b \operatorname{Sin}[c+d x])^{5/2}}{63 a b d}-\frac{2 \operatorname{Cos}[c+d x](a+b \operatorname{Sin}[c+d x])^{7/2}}{9 b d}-\frac{\operatorname{Cot}[c+d x](a+b \operatorname{Sin}[c+d x])^{7/2}}{a d}-\left(\left(20 a^4+1689 a^2 b^2-168 b^4\right) \operatorname{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \operatorname{Sin}[c+d x]}\right) \Big/ \left(315 b^2 d \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right)+\left(a\left(20 a^4+739 a^2 b^2+816 b^4\right) \operatorname{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}\right) \Big/ \left(315 b^2 d \sqrt{a+b \operatorname{Sin}[c+d x]}\right)+\frac{5 a^2 b \operatorname{EllipticPi}\left[2, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \operatorname{Sin}[c+d x]}{a+b}}}{d \sqrt{a+b \operatorname{Sin}[c+d x]}}$$

Result (type 4, 622 leaves) :

$$\frac{1}{1260\,b\,d}\left(-\left(\left(\left(2\left(-1900\,a^3\,b+1968\,a\,b^3\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\right.\right.$$

$$\left(2\left(-20\,a^4+1461\,a^2\,b^2+168\,b^4\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathbb{i}\left(20\,a^4+1689\,a^2\,b^2-168\,b^4\right)\text{Cos}[c+d\,x]\,\text{Cos}[2\,(c+d\,x)]\right.$$

$$\left(2\,a\,(a-b)\,\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\text{Sin}[c+d\,x])-2\,(a+b\,\text{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\text{Sin}[c+d\,x])+(a+b\,\text{Sin}[c+d\,x])^2}{b^2}}\right)\right)+\frac{1}{d}$$

$$\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(-\frac{a\left(20\,a^2-1101\,b^2\right)\text{Cos}[c+d\,x]}{630\,b}+\frac{19}{126}\,a\,b\,\text{Cos}[3\,(c+d\,x)]-\right.$$

$$a^2\,\text{Cot}[c+d\,x]-\frac{1}{630}\left(150\,a^2-119\,b^2\right)\text{Sin}[2\,(c+d\,x)]+$$

$$\left.\frac{1}{36}\,b^2\,\text{Sin}[4\,(c+d\,x)]\right)$$

Problem 1163: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^{5/2}\,dx$$

Optimal (type 4, 430 leaves, 12 steps) :

$$-\frac{\left(8 a^2-73 b^2\right) \text{Cos}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{28 d}-$$
$$\frac{\left(8 a^2-35 b^2\right) \text{Cos}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{28 a d}-\frac{\left(8 a^2-21 b^2\right) \text{Cos}[c+d x] (a+b \text{Sin}[c+d x])^{5/2}}{28 a^2 d}-$$
$$\frac{3 b \text{Cot}[c+d x] (a+b \text{Sin}[c+d x])^{7/2}}{4 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x] (a+b \text{Sin}[c+d x])^{7/2}}{2 a d}+$$
$$\frac{a \left(8 a^2-247 b^2\right) \text{EllipticE}\left[\frac{1}{2} \left(c-\frac{\pi }{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{28 b d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-$$
$$\frac{\left(8 a^4+3 a^2 b^2-32 b^4\right) \text{EllipticF}\left[\frac{1}{2} \left(c-\frac{\pi }{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{28 b d \sqrt{a+b \text{Sin}[c+d x]}}-$$
$$\frac{3 a \left(4 a^2-5 b^2\right) \text{EllipticPi}\left[2,\frac{1}{2} \left(c-\frac{\pi }{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{4 d \sqrt{a+b \text{Sin}[c+d x]}}$$

Result (type 4, 597 leaves) :

$$\frac{1}{112\,d}\left(\frac{2\left(500\,a^2\,b-64\,b^3\right)\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left(2\left(160\,a^3+37\,a\,b^2\right)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+\left(2\,i\left(8\,a^3-247\,a\,b^2\right)\,\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)+\frac{1}{d}$$

$$\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(-\frac{1}{14}\left(12\,a^2-11\,b^2\right)\,\text{Cos}[c+d\,x]+\frac{1}{14}\,b^2\,\text{Cos}\left[3\left(c+d\,x\right)\right]-\right.$$

$$\frac{9}{4}\,a\,b\,\text{Cot}[c+d\,x]-\frac{1}{2}\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]-$$

$$\left.\frac{3}{7}\,a\,b\,\text{Sin}\left[2\left(c+d\,x\right)\right]\right)$$

Problem 1164: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cot}[c+d\,x]^4\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}\,dx$$

Optimal (type 4, 429 leaves, 12 steps):

$$-\frac{b\left(96 a^2-25 b^2\right) \text{Cos}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{40 a d}-\frac{b\left(208 a^2-25 b^2\right) \text{Cos}[c+d x]\,(a+b \text{Sin}[c+d x])^{3/2}}{120 a^2 d}+\frac{\left(32 a^2-3 b^2\right) \text{Cot}[c+d x]\,(a+b \text{Sin}[c+d x])^{5/2}}{24 a^2 d}-\frac{b \text{Cot}[c+d x] \text{Csc}[c+d x]\,(a+b \text{Sin}[c+d x])^{7/2}}{12 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^2\,(a+b \text{Sin}[c+d x])^{7/2}}{3 a d}+\frac{\left(176 a^2-167 b^2\right) \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{40 d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-\frac{a\left(96 a^2+179 b^2\right) \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{40 d \sqrt{a+b \text{Sin}[c+d x]}}-\frac{5 b\left(12 a^2-b^2\right) \text{EllipticPi}\left[2, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), \frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{8 d \sqrt{a+b \text{Sin}[c+d x]}}$$

Result (type 4, 615 leaves) :

$$\frac{1}{160\,d}\left(-\left(\left(2\left(160\,a^3-692\,a\,b^2\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\right.$$

$$\left(2\left(-424\,a^2\,b-117\,b^3\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathrm{i}\left(-176\,a^2\,b+167\,b^3\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)+\frac{1}{d}$$

$$\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(-\frac{22}{15}\,a\,b\,\text{Cos}[c+d\,x]+\frac{1}{24}\left(32\,a^2\,\text{Cos}[c+d\,x]-33\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]-\right.$$

$$\frac{13}{12}\,a\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]-$$

$$\left.\frac{1}{3}\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2-\frac{1}{5}\,b^2\,\text{Sin}\left[2\left(c+d\,x\right)\right]\right)$$

Problem 1165: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}\,\mathrm{d}x$$

Optimal (type 4, 449 leaves, 12 steps):

$$-\frac{b^2 \left(196 a^2+5 b^2\right) \text{Cos}[c+d x] \sqrt{a+b \text{Sin}[c+d x]}}{64 a^2 d}+\frac{5 b \left(68 a^2+b^2\right) \text{Cot}[c+d x] (a+b \text{Sin}[c+d x])^{3/2}}{192 a^2 d}+\frac{\left(60 a^2+b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x] (a+b \text{Sin}[c+d x])^{5/2}}{96 a^2 d}+\frac{b \text{Cot}[c+d x] \text{Csc}[c+d x]^2 (a+b \text{Sin}[c+d x])^{7/2}}{24 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^3 (a+b \text{Sin}[c+d x])^{7/2}}{4 a d}+\frac{b \left(492 a^2-5 b^2\right) \text{EllipticE}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{64 a d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-\frac{b \left(148 a^2+169 b^2\right) \text{EllipticF}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{64 d \sqrt{a+b \text{Sin}[c+d x]}}+\left(\left(48 a^4-360 a^2 b^2-5 b^4\right) \text{EllipticPi}\left[2,\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}\right)\Big/\left(64 a d \sqrt{a+b \text{Sin}[c+d x]}\right)$$

Result (type 4, 655 leaves) :

$$\frac{1}{d}\left(-\frac{2}{3}b^2\,\text{Cos}[c+d\,x]+\frac{5\left(116\,a^2\,b\,\text{Cos}[c+d\,x]-3\,b^3\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{192\,a}+\frac{1}{96}\left(60\,a^2\,\text{Cos}[c+d\,x]-59\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^2-\frac{17}{24}a\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2-\frac{1}{4}a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}+\frac{1}{256\,a\,d}\left(-\left(\left(2\left(688\,a^3\,b-348\,a\,b^3\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\left(2\left(96\,a^4-228\,a^2\,b^2-15\,b^4\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,i\left(-492\,a^2\,b^2+5\,b^4\right)\text{Cos}[c+d\,x]\,\text{Cos}[2\left(c+d\,x\right)]\left(2\,a\left(a-b\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1166: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]^2\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}dx$$

Optimal (type 4, 482 leaves, 12 steps):

$$-\frac{\left(128\,a^4-580\,a^2\,b^2+15\,b^4\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{640\,a^2\,d}+$$
$$\frac{b\,\left(36\,a^2-b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{64\,a^2\,d}+$$
$$\frac{\left(32\,a^2-b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}}{80\,a^2\,d}+$$
$$\frac{3\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{7/2}}{40\,a^2\,d}-$$
$$\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{7/2}}{5\,a\,d}-$$
$$\left(\left(128\,a^4-2476\,a^2\,b^2-15\,b^4\right)\,\text{EllipticE}\left[\frac{1}{2}\,\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\Bigg/$$
$$\left(640\,a^2\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)+$$
$$\left(\left(128\,a^4+492\,a^2\,b^2-5\,b^4\right)\,\text{EllipticF}\left[\frac{1}{2}\,\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Bigg/$$
$$\left(640\,a\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+$$
$$\left(3\,b\,\left(80\,a^4-40\,a^2\,b^2+b^4\right)\,\text{EllipticPi}\left[2,\,\frac{1}{2}\,\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Bigg/$$
$$\left(128\,a^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)$$

Result (type 4, 700 leaves) :

$$\frac{1}{d}\left(\frac{1}{640\,a^2}\left(-128\,a^4\,\text{Cos}[c+d\,x]+1196\,a^2\,b^2\,\text{Cos}[c+d\,x]+15\,b^4\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]+\right.$$
$$\frac{\left(436\,a^2\,b\,\text{Cos}[c+d\,x]-5\,b^3\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^2}{320\,a}+$$
$$\frac{1}{80}\left(32\,a^2\,\text{Cos}[c+d\,x]-31\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3-$$
$$\left.\frac{21}{40}\,a\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3-\frac{1}{5}\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}+$$
$$\frac{1}{2560\,a^2\,d}\,b\left(-\left(\left(2\left(5936\,a^3\,b+20\,a\,b^3\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\middle/\right.\right.$$
$$\left.\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\left(2\left(2272\,a^4+1276\,a^2\,b^2+45\,b^4\right)\right.$$
$$\left.\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\middle/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-$$
$$\left(2\,\text{i}\left(128\,a^4-2476\,a^2\,b^2-15\,b^4\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$
$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$
$$b\left(2\,a\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$
$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$
$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\middle/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$
$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$
$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1167: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]^3\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}\,dx$$

Optimal (type 4, 551 leaves, 13 steps):

$$-\frac{b\,\left(720\,a^4-176\,a^2\,b^2+15\,b^4\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{1536\,a^3\,d}-\frac{\left(16\,a^4-56\,a^2\,b^2+5\,b^4\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{256\,a^2\,d}+\frac{b\,\left(52\,a^2-5\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}{192\,a^2\,d}+\frac{\left(28\,a^2-3\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}}{96\,a^2\,d}+\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{7/2}}{12\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{7/2}}{6\,a\,d}-\left(b\,\left(720\,a^4-176\,a^2\,b^2+15\,b^4\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\Big/\left(1536\,a^3\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)+\left(b\,\left(816\,a^4+1696\,a^2\,b^2+5\,b^4\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(1536\,a^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)+\left(\left(64\,a^6+720\,a^4\,b^2+60\,a^2\,b^4-5\,b^6\right)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(512\,a^3\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)$$

Result (type 4, 771 leaves):

$$\frac{1}{d}\left(\frac{1}{1536\,a^3}\left(-720\,a^4\,b\,\text{Cos}[c+d\,x]+176\,a^2\,b^3\,\text{Cos}[c+d\,x]-15\,b^5\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]+\frac{1}{768\,a^2}\left(-48\,a^4\,\text{Cos}[c+d\,x]+600\,a^2\,b^2\,\text{Cos}[c+d\,x]+5\,b^4\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^2+\frac{\left(164\,a^2\,b\,\text{Cos}[c+d\,x]-b^3\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3}{192\,a}+\frac{1}{96}\left(28\,a^2\,\text{Cos}[c+d\,x]-27\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^4-\frac{5}{12}\,a\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4-\frac{1}{6}\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^5\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}+\frac{1}{6144\,a^3\,d}\left(-\left(\left(2\left(192\,a^5\,b+3744\,a^3\,b^3-20\,a\,b^5\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\left(2\left(384\,a^6+3600\,a^4\,b^2+536\,a^2\,b^4-45\,b^6\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,i\left(720\,a^4\,b^2-176\,a^2\,b^4+15\,b^6\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\left(2\,a\left(a-b\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1171: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d\,x]^3\,\text{Cot}[c+d\,x]}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 4, 288 leaves, 9 steps):

$$\frac{8\,a\,\text{Cos}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{15\,b^2\,d}-\frac{2\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{5\,b\,d}+\frac{2\,\left(8\,a^2-21\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\,\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{15\,b^3\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}-\frac{2\,a\,\left(8\,a^2-23\,b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\,\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{15\,b^3\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}+\frac{2\,\text{EllipticPi}\left[2,\frac{1}{2}\,\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 536 leaves):

$$
\begin{aligned}
&-\frac{1}{30\,b^2\,d}\left(\frac{8\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.\\
&\quad\left(2\left(-8\,a^2-9\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\\
&\quad\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathrm{i}\left(8\,a^2-21\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.\\
&\qquad\left(2\,a\left(a-b\right)\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.\\
&\qquad\quad b\left(2\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.\\
&\qquad\qquad\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)\\
&\qquad\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.\\
&\qquad\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)\\
&\qquad\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)+\\
&\frac{\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(\frac{8\,a\,\text{Cos}[c+d\,x]}{15\,b^2}-\frac{\text{Sin}[2\,(c+d\,x)]}{5\,b}\right)}{d}
\end{aligned}
$$

Problem 1172: Result unnecessarily involves imaginary or complex numbers.

$$
\int\frac{\text{Cos}[c+d\,x]^2\,\text{Cot}[c+d\,x]^2}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}\,dx
$$

Optimal (type 4, 285 leaves, 9 steps):

$$-\frac{2\,\mathrm{Cos}[c+d\,x]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{3\,b\,d}-\frac{\mathrm{Cot}[c+d\,x]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{a\,d}-\frac{\left(4\,a^2+3\,b^2\right)\,\mathrm{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{3\,a\,b^2\,d\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}+\frac{\left(4\,a^2-7\,b^2\right)\,\mathrm{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{3\,b^2\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b\,\mathrm{EllipticPi}\left[2,\,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{a\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}$$

Result (type 4, 534 leaves) :

$$\frac{\left(-\frac{2\,\text{Cos}[c+d\,x]}{3\,b}-\frac{\text{Cot}[c+d\,x]}{a}\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}}{d}+$$

$$\frac{1}{12\,a\,b\,d}\left(\frac{40\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(-4\,a^2-9\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,i\left(4\,a^2+3\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1173: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^3}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 4, 307 leaves, 9 steps):

$$\frac{3\,b\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{4\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{2\,a\,d}+$$

$$\frac{\left(8\,a^2+3\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{4\,a^2\,b\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}-$$

$$\frac{\left(8\,a^2+b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{4\,a\,b\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{3\,\left(4\,a^2-b^2\right)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{4\,a^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 443 leaves) :

$$\frac{1}{16\,d}\left(\frac{1}{a^3\,b^2\,\sqrt{-\frac{1}{a+b}}\,\left(-2+\mathrm{Csc}[c+d\,x]^2\right)}2\,\mathbb{i}\,\left(8\,a^2+3\,b^2\right)\,\mathrm{Cos}\left[2\,\left(c+d\,x\right)\right]\,\mathrm{Csc}[c+d\,x]^2\right.$$

$$\left(2\,a\,\left(a-b\right)\,\mathrm{EllipticE}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\,\right],\,\frac{a+b}{a-b}\right]+\right.$$

$$b\,\left(2\,a\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\,\right],\,\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\mathrm{EllipticPi}\left[\frac{a+b}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\,\right],\,\frac{a+b}{a-b}\right]\right)\right)$$

$$\mathrm{Sec}[c+d\,x]\,\sqrt{-\frac{b\,\left(-1+\mathrm{Sin}[c+d\,x]\right)}{a+b}}\,\sqrt{-\frac{b\,\left(1+\mathrm{Sin}[c+d\,x]\right)}{a-b}}\,-$$

$$\frac{4\,\mathrm{Cot}[c+d\,x]\,\left(-3\,b+2\,a\,\mathrm{Csc}[c+d\,x]\right)\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{a^2}-$$

$$\frac{8\,b\,\mathrm{EllipticF}\left[\frac{1}{4}\,\left(-2\,c+\pi-2\,d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{a\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\left(2\,\left(16\,a^2-9\,b^2\right)\,\mathrm{EllipticPi}\left[2,\,\frac{1}{4}\,\left(-2\,c+\pi-2\,d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}\,\right)\Big/$$

$$\left.\left(a^2\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\,\right)\right)$$

Problem 1174: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Cot}[c+d\,x]^4}{\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}\,\mathrm{d}x$$

Optimal (type 4, 353 leaves, 10 steps):

$$\frac{\left(32\,a^2-15\,b^2\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{24\,a^3\,d}+$$
$$\frac{5\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{12\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{3\,a\,d}+$$
$$\frac{\left(32\,a^2-15\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{24\,a^3\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}+$$
$$\frac{\left(16\,a^2+5\,b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{24\,a^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}+$$
$$\frac{b\,\left(12\,a^2-5\,b^2\right)\,\text{EllipticPi}\left[2,\,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\,\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{8\,a^3\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 596 leaves) :

$$\frac{1}{d}\left(\frac{\left(32\,a^2\,\text{Cos}[c+d\,x]-15\,b^2\,\text{Cos}[c+d\,x]\right)\,\text{Csc}[c+d\,x]}{24\,a^3}+\frac{5\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{12\,a^2}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,a}\right)\sqrt{a+b\,\text{Sin}[c+d\,x]}+$$

$$\frac{1}{96\,a^3\,d}\left(-\left(\left(2\,\left(96\,a^3-20\,a\,b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\right.$$

$$\left(2\,\left(104\,a^2\,b-45\,b^3\right)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathbb{i}\,\left(-32\,a^2\,b+15\,b^3\right)\,\text{Cos}[c+d\,x]\,\text{Cos}\left[2\,\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\,\left(a-b\right)\,\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\,\left(2\,a\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathbb{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,\left(a+b\,\text{Sin}[c+d\,x]\right)-2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1175: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cot}[c+d\,x]^4\,\text{Csc}[c+d\,x]}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 4, 412 leaves, 11 steps):

$$-\frac{b\left(188\,a^2-105\,b^2\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{192\,a^4\,d}+$$
$$\frac{5\left(12\,a^2-7\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{96\,a^3\,d}+$$
$$\frac{7\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{24\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{4\,a\,d}-$$
$$\left(b\left(188\,a^2-105\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(192\,a^4\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)+\frac{b\left(68\,a^2-35\,b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{192\,a^3\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}+$$
$$\left(\left(48\,a^4-72\,a^2\,b^2+35\,b^4\right)\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$
$$\left(64\,a^4\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)$$

Result (type 4, 647 leaves) :

$$\frac{1}{d}\left(\frac{\left(-188\, a^2\, b\, \text{Cos}[c+d\, x]+105\, b^3\, \text{Cos}[c+d\, x]\right)\, \text{Csc}[c+d\, x]}{192\, a^4}+\frac{5\, \left(12\, a^2\, \text{Cos}[c+d\, x]-7\, b^2\, \text{Cos}[c+d\, x]\right)\, \text{Csc}[c+d\, x]^2}{96\, a^3}+\frac{7\, b\, \text{Cot}[c+d\, x]\, \text{Csc}[c+d\, x]^2}{24\, a^2}-\frac{\text{Cot}[c+d\, x]\, \text{Csc}[c+d\, x]^3}{4\, a}\right)\sqrt{a+b\, \text{Sin}[c+d\, x]}+$$

$$\frac{1}{768\, a^4\, d}\left(-\left(\left(2\, \left(-240\, a^3\, b+140\, a\, b^3\right)\, \text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\, x\right),\, \frac{2\, b}{a+b}\right]\sqrt{\frac{a+b\, \text{Sin}[c+d\, x]}{a+b}}\right)\Big/\left(\sqrt{a+b\, \text{Sin}[c+d\, x]}\right)\right)-\left(2\, \left(288\, a^4-620\, a^2\, b^2+315\, b^4\right)\, \text{EllipticPi}\left[2,\, \frac{1}{2}\left(-c+\frac{\pi}{2}-d\, x\right),\, \frac{2\, b}{a+b}\right]\sqrt{\frac{a+b\, \text{Sin}[c+d\, x]}{a+b}}\right)\Big/\left(\sqrt{a+b\, \text{Sin}[c+d\, x]}\right)-\left(2\, i\, \left(188\, a^2\, b^2-105\, b^4\right)\, \text{Cos}[c+d\, x]\, \text{Cos}[2\, (c+d\, x)]\left(2\, a\, (a-b)\, \text{EllipticE}\left[i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\right],\, \frac{a+b}{a-b}\right]+b\left(2\, a\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\right],\, \frac{a+b}{a-b}\right]-b\, \text{EllipticPi}\left[\frac{a+b}{a},\, i\, \text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\, \sqrt{a+b\, \text{Sin}[c+d\, x]}\right],\, \frac{a+b}{a-b}\right]\right)\right)\sqrt{\frac{b-b\, \text{Sin}[c+d\, x]}{a+b}}\, \sqrt{-\frac{b+b\, \text{Sin}[c+d\, x]}{a-b}}\right)\Big/\left(a\, \sqrt{-\frac{1}{a+b}}\, \sqrt{1-\text{Sin}[c+d\, x]^2}\left(-2\, a^2+b^2+4\, a\, (a+b\, \text{Sin}[c+d\, x])-2\, (a+b\, \text{Sin}[c+d\, x])^2\right)\sqrt{-\frac{a^2-b^2-2\, a\, (a+b\, \text{Sin}[c+d\, x])+(a+b\, \text{Sin}[c+d\, x])^2}{b^2}}\right)\right)$$

Problem 1179: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d\, x]^3\, \text{Cot}[c+d\, x]}{(a+b\, \text{Sin}[c+d\, x])^{3/2}}\, dx$$

Optimal (type 4, 296 leaves, 9 steps):

$$-\frac{2\left(a^2-b^2\right)\operatorname{Cos}[c+d x]}{a b^2 d\sqrt{a+b\operatorname{Sin}[c+d x]}}-\frac{2\operatorname{Cos}[c+d x]\sqrt{a+b\operatorname{Sin}[c+d x]}}{3 b^2 d}-\frac{2\left(8 a^2-3 b^2\right)\operatorname{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{a+b\operatorname{Sin}[c+d x]}}{3 a b^3 d\sqrt{\frac{a+b\operatorname{Sin}[c+d x]}{a+b}}}+\frac{2\left(8 a^2-5 b^2\right)\operatorname{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{\frac{a+b\operatorname{Sin}[c+d x]}{a+b}}}{3 b^3 d\sqrt{a+b\operatorname{Sin}[c+d x]}}+\frac{2\operatorname{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{\frac{a+b\operatorname{Sin}[c+d x]}{a+b}}}{a d\sqrt{a+b\operatorname{Sin}[c+d x]}}$$

Result (type 4, 565 leaves):

$$\frac{\sqrt{a+b\,\text{Sin}[c+d\,x]}\,\left(-\frac{2\,\text{Cos}[c+d\,x]}{3\,b^2}-\frac{2\,\left(a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]\right)}{a\,b^2\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)}{d}+$$

$$\frac{1}{6\,a\,b^2\,d}\left(\frac{8\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(-8\,a^2+9\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\text{i}\,\left(8\,a^2-3\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\,(c+d\,x)\right]\right.$$

$$\left(2\,a\,(a-b)\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,\left(a+b\,\text{Sin}[c+d\,x]\right)-2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1180: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[c+d\,x]^2\,\text{Cot}[c+d\,x]^2}{\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 4, 294 leaves, 9 steps):

$$\frac{\left(2\,a^2-3\,b^2\right)\,\text{Cos}[c+d\,x]}{a^2\,b\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\frac{\text{Cot}[c+d\,x]}{a\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{\left(4\,a^2-3\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{a^2\,b^2\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}-$$

$$\frac{\left(4\,a^2-b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{a\,b^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{3\,b\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{a^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 563 leaves) :

$$\frac{\sqrt{a+b\,\text{Sin}[c+d\,x]}\,\left(-\frac{\text{Cot}[c+d\,x]}{a^2}+\frac{2\,\left(a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]\right)}{a^2\,b\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)}{d}-$$

$$\frac{1}{4\,a^2\,b\,d}\left(-\frac{8\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\,\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\,\left(-4\,a^2+9\,b^2\right)\,\text{EllipticPi}\left[2,\,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\,\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,i\,\left(4\,a^2-3\,b^2\right)\,\text{Cos}[c+d\,x]\,\text{Cos}\left[2\,\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\,\left(a-b\right)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\,\frac{a+b}{a-b}\right]+\right.$$

$$b\,\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\,\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\,\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,\left(a+b\,\text{Sin}[c+d\,x]\right)-2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1181: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^3}{\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 4, 366 leaves, 10 steps):

$$\frac{\left(4\,a^2-5\,b^2\right)\,\mathrm{Cot}[c+d\,x]}{2\,a^2\,b\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{2\,a\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{\left(8\,a^2-15\,b^2\right)\,\mathrm{Cot}[c+d\,x]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{4\,a^3\,b\,d}-$$

$$\frac{\left(8\,a^2-15\,b^2\right)\,\mathrm{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{4\,a^3\,b\,d\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}+$$

$$\frac{\left(8\,a^2-5\,b^2\right)\,\mathrm{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{4\,a^2\,b\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{3\,\left(4\,a^2-5\,b^2\right)\,\mathrm{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{4\,a^3\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}$$

Result (type 4, 579 leaves):

$$\frac{1}{d}\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(\frac{7\,b\,\text{Cot}[c+d\,x]}{4\,a^3}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^2}-\frac{2\left(a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]\right)}{a^3\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)+$$

$$\frac{1}{16\,a^3\,d}\left(-\frac{40\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(-32\,a^2+45\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,i\left(8\,a^2-15\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1182: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cot}[c+d\,x]^4}{\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 4, 416 leaves, 11 steps):

$$\frac{\left(6\,a^2-7\,b^2\right)\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{3\,a^2\,b\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2}{3\,a\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}+\frac{5\,\left(16\,a^2-21\,b^2\right)\,\mathrm{Cot}[c+d\,x]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{24\,a^4\,d}-$$

$$\frac{\left(24\,a^2-35\,b^2\right)\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{12\,a^3\,b\,d}+$$

$$\frac{5\,\left(16\,a^2-21\,b^2\right)\,\mathrm{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{24\,a^4\,d\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}-$$

$$\frac{\left(32\,a^2-35\,b^2\right)\,\mathrm{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{24\,a^3\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{b\,\left(36\,a^2-35\,b^2\right)\,\mathrm{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{8\,a^4\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}$$

Result (type 4, 636 leaves) :

$$\frac{1}{d}\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(\frac{\left(32\,a^2\,\text{Cos}[c+d\,x]-57\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{24\,a^4}+\frac{11\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{12\,a^3}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,a^2}+\frac{2\left(a^2\,b\,\text{Cos}[c+d\,x]-b^3\,\text{Cos}[c+d\,x]\right)}{a^4\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)+$$

$$\frac{1}{96\,a^4\,d}\left(-\left(\left(2\left(96\,a^3-140\,a\,b^2\right)\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)\right)-\right.$$

$$\left(2\left(296\,a^2\,b-315\,b^3\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\mathrm{i}\left(-80\,a^2\,b+105\,b^3\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1183: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]^3}{\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 4, 469 leaves, 10 steps):

$$-\frac{2\left(a^2-b^2\right)\mathrm{Cos}[c+d x]\,\mathrm{Sin}[c+d x]^4}{3 a b^2 d\left(a+b\,\mathrm{Sin}[c+d x]\right)^{3/2}}+\frac{2\left(13 a^2-5 b^2\right)\mathrm{Cos}[c+d x]\,\mathrm{Sin}[c+d x]^4}{3 a^2 b^2 d\sqrt{a+b\,\mathrm{Sin}[c+d x]}}+$$
$$\frac{128 a\left(40 a^2-19 b^2\right)\mathrm{Cos}[c+d x]\sqrt{a+b\,\mathrm{Sin}[c+d x]}}{315 b^6 d}-$$
$$\frac{8\left(480 a^2-203 b^2\right)\mathrm{Cos}[c+d x]\,\mathrm{Sin}[c+d x]\sqrt{a+b\,\mathrm{Sin}[c+d x]}}{315 b^5 d}+$$
$$\frac{4\left(160 a^2-63 b^2\right)\mathrm{Cos}[c+d x]\,\mathrm{Sin}[c+d x]^2\sqrt{a+b\,\mathrm{Sin}[c+d x]}}{63 a b^4 d}-$$
$$\frac{10\left(8 a^2-3 b^2\right)\mathrm{Cos}[c+d x]\,\mathrm{Sin}[c+d x]^3\sqrt{a+b\,\mathrm{Sin}[c+d x]}}{9 a^2 b^3 d}+$$
$$\left(8\left(1280 a^4-768 a^2 b^2+21 b^4\right)\mathrm{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{a+b\,\mathrm{Sin}[c+d x]}\right)\Big/$$
$$\left(315 b^7 d\sqrt{\frac{a+b\,\mathrm{Sin}[c+d x]}{a+b}}\right)-$$
$$\left(8 a\left(1280 a^4-1088 a^2 b^2+123 b^4\right)\mathrm{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d x]}{a+b}}\right)\Big/$$
$$\left(315 b^7 d\sqrt{a+b\,\mathrm{Sin}[c+d x]}\right)$$

Result (type 4, 1044 leaves):

$$\frac{1}{10080 d\left(a+b\,\mathrm{Sin}[c+d x]\right)^{3/2}}$$
$$\left(315\left(\frac{1}{(a-b)^2 b}\left(\left(a^2+3 b^2\right)\mathrm{EllipticE}\left[\frac{1}{4}\left(-2 c+\pi-2 d x\right),\frac{2 b}{a+b}\right]+a\left(-a+b\right)\right.\right.\right.$$
$$\left.\mathrm{EllipticF}\left[\frac{1}{4}\left(-2 c+\pi-2 d x\right),\frac{2 b}{a+b}\right]\right)\left(\frac{a+b\,\mathrm{Sin}[c+d x]}{a+b}\right)^{3/2}-$$
$$\left.\frac{\mathrm{Cos}[c+d x]\left(2 a\left(a^2+b^2\right)+b\left(a^2+3 b^2\right)\mathrm{Sin}[c+d x]\right)}{\left(a^2-b^2\right)^2}\right)+\frac{1}{b^3}$$
$$315\left(\frac{1}{(a-b)^2}\left(\left(32 a^4-57 a^2 b^2+21 b^4\right)\mathrm{EllipticE}\left[\frac{1}{4}\left(-2 c+\pi-2 d x\right),\frac{2 b}{a+b}\right]+\right.\right.$$
$$\left.a\left(-32 a^3+32 a^2 b+33 a b^2-33 b^3\right)\mathrm{EllipticF}\left[\frac{1}{4}\left(-2 c+\pi-2 d x\right),\frac{2 b}{a+b}\right]\right)$$
$$\left(\frac{a+b\,\mathrm{Sin}[c+d x]}{a+b}\right)^{3/2}-\frac{1}{2\left(a^2-b^2\right)^2}$$
$$\left.b\left(4 a\left(8 a^4-13 a^2 b^2+3 b^4\right)\mathrm{Cos}[c+d x]+b\left(20 a^4-33 a^2 b^2+9 b^4\right)\mathrm{Sin}\left[2\left(c+d x\right)\right]\right)\right)-\frac{1}{b^5}$$

$$21\left(\frac{1}{(a-b)^2}\left(\left(-2048 a^6+4192 a^4 b^2-2355 a^2 b^4+231 b^6\right) \text{EllipticE}\left[\frac{1}{4}(-2 c+\pi-2 d x),\frac{2 b}{a+b}\right]+\right.\right.$$
$$a\left(2048 a^5-2048 a^4 b-2656 a^3 b^2+2656 a^2 b^3+603 a b^4-603 b^5\right)$$
$$\left.\text{EllipticF}\left[\frac{1}{4}(-2 c+\pi-2 d x),\frac{2 b}{a+b}\right]\right)\left(\frac{a+b \text{Sin}[c+d x]}{a+b}\right)^{3/2}+\frac{1}{\left(a^2-b^2\right)^2} b \text{Cos}[c+d x]$$
$$\left(-64 a b^2\left(a^2-b^2\right)^2 \text{Cos}[2(c+d x)]+b\left(1280 a^6-2536 a^4 b^2+1347 a^2 b^4-111 b^6\right)\right.$$
$$\left.\left.\text{Sin}[c+d x]+2\left(512 a^7-952 a^5 b^2+423 a^3 b^4+7 a b^6+6 b^3\left(a^2-b^2\right)^2 \text{Sin}[3(c+d x)]\right)\right)\right)-$$
$$\frac{1}{b^7} 5(a+b \text{Sin}[c+d x])\left(\left(\left(-4 b\left(-4096 a^7 b+8960 a^5 b^3-5884 a^3 b^5+1041 a b^7\right)\right.\right.\right.$$
$$\text{EllipticF}\left[\frac{1}{4}(-2 c+\pi-2 d x),\frac{2 b}{a+b}\right]+\left(65536 a^8-161792 a^6 b^2+129664 a^4\right.$$
$$\left.b^4-35109 a^2 b^6+1617 b^8\right)\left((a+b) \text{EllipticE}\left[\frac{1}{4}(-2 c+\pi-2 d x),\frac{2 b}{a+b}\right]-a\right.$$
$$\left.\left.\text{EllipticF}\left[\frac{1}{4}(-2 c+\pi-2 d x),\frac{2 b}{a+b}\right]\right)\right)\sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}\Bigg/$$
$$\left((a-b)^2(a+b)^2\right)+b(a+b \text{Sin}[c+d x])\left(-128 a\left(88 a^2-27 b^2\right) \text{Cos}[c+d x]+\right.$$
$$416 a b^2 \text{Cos}[3(c+d x)]+\frac{21 a\left(64 a^6-112 a^4 b^2+56 a^2 b^4-7 b^6\right) \text{Cos}[c+d x]}{\left(a^2-b^2\right)(a+b \text{Sin}[c+d x])^2}-$$
$$\left(21\left(1088 a^8-2576 a^6 b^2+1960 a^4 b^4-497 a^2 b^6+21 b^8\right) \text{Cos}[c+d x]\right)\Big/$$
$$\left(\left(a^2-b^2\right)^2(a+b \text{Sin}[c+d x])\right)-$$
$$\left.\left.\left.8 b\left(-276 a^2+35 b^2\right) \text{Sin}[2(c+d x)]-56 b^3 \text{Sin}[4(c+d x)]\right)\right)\right)$$

Problem 1186: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d x]^3 \text{Cot}[c+d x]}{(a+b \text{Sin}[c+d x])^{5/2}} \, dx$$

Optimal (type 4, 313 leaves, 9 steps):

$$-\frac{2\left(a^2-b^2\right)\text{Cos}[c+d x]}{3 a b^2 d\,(a+b\,\text{Sin}[c+d x])^{3/2}}+\frac{2\left(5 a^2+3 b^2\right)\text{Cos}[c+d x]}{3 a^2 b^2 d\sqrt{a+b\,\text{Sin}[c+d x]}}+$$

$$\frac{2\left(8 a^2+3 b^2\right)\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{a+b\,\text{Sin}[c+d x]}}{3 a^2 b^3 d\sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}}-$$

$$\frac{2\left(8 a^2+b^2\right)\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}}{3 a b^3 d\sqrt{a+b\,\text{Sin}[c+d x]}}+$$

$$\frac{2\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),\frac{2 b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d x]}{a+b}}}{a^2 d\sqrt{a+b\,\text{Sin}[c+d x]}}$$

Result (type 4, 599 leaves) :

$$\frac{1}{d}\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\left(-\frac{2\left(a^2\,\mathrm{Cos}[c+d\,x]-b^2\,\mathrm{Cos}[c+d\,x]\right)}{3\,a\,b^2\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^2}+\frac{2\left(5\,a^2\,\mathrm{Cos}[c+d\,x]+3\,b^2\,\mathrm{Cos}[c+d\,x]\right)}{3\,a^2\,b^2\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}\right)-$$

$$\frac{1}{6\,a^2\,b^2\,d}\left(\frac{8\,a\,b\,\mathrm{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(-8\,a^2-9\,b^2\right)\mathrm{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right)-\left(2\,\mathrm{i}\left(8\,a^2+3\,b^2\right)\mathrm{Cos}[c+d\,x]\,\mathrm{Cos}[2\,(c+d\,x)]\right.$$

$$\left(2\,a\,(a-b)\,\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\mathrm{EllipticPi}\left[\frac{a+b}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\mathrm{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\mathrm{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\mathrm{Sin}[c+d\,x])-2\,(a+b\,\mathrm{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\mathrm{Sin}[c+d\,x])+(a+b\,\mathrm{Sin}[c+d\,x])^2}{b^2}}\right)\right)$$

Problem 1187: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Cos}[c+d\,x]^2\,\mathrm{Cot}[c+d\,x]^2}{(a+b\,\mathrm{Sin}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 4, 346 leaves, 10 steps):

$$\frac{\left(2\,a^2-5\,b^2\right)\,\text{Cos}[c+d\,x]}{3\,a^2\,b\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{\text{Cot}[c+d\,x]}{a\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{\left(4\,a^2+15\,b^2\right)\,\text{Cos}[c+d\,x]}{3\,a^3\,b\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{\left(4\,a^2+15\,b^2\right)\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}{3\,a^3\,b^2\,d\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}+$$

$$\frac{\left(4\,a^2+5\,b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{3\,a^2\,b^2\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{5\,b\,\text{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{a^3\,d\,\sqrt{a+b\,\text{Sin}[c+d\,x]}}$$

Result (type 4, 609 leaves) :

$$\frac{1}{d}\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(-\frac{\text{Cot}[c+d\,x]}{a^3}+\frac{2\left(a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]\right)}{3\,a^2\,b\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}-\frac{4\left(a^2\,\text{Cos}[c+d\,x]+3\,b^2\,\text{Cos}[c+d\,x]\right)}{3\,a^3\,b\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)+$$

$$\frac{1}{12\,a^3\,b\,d}\left(\frac{40\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(-4\,a^2-45\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,i\,\left(4\,a^2+15\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}[2\,(c+d\,x)]\right.$$

$$\left(2\,a\,(a-b)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\,\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\,(a+b\,\text{Sin}[c+d\,x])-2\,(a+b\,\text{Sin}[c+d\,x])^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\,(a+b\,\text{Sin}[c+d\,x])+(a+b\,\text{Sin}[c+d\,x])^2}{b^2}}\right)\right)$$

Problem 1188: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^3}{(a+b\,\text{Sin}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 4, 407 leaves, 11 steps):

$$\frac{\left(4\,a^2-7\,b^2\right)\,\mathrm{Cot}[c+d\,x]}{6\,a^2\,b\,d\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}}-\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{2\,a\,d\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}}-\frac{\left(8\,a^2-105\,b^2\right)\,\mathrm{Cos}[c+d\,x]}{12\,a^4\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{\left(8\,a^2-35\,b^2\right)\,\mathrm{Cot}[c+d\,x]}{12\,a^3\,b\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-\frac{\left(8\,a^2-105\,b^2\right)\,\mathrm{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}{12\,a^4\,b\,d\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}+$$

$$\frac{\left(8\,a^2-35\,b^2\right)\,\mathrm{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{12\,a^3\,b\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{\left(12\,a^2-35\,b^2\right)\,\mathrm{EllipticPi}\left[2,\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),\frac{2\,b}{a+b}\right]\,\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}}{4\,a^4\,d\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}}$$

Result (type 4, 622 leaves) :

$$\frac{1}{d}\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(\frac{11\,b\,\text{Cot}[c+d\,x]}{4\,a^4}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^3}-\frac{2\left(a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]\right)}{3\,a^3\left(a+b\,\text{Sin}[c+d\,x]\right)^2}-\frac{2\left(a^2\,\text{Cos}[c+d\,x]-9\,b^2\,\text{Cos}[c+d\,x]\right)}{3\,a^4\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)+$$

$$\frac{1}{48\,a^4\,d}\left(-\frac{280\,a\,b\,\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left(2\left(-80\,a^2+315\,b^2\right)\text{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\text{Sin}[c+d\,x]}\right)-\left(2\,\text{i}\left(8\,a^2-105\,b^2\right)\text{Cos}[c+d\,x]\,\text{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\text{EllipticPi}\left[\frac{a+b}{a},\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\sqrt{a+b\,\text{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\text{Sin}[c+d\,x]}{a+b}}\sqrt{-\frac{b+b\,\text{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\sqrt{1-\text{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\text{Sin}[c+d\,x]\right)-2\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1189: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cot}[c+d\,x]^4}{\left(a+b\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 4, 458 leaves, 12 steps):

$$\frac{\left(2 a^2-3 b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x]}{3 a^2 b d (a+b \text{Sin}[c+d x])^{3/2}}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^2}{3 a d (a+b \text{Sin}[c+d x])^{3/2}}+\frac{b \left(32 a^2-105 b^2\right) \text{Cos}[c+d x]}{8 a^5 d \sqrt{a+b \text{Sin}[c+d x]}}+$$

$$\frac{\left(16 a^2-35 b^2\right) \text{Cot}[c+d x]}{8 a^4 d \sqrt{a+b \text{Sin}[c+d x]}}-\frac{\left(8 a^2-21 b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x]}{12 a^3 b d \sqrt{a+b \text{Sin}[c+d x]}}+$$

$$\frac{\left(32 a^2-105 b^2\right) \text{EllipticE}\left[\frac{1}{2} \left(c-\frac{\pi }{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{a+b \text{Sin}[c+d x]}}{8 a^5 d \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}-$$

$$\frac{\left(16 a^2-35 b^2\right) \text{EllipticF}\left[\frac{1}{2} \left(c-\frac{\pi }{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{8 a^4 d \sqrt{a+b \text{Sin}[c+d x]}}+$$

$$\frac{15 b \left(4 a^2-7 b^2\right) \text{EllipticPi}\left[2,\frac{1}{2} \left(c-\frac{\pi }{2}+d x\right),\frac{2 b}{a+b}\right] \sqrt{\frac{a+b \text{Sin}[c+d x]}{a+b}}}{8 a^5 d \sqrt{a+b \text{Sin}[c+d x]}}$$

Result (type 4, 680 leaves) :

$$\frac{1}{d}\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\,\left(\frac{\left(32\,a^2\,\mathrm{Cos}[c+d\,x]-123\,b^2\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]}{24\,a^5}+\right.$$

$$\frac{17\,b\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]}{12\,a^4}-\frac{\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2}{3\,a^3}+$$

$$\left.\frac{2\left(a^2\,b\,\mathrm{Cos}[c+d\,x]-b^3\,\mathrm{Cos}[c+d\,x]\right)}{3\,a^4\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^2}+\frac{8\left(a^2\,b\,\mathrm{Cos}[c+d\,x]-3\,b^3\,\mathrm{Cos}[c+d\,x]\right)}{3\,a^5\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}\right)+$$

$$\frac{1}{32\,a^5\,d}\left(-\left(\left(2\left(32\,a^3-140\,a\,b^2\right)\mathrm{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}\right)\Big/\right.\right.$$

$$\left.\left(\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right)\right)-$$

$$\left(2\left(152\,a^2\,b-315\,b^3\right)\mathrm{EllipticPi}\left[2,\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+b}}\right)\Big/$$

$$\left(\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right)-\left(2\,\mathrm{i}\left(-32\,a^2\,b+105\,b^3\right)\mathrm{Cos}[c+d\,x]\,\mathrm{Cos}\left[2\left(c+d\,x\right)\right]\right.$$

$$\left(2\,a\left(a-b\right)\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]+\right.$$

$$b\left(2\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]-\right.$$

$$\left.\left.b\,\mathrm{EllipticPi}\left[\frac{a+b}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{1}{a+b}}\,\sqrt{a+b\,\mathrm{Sin}[c+d\,x]}\right],\frac{a+b}{a-b}\right]\right)\right)$$

$$\left.\sqrt{\frac{b-b\,\mathrm{Sin}[c+d\,x]}{a+b}}\,\sqrt{-\frac{b+b\,\mathrm{Sin}[c+d\,x]}{a-b}}\right)\Big/\left(a\sqrt{-\frac{1}{a+b}}\,\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\right.$$

$$\left(-2\,a^2+b^2+4\,a\left(a+b\,\mathrm{Sin}[c+d\,x]\right)-2\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^2\right)$$

$$\left.\left.\sqrt{-\frac{a^2-b^2-2\,a\left(a+b\,\mathrm{Sin}[c+d\,x]\right)+\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^2}{b^2}}\right)\right)$$

Problem 1190: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[e+f x]^4}{\sqrt{d \operatorname{Sin}[e+f x]}\,(a+b \operatorname{Sin}[e+f x])^{9/2}}\,dx$$

Optimal (type 4, 510 leaves, 8 steps):

$$\frac{2 \operatorname{Cos}[e+f x]^3 \sqrt{d \operatorname{Sin}[e+f x]}}{7 a d f\,(a+b \operatorname{Sin}[e+f x])^{7/2}}+\frac{12 \operatorname{Cos}[e+f x] \sqrt{d \operatorname{Sin}[e+f x]}}{35 a^2 d f\,(a+b \operatorname{Sin}[e+f x])^{5/2}}+$$
$$\frac{8\left(a^2-2 b^2\right) \operatorname{Cos}[e+f x] \sqrt{d \operatorname{Sin}[e+f x]}}{35 a^3\left(a^2-b^2\right) d f\,(a+b \operatorname{Sin}[e+f x])^{3/2}}+\frac{32 b\left(2 a^2-b^2\right) \operatorname{Cos}[e+f x]}{35 a^3\left(a^2-b^2\right)^2 f \sqrt{d \operatorname{Sin}[e+f x]}\,\sqrt{a+b \operatorname{Sin}[e+f x]}}-$$
$$\left(32 b\left(2 a^2-b^2\right) \sqrt{\frac{a\,(1-\operatorname{Csc}[e+f x])}{a+b}}\,\sqrt{\frac{a\,(1+\operatorname{Csc}[e+f x])}{a-b}}\,\operatorname{EllipticE}\left[\right.\right.$$
$$\left.\left.\operatorname{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b \operatorname{Sin}[e+f x]}}{\sqrt{a+b}\,\sqrt{d \operatorname{Sin}[e+f x]}}\right],-\frac{a+b}{a-b}\right] \operatorname{Tan}[e+f x]\right) \Big/ \left(35 a^5\,(a-b)\,(a+b)^{3/2} \sqrt{d}\, f\right)-$$
$$\left(8\left(5 a^2-3 a b-4 b^2\right) \sqrt{\frac{a\,(1-\operatorname{Csc}[e+f x])}{a+b}}\,\sqrt{\frac{a\,(1+\operatorname{Csc}[e+f x])}{a-b}}\,\operatorname{EllipticF}\left[\right.\right.$$
$$\left.\left.\operatorname{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b \operatorname{Sin}[e+f x]}}{\sqrt{a+b}\,\sqrt{d \operatorname{Sin}[e+f x]}}\right],-\frac{a+b}{a-b}\right] \operatorname{Tan}[e+f x]\right) \Big/ \left(35 a^4\,(a-b)\,(a+b)^{3/2} \sqrt{d}\, f\right)$$

Result (type 4, 1670 leaves):

$$\left(\operatorname{Sin}[e+f x] \sqrt{a+b \operatorname{Sin}[e+f x]}\right.$$
$$\left(-\frac{2\left(a^2 \operatorname{Cos}[e+f x]-b^2 \operatorname{Cos}[e+f x]\right)}{7 a b^2\,(a+b \operatorname{Sin}[e+f x])^4}+\frac{4\left(5 a^2 \operatorname{Cos}[e+f x]+3 b^2 \operatorname{Cos}[e+f x]\right)}{35 a^2 b^2\,(a+b \operatorname{Sin}[e+f x])^3}-\right.$$
$$\frac{2\left(5 a^4 \operatorname{Cos}[e+f x]-9 a^2 b^2 \operatorname{Cos}[e+f x]+8 b^4 \operatorname{Cos}[e+f x]\right)}{35 a^3 b^2\left(a^2-b^2\right)(a+b \operatorname{Sin}[e+f x])^2}-$$
$$\left.\left.\frac{32\left(2 a^2 b^2 \operatorname{Cos}[e+f x]-b^4 \operatorname{Cos}[e+f x]\right)}{35 a^4\left(a^2-b^2\right)^2(a+b \operatorname{Sin}[e+f x])}\right)\right) \Big/$$
$$\left(f \sqrt{d \operatorname{Sin}[e+f x]}\right)+\frac{1}{35 a^4\,(a-b)^2\,(a+b)^2 f \sqrt{d \operatorname{Sin}[e+f x]}}$$

$$4\sqrt{\text{Sin}[e+f x]}\left(\left(4 a\left(5 a^4-9 a^2 b^2+4 b^4\right)\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],-\frac{2 a}{-a+b}\right]\text{Sec}[e+f x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(a+b\,\text{Sin}[e+f x]\right)}{a}}\right)\Big/$$

$$\left((a+b)\sqrt{\text{Sin}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\right)+$$

$$4 a\left(-8 a^3 b+4 a b^3\right)\left(\left(\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],-\frac{2 a}{-a+b}\right]\text{Sec}[e+f x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(a+b\,\text{Sin}[e+f x]\right)}{a}}\right)\Big/$$

$$\left((a+b)\sqrt{\text{Sin}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\right)-\left(\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.$$

$$\text{EllipticPi}\left[-\frac{a}{b},\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],-\frac{2 a}{-a+b}\right]\text{Sec}[e+f x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}\right)\Big/$$

$$\left.\left(b\sqrt{\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)\right)+2\left(8\,a^2\,b^2-4\,b^4\right)$$

$$\left(\frac{\text{Cos}[e+f\,x]\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{b\,\sqrt{\text{Sin}[e+f\,x]}}+\left(i\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\text{Csc}[e+f\,x]\right.\right.$$

$$\left.\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{\sqrt{\text{Sin}[e+f\,x]}}\right],-\frac{2\,a}{-a-b}\right]\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)\Big/$$

$$\left(b\sqrt{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Csc}[e+f\,x]}\,\sqrt{\frac{\text{Csc}[e+f\,x]\,(a+b\,\text{Sin}[e+f\,x])}{a+b}}\right)+$$

$$\frac{1}{b}2\,a\left(\left(a\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{-a+b}}\,\text{EllipticF}\right[\right.\right.$$

$$\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\right]\text{Sec}[e+f\,x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}\right)\Big/$$

$$\left((a+b)\,\sqrt{\text{Sin}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\right) - \left(a\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.$$

$$\text{EllipticPi}\left[-\frac{a}{b},\ \text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],\ -\frac{2 a}{-a+b}\right]\ \text{Sec}[$$

$$e+f x]\ \text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\,\text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}\right) \Bigg/$$

$$\left.\left.\left.\left(b\,\sqrt{\text{Sin}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\right)\right)\right)\right)$$

Problem 1208: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^5\,\text{Csc}[c+d x]\,(a+b\,\text{Sin}[c+d x])\,dx$$

Optimal (type 3, 86 leaves, 4 steps):

$$-\frac{a\,\text{Csc}[c+d x]}{d}+\frac{b\,\text{Csc}[c+d x]^2}{d}+\frac{2 a\,\text{Csc}[c+d x]^3}{3 d}-\frac{b\,\text{Csc}[c+d x]^4}{4 d}-\frac{a\,\text{Csc}[c+d x]^5}{5 d}+\frac{b\,\text{Log}[\text{Sin}[c+d x]]}{d}$$

Result (type 3, 198 leaves):

$$-\frac{89 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{240 d}+\frac{31 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{480 d}-\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{160 d}+\frac{b\,\text{Csc}[c+d x]^2}{d}-\frac{b\,\text{Csc}[c+d x]^4}{4 d}+\frac{b\,\text{Log}[\text{Sin}[c+d x]]}{d}-\frac{89 a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{240 d}+\frac{31 a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{480 d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{160 d}$$

Problem 1209: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 61 leaves, 6 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{b\,\text{Csc}[c+d\,x]}{d}+\frac{2\,b\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{b\,\text{Csc}[c+d\,x]^5}{5\,d}$$

Result (type 3, 173 leaves):

$$-\frac{89\,b\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{240\,d}-\frac{a\,\text{Cot}[c+d\,x]^6}{6\,d}+\frac{31\,b\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{480\,d}-\frac{b\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{160\,d}-\frac{89\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{240\,d}+\frac{31\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{480\,d}-\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{160\,d}$$

Problem 1210: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 65 leaves, 6 steps):

$$-\frac{b\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{a\,\text{Csc}[c+d\,x]^3}{3\,d}+\frac{2\,a\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Csc}[c+d\,x]^7}{7\,d}$$

Result (type 3, 233 leaves):

$$-\frac{103\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{3360\,d}-\frac{b\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{103\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{6720\,d}+\frac{9\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{1120\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6}{896\,d}-\frac{103\,a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{3360\,d}-\frac{103\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{6720\,d}+\frac{9\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1120\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{896\,d}$$

Problem 1211: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^4\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 81 leaves, 7 steps):

$$-\frac{a\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{a\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{b\,\text{Csc}[c+d\,x]^3}{3\,d}+\frac{2\,b\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{b\,\text{Csc}[c+d\,x]^7}{7\,d}$$

Result (type 3, 265 leaves):

$$-\frac{103\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{3360\,d}-\frac{103\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{6720\,d}+\frac{9\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{1120\,d}-\frac{b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{896\,d}-\frac{a\,\text{Csc}[c+d\,x]^4}{4\,d}+\frac{a\,\text{Csc}[c+d\,x]^6}{3\,d}-\frac{a\,\text{Csc}[c+d\,x]^8}{8\,d}-\frac{103\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{3360\,d}-\frac{103\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{6720\,d}+\frac{9\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1120\,d}-\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{896\,d}$$

Problem 1212: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]^5\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 81 leaves, 7 steps):

$$-\frac{b\,\text{Cot}[c+d\,x]^6}{6\,d}-\frac{b\,\text{Cot}[c+d\,x]^8}{8\,d}-\frac{a\,\text{Csc}[c+d\,x]^5}{5\,d}+\frac{2\,a\,\text{Csc}[c+d\,x]^7}{7\,d}-\frac{a\,\text{Csc}[c+d\,x]^9}{9\,d}$$

Result (type 3, 325 leaves):

$$-\frac{649\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}-\frac{649\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{161\,280\,d}-\frac{31\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{53\,760\,d}+\frac{37\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{32\,256\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4608\,d}-\frac{b\,\text{Csc}[c+d\,x]^4}{4\,d}+\frac{b\,\text{Csc}[c+d\,x]^6}{3\,d}-\frac{b\,\text{Csc}[c+d\,x]^8}{8\,d}-\frac{649\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{80\,640\,d}-\frac{649\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{161\,280\,d}-\frac{31\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{53\,760\,d}+\frac{37\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{32\,256\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4608\,d}$$

Problem 1213: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^5 \,\text{Csc}[c+d x]^6 \,(a+b \,\text{Sin}[c+d x])\, dx$$

Optimal (type 3, 97 leaves, 4 steps):

$$-\frac{b \,\text{Csc}[c+d x]^5}{5 d}-\frac{a \,\text{Csc}[c+d x]^6}{6 d}+\frac{2 b \,\text{Csc}[c+d x]^7}{7 d}+\frac{a \,\text{Csc}[c+d x]^8}{4 d}-\frac{b \,\text{Csc}[c+d x]^9}{9 d}-\frac{a \,\text{Csc}[c+d x]^{10}}{10 d}$$

Result (type 3, 325 leaves):

$$-\frac{649 b \,\text{Cot}\left[\frac{1}{2} (c+d x)\right]}{80640 d}-\frac{649 b \,\text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^2}{161280 d}-\frac{31 b \,\text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^4}{53760 d}+\frac{37 b \,\text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^6}{32256 d}-\frac{b \,\text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^8}{4608 d}-\frac{a \,\text{Csc}[c+d x]^6}{6 d}+\frac{a \,\text{Csc}[c+d x]^8}{4 d}-\frac{a \,\text{Csc}[c+d x]^{10}}{10 d}-\frac{649 b \,\text{Tan}\left[\frac{1}{2} (c+d x)\right]}{80640 d}-\frac{649 b \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{161280 d}-\frac{31 b \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^4 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{53760 d}+\frac{37 b \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^6 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{32256 d}-\frac{b \,\text{Sec}\left[\frac{1}{2} (c+d x)\right]^8 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{4608 d}$$

Problem 1214: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^5 \,\text{Csc}[c+d x]^7 \,(a+b \,\text{Sin}[c+d x])\, dx$$

Optimal (type 3, 97 leaves, 4 steps):

$$-\frac{b \,\text{Csc}[c+d x]^6}{6 d}-\frac{a \,\text{Csc}[c+d x]^7}{7 d}+\frac{b \,\text{Csc}[c+d x]^8}{4 d}+\frac{2 a \,\text{Csc}[c+d x]^9}{9 d}-\frac{b \,\text{Csc}[c+d x]^{10}}{10 d}-\frac{a \,\text{Csc}[c+d x]^{11}}{11 d}$$

Result (type 3, 385 leaves):

$$-\frac{1109\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{354816\,d}-\frac{1109\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{709632\,d}-\frac{13\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{29568\,d}+\frac{173\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{1419264\,d}+\frac{17\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{101376\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}}{22528\,d}-\frac{b\,\text{Csc}[c+d\,x]^6}{6\,d}+\frac{b\,\text{Csc}[c+d\,x]^8}{4\,d}-\frac{b\,\text{Csc}[c+d\,x]^{10}}{10\,d}-\frac{1109\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{354816\,d}-\frac{1109\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{709632\,d}-\frac{13\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{29568\,d}+\frac{173\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1419264\,d}+\frac{17\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{101376\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{10}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{22528\,d}$$

Problem 1232: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^4}{(a+b\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 147 leaves, 4 steps):

$$\frac{(2\,a^2-3\,b^2)\,\text{Csc}[c+d\,x]}{a^4\,d}+\frac{b\,\text{Csc}[c+d\,x]^2}{a^3\,d}-\frac{\text{Csc}[c+d\,x]^3}{3\,a^2\,d}+\frac{4\,b\,(a^2-b^2)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^5\,d}-\frac{4\,b\,(a^2-b^2)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^5\,d}-\frac{(a^2-b^2)^2}{a^4\,b\,d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 3, 304 leaves):

$$\frac{\left(11\,a^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-18\,b^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,a^4\,d}+\frac{b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,a^3\,d}-\frac{\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,a^2\,d}+\frac{4\,(a^2\,b-b^3)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^5\,d}-\frac{4\,(a^2\,b-b^3)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^5\,d}+\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,a^3\,d}+\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(11\,a^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-18\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{12\,a^4\,d}-\frac{(a-b)^2\,(a+b)^2}{a^4\,b\,d\,(a+b\,\text{Sin}[c+d\,x])}-\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,a^2\,d}$$

Problem 1233: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^5}{(a+b\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 188 leaves, 3 steps):

$$-\frac{4\,b\,(a^2-b^2)\,\text{Csc}[c+d\,x]}{a^5\,d}+\frac{(2\,a^2-3\,b^2)\,\text{Csc}[c+d\,x]^2}{2\,a^4\,d}+\frac{2\,b\,\text{Csc}[c+d\,x]^3}{3\,a^3\,d}-\frac{\text{Csc}[c+d\,x]^4}{4\,a^2\,d}+\frac{(a^4-6\,a^2\,b^2+5\,b^4)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^6\,d}-\frac{(a^4-6\,a^2\,b^2+5\,b^4)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^6\,d}+\frac{(a^2-b^2)^2}{a^5\,d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 3, 380 leaves):

$$\frac{\left(-11\,a^2\,b\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+12\,b^3\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right)\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]}{6\,a^5\,d}+\frac{(7\,a^2-12\,b^2)\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{32\,a^4\,d}+\frac{b\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2}{12\,a^3\,d}-\frac{\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4}{64\,a^2\,d}+\frac{(a^4-6\,a^2\,b^2+5\,b^4)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^6\,d}+\frac{(-a^4+6\,a^2\,b^2-5\,b^4)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^6\,d}+\frac{(7\,a^2-12\,b^2)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{32\,a^4\,d}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4}{64\,a^2\,d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]\left(-11\,a^2\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+12\,b^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{6\,a^5\,d}+\frac{(a-b)^2\,(a+b)^2}{a^5\,d\,(a+b\,\text{Sin}[c+d\,x])}+\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{12\,a^3\,d}$$

Problem 1235: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 170 leaves, 3 steps):

$$\frac{a^2\,\text{Sin}[c+d\,x]^{1+n}}{d\,(1+n)}+\frac{2\,a\,b\,\text{Sin}[c+d\,x]^{2+n}}{d\,(2+n)}-\frac{(2\,a^2-b^2)\,\text{Sin}[c+d\,x]^{3+n}}{d\,(3+n)}-\frac{4\,a\,b\,\text{Sin}[c+d\,x]^{4+n}}{d\,(4+n)}+\frac{(a^2-2\,b^2)\,\text{Sin}[c+d\,x]^{5+n}}{d\,(5+n)}+\frac{2\,a\,b\,\text{Sin}[c+d\,x]^{6+n}}{d\,(6+n)}+\frac{b^2\,\text{Sin}[c+d\,x]^{7+n}}{d\,(7+n)}$$

Result (type 3, 648 leaves):

$$\frac{1}{32\,d\,(1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\,(6+n)\,(7+n)}$$
$$\text{Sin}[c+d\,x]^{1+n}\,\big(119\,616\,a^2+9888\,b^2+164\,368\,a^2\,n+20\,488\,b^2\,n+89\,472\,a^2\,n^2+14\,576\,b^2\,n^2+25\,372\,a^2\,n^3+4654\,b^2\,n^3+4020\,a^2\,n^4+734\,b^2\,n^4+340\,a^2\,n^5+58\,b^2\,n^5+12\,a^2\,n^6+2\,b^2\,n^6+(48+92\,n+56\,n^2+13\,n^3+n^4)\,(16\,a^2\,(7+n)^2+b^2\,(-113+8\,n+n^2))\,\text{Cos}[2\,(c+d\,x)]+2\,(144+324\,n+260\,n^2+95\,n^3+16\,n^4+n^5)\,(2\,a^2\,(7+n)-b^2\,(13+n))\,\text{Cos}[4\,(c+d\,x)]-720\,b^2\,\text{Cos}[6\,(c+d\,x)]-1764\,b^2\,n\,\text{Cos}[6\,(c+d\,x)]-1624\,b^2\,n^2\,\text{Cos}[6\,(c+d\,x)]-735\,b^2\,n^3\,\text{Cos}[6\,(c+d\,x)]-175\,b^2\,n^4\,\text{Cos}[6\,(c+d\,x)]-21\,b^2\,n^5\,\text{Cos}[6\,(c+d\,x)]-b^2\,n^6\,\text{Cos}[6\,(c+d\,x)]+73\,920\,a\,b\,\text{Sin}[c+d\,x]+135\,664\,a\,b\,n\,\text{Sin}[c+d\,x]+81\,096\,a\,b\,n^2\,\text{Sin}[c+d\,x]+22\,304\,a\,b\,n^3\,\text{Sin}[c+d\,x]+3184\,a\,b\,n^4\,\text{Sin}[c+d\,x]+240\,a\,b\,n^5\,\text{Sin}[c+d\,x]+8\,a\,b\,n^6\,\text{Sin}[c+d\,x]+23\,520\,a\,b\,\text{Sin}[3\,(c+d\,x)]+53\,704\,a\,b\,n\,\text{Sin}[3\,(c+d\,x)]+44\,460\,a\,b\,n^2\,\text{Sin}[3\,(c+d\,x)]+17\,392\,a\,b\,n^3\,\text{Sin}[3\,(c+d\,x)]+3432\,a\,b\,n^4\,\text{Sin}[3\,(c+d\,x)]+328\,a\,b\,n^5\,\text{Sin}[3\,(c+d\,x)]+12\,a\,b\,n^6\,\text{Sin}[3\,(c+d\,x)]+3360\,a\,b\,\text{Sin}[5\,(c+d\,x)]+8152\,a\,b\,n\,\text{Sin}[5\,(c+d\,x)]+7396\,a\,b\,n^2\,\text{Sin}[5\,(c+d\,x)]+3280\,a\,b\,n^3\,\text{Sin}[5\,(c+d\,x)]+760\,a\,b\,n^4\,\text{Sin}[5\,(c+d\,x)]+88\,a\,b\,n^5\,\text{Sin}[5\,(c+d\,x)]+4\,a\,b\,n^6\,\text{Sin}[5\,(c+d\,x)]\big)$$

Problem 1236: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 123 leaves, 3 steps):

$$\frac{a\,\text{Sin}[c+d\,x]^{1+n}}{d\,(1+n)}+\frac{b\,\text{Sin}[c+d\,x]^{2+n}}{d\,(2+n)}-\frac{2\,a\,\text{Sin}[c+d\,x]^{3+n}}{d\,(3+n)}-\frac{2\,b\,\text{Sin}[c+d\,x]^{4+n}}{d\,(4+n)}+\frac{a\,\text{Sin}[c+d\,x]^{5+n}}{d\,(5+n)}+\frac{b\,\text{Sin}[c+d\,x]^{6+n}}{d\,(6+n)}$$

Result (type 3, 371 leaves):

$$\frac{1}{16\,d\,(1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)\,(6+n)}$$
$$\text{Sin}[c+d\,x]^{1+n}\,\big(8544\,a+10\,520\,a\,n+4888\,a\,n^2+1114\,a\,n^3+128\,a\,n^4+6\,a\,n^5+8\,a\,(336+692\,n+484\,n^2+147\,n^3+20\,n^4+n^5)\,\text{Cos}[2\,(c+d\,x)]+2\,a\,(144+324\,n+260\,n^2+95\,n^3+16\,n^4+n^5)\,\text{Cos}[4\,(c+d\,x)]+2640\,b\,\text{Sin}[c+d\,x]+4468\,b\,n\,\text{Sin}[c+d\,x]+2258\,b\,n^2\,\text{Sin}[c+d\,x]+474\,b\,n^3\,\text{Sin}[c+d\,x]+46\,b\,n^4\,\text{Sin}[c+d\,x]+2\,b\,n^5\,\text{Sin}[c+d\,x]+840\,b\,\text{Sin}[3\,(c+d\,x)]+1798\,b\,n\,\text{Sin}[3\,(c+d\,x)]+1331\,b\,n^2\,\text{Sin}[3\,(c+d\,x)]+431\,b\,n^3\,\text{Sin}[3\,(c+d\,x)]+61\,b\,n^4\,\text{Sin}[3\,(c+d\,x)]+3\,b\,n^5\,\text{Sin}[3\,(c+d\,x)]+120\,b\,\text{Sin}[5\,(c+d\,x)]+274\,b\,n\,\text{Sin}[5\,(c+d\,x)]+225\,b\,n^2\,\text{Sin}[5\,(c+d\,x)]+85\,b\,n^3\,\text{Sin}[5\,(c+d\,x)]+15\,b\,n^4\,\text{Sin}[5\,(c+d\,x)]+b\,n^5\,\text{Sin}[5\,(c+d\,x)]\big)$$

Problem 1237: Unable to integrate problem.

$$\int \frac{\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 5, 167 leaves, 5 steps):

$$-\frac{a\left(a^2-2b^2\right)\operatorname{Sin}[c+dx]^{1+n}}{b^4 d(1+n)}+\frac{1}{a b^4 d(1+n)}$$

$$\left(a^2-b^2\right)^2 \text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{b\operatorname{Sin}[c+dx]}{a}\right]\operatorname{Sin}[c+dx]^{1+n}+$$

$$\frac{\left(a^2-2b^2\right)\operatorname{Sin}[c+dx]^{2+n}}{b^3 d(2+n)}-\frac{a\operatorname{Sin}[c+dx]^{3+n}}{b^2 d(3+n)}+\frac{\operatorname{Sin}[c+dx]^{4+n}}{b d(4+n)}$$

Result (type 8, 31 leaves):

$$\int\frac{\operatorname{Cos}[c+dx]^5\operatorname{Sin}[c+dx]^n}{a+b\operatorname{Sin}[c+dx]}\,dx$$

Problem 1238: Unable to integrate problem.

$$\int\frac{\operatorname{Cos}[c+dx]^5\operatorname{Sin}[c+dx]^n}{(a+b\operatorname{Sin}[c+dx])^2}\,dx$$

Optimal (type 5, 191 leaves, 5 steps):

$$\frac{\left(3a^2-2b^2\right)\operatorname{Sin}[c+dx]^{1+n}}{b^4 d(1+n)}+\frac{1}{a^2 b^4 d(1+n)}$$

$$\left(a^2-b^2\right)\left(b^2 n-a^2(4+n)\right)\text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{b\operatorname{Sin}[c+dx]}{a}\right]\operatorname{Sin}[c+dx]^{1+n}-$$

$$\frac{2a\operatorname{Sin}[c+dx]^{2+n}}{b^3 d(2+n)}+\frac{\operatorname{Sin}[c+dx]^{3+n}}{b^2 d(3+n)}+\frac{\left(a^2-b^2\right)^2\operatorname{Sin}[c+dx]^{1+n}}{a b^4 d(a+b\operatorname{Sin}[c+dx])}$$

Result (type 8, 31 leaves):

$$\int\frac{\operatorname{Cos}[c+dx]^5\operatorname{Sin}[c+dx]^n}{(a+b\operatorname{Sin}[c+dx])^2}\,dx$$

Problem 1250: Result more than twice size of optimal antiderivative.

$$\int\operatorname{Cot}[c+dx]^6\operatorname{Csc}[c+dx](a+b\operatorname{Sin}[c+dx])^2\,dx$$

Optimal (type 3, 175 leaves, 11 steps):

$$-2abx+\frac{5\left(a^2-6b^2\right)\operatorname{ArcTanh}[\operatorname{Cos}[c+dx]]}{16d}+\frac{b^2\operatorname{Cos}[c+dx]}{d}-\frac{2ab\operatorname{Cot}[c+dx]}{d}+$$

$$\frac{2ab\operatorname{Cot}[c+dx]^3}{3d}-\frac{2ab\operatorname{Cot}[c+dx]^5}{5d}-\frac{\left(11a^2-18b^2\right)\operatorname{Cot}[c+dx]\operatorname{Csc}[c+dx]}{16d}+$$

$$\frac{\left(13a^2-6b^2\right)\operatorname{Cot}[c+dx]\operatorname{Csc}[c+dx]^3}{24d}-\frac{a^2\operatorname{Cot}[c+dx]\operatorname{Csc}[c+dx]^5}{6d}$$

Result (type 3, 384 leaves):

$$\frac{1}{1920\,d}\left(-3840\,a\,b\,c-3840\,a\,b\,d\,x+1920\,b^2\,\text{Cos}[c+d\,x]-2944\,a\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]-\right.$$
$$330\,a^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2+540\,b^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2+60\,a^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4-$$
$$30\,b^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4-5\,a^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6+600\,a^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-$$
$$3600\,b^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-600\,a^2\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+3600\,b^2\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$330\,a^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-540\,b^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-60\,a^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4+$$
$$30\,b^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4+5\,a^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6-2624\,a\,b\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^4+$$
$$768\,a\,b\,\text{Csc}[c+d\,x]^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^6+164\,a\,b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]-$$
$$\left.12\,a\,b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Sin}[c+d\,x]+2944\,a\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

Problem 1256: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]^3}{(a+b\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 525 leaves, 11 steps):

$$\frac{a\,(64\,a^6-120\,a^4\,b^2+60\,a^2\,b^4-5\,b^6)\,x}{8\,b^9}-\frac{2\,a^2\,(8\,a^2-3\,b^2)\,(a^2-b^2)^{3/2}\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{b^9\,d}+$$
$$\frac{(840\,a^6-1435\,a^4\,b^2+588\,a^2\,b^4-15\,b^6)\,\text{Cos}[c+d\,x]}{105\,b^8\,d}-$$
$$\frac{a\,(32\,a^4-52\,a^2\,b^2+19\,b^4)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{8\,b^7\,d}+$$
$$\frac{(280\,a^4-441\,a^2\,b^2+150\,b^4)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^2}{105\,b^6\,d}-$$
$$\frac{(24\,a^4-37\,a^2\,b^2+12\,b^4)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^3}{12\,a\,b^5\,d}+$$
$$\frac{(224\,a^4-340\,a^2\,b^2+105\,b^4)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^4}{140\,a^2\,b^4\,d}+\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^4}{4\,a\,d\,(a+b\,\text{Sin}[c+d\,x])}-$$
$$\frac{3\,b\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^5}{20\,a^2\,d\,(a+b\,\text{Sin}[c+d\,x])}-\frac{(20\,a^4-30\,a^2\,b^2+9\,b^4)\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^5}{15\,a^2\,b^3\,d\,(a+b\,\text{Sin}[c+d\,x])}-$$
$$\frac{4\,a\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^6}{21\,b^2\,d\,(a+b\,\text{Sin}[c+d\,x])}+\frac{\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^7}{7\,b\,d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 3, 1223 leaves):

$$\frac{3\left(\frac{2\,b\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{\sqrt{a^2-b^2}}+\frac{a\,\text{Cos}[c+d\,x]}{a+b\,\text{Sin}[c+d\,x]}\right)}{128\,(-a+b)\,(a+b)\,d}+\frac{1}{32\,b^3\,d}$$

$$\left(8\,a\,(c+d\,x)-\frac{2\,(8\,a^4-12\,a^2\,b^2+3\,b^4)\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{(a^2-b^2)^{3/2}}+\right.$$

$$\left.4\,b\,\text{Cos}[c+d\,x]+\frac{a\,b\,(4\,a^2-3\,b^2)\,\text{Cos}[c+d\,x]}{(a-b)\,(a+b)\,(a+b\,\text{Sin}[c+d\,x])}\right)-$$

$$\frac{1}{1280\,b^7\,d}\left(240\,a\,(24\,a^4-20\,a^2\,b^2+3\,b^4)\,(c+d\,x)-\frac{1}{(a^2-b^2)^{3/2}}\right.$$

$$30\,(384\,a^8-896\,a^6\,b^2+672\,a^4\,b^4-168\,a^2\,b^6+7\,b^8)\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]+$$

$$60\,b\,(80\,a^4-48\,a^2\,b^2+3\,b^4)\,\text{Cos}[c+d\,x]+40\,b^3\,(-6\,a^2+b^2)\,\text{Cos}[3\,(c+d\,x)]+$$

$$12\,b^5\,\text{Cos}[5\,(c+d\,x)]+\frac{15\,a\,b\,(64\,a^6-112\,a^4\,b^2+56\,a^2\,b^4-7\,b^6)\,\text{Cos}[c+d\,x]}{(a-b)\,(a+b)\,(a+b\,\text{Sin}[c+d\,x])}-$$

$$\left.120\,a\,b^2\,(8\,a^2-3\,b^2)\,\text{Sin}[2\,(c+d\,x)]+60\,a\,b^4\,\text{Sin}[4\,(c+d\,x)]\right)+$$

$$\frac{1}{256}\left(-\frac{1}{b^9\,(a^2-b^2)^{3/2}\,d}2\,(2048\,a^{10}-5760\,a^8\,b^2+5760\,a^6\,b^4-2400\,a^4\,b^6+360\,a^2\,b^8-9\,b^{10})\right.$$

$$\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]\left(b\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\right]+$$

$$\frac{1}{105\,b^9\,(-a^2+b^2)\,d\,(a+b\,\text{Sin}[c+d\,x])}\,(-215040\,a^{10}\,(c+d\,x)+497280\,a^8\,b^2\,(c+d\,x)-$$

$$383040\,a^6\,b^4\,(c+d\,x)+109200\,a^4\,b^6\,(c+d\,x)-8400\,a^2\,b^8\,(c+d\,x)-215040\,a^9\,b\,\text{Cos}[c+d\,x]+$$

$$470400\,a^7\,b^3\,\text{Cos}[c+d\,x]-334320\,a^5\,b^5\,\text{Cos}[c+d\,x]+84000\,a^3\,b^7\,\text{Cos}[c+d\,x]-$$

$$5145\,a\,b^9\,\text{Cos}[c+d\,x]-8960\,a^7\,b^3\,\text{Cos}[3\,(c+d\,x)]+17360\,a^5\,b^5\,\text{Cos}[3\,(c+d\,x)]-$$

$$9870\,a^3\,b^7\,\text{Cos}[3\,(c+d\,x)]+1470\,a\,b^9\,\text{Cos}[3\,(c+d\,x)]+672\,a^5\,b^5\,\text{Cos}[5\,(c+d\,x)]-$$

$$994\,a^3\,b^7\,\text{Cos}[5\,(c+d\,x)]+322\,a\,b^9\,\text{Cos}[5\,(c+d\,x)]-80\,a^3\,b^7\,\text{Cos}[7\,(c+d\,x)]+$$

$$80\,a\,b^9\,\text{Cos}[7\,(c+d\,x)]-215040\,a^9\,b\,(c+d\,x)\,\text{Sin}[c+d\,x]+497280\,a^7\,b^3\,(c+d\,x)$$

$$\text{Sin}[c+d\,x]-383040\,a^5\,b^5\,(c+d\,x)\,\text{Sin}[c+d\,x]+109200\,a^3\,b^7\,(c+d\,x)\,\text{Sin}[c+d\,x]-$$

$$8400\,a\,b^9\,(c+d\,x)\,\text{Sin}[c+d\,x]-53760\,a^8\,b^2\,\text{Sin}[2\,(c+d\,x)]+115360\,a^6\,b^4\,\text{Sin}[2\,(c+d\,x)]-$$

$$78400\,a^4\,b^6\,\text{Sin}[2\,(c+d\,x)]+17430\,a^2\,b^8\,\text{Sin}[2\,(c+d\,x)]-630\,b^{10}\,\text{Sin}[2\,(c+d\,x)]+$$

$$2240\,a^6\,b^4\,\text{Sin}[4\,(c+d\,x)]-3836\,a^4\,b^6\,\text{Sin}[4\,(c+d\,x)]+1722\,a^2\,b^8\,\text{Sin}[4\,(c+d\,x)]-$$

$$126\,b^{10}\,\text{Sin}[4\,(c+d\,x)]-224\,a^4\,b^6\,\text{Sin}[6\,(c+d\,x)]+278\,a^2\,b^8\,\text{Sin}[6\,(c+d\,x)]-$$

$$54\,b^{10}\,\mathrm{Sin}[6\,(c+d\,x)]+30\,a^2\,b^8\,\mathrm{Sin}[8\,(c+d\,x)]-30\,b^{10}\,\mathrm{Sin}[8\,(c+d\,x)]\Big)\Bigg)$$

Problem 1257: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]^6\,\mathrm{Sin}[c+d\,x]^2}{(a+b\,\mathrm{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 471 leaves, 10 steps):

$$-\frac{\left(112\,a^6-200\,a^4\,b^2+90\,a^2\,b^4-5\,b^6\right)x}{16\,b^8}+\frac{2\,a\,\left(7\,a^2-2\,b^2\right)\left(a^2-b^2\right)^{3/2}\,\mathrm{ArcTan}\left[\frac{b+a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{b^8\,d}-\frac{a\,\left(105\,a^4-170\,a^2\,b^2+61\,b^4\right)\mathrm{Cos}[c+d\,x]}{15\,b^7\,d}+\frac{\left(56\,a^4-86\,a^2\,b^2+27\,b^4\right)\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{16\,b^6\,d}-\frac{\left(35\,a^4-52\,a^2\,b^2+15\,b^4\right)\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^2}{15\,a\,b^5\,d}+\frac{\left(42\,a^4-61\,a^2\,b^2+16\,b^4\right)\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^3}{24\,a^2\,b^4\,d}+\frac{\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^3}{3\,a\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}-\frac{b\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^4}{6\,a^2\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}-\frac{\left(14\,a^4-20\,a^2\,b^2+5\,b^4\right)\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^4}{10\,a^2\,b^3\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}-\frac{7\,a\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^5}{30\,b^2\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}+\frac{\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]^6}{6\,b\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}$$

Result (type 3, 1110 leaves):

$$\frac{5\left(\frac{2\,a\,\mathrm{ArcTan}\left[\frac{b+a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{3/2}}+\frac{b\,\mathrm{Cos}[c+d\,x]}{(a-b)\,(a+b)\,(a+b\,\mathrm{Sin}[c+d\,x])}\right)}{128\,d}+$$

$$\frac{-2\,(c+d\,x)+\frac{2\,a\,\left(2\,a^2-3\,b^2\right)\mathrm{ArcTan}\left[\frac{b+a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{3/2}}+\frac{b\,\left(-2\,a^2+b^2\right)\mathrm{Cos}[c+d\,x]}{(a-b)\,(a+b)\,(a+b\,\mathrm{Sin}[c+d\,x])}}{32\,b^2\,d}-\frac{1}{32\,b^4\,d}$$

$$\Bigg(-4\left(-6\,a^2+b^2\right)(c+d\,x)-\frac{2\,a\,\left(24\,a^4-40\,a^2\,b^2+15\,b^4\right)\mathrm{ArcTan}\left[\frac{b+a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{3/2}}+$$

$$16\,a\,b\,\mathrm{Cos}[c+d\,x]+\frac{b\,\left(8\,a^4-8\,a^2\,b^2+b^4\right)\mathrm{Cos}[c+d\,x]}{(a-b)\,(a+b)\,(a+b\,\mathrm{Sin}[c+d\,x])}-2\,b^2\,\mathrm{Sin}[2\,(c+d\,x)]\Bigg)-$$

$$\frac{1}{96 b^6 d}\left(-6\left(80 a^4-48 a^2 b^2+3 b^4\right)(c+d x)+\frac{6 a\left(160 a^6-336 a^4 b^2+210 a^2 b^4-35 b^6\right)\text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{3/2}}-48 a b\left(8 a^2-3 b^2\right)\text{Cos}[c+d x]+16 a b^3 \text{Cos}[3(c+d x)]+\frac{3 b\left(-32 a^6+48 a^4 b^2-18 a^2 b^4+b^6\right)\text{Cos}[c+d x]}{(a-b)(a+b)(a+b \text{Sin}[c+d x])}-12 b^2\left(-6 a^2+b^2\right)\text{Sin}[2(c+d x)]-3 b^4 \text{Sin}[4(c+d x)]\right)-$$

$$\frac{1}{1920 b^8 d}\left(-\frac{1}{\left(a^2-b^2\right)^{3/2}} 30 a\left(896 a^8-2304 a^6 b^2+2016 a^4 b^4-672 a^2 b^6+63 b^8\right)\text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]+\frac{1}{\left(a^2-b^2\right)(a+b \text{Sin}[c+d x])}\left(15 b\left(896 a^8-1744 a^6 b^2+1024 a^4 b^4-179 a^2 b^6+4 b^8\right)\text{Cos}[c+d x]+\left(a^2-b^2\right)\left(13440 a^7 c-14400 a^5 b^2 c+3600 a^3 b^4 c-120 a b^6 c+13440 a^7 d x-14400 a^5 b^2 d x+3600 a^3 b^4 d x-120 a b^6 d x+10\left(56 a^4 b^3-39 a^2 b^5+3 b^7\right)\text{Cos}[3(c+d x)]+\left(-42 a^2 b^5+10 b^7\right)\text{Cos}[5(c+d x)]+5 b^7 \text{Cos}[7(c+d x)]+13440 a^6 b c \text{Sin}[c+d x]-14400 a^4 b^3 c \text{Sin}[c+d x]+3600 a^2 b^5 c \text{Sin}[c+d x]-120 b^7 c \text{Sin}[c+d x]+13440 a^6 b d x \text{Sin}[c+d x]-14400 a^4 b^3 d x \text{Sin}[c+d x]+3600 a^2 b^5 d x \text{Sin}[c+d x]-120 b^7 d x \text{Sin}[c+d x]+3360 a^5 b^2 \text{Sin}[2(c+d x)]-3040 a^3 b^4 \text{Sin}[2(c+d x)]+510 a b^6 \text{Sin}[2(c+d x)]-140 a^3 b^4 \text{Sin}[4(c+d x)]+66 a b^6 \text{Sin}[4(c+d x)]+14 a b^6 \text{Sin}[6(c+d x)]\right)\right)\right)$$

Problem 1266: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^6 \text{Sin}[c+d x]^3}{(a+b \text{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 536 leaves, 11 steps):

$$-\frac{\left(448 a^6-600 a^4 b^2+180 a^2 b^4-5 b^6\right) x}{16 b^9}+\frac{a \sqrt{a^2-b^2}\left(56 a^4-47 a^2 b^2+6 b^4\right) \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{b^9 d}-$$
$$\frac{a\left(840 a^4-985 a^2 b^2+213 b^4\right) \text{Cos}[c+d x]}{30 b^8 d}+\frac{\left(224 a^4-244 a^2 b^2+43 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]}{16 b^7 d}-$$
$$\frac{\left(280 a^4-291 a^2 b^2+45 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]^2}{30 a b^6 d}+$$
$$\frac{\left(168 a^4-169 a^2 b^2+24 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]^3}{24 a^2 b^5 d}+$$
$$\frac{\text{Cos}[c+d x] \text{Sin}[c+d x]^4}{4 a d(a+b \text{Sin}[c+d x])^2}-\frac{b \text{Cos}[c+d x] \text{Sin}[c+d x]^5}{10 a^2 d(a+b \text{Sin}[c+d x])^2}-$$
$$\frac{\left(56 a^4-60 a^2 b^2+9 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]^5}{60 a^2 b^3 d(a+b \text{Sin}[c+d x])^2}-\frac{4 a \text{Cos}[c+d x] \text{Sin}[c+d x]^6}{15 b^2 d(a+b \text{Sin}[c+d x])^2}+$$
$$\frac{\text{Cos}[c+d x] \text{Sin}[c+d x]^7}{6 b d(a+b \text{Sin}[c+d x])^2}-\frac{\left(112 a^4-110 a^2 b^2+15 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]^4}{20 a^2 b^4 d(a+b \text{Sin}[c+d x])}$$

Result (type 3, 2044 leaves):

$$\frac{1}{64 b^3 d}\left(-8(c+d x)+\frac{2 a\left(8 a^4-20 a^2 b^2+15 b^4\right) \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}+\right.$$
$$\left.\frac{a b\left(4 a^2-3 b^2\right) \text{Cos}[c+d x]}{(a-b)(a+b)(a+b \text{Sin}[c+d x])^2}-\frac{3 b\left(4 a^4-7 a^2 b^2+2 b^4\right) \text{Cos}[c+d x]}{(a-b)^2(a+b)^2(a+b \text{Sin}[c+d x])}\right)-$$
$$\frac{3\left(\frac{6 a b \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\sqrt{a^2-b^2}}+\frac{\text{Cos}[c+d x]\left(a\left(2 a^2+b^2\right)+b\left(a^2+2 b^2\right) \text{Sin}[c+d x]\right)}{(a+b \text{Sin}[c+d x])^2}\right)}{256(a-b)^2(a+b)^2 d}-$$
$$\frac{1}{1024 b^7 d} 3\left(\frac{1}{\left(a^2-b^2\right)^{5/2}} 12 a\left(640 a^8-1920 a^6 b^2+2016 a^4 b^4-840 a^2 b^6+105 b^8\right)\right.$$
$$\text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]+\frac{1}{\left(a^2-b^2\right)^2(a+b \text{Sin}[c+d x])^2}$$
$$\left(-3840 a^{10}(c+d x)+7680 a^8 b^2(c+d x)-2976 a^6 b^4(c+d x)-1776 a^4 b^6(c+d x)+\right.$$
$$960 a^2 b^8(c+d x)-48 b^{10}(c+d x)-3840 a^9 b \text{Cos}[c+d x]+8640 a^7 b^3 \text{Cos}[c+d x]-$$
$$5696 a^5 b^5 \text{Cos}[c+d x]+788 a^3 b^7 \text{Cos}[c+d x]+114 a b^9 \text{Cos}[c+d x]+$$
$$1920 a^8 b^2(c+d x) \text{Cos}[2(c+d x)]-4800 a^6 b^4(c+d x) \text{Cos}[2(c+d x)]+$$
$$3888 a^4 b^6(c+d x) \text{Cos}[2(c+d x)]-1056 a^2 b^8(c+d x) \text{Cos}[2(c+d x)]+$$
$$48 b^{10}(c+d x) \text{Cos}[2(c+d x)]+320 a^7 b^3 \text{Cos}[3(c+d x)]-760 a^5 b^5 \text{Cos}[3(c+d x)]+$$

$$560\,a^3\,b^7\,\text{Cos}\left[3\,(c+d\,x)\right]-120\,a\,b^9\,\text{Cos}\left[3\,(c+d\,x)\right]-8\,a^5\,b^5\,\text{Cos}\left[5\,(c+d\,x)\right]+$$
$$16\,a^3\,b^7\,\text{Cos}\left[5\,(c+d\,x)\right]-8\,a\,b^9\,\text{Cos}\left[5\,(c+d\,x)\right]-7680\,a^9\,b\,(c+d\,x)\,\text{Sin}[c+d\,x]+$$
$$19\,200\,a^7\,b^3\,(c+d\,x)\,\text{Sin}[c+d\,x]-15\,552\,a^5\,b^5\,(c+d\,x)\,\text{Sin}[c+d\,x]+$$
$$4224\,a^3\,b^7\,(c+d\,x)\,\text{Sin}[c+d\,x]-192\,a\,b^9\,(c+d\,x)\,\text{Sin}[c+d\,x]-$$
$$2880\,a^8\,b^2\,\text{Sin}\left[2\,(c+d\,x)\right]+6880\,a^6\,b^4\,\text{Sin}\left[2\,(c+d\,x)\right]-5182\,a^4\,b^6\,\text{Sin}\left[2\,(c+d\,x)\right]+$$
$$1221\,a^2\,b^8\,\text{Sin}\left[2\,(c+d\,x)\right]-36\,b^{10}\,\text{Sin}\left[2\,(c+d\,x)\right]-40\,a^6\,b^4\,\text{Sin}\left[4\,(c+d\,x)\right]+$$
$$88\,a^4\,b^6\,\text{Sin}\left[4\,(c+d\,x)\right]-56\,a^2\,b^8\,\text{Sin}\left[4\,(c+d\,x)\right]+8\,b^{10}\,\text{Sin}\left[4\,(c+d\,x)\right]+$$
$$\left.2\,a^4\,b^6\,\text{Sin}\left[6\,(c+d\,x)\right]-4\,a^2\,b^8\,\text{Sin}\left[6\,(c+d\,x)\right]+2\,b^{10}\,\text{Sin}\left[6\,(c+d\,x)\right]\Big)\right)+$$

$$\frac{1}{256}\left(\frac{1}{b^9\,(a^2-b^2)^{5/2}\,d}a\,\left(14\,336\,a^{10}-49\,280\,a^8\,b^2+63\,360\,a^6\,b^4-36\,960\,a^4\,b^6+9240\,a^2\,b^8-693\,b^{10}\right)\right.$$
$$\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\right]-$$
$$\frac{1}{60\,b^9\,(-a^2+b^2)^2\,d\,(a+b\,\text{Sin}[c+d\,x])^2}$$
$$\Big(430\,080\,a^{12}\,(c+d\,x)-1\,048\,320\,a^{10}\,b^2\,(c+d\,x)+691\,200\,a^8\,b^4\,(c+d\,x)+$$
$$83\,040\,a^6\,b^6\,(c+d\,x)-198\,000\,a^4\,b^8\,(c+d\,x)+43\,200\,a^2\,b^{10}\,(c+d\,x)-1200\,b^{12}\,(c+d\,x)+$$
$$430\,080\,a^{11}\,b\,\text{Cos}[c+d\,x]-1\,155\,840\,a^9\,b^3\,\text{Cos}[c+d\,x]+1\,042\,880\,a^7\,b^5\,\text{Cos}[c+d\,x]-$$
$$332\,800\,a^5\,b^7\,\text{Cos}[c+d\,x]+11\,060\,a^3\,b^9\,\text{Cos}[c+d\,x]+4530\,a\,b^{11}\,\text{Cos}[c+d\,x]-$$
$$215\,040\,a^{10}\,b^2\,(c+d\,x)\,\text{Cos}\left[2\,(c+d\,x)\right]+631\,680\,a^8\,b^4\,(c+d\,x)\,\text{Cos}\left[2\,(c+d\,x)\right]-$$
$$661\,440\,a^6\,b^6\,(c+d\,x)\,\text{Cos}\left[2\,(c+d\,x)\right]+289\,200\,a^4\,b^8\,(c+d\,x)\,\text{Cos}\left[2\,(c+d\,x)\right]-$$
$$45\,600\,a^2\,b^{10}\,(c+d\,x)\,\text{Cos}\left[2\,(c+d\,x)\right]+1200\,b^{12}\,(c+d\,x)\,\text{Cos}\left[2\,(c+d\,x)\right]-$$
$$35\,840\,a^9\,b^3\,\text{Cos}\left[3\,(c+d\,x)\right]+100\,800\,a^7\,b^5\,\text{Cos}\left[3\,(c+d\,x)\right]-98\,424\,a^5\,b^7\,\text{Cos}\left[3\,(c+d\,x)\right]+$$
$$37\,808\,a^3\,b^9\,\text{Cos}\left[3\,(c+d\,x)\right]-4344\,a\,b^{11}\,\text{Cos}\left[3\,(c+d\,x)\right]+896\,a^7\,b^5\,\text{Cos}\left[5\,(c+d\,x)\right]-$$
$$2184\,a^5\,b^7\,\text{Cos}\left[5\,(c+d\,x)\right]+1680\,a^3\,b^9\,\text{Cos}\left[5\,(c+d\,x)\right]-392\,a\,b^{11}\,\text{Cos}\left[5\,(c+d\,x)\right]-$$
$$64\,a^5\,b^7\,\text{Cos}\left[7\,(c+d\,x)\right]+128\,a^3\,b^9\,\text{Cos}\left[7\,(c+d\,x)\right]-64\,a\,b^{11}\,\text{Cos}\left[7\,(c+d\,x)\right]+$$
$$860\,160\,a^{11}\,b\,(c+d\,x)\,\text{Sin}[c+d\,x]-2\,526\,720\,a^9\,b^3\,(c+d\,x)\,\text{Sin}[c+d\,x]+$$
$$2\,645\,760\,a^7\,b^5\,(c+d\,x)\,\text{Sin}[c+d\,x]-1\,156\,800\,a^5\,b^7\,(c+d\,x)\,\text{Sin}[c+d\,x]+$$
$$182\,400\,a^3\,b^9\,(c+d\,x)\,\text{Sin}[c+d\,x]-4800\,a\,b^{11}\,(c+d\,x)\,\text{Sin}[c+d\,x]+$$
$$322\,560\,a^{10}\,b^2\,\text{Sin}\left[2\,(c+d\,x)\right]-911\,680\,a^8\,b^4\,\text{Sin}\left[2\,(c+d\,x)\right]+903\,680\,a^6\,b^6\,\text{Sin}\left[2\,(c+d\,x)\right]-$$
$$362\,830\,a^4\,b^8\,\text{Sin}\left[2\,(c+d\,x)\right]+49\,125\,a^2\,b^{10}\,\text{Sin}\left[2\,(c+d\,x)\right]-900\,b^{12}\,\text{Sin}\left[2\,(c+d\,x)\right]+$$
$$4480\,a^8\,b^4\,\text{Sin}\left[4\,(c+d\,x)\right]-11\,816\,a^6\,b^6\,\text{Sin}\left[4\,(c+d\,x)\right]+10\,392\,a^4\,b^8\,\text{Sin}\left[4\,(c+d\,x)\right]-$$
$$3256\,a^2\,b^{10}\,\text{Sin}\left[4\,(c+d\,x)\right]+200\,b^{12}\,\text{Sin}\left[4\,(c+d\,x)\right]-224\,a^6\,b^6\,\text{Sin}\left[6\,(c+d\,x)\right]+$$
$$498\,a^4\,b^8\,\text{Sin}\left[6\,(c+d\,x)\right]-324\,a^2\,b^{10}\,\text{Sin}\left[6\,(c+d\,x)\right]+50\,b^{12}\,\text{Sin}\left[6\,(c+d\,x)\right]+$$
$$\left.20\,a^4\,b^8\,\text{Sin}\left[8\,(c+d\,x)\right]-40\,a^2\,b^{10}\,\text{Sin}\left[8\,(c+d\,x)\right]+20\,b^{12}\,\text{Sin}\left[8\,(c+d\,x)\right]\Big)\right)$$

Problem 1267: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]^2}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 485 leaves, 10 steps):

$$\frac{a\left(168 a^4-200 a^2 b^2+45 b^4\right) x}{8 b^8}-\frac{\sqrt{a^2-b^2}\left(42 a^4-29 a^2 b^2+2 b^4\right) \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{b^8 d}+$$
$$\frac{\left(630 a^4-645 a^2 b^2+91 b^4\right) \text{Cos}[c+d x]}{30 b^7 d}-\frac{\left(84 a^4-79 a^2 b^2+8 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]}{8 a b^6 d}+$$
$$\frac{\left(210 a^4-187 a^2 b^2+15 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]^2}{30 a^2 b^5 d}+$$
$$\frac{\text{Cos}[c+d x] \text{Sin}[c+d x]^3}{3 a d\,(a+b \text{Sin}[c+d x])^2}-\frac{b \text{Cos}[c+d x] \text{Sin}[c+d x]^4}{12 a^2 d\,(a+b \text{Sin}[c+d x])^2}-$$
$$\frac{\left(63 a^4-60 a^2 b^2+5 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]^4}{60 a^2 b^3 d\,(a+b \text{Sin}[c+d x])^2}-\frac{7 a \text{Cos}[c+d x] \text{Sin}[c+d x]^5}{20 b^2 d\,(a+b \text{Sin}[c+d x])^2}+$$
$$\frac{\text{Cos}[c+d x] \text{Sin}[c+d x]^6}{5 b d\,(a+b \text{Sin}[c+d x])^2}-\frac{\left(63 a^4-54 a^2 b^2+4 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]^3}{12 a^2 b^4 d\,(a+b \text{Sin}[c+d x])}$$

Result (type 3, 1913 leaves):

$$-\frac{1}{64 b^4 d}\left(-48 a\,(c+d x)+\frac{6\left(16 a^6-40 a^4 b^2+30 a^2 b^4-5 b^6\right) \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}-16 b \text{Cos}[c+d x]+\right.$$
$$\left.\frac{b\left(8 a^4-8 a^2 b^2+b^4\right) \text{Cos}[c+d x]}{(a-b)(a+b)(a+b \text{Sin}[c+d x])^2}+\frac{a b\left(-40 a^4+72 a^2 b^2-29 b^4\right) \text{Cos}[c+d x]}{(a-b)^2(a+b)^2(a+b \text{Sin}[c+d x])}\right)+$$
$$\frac{5\left(\frac{2\left(2 a^2+b^2\right) \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}+\frac{b \text{Cos}[c+d x]\left(4 a^2-b^2+3 a b \text{Sin}[c+d x]\right)}{(a-b)^2(a+b)^2(a+b \text{Sin}[c+d x])^2}\right)}{256 d}+$$
$$\frac{-\frac{6 b^2 \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\sqrt{a^2-b^2}}+\frac{\text{Cos}[c+d x]\left(-b\left(2 a^2+b^2\right)+a\left(2 a^2-5 b^2\right) \text{Sin}[c+d x]\right)}{(a+b \text{Sin}[c+d x])^2}}{64 (a-b)^2 (a+b)^2 d}-$$
$$\frac{1}{384 b^6 d}\left(-\frac{1}{\left(a^2-b^2\right)^{5/2}} 12\left(640 a^8-1792 a^6 b^2+1680 a^4 b^4-560 a^2 b^6+35 b^8\right)\right.$$
$$\text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]+\frac{1}{\left(a^2-b^2\right)^2(a+b \text{Sin}[c+d x])^2}$$

$$\left(3840\,a^9\,(c+d\,x)-6912\,a^7\,b^2\,(c+d\,x)+1728\,a^5\,b^4\,(c+d\,x)+1920\,a^3\,b^6\,(c+d\,x)-576\,a\,b^8\,(c+d\,x)+3840\,a^8\,b\,\text{Cos}[c+d\,x]-7872\,a^6\,b^3\,\text{Cos}[c+d\,x]+4256\,a^4\,b^5\,\text{Cos}[c+d\,x]-172\,a^2\,b^7\,\text{Cos}[c+d\,x]-70\,b^9\,\text{Cos}[c+d\,x]-1920\,a^7\,b^2\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+4416\,a^5\,b^4\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-3072\,a^3\,b^6\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+576\,a\,b^8\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-320\,a^6\,b^3\,\text{Cos}[3\,(c+d\,x)]+696\,a^4\,b^5\,\text{Cos}[3\,(c+d\,x)]-432\,a^2\,b^7\,\text{Cos}[3\,(c+d\,x)]+56\,b^9\,\text{Cos}[3\,(c+d\,x)]+8\,a^4\,b^5\,\text{Cos}[5\,(c+d\,x)]-16\,a^2\,b^7\,\text{Cos}[5\,(c+d\,x)]+8\,b^9\,\text{Cos}[5\,(c+d\,x)]+7680\,a^8\,b\,(c+d\,x)\,\text{Sin}[c+d\,x]-17664\,a^6\,b^3\,(c+d\,x)\,\text{Sin}[c+d\,x]+12288\,a^4\,b^5\,(c+d\,x)\,\text{Sin}[c+d\,x]-2304\,a^2\,b^7\,(c+d\,x)\,\text{Sin}[c+d\,x]+2880\,a^7\,b^2\,\text{Sin}[2\,(c+d\,x)]-6304\,a^5\,b^4\,\text{Sin}[2\,(c+d\,x)]+4022\,a^3\,b^6\,\text{Sin}[2\,(c+d\,x)]-607\,a\,b^8\,\text{Sin}[2\,(c+d\,x)]+40\,a^5\,b^4\,\text{Sin}[4\,(c+d\,x)]-80\,a^3\,b^6\,\text{Sin}[4\,(c+d\,x)]+40\,a\,b^8\,\text{Sin}[4\,(c+d\,x)]\right)\Bigg)+$$

$$\frac{1}{128}\left(-\frac{1}{b^8\,(a^2-b^2)^{5/2}\,d}3\,(1792\,a^{10}-5760\,a^8\,b^2+6720\,a^6\,b^4-3360\,a^4\,b^6+630\,a^2\,b^8-21\,b^{10})\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\right]-\right.$$

$$\frac{1}{20\,b^8\,(-a^2+b^2)^2\,d\,(a+b\,\text{Sin}[c+d\,x])^2}\left(-53760\,a^{11}\,(c+d\,x)+119040\,a^9\,b^2\,(c+d\,x)-62400\,a^7\,b^4\,(c+d\,x)-19680\,a^5\,b^6\,(c+d\,x)+19200\,a^3\,b^8\,(c+d\,x)-2400\,a\,b^{10}\,(c+d\,x)-53760\,a^{10}\,b\,\text{Cos}[c+d\,x]+132480\,a^8\,b^3\,\text{Cos}[c+d\,x]-103360\,a^6\,b^5\,\text{Cos}[c+d\,x]+23800\,a^4\,b^7\,\text{Cos}[c+d\,x]+1080\,a^2\,b^9\,\text{Cos}[c+d\,x]-210\,b^{11}\,\text{Cos}[c+d\,x]+26880\,a^9\,b^2\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-72960\,a^7\,b^4\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+67680\,a^5\,b^6\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-24000\,a^3\,b^8\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+2400\,a\,b^{10}\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+4480\,a^8\,b^3\,\text{Cos}[3\,(c+d\,x)]-11600\,a^6\,b^5\,\text{Cos}[3\,(c+d\,x)]+9928\,a^4\,b^7\,\text{Cos}[3\,(c+d\,x)]-2976\,a^2\,b^9\,\text{Cos}[3\,(c+d\,x)]+168\,b^{11}\,\text{Cos}[3\,(c+d\,x)]-112\,a^6\,b^5\,\text{Cos}[5\,(c+d\,x)]+248\,a^4\,b^7\,\text{Cos}[5\,(c+d\,x)]-160\,a^2\,b^9\,\text{Cos}[5\,(c+d\,x)]+24\,b^{11}\,\text{Cos}[5\,(c+d\,x)]+8\,a^4\,b^7\,\text{Cos}[7\,(c+d\,x)]-16\,a^2\,b^9\,\text{Cos}[7\,(c+d\,x)]+8\,b^{11}\,\text{Cos}[7\,(c+d\,x)]-107520\,a^{10}\,b\,(c+d\,x)\,\text{Sin}[c+d\,x]+291840\,a^8\,b^3\,(c+d\,x)\,\text{Sin}[c+d\,x]-270720\,a^6\,b^5\,(c+d\,x)\,\text{Sin}[c+d\,x]+96000\,a^4\,b^7\,(c+d\,x)\,\text{Sin}[c+d\,x]-9600\,a^2\,b^9\,(c+d\,x)\,\text{Sin}[c+d\,x]-40320\,a^9\,b^2\,\text{Sin}[2\,(c+d\,x)]+104960\,a^7\,b^4\,\text{Sin}[2\,(c+d\,x)]-91460\,a^5\,b^6\,\text{Sin}[2\,(c+d\,x)]+29160\,a^3\,b^8\,\text{Sin}[2\,(c+d\,x)]-2325\,a\,b^{10}\,\text{Sin}[2\,(c+d\,x)]-560\,a^7\,b^4\,\text{Sin}[4\,(c+d\,x)]+1352\,a^5\,b^6\,\text{Sin}[4\,(c+d\,x)]-1024\,a^3\,b^8\,\text{Sin}[4\,(c+d\,x)]+232\,a\,b^{10}\,\text{Sin}[4\,(c+d\,x)]+28\,a^5\,b^6\,\text{Sin}[6\,(c+d\,x)]-56\,a^3\,b^8\,\text{Sin}[6\,(c+d\,x)]+28\,a\,b^{10}\,\text{Sin}[6\,(c+d\,x)]\right)\Bigg)$$

Problem 1268: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^6\,\text{Sin}[c+d\,x]}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 237 leaves, 7 steps):

$$-\frac{15\left(8 a^4-8 a^2 b^2+b^4\right) x}{8 b^7}+\frac{15 a\left(2 a^4-3 a^2 b^2+b^4\right) \operatorname{ArcTan}\left[\frac{b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{b^7 \sqrt{a^2-b^2}\, d}+\frac{\operatorname{Cos}[c+d x]^5(3 a+b \operatorname{Sin}[c+d x])}{4 b^2 d(a+b \operatorname{Sin}[c+d x])^2}+\frac{5 \operatorname{Cos}[c+d x]^3\left(4 a^2-b^2+a b \operatorname{Sin}[c+d x]\right)}{4 b^4 d(a+b \operatorname{Sin}[c+d x])}-\frac{15 \operatorname{Cos}[c+d x]\left(4 a\left(2 a^2-b^2\right)-b\left(4 a^2-b^2\right) \operatorname{Sin}[c+d x]\right)}{8 b^6 d}$$

Result (type 3, 1250 leaves):

$$\frac{1}{256 d}\left(\frac{1}{b^3}18\left(-8(c+d x)+\frac{2 a\left(8 a^4-20 a^2 b^2+15 b^4\right) \operatorname{ArcTan}\left[\frac{b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}+\right.\right.$$

$$\left.\frac{a b\left(4 a^2-3 b^2\right) \operatorname{Cos}[c+d x]}{(a-b)(a+b)(a+b \operatorname{Sin}[c+d x])^2}-\frac{3 b\left(4 a^4-7 a^2 b^2+2 b^4\right) \operatorname{Cos}[c+d x]}{(a-b)^2(a+b)^2(a+b \operatorname{Sin}[c+d x])}\right)-$$

$$\frac{10\left(\frac{6 a b \operatorname{ArcTan}\left[\frac{b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\sqrt{a^2-b^2}}+\frac{\operatorname{Cos}[c+d x]\left(a\left(2 a^2+b^2\right)+b\left(a^2+2 b^2\right) \operatorname{Sin}[c+d x]\right)}{(a+b \operatorname{Sin}[c+d x])^2}\right)}{(a-b)^2(a+b)^2}+\frac{1}{b^5}$$

$$10\left(-24\left(-8 a^2+b^2\right)(c+d x)-\frac{6 a\left(64 a^6-168 a^4 b^2+140 a^2 b^4-35 b^6\right) \operatorname{ArcTan}\left[\frac{b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}+\right.$$

$$96 a b \operatorname{Cos}[c+d x]+\frac{a b\left(-16 a^4+20 a^2 b^2-5 b^4\right) \operatorname{Cos}[c+d x]}{(a-b)(a+b)(a+b \operatorname{Sin}[c+d x])^2}+$$

$$\left.\frac{b\left(112 a^6-220 a^4 b^2+115 a^2 b^4-10 b^6\right) \operatorname{Cos}[c+d x]}{(a-b)^2(a+b)^2(a+b \operatorname{Sin}[c+d x])}-8 b^2 \operatorname{Sin}[2(c+d x)]\right)+$$

$$\frac{1}{b^7}\left(\frac{1}{\left(a^2-b^2\right)^{5/2}}12 a\left(640 a^8-1920 a^6 b^2+2016 a^4 b^4-840 a^2 b^6+105 b^8\right)\right.$$

$$\operatorname{ArcTan}\left[\frac{b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]+\frac{1}{\left(a^2-b^2\right)^2(a+b \operatorname{Sin}[c+d x])^2}$$

$$\left(-3840\,a^{10}\,(c+d\,x)+7680\,a^8\,b^2\,(c+d\,x)-2976\,a^6\,b^4\,(c+d\,x)-1776\,a^4\,b^6\,(c+d\,x)+960\,a^2\,b^8\,(c+d\,x)-48\,b^{10}\,(c+d\,x)-3840\,a^9\,b\,\mathrm{Cos}[c+d\,x]+8640\,a^7\,b^3\,\mathrm{Cos}[c+d\,x]-5696\,a^5\,b^5\,\mathrm{Cos}[c+d\,x]+788\,a^3\,b^7\,\mathrm{Cos}[c+d\,x]+114\,a\,b^9\,\mathrm{Cos}[c+d\,x]+1920\,a^8\,b^2\,(c+d\,x)\,\mathrm{Cos}[2\,(c+d\,x)]-4800\,a^6\,b^4\,(c+d\,x)\,\mathrm{Cos}[2\,(c+d\,x)]+3888\,a^4\,b^6\,(c+d\,x)\,\mathrm{Cos}[2\,(c+d\,x)]-1056\,a^2\,b^8\,(c+d\,x)\,\mathrm{Cos}[2\,(c+d\,x)]+48\,b^{10}\,(c+d\,x)\,\mathrm{Cos}[2\,(c+d\,x)]+320\,a^7\,b^3\,\mathrm{Cos}[3\,(c+d\,x)]-760\,a^5\,b^5\,\mathrm{Cos}[3\,(c+d\,x)]+560\,a^3\,b^7\,\mathrm{Cos}[3\,(c+d\,x)]-120\,a\,b^9\,\mathrm{Cos}[3\,(c+d\,x)]-8\,a^5\,b^5\,\mathrm{Cos}[5\,(c+d\,x)]+16\,a^3\,b^7\,\mathrm{Cos}[5\,(c+d\,x)]-8\,a\,b^9\,\mathrm{Cos}[5\,(c+d\,x)]-7680\,a^9\,b\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]+19200\,a^7\,b^3\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-15552\,a^5\,b^5\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]+4224\,a^3\,b^7\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-192\,a\,b^9\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-2880\,a^8\,b^2\,\mathrm{Sin}[2\,(c+d\,x)]+6880\,a^6\,b^4\,\mathrm{Sin}[2\,(c+d\,x)]-5182\,a^4\,b^6\,\mathrm{Sin}[2\,(c+d\,x)]+1221\,a^2\,b^8\,\mathrm{Sin}[2\,(c+d\,x)]-36\,b^{10}\,\mathrm{Sin}[2\,(c+d\,x)]-40\,a^6\,b^4\,\mathrm{Sin}[4\,(c+d\,x)]+88\,a^4\,b^6\,\mathrm{Sin}[4\,(c+d\,x)]-56\,a^2\,b^8\,\mathrm{Sin}[4\,(c+d\,x)]+8\,b^{10}\,\mathrm{Sin}[4\,(c+d\,x)]+2\,a^4\,b^6\,\mathrm{Sin}[6\,(c+d\,x)]-4\,a^2\,b^8\,\mathrm{Sin}[6\,(c+d\,x)]+2\,b^{10}\,\mathrm{Sin}[6\,(c+d\,x)]\right)\Bigg)$$

Problem 1276: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[e+f\,x]^6}{\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)^{13/2}}\,dx$$

Optimal (type 4, 712 leaves, 8 steps):

$$\frac{2\,\text{Cos}[e+f\,x]^5\,\sqrt{d\,\text{Sin}[e+f\,x]}}{11\,a\,d\,f\,(a+b\,\text{Sin}[e+f\,x])^{11/2}}-\frac{20\,(a^2-b^2)\,\text{Cos}[e+f\,x]\,\sqrt{d\,\text{Sin}[e+f\,x]}}{99\,a^2\,b^2\,d\,f\,(a+b\,\text{Sin}[e+f\,x])^{9/2}}+$$
$$\frac{80\,(3\,a^2+2\,b^2)\,\text{Cos}[e+f\,x]\,\sqrt{d\,\text{Sin}[e+f\,x]}}{693\,a^3\,b^2\,d\,f\,(a+b\,\text{Sin}[e+f\,x])^{7/2}}-$$
$$\frac{4\,(5\,a^4-17\,a^2\,b^2+16\,b^4)\,\text{Cos}[e+f\,x]\,\sqrt{d\,\text{Sin}[e+f\,x]}}{231\,a^4\,b^2\,(a^2-b^2)\,d\,f\,(a+b\,\text{Sin}[e+f\,x])^{5/2}}-$$
$$\frac{8\,(5\,a^6-22\,a^4\,b^2+65\,a^2\,b^4-32\,b^6)\,\text{Cos}[e+f\,x]\,\sqrt{d\,\text{Sin}[e+f\,x]}}{693\,a^5\,b^2\,(a^2-b^2)^2\,d\,f\,(a+b\,\text{Sin}[e+f\,x])^{3/2}}+$$
$$\frac{16\,b\,(93\,a^4-93\,a^2\,b^2+32\,b^4)\,\text{Cos}[e+f\,x]}{693\,a^5\,(a^2-b^2)^3\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}-$$
$$\left(16\,b\,(93\,a^4-93\,a^2\,b^2+32\,b^4)\,\sqrt{\frac{a\,(1-\text{Csc}[e+f\,x])}{a+b}}\,\sqrt{\frac{a\,(1+\text{Csc}[e+f\,x])}{a-b}}\,\text{EllipticE}\Big[\right.$$
$$\left.\text{ArcSin}\Big[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\Big],\,-\frac{a+b}{a-b}\Big]\,\text{Tan}[e+f\,x]\right)\Big/\left(693\,a^7\,(a-b)^2\,(a+b)^{5/2}\,\sqrt{d}\,f\right)-$$
$$\left(16\,(45\,a^4-48\,a^3\,b-69\,a^2\,b^2+24\,a\,b^3+32\,b^4)\,\sqrt{\frac{a\,(1-\text{Csc}[e+f\,x])}{a+b}}\right.$$
$$\sqrt{\frac{a\,(1+\text{Csc}[e+f\,x])}{a-b}}\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\Big],\,-\frac{a+b}{a-b}\Big]$$
$$\left.\text{Tan}[e+f\,x]\right)\Big/\left(693\,a^6\,(a-b)^2\,(a+b)^{5/2}\,\sqrt{d}\,f\right)$$

Result (type 4, 1906 leaves):

$$\frac{1}{f\,\sqrt{d\,\text{Sin}[e+f\,x]}}$$
$$\text{Sin}[e+f\,x]\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\,\left(\frac{2\,(a^4\,\text{Cos}[e+f\,x]-2\,a^2\,b^2\,\text{Cos}[e+f\,x]+b^4\,\text{Cos}[e+f\,x])}{11\,a\,b^4\,(a+b\,\text{Sin}[e+f\,x])^6}-\right.$$
$$\frac{4\,(18\,a^4\,\text{Cos}[e+f\,x]-13\,a^2\,b^2\,\text{Cos}[e+f\,x]-5\,b^4\,\text{Cos}[e+f\,x])}{99\,a^2\,b^4\,(a+b\,\text{Sin}[e+f\,x])^5}+$$
$$\frac{4\,(189\,a^4\,\text{Cos}[e+f\,x]-3\,a^2\,b^2\,\text{Cos}[e+f\,x]+40\,b^4\,\text{Cos}[e+f\,x])}{693\,a^3\,b^4\,(a+b\,\text{Sin}[e+f\,x])^4}-$$
$$(4\,(42\,a^6\,\text{Cos}[e+f\,x]-37\,a^4\,b^2\,\text{Cos}[e+f\,x]-17\,a^2\,b^4\,\text{Cos}[e+f\,x]+16\,b^6\,\text{Cos}[e+f\,x]))\Big/$$
$$\left(231\,a^4\,b^4\,(a^2-b^2)\,(a+b\,\text{Sin}[e+f\,x])^3\right)+$$
$$(2\,(63\,a^8\,\text{Cos}[e+f\,x]-146\,a^6\,b^2\,\text{Cos}[e+f\,x]+151\,a^4\,b^4\,\text{Cos}[e+f\,x]-260\,a^2\,b^6\,\text{Cos}[e+f\,x]+$$

$$128\,b^8 \operatorname{Cos}[e+f x]))\Big/\left(693\,a^5\,b^4\,\left(a^2-b^2\right)^2\,\left(a+b \operatorname{Sin}[e+f x]\right)^2\right)-$$

$$\left(16\,\left(93\,a^4\,b^2 \operatorname{Cos}[e+f x]-93\,a^2\,b^4 \operatorname{Cos}[e+f x]+32\,b^6 \operatorname{Cos}[e+f x]\right)\right)\Big/$$

$$\left.\left(693\,a^6\,\left(a^2-b^2\right)^3\,\left(a+b \operatorname{Sin}[e+f x]\right)\right)\right)+$$

$$\frac{1}{693\,a^6\,(a-b)^3\,(a+b)^3\,f\,\sqrt{d \operatorname{Sin}[e+f x]}}\,8\,\sqrt{\operatorname{Sin}[e+f x]}$$

$$\left(\left(4\,a\,\left(45\,a^6-114\,a^4\,b^2+101\,a^2\,b^4-32\,b^6\right)\,\sqrt{\frac{(a+b) \operatorname{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.\right.$$

$$\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{\frac{\operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b \operatorname{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\right] \operatorname{Sec}[e+f x]$$

$$\operatorname{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\,\sqrt{-\frac{(a+b) \operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\,\left(a+b \operatorname{Sin}[e+f x]\right)}{a}}\right)\Big/$$

$$\left((a+b)\,\sqrt{\operatorname{Sin}[e+f x]}\,\sqrt{a+b \operatorname{Sin}[e+f x]}\right)+$$

$$4\,a\,\left(-93\,a^5\,b+93\,a^3\,b^3-32\,a\,b^5\right)\,\left(\left(\sqrt{\frac{(a+b) \operatorname{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.\right.$$

$$\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{\frac{\operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b \operatorname{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\right] \operatorname{Sec}[e+f x]$$

$$\operatorname{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\,\sqrt{-\frac{(a+b) \operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\,\left(a+b \operatorname{Sin}[e+f x]\right)}{a}}\right)\Big/$$

$$\left(\left(a+b\right)\sqrt{\text{Sin}[e+f x]}\ \sqrt{a+b\,\text{Sin}[e+f x]}\right)-\left(\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.$$

$$\text{EllipticPi}\left[-\frac{a}{b},\ \text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],\ -\frac{2\,a}{-a+b}\right]\text{Sec}[e+f x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\left(a+b\,\text{Sin}[e+f x]\right)}{a}}\right)\Big/$$

$$\left.\left(b\sqrt{\text{Sin}[e+f x]}\ \sqrt{a+b\,\text{Sin}[e+f x]}\right)\right)+2\left(93\,a^4 b^2-93\,a^2 b^4+32\,b^6\right)$$

$$\left(\frac{\text{Cos}[e+f x]\sqrt{a+b\,\text{Sin}[e+f x]}}{b\sqrt{\text{Sin}[e+f x]}}+\left(i\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]\text{Csc}[e+f x]\right.\right.$$

$$\left.\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]}{\sqrt{\text{Sin}[e+f x]}}\right],\ -\frac{2\,a}{-a-b}\right]\sqrt{a+b\,\text{Sin}[e+f x]}\right)\Big/$$

$$\left(b\sqrt{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Csc}[e+f x]}\ \sqrt{\frac{\text{Csc}[e+f x]\left(a+b\,\text{Sin}[e+f x]\right)}{a+b}}\right)+$$

$$\frac{1}{b}\,2\,a\left(\left(a\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\ \text{EllipticF}\right[\right.\right.$$

$$\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}}{\sqrt{2}}\right],\ -\frac{2\,a}{-a+b}\right]\text{Sec}[e+f x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4 \sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}\right) \Big/$$

$$\left((a+b)\sqrt{\text{Sin}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\right) - \left(a\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}{-a+b}}\right.$$

$$\text{EllipticPi}\left[-\frac{a}{b}, \text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}}{\sqrt{2}}\right], -\frac{2 a}{-a+b}\right] \text{Sec}[$$

$$e+f x]\ \text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4 \sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\,\text{Sin}[e+f x])}{a}}\right) \Big/$$

$$\left.\left.\left.\left(b\sqrt{\text{Sin}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\right)\right)\right)\right)$$

Problem 1277: Result unnecessarily involves higher level functions.

$$\int \frac{(a+b\,\text{Sin}[e+f x])^2}{(g\,\text{Cos}[e+f x])^{5/2}\sqrt{d\,\text{Sin}[e+f x]}}\,dx$$

Optimal (type 4, 159 leaves, 9 steps):

$$\frac{2\left(a^2+b^2\right)\sqrt{d\,\text{Sin}[e+f x]}}{3 d f g\,(g\,\text{Cos}[e+f x])^{3/2}} + \frac{4 a b\,(d\,\text{Sin}[e+f x])^{3/2}}{3 d^2 f g\,(g\,\text{Cos}[e+f x])^{3/2}} +$$

$$\frac{\left(2 a^2-b^2\right)\text{EllipticF}\left[\frac{1}{4}(4 e-\pi)+f x, 2\right]\sqrt{\text{Sin}[2 e+2 f x]}}{3 f g^2\sqrt{g\,\text{Cos}[e+f x]}\,\sqrt{d\,\text{Sin}[e+f x]}}$$

Result (type 5, 142 leaves):

$$\left(2\left(-2\left(2a^2-b^2\right)\text{Cos}[e+fx]^2\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{4},\frac{5}{4},\text{Cos}[e+fx]^2\right]+\left(\text{Sin}[e+fx]^2\right)^{1/4}\left(a^2+b^2+\left(2a^2-b^2\right)\text{Cos}[e+fx]^2+2ab\,\text{Sin}[e+fx]\right)\right)\text{Tan}[e+fx]\right)\Big/\left(3fg^2\sqrt{g\,\text{Cos}[e+fx]}\sqrt{d\,\text{Sin}[e+fx]}\left(\text{Sin}[e+fx]^2\right)^{1/4}\right)$$

Problem 1278: Result unnecessarily involves higher level functions.

$$\int\frac{(a+b\,\text{Sin}[e+fx])^2}{(g\,\text{Cos}[e+fx])^{7/2}\sqrt{d\,\text{Sin}[e+fx]}}\,dx$$

Optimal (type 4, 193 leaves, 6 steps):

$$\frac{8a^2\sqrt{d\,\text{Sin}[e+fx]}}{5dfg^3\sqrt{g\,\text{Cos}[e+fx]}}+\frac{8ab\,(d\,\text{Sin}[e+fx])^{3/2}}{5d^2fg^3\sqrt{g\,\text{Cos}[e+fx]}}+\frac{2\sqrt{d\,\text{Sin}[e+fx]}\,(a+b\,\text{Sin}[e+fx])^2}{5dfg\,(g\,\text{Cos}[e+fx])^{5/2}}-\frac{8ab\sqrt{g\,\text{Cos}[e+fx]}\,\text{EllipticE}\left[e-\frac{\pi}{4}+fx,2\right]\sqrt{d\,\text{Sin}[e+fx]}}{5dfg^4\sqrt{\text{Sin}[2e+2fx]}}$$

Result (type 5, 156 leaves):

$$\left(4ab\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\text{Cos}[e+fx]^2\right]\text{Sin}[2(e+fx)]^2+3\,\text{Sec}[e+fx]\left(\text{Sin}[e+fx]^2\right)^{3/4}\left(6a^2+b^2+\left(4a^2-b^2\right)\text{Cos}[2(e+fx)]+6ab\,\text{Sin}[e+fx]+2ab\,\text{Sin}[3(e+fx)]\right)\text{Tan}[e+fx]\right)\Big/\left(15fg^3\sqrt{g\,\text{Cos}[e+fx]}\sqrt{d\,\text{Sin}[e+fx]}\left(\text{Sin}[e+fx]^2\right)^{3/4}\right)$$

Problem 1292: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+dx]^2\,\text{Csc}[c+dx]^2}{a+b\,\text{Sin}[c+dx]}\,dx$$

Optimal (type 3, 153 leaves, 9 steps):

$$-\frac{2b^2\sqrt{a^2-b^2}\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]}{\sqrt{a^2-b^2}}\right]}{a^4d}-\frac{b\left(a^2-2b^2\right)\text{ArcTanh}[\text{Cos}[c+dx]]}{2a^4d}+\frac{\left(a^2-3b^2\right)\text{Cot}[c+dx]}{3a^3d}+\frac{b\,\text{Cot}[c+dx]\,\text{Csc}[c+dx]}{2a^2d}-\frac{\text{Cot}[c+dx]\,\text{Csc}[c+dx]^2}{3ad}$$

Result (type 3, 351 leaves):

$$-\frac{2\,b^2\,\sqrt{a^2-b^2}\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\right]}{a^4\,d}+$$
$$\frac{\left(a^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-3\,b^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]}{6\,a^3\,d}+\frac{b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,a^2\,d}-$$
$$\frac{\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,a\,d}+\frac{\left(-a^2\,b+2\,b^3\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,a^4\,d}+$$
$$\frac{\left(a^2\,b-2\,b^3\right)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,a^4\,d}-\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,a^2\,d}+$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(-a^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+3\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{6\,a^3\,d}+\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,a\,d}$$

Problem 1293: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]^3}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 194 leaves, 10 steps):

$$\frac{2\,b^3\,\sqrt{a^2-b^2}\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{a^5\,d}+\frac{\left(a^4+4\,a^2\,b^2-8\,b^4\right)\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,a^5\,d}-$$
$$\frac{b\,\left(a^2-3\,b^2\right)\,\text{Cot}[c+d\,x]}{3\,a^4\,d}+\frac{\left(a^2-4\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,a^3\,d}+$$
$$\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,a\,d}$$

Result (type 3, 430 leaves):

$$\frac{2\,b^3\,\sqrt{a^2-b^2}\,\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\right]}{a^5\,d}+$$
$$\frac{\left(-a^2\,b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+3\,b^3\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]}{6\,a^4\,d}+$$
$$\frac{\left(a^2-4\,b^2\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,a^3\,d}+\frac{b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,a^2\,d}-$$
$$\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,a\,d}+\frac{\left(a^4+4\,a^2\,b^2-8\,b^4\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,a^5\,d}+$$
$$\frac{\left(-a^4-4\,a^2\,b^2+8\,b^4\right)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,a^5\,d}+\frac{\left(-a^2+4\,b^2\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,a^3\,d}+$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,a\,d}+\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a^2\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-3\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{6\,a^4\,d}-$$
$$\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,a^2\,d}$$

Problem 1294: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^2\,\text{Csc}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 238 leaves, 11 steps):

$$-\frac{2\,b^4\,\sqrt{a^2-b^2}\,\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{a^6\,d}-\frac{b\,\left(a^4+4\,a^2\,b^2-8\,b^4\right)\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,a^6\,d}+$$
$$\frac{\left(2\,a^4+5\,a^2\,b^2-15\,b^4\right)\,\text{Cot}[c+d\,x]}{15\,a^5\,d}-\frac{b\,\left(a^2-4\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,a^4\,d}+$$
$$\frac{\left(a^2-5\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{15\,a^3\,d}+\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{5\,a\,d}$$

Result (type 3, 506 leaves):

$$\frac{1}{960\,a^6\,d}\left(-1920\,b^4\,\sqrt{a^2-b^2}\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]+32\,\left(2\,a^5+5\,a^3\,b^2-15\,a\,b^4\right)\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]-\right.$$
$$30\,a^4\,b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2+120\,a^2\,b^3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2+15\,a^4\,b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4-$$
$$120\,a^4\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-480\,a^2\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+960\,b^5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$120\,a^4\,b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+480\,a^2\,b^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-960\,b^5\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$30\,a^4\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-120\,a^2\,b^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-15\,a^4\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4-$$
$$16\,a^5\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^4+320\,a^3\,b^2\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^4+$$
$$a^5\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]-20\,a^3\,b^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]-$$
$$3\,a^5\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Sin}[c+d\,x]-64\,a^5\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-160\,a^3\,b^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+$$
$$\left.480\,a\,b^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+6\,a^5\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

Problem 1307: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 154 leaves, 7 steps):

$$\frac{2\,\left(a^2-b^2\right)^{3/2}\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{a^4\,d}-\frac{b\,\left(3\,a^2-2\,b^2\right)\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a^4\,d}+$$
$$\frac{\left(4\,a^2-3\,b^2\right)\,\text{Cot}[c+d\,x]}{3\,a^3\,d}+\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,a\,d}$$

Result (type 3, 350 leaves):

$$\frac{2\left(a^2-b^2\right)^{3/2}\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]\left(b\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+a\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{a^2-b^2}}\right]}{a^4 d}+$$

$$\frac{\left(4 a^2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]-3 b^2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)\text{Csc}\left[\frac{1}{2}(c+d x)\right]}{6 a^3 d}+\frac{b\,\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{8 a^2 d}-$$

$$\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{24 a d}+\frac{\left(-3 a^2 b+2 b^3\right)\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{2 a^4 d}+$$

$$\frac{\left(3 a^2 b-2 b^3\right)\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{2 a^4 d}-\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{8 a^2 d}+$$

$$\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]\left(-4 a^2\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+3 b^2\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{6 a^3 d}+$$

$$\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{24 a d}$$

Problem 1308: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d x]^4\,\text{Csc}[c+d x]}{a+b\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 198 leaves, 8 steps):

$$-\frac{2 b\left(a^2-b^2\right)^{3/2}\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{a^5 d}-\frac{\left(3 a^4-12 a^2 b^2+8 b^4\right)\text{ArcTanh}[\text{Cos}[c+d x]]}{8 a^5 d}-$$

$$\frac{b\left(4 a^2-3 b^2\right)\text{Cot}[c+d x]}{3 a^4 d}+\frac{\left(5 a^2-4 b^2\right)\text{Cot}[c+d x]\,\text{Csc}[c+d x]}{8 a^3 d}+$$

$$\frac{b\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]^2}{3 a^2 d}-\frac{\text{Cot}[c+d x]\,\text{Csc}[c+d x]^3}{4 a d}$$

Result (type 3, 433 leaves):

$$-\frac{2 b \left(a^2-b^2\right)^{3/2} \text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]\left(b \text{Cos}\left[\frac{1}{2}(c+d x)\right]+a \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{a^2-b^2}}\right]}{a^5 d}+\frac{\left(-4 a^2 b \text{Cos}\left[\frac{1}{2}(c+d x)\right]+3 b^3 \text{Cos}\left[\frac{1}{2}(c+d x)\right]\right) \text{Csc}\left[\frac{1}{2}(c+d x)\right]}{6 a^4 d}+\frac{\left(5 a^2-4 b^2\right) \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{32 a^3 d}+\frac{b \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{24 a^2 d}-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{64 a d}+\frac{\left(-3 a^4+12 a^2 b^2-8 b^4\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right]}{8 a^5 d}+\frac{\left(3 a^4-12 a^2 b^2+8 b^4\right) \text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 a^5 d}+\frac{\left(-5 a^2+4 b^2\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{32 a^3 d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{64 a d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]\left(4 a^2 b \text{Sin}\left[\frac{1}{2}(c+d x)\right]-3 b^3 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{6 a^4 d}-\frac{b \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{24 a^2 d}$$

Problem 1309: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^4 \text{Csc}[c+d x]^2}{a+b \text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 244 leaves, 9 steps):

$$\frac{2 b^2 \left(a^2-b^2\right)^{3/2} \text{ArcTan}\left[\frac{b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{a^6 d}+\frac{b \left(3 a^4-12 a^2 b^2+8 b^4\right) \text{ArcTanh}[\text{Cos}[c+d x]]}{8 a^6 d}-\frac{\left(3 a^4-20 a^2 b^2+15 b^4\right) \text{Cot}[c+d x]}{15 a^5 d}-\frac{b \left(5 a^2-4 b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x]}{8 a^4 d}+\frac{\left(6 a^2-5 b^2\right) \text{Cot}[c+d x] \text{Csc}[c+d x]^2}{15 a^3 d}+\frac{b \text{Cot}[c+d x] \text{Csc}[c+d x]^3}{4 a^2 d}-\frac{\text{Cot}[c+d x] \text{Csc}[c+d x]^4}{5 a d}$$

Result (type 3, 507 leaves):

$$\frac{1}{960\, a^6\, d}\left(1920\, b^2\, (a^2-b^2)^{3/2}\, \text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]-32\,(3\,a^5-20\,a^3\,b^2+15\,a\,b^4)\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]-\right.$$
$$150\,a^4\,b\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2+120\,a^2\,b^3\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2+15\,a^4\,b\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4+$$
$$360\,a^4\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]-1440\,a^2\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]+960\,b^5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]-$$
$$360\,a^4\,b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+1440\,a^2\,b^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-960\,b^5\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+$$
$$150\,a^4\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-120\,a^2\,b^3\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-15\,a^4\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4-$$
$$336\,a^5\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]^4+320\,a^3\,b^2\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]^4+$$
$$21\,a^5\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]-20\,a^3\,b^2\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]-$$
$$3\,a^5\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6\,\text{Sin}[c+d\,x]+96\,a^5\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-640\,a^3\,b^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+$$
$$\left.480\,a\,b^4\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+6\,a^5\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

Problem 1316: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 120 leaves, 4 steps):

$$\frac{(2\,a^2-b^2)\,\text{Csc}[c+d\,x]}{a^3\,d}+\frac{b\,\text{Csc}[c+d\,x]^2}{2\,a^2\,d}-\frac{\text{Csc}[c+d\,x]^3}{3\,a\,d}+$$
$$\frac{b\,(2\,a^2-b^2)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^4\,d}+\frac{(a^2-b^2)^2\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^4\,b\,d}$$

Result (type 3, 275 leaves):

$$\frac{\left(11\,a^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-6\,b^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,a^3\,d}+$$
$$\frac{b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,a^2\,d}-\frac{\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,a\,d}+$$
$$\frac{\left(2\,a^2\,b-b^3\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^4\,d}+\frac{\left(a^4-2\,a^2\,b^2+b^4\right)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^4\,b\,d}+$$
$$\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,a^2\,d}+\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(11\,a^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-6\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{12\,a^3\,d}-$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,a\,d}$$

Problem 1317: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^5}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 148 leaves, 3 steps):

$$-\frac{b\,\left(2\,a^2-b^2\right)\,\text{Csc}[c+d\,x]}{a^4\,d}+\frac{\left(2\,a^2-b^2\right)\,\text{Csc}[c+d\,x]^2}{2\,a^3\,d}+\frac{b\,\text{Csc}[c+d\,x]^3}{3\,a^2\,d}-$$
$$\frac{\text{Csc}[c+d\,x]^4}{4\,a\,d}+\frac{\left(a^2-b^2\right)^2\,\text{Log}[\text{Sin}[c+d\,x]]}{a^5\,d}-\frac{\left(a^2-b^2\right)^2\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^5\,d}$$

Result (type 3, 347 leaves):

$$\frac{\left(-11\,a^2\,b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+6\,b^3\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,a^4\,d}+\frac{\left(7\,a^2-4\,b^2\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,a^3\,d}+$$
$$\frac{b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,a^2\,d}-\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,a\,d}+\frac{\left(a^4-2\,a^2\,b^2+b^4\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^5\,d}+$$
$$\frac{\left(-a^4+2\,a^2\,b^2-b^4\right)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^5\,d}+\frac{\left(7\,a^2-4\,b^2\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,a^3\,d}-$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,a\,d}+\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(-11\,a^2\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+6\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{12\,a^4\,d}+$$
$$\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,a^2\,d}$$

Problem 1318: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^5\,\text{Csc}[c+d\,x]}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 179 leaves, 4 steps):

$$-\frac{\left(a^2-b^2\right)^2 \text{Csc}[c+d x]}{a^5 d}-\frac{b\left(2 a^2-b^2\right) \text{Csc}[c+d x]^2}{2 a^4 d}+\frac{\left(2 a^2-b^2\right) \text{Csc}[c+d x]^3}{3 a^3 d}+\frac{b \text{Csc}[c+d x]^4}{4 a^2 d}-\frac{\text{Csc}[c+d x]^5}{5 a d}-\frac{b\left(a^2-b^2\right)^2 \text{Log}[\text{Sin}[c+d x]]}{a^6 d}+\frac{b\left(a^2-b^2\right)^2 \text{Log}[a+b \text{Sin}[c+d x]]}{a^6 d}$$

Result (type 3, 492 leaves):

$$\frac{1}{240 a^5 d}\left(-89 a^4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]+220 a^2 b^2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]-120 b^4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]\right) \text{Csc}\left[\frac{1}{2}(c+d x)\right]+\frac{\left(-7 a^2 b+4 b^3\right) \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{32 a^4 d}+\frac{\left(31 a^2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]-20 b^2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]\right) \text{Csc}\left[\frac{1}{2}(c+d x)\right]^3}{480 a^3 d}+\frac{b \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{64 a^2 d}-\frac{\text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{160 a d}+\frac{\left(-a^4 b+2 a^2 b^3-b^5\right) \text{Log}[\text{Sin}[c+d x]]}{a^6 d}+\frac{\left(a^4 b-2 a^2 b^3+b^5\right) \text{Log}[a+b \text{Sin}[c+d x]]}{a^6 d}+\frac{\left(-7 a^2 b+4 b^3\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{32 a^4 d}+\frac{b \text{Sec}\left[\frac{1}{2}(c+d x)\right]^4}{64 a^2 d}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^3\left(31 a^2 \text{Sin}\left[\frac{1}{2}(c+d x)\right]-20 b^2 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{480 a^3 d}+\frac{1}{240 a^5 d} \text{Sec}\left[\frac{1}{2}(c+d x)\right]\left(-89 a^4 \text{Sin}\left[\frac{1}{2}(c+d x)\right]+220 a^2 b^2 \text{Sin}\left[\frac{1}{2}(c+d x)\right]-120 b^4 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{160 a d}$$

Problem 1319: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^5 \text{Csc}[c+d x]^2}{a+b \text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 212 leaves, 4 steps):

$$\frac{b\left(a^2-b^2\right)^2 \text{Csc}[c+d x]}{a^6 d}-\frac{\left(a^2-b^2\right)^2 \text{Csc}[c+d x]^2}{2 a^5 d}-\frac{b\left(2 a^2-b^2\right) \text{Csc}[c+d x]^3}{3 a^4 d}+\frac{\left(2 a^2-b^2\right) \text{Csc}[c+d x]^4}{4 a^3 d}+\frac{b \text{Csc}[c+d x]^5}{5 a^2 d}-\frac{\text{Csc}[c+d x]^6}{6 a d}+\frac{b^2\left(a^2-b^2\right)^2 \text{Log}[\text{Sin}[c+d x]]}{a^7 d}-\frac{b^2\left(a^2-b^2\right)^2 \text{Log}[a+b \text{Sin}[c+d x]]}{a^7 d}$$

Result (type 3, 493 leaves):

$$\frac{1}{1920\,a^7\,d}\left(8\left(89\,a^5\,b-220\,a^3\,b^3+120\,a\,b^5\right)\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]-30\left(5\,a^6-14\,a^4\,b^2+8\,a^2\,b^4\right)\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2+\right.$$
$$1920\,a^4\,b^2\,\text{Log}[\text{Sin}[c+d\,x]]-3840\,a^2\,b^4\,\text{Log}[\text{Sin}[c+d\,x]]+1920\,b^6\,\text{Log}[\text{Sin}[c+d\,x]]-$$
$$1920\,a^4\,b^2\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]+3840\,a^2\,b^4\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]-$$
$$1920\,b^6\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]-150\,a^6\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2+$$
$$420\,a^4\,b^2\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2-240\,a^2\,b^4\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2+$$
$$45\,a^6\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4-30\,a^4\,b^2\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4-5\,a^6\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^6-$$
$$992\,a^5\,b\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4+640\,a^3\,b^3\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4+$$
$$384\,a^5\,b\,\text{Csc}[c+d\,x]^5\,\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]^6+a^5\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^6\left(-5\,a+6\,b\,\text{Sin}[c+d\,x]\right)+$$
$$a^3\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4\left(45\,a^3-30\,a\,b^2+\left(-62\,a^2\,b+40\,b^3\right)\text{Sin}[c+d\,x]\right)+$$
$$\left.712\,a^5\,b\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]-1760\,a^3\,b^3\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+960\,a\,b^5\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)$$

Problem 1327: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]^5}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 195 leaves, 15 steps):

$$-\frac{x}{b}+\frac{2\left(a^2-b^2\right)^{5/2}\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{a^5\,b\,d}-$$
$$\frac{\left(15\,a^4-20\,a^2\,b^2+8\,b^4\right)\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,a^5\,d}+\frac{b\left(-2\,a^2+b^2\right)\text{Cot}[c+d\,x]}{a^4\,d}+$$
$$\frac{b\,\text{Cot}[c+d\,x]^3}{3\,a^2\,d}+\frac{\left(7\,a^2-4\,b^2\right)\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,a^3\,d}-\frac{\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]}{4\,a\,d}$$

Result (type 3, 448 leaves):

$$-\frac{c+d\,x}{b\,d}+\frac{2\,\left(a^2-b^2\right)^{5/2}\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\right]}{a^5\,b\,d}+$$
$$\frac{\left(-7\,a^2\,b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+3\,b^3\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]}{6\,a^4\,d}+$$
$$\frac{\left(9\,a^2-4\,b^2\right)\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,a^3\,d}+\frac{b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,a^2\,d}-$$
$$\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,a\,d}+\frac{\left(-15\,a^4+20\,a^2\,b^2-8\,b^4\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,a^5\,d}+$$
$$\frac{\left(15\,a^4-20\,a^2\,b^2+8\,b^4\right)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,a^5\,d}+\frac{\left(-9\,a^2+4\,b^2\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,a^3\,d}+$$
$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,a\,d}+\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(7\,a^2\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-3\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{6\,a^4\,d}-$$
$$\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,a^2\,d}$$

Problem 1328: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]^6}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 241 leaves, 9 steps):

$$-\frac{2\,\left(a^2-b^2\right)^{5/2}\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{a^6\,d}+\frac{b\,\left(15\,a^4-20\,a^2\,b^2+8\,b^4\right)\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,a^6\,d}-$$
$$\frac{\left(23\,a^4-35\,a^2\,b^2+15\,b^4\right)\,\text{Cot}[c+d\,x]}{15\,a^5\,d}+\frac{b\,\left(-9\,a^2+4\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,a^4\,d}+$$
$$\frac{\left(11\,a^2-5\,b^2\right)\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{15\,a^3\,d}+\frac{b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,a^2\,d}-\frac{\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{5\,a\,d}$$

Result (type 3, 504 leaves):

$$\frac{1}{960\,a^6\,d}\left(-1920\,(a^2-b^2)^{5/2}\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]-32\,(23\,a^5-35\,a^3\,b^2+15\,a\,b^4)\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]-\right.$$
$$270\,a^4\,b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2+120\,a^2\,b^3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2+15\,a^4\,b\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4+$$
$$1800\,a^4\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-2400\,a^2\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$960\,b^5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-1800\,a^4\,b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$2400\,a^2\,b^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-960\,b^5\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$270\,a^4\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-120\,a^2\,b^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-15\,a^4\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4-$$
$$656\,a^5\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^4+320\,a^3\,b^2\,\text{Csc}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^4+$$
$$41\,a^5\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]-20\,a^3\,b^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]-$$
$$3\,a^5\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Sin}[c+d\,x]+736\,a^5\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-1120\,a^3\,b^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+$$
$$\left.480\,a\,b^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+6\,a^5\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

Problem 1356: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 194 leaves, 12 steps):

$$-\frac{2\,b^5\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{a\,(a^2-b^2)^{5/2}\,d}-\frac{\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a\,d}+\frac{\text{Sec}[c+d\,x]}{a\,d}+\frac{\text{Sec}[c+d\,x]^3}{3\,a\,d}+$$
$$\frac{b\,\text{Sec}[c+d\,x]^3\,(b-a\,\text{Sin}[c+d\,x])}{3\,a\,(a^2-b^2)\,d}-\frac{b\,\text{Sec}[c+d\,x]\,(3\,b^3+a\,(2\,a^2-5\,b^2)\,\text{Sin}[c+d\,x])}{3\,a\,(a^2-b^2)^2\,d}$$

Result (type 3, 408 leaves):

$$-\frac{2\,b^5\,\text{ArcTan}\Big[\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\Big]}{a\,\left(a^2-b^2\right)^{5/2}\,d}-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{a\,d}+$$

$$\frac{\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{a\,d}+\frac{1}{12\,(a+b)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+$$

$$\frac{\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{6\,(a+b)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{6\,(a-b)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{1}{12\,(a-b)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+$$

$$\frac{-7\,a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+10\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{6\,(a-b)^2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}+$$

$$\frac{7\,a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+10\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{6\,(a+b)^2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}$$

Problem 1357: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 220 leaves, 15 steps):

$$\frac{2\,b^6\,\text{ArcTan}\Big[\frac{b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\Big]}{a^2\,\left(a^2-b^2\right)^{5/2}\,d}+\frac{b\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a^2\,d}-\frac{\text{Cot}[c+d\,x]}{a\,d}+\frac{b\,\left(-a^2+2\,b^2\right)\,\text{Sec}[c+d\,x]}{\left(a^2-b^2\right)^2\,d}+$$

$$\frac{b\,\text{Sec}[c+d\,x]^3\,\left(-a+b\,\text{Sin}[c+d\,x]\right)}{3\,a\,\left(a^2-b^2\right)\,d}+\frac{\left(6\,a^4-10\,a^2\,b^2+b^4\right)\,\text{Tan}[c+d\,x]}{3\,a\,\left(a^2-b^2\right)^2\,d}+\frac{\text{Tan}[c+d\,x]^3}{3\,a\,d}$$

Result (type 3, 450 leaves):

$$\frac{2\,b^6\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]\left(b\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\sqrt{a^2-b^2}}\right]}{a^2\left(a^2-b^2\right)^{5/2}d}-\frac{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{2\,a\,d}+\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]}{a^2\,d}-$$

$$\frac{b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{a^2\,d}+\frac{1}{12\,(a+b)\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+$$

$$\frac{\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{6\,(a+b)\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+$$

$$\frac{\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{6\,(a-b)\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-$$

$$\frac{1}{12\,(a-b)\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+$$

$$\frac{10\,a\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-13\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{6\,(a-b)^2\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+$$

$$\frac{10\,a\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+13\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{6\,(a+b)^2\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\,a\,d}$$

Problem 1358: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 332 leaves, 20 steps):

$$-\frac{2\,b^7\,\text{ArcTan}\left[\frac{b+a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right]}{a^3\left(a^2-b^2\right)^{5/2}d}-\frac{5\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,a\,d}-\frac{b^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{a^3\,d}+$$

$$\frac{b\,\text{Cot}[c+d\,x]}{a^2\,d}+\frac{5\,\text{Sec}[c+d\,x]}{2\,a\,d}+\frac{b^2\,\text{Sec}[c+d\,x]}{a^3\,d}+\frac{5\,\text{Sec}[c+d\,x]^3}{6\,a\,d}+$$

$$\frac{b^2\,\text{Sec}[c+d\,x]^3}{3\,a^3\,d}-\frac{\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]^3}{2\,a\,d}+\frac{b^3\,\text{Sec}[c+d\,x]^3\,(b-a\,\text{Sin}[c+d\,x])}{3\,a^3\left(a^2-b^2\right)d}-$$

$$\frac{b^3\,\text{Sec}[c+d\,x]\left(3\,b^3+a\left(2\,a^2-5\,b^2\right)\text{Sin}[c+d\,x]\right)}{3\,a^3\left(a^2-b^2\right)^2d}-\frac{2\,b\,\text{Tan}[c+d\,x]}{a^2\,d}-\frac{b\,\text{Tan}[c+d\,x]^3}{3\,a^2\,d}$$

Result (type 3, 947 leaves):

$$16\left(\frac{a\left(13\,a^2-19\,b^2\right)\text{Csc}[c+d\,x]\,(a+b\,\text{Sin}[c+d\,x])}{96\left(a^2-b^2\right)^2d\,(b+a\,\text{Csc}[c+d\,x])}-\right.$$

$$\left(b^7 \operatorname{ArcTan}\left[\frac{\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]\left(b \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+a \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{\sqrt{a^2-b^2}}\right]\right.$$

$$\left.\operatorname{Csc}[c+d x]\,(a+b \operatorname{Sin}[c+d x])\right) \Big/ \left(8 a^3\left(a^2-b^2\right)^{5/2} d\,(b+a \operatorname{Csc}[c+d x])\right)+$$

$$\frac{b \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right] \operatorname{Csc}[c+d x]\,(a+b \operatorname{Sin}[c+d x])}{32 a^2 d\,(b+a \operatorname{Csc}[c+d x])}-$$

$$\frac{\operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Csc}[c+d x]\,(a+b \operatorname{Sin}[c+d x])}{128 a d\,(b+a \operatorname{Csc}[c+d x])}+$$

$$\left(\left(-5 a^2-2 b^2\right) \operatorname{Csc}[c+d x] \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right](a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(32 a^3 d\,(b+a \operatorname{Csc}[c+d x])\right)+$$

$$\left(\left(5 a^2+2 b^2\right) \operatorname{Csc}[c+d x] \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right](a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(32 a^3 d\,(b+a \operatorname{Csc}[c+d x])\right)+$$

$$\frac{\operatorname{Csc}[c+d x] \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a+b \operatorname{Sin}[c+d x])}{128 a d\,(b+a \operatorname{Csc}[c+d x])}+\left(\operatorname{Csc}[c+d x]\,(a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(192 (a+b) d\,(b+a \operatorname{Csc}[c+d x])\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2\right)+$$

$$\left(\operatorname{Csc}[c+d x] \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right](a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(96 (a+b) d\,(b+a \operatorname{Csc}[c+d x])\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)-$$

$$\left(\operatorname{Csc}[c+d x] \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right](a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(96 (a-b) d\,(b+a \operatorname{Csc}[c+d x])\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right)+$$

$$\left(\operatorname{Csc}[c+d x]\,(a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(192 (a-b) d\,(b+a \operatorname{Csc}[c+d x])\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2\right)+$$

$$\left(\operatorname{Csc}[c+d x]\left(-13 a \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]+16 b \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(96 (a-b)^2 d\,(b+a \operatorname{Csc}[c+d x])\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)+$$

$$\left(\operatorname{Csc}[c+d x]\left(13 a \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]+16 b \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b \operatorname{Sin}[c+d x])\right) \Big/$$

$$\left(96 (a+b)^2 d\,(b+a \operatorname{Csc}[c+d x])\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)-$$

$$\left.\frac{b \operatorname{Csc}[c+d x]\,(a+b \operatorname{Sin}[c+d x]) \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{32 a^2 d\,(b+a \operatorname{Csc}[c+d x])}\right)$$

Problem 1359: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[c+d\,x]^3\,\text{Tan}[c+d\,x]^5}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 240 leaves, 6 steps):

$$-\frac{\left(35\,a^2+57\,a\,b+24\,b^2\right)\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\,(a+b)^3\,d}+\frac{\left(35\,a^2-57\,a\,b+24\,b^2\right)\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\,(a-b)^3\,d}-\frac{a^8\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{b^3\,\left(a^2-b^2\right)^3\,d}+\frac{a\,\text{Sin}[c+d\,x]}{b^2\,d}-\frac{\text{Sin}[c+d\,x]^2}{2\,b\,d}-\frac{\text{Sec}[c+d\,x]^4\,(b-a\,\text{Sin}[c+d\,x])}{4\,\left(a^2-b^2\right)\,d}+\frac{\text{Sec}[c+d\,x]^2\,\left(4\,b\,\left(4\,a^2-3\,b^2\right)-a\,\left(13\,a^2-9\,b^2\right)\,\text{Sin}[c+d\,x]\right)}{8\,\left(a^2-b^2\right)^2\,d}$$

Result (type 3, 542 leaves):

$$\frac{2\,i\,\left(6\,a^4\,b-8\,a^2\,b^3+3\,b^5\right)\,(c+d\,x)}{(a-b)^3\,(a+b)^3\,d}+\frac{1}{8\,(a+b)^3\,d}\,i\,\left(-35\,a^2-57\,a\,b-24\,b^2\right)\,\text{ArcTan}\Big[\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{1}{8\,(a-b)^3\,d}\,i\,\left(35\,a^2-57\,a\,b+24\,b^2\right)\,\text{ArcTan}\Big[\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{\text{Cos}[2\,(c+d\,x)]}{4\,b\,d}+\frac{\left(-35\,a^2-57\,a\,b-24\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a+b)^3\,d}+\frac{\left(35\,a^2-57\,a\,b+24\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a-b)^3\,d}-\frac{a^8\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{b^3\,\left(a^2-b^2\right)^3\,d}+\frac{1}{16\,(a+b)\,d\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{-13\,a-11\,b}{16\,(a+b)^2\,d\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{1}{16\,(a-b)\,d\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{13\,a-11\,b}{16\,(a-b)^2\,d\,\left(\text{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{a\,\text{Sin}[c+d\,x]}{b^2\,d}$$

Problem 1360: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[c+d\,x]^2\,\text{Tan}[c+d\,x]^5}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 221 leaves, 6 steps):

$$-\frac{\left(24\,a^2+37\,a\,b+15\,b^2\right)\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\,(a+b)^3\,d}-\frac{\left(24\,a^2-37\,a\,b+15\,b^2\right)\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\,(a-b)^3\,d}+\frac{a^7\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{b^2\,\left(a^2-b^2\right)^3\,d}-\frac{\text{Sin}[c+d\,x]}{b\,d}+\frac{\text{Sec}[c+d\,x]^4\,\left(a-b\,\text{Sin}[c+d\,x]\right)}{4\,\left(a^2-b^2\right)\,d}-\frac{\text{Sec}[c+d\,x]^2\,\left(4\,a\,\left(3\,a^2-2\,b^2\right)-b\,\left(13\,a^2-9\,b^2\right)\,\text{Sin}[c+d\,x]\right)}{8\,\left(a^2-b^2\right)^2\,d}$$

Result (type 3, 522 leaves):

$$-\frac{2\,i\,\left(3\,a^5-3\,a^3\,b^2+a\,b^4\right)\,(c+d\,x)}{(a-b)^3\,(a+b)^3\,d}+\frac{1}{8\,(a+b)^3\,d}\,i\,\left(-24\,a^2-37\,a\,b-15\,b^2\right)\,\text{ArcTan}\Big[\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{1}{8\,(a-b)^3\,d}\,i\,\left(-24\,a^2+37\,a\,b-15\,b^2\right)\,\text{ArcTan}\Big[\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{\left(-24\,a^2-37\,a\,b-15\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a+b)^3\,d}+\frac{\left(-24\,a^2+37\,a\,b-15\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a-b)^3\,d}+\frac{a^7\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{b^2\,\left(a^2-b^2\right)^3\,d}+\frac{1}{16\,(a+b)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{-11\,a-9\,b}{16\,(a+b)^2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{1}{16\,(a-b)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{-11\,a+9\,b}{16\,(a-b)^2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{\text{Sin}[c+d\,x]}{b\,d}$$

Problem 1361: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[c+d x]\ \text{Tan}[c+d x]^5}{a+b\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 208 leaves, 6 steps):

$$-\frac{\left(15 a^2+21 a b+8 b^2\right) \text{Log}[1-\text{Sin}[c+d x]]}{16 (a+b)^3 d}+\frac{\left(15 a^2-21 a b+8 b^2\right) \text{Log}[1+\text{Sin}[c+d x]]}{16 (a-b)^3 d}-\frac{a^6 \text{Log}[a+b\,\text{Sin}[c+d x]]}{b \left(a^2-b^2\right)^3 d}-\frac{\text{Sec}[c+d x]^4 \left(b-a\,\text{Sin}[c+d x]\right)}{4 \left(a^2-b^2\right) d}+\frac{\text{Sec}[c+d x]^2 \left(4 b \left(3 a^2-2 b^2\right)-a \left(9 a^2-5 b^2\right) \text{Sin}[c+d x]\right)}{8 \left(a^2-b^2\right)^2 d}$$

Result (type 3, 508 leaves):

$$\frac{2 i \left(3 a^4 b-3 a^2 b^3+b^5\right) (c+d x)}{(a-b)^3 (a+b)^3 d}+\frac{1}{8 (a+b)^3 d} i \left(-15 a^2-21 a b-8 b^2\right) \text{ArcTan}\left[\text{Csc}[c+d x] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)\right]+\frac{1}{8 (a-b)^3 d} i \left(15 a^2-21 a b+8 b^2\right) \text{ArcTan}\left[\text{Csc}[c+d x] \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)\right]+\frac{\left(-15 a^2-21 a b-8 b^2\right) \text{Log}\left[\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2\right]}{16 (a+b)^3 d}+\frac{\left(15 a^2-21 a b+8 b^2\right) \text{Log}\left[\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2\right]}{16 (a-b)^3 d}-\frac{a^6 \text{Log}[a+b\,\text{Sin}[c+d x]]}{b \left(a^2-b^2\right)^3 d}+\frac{1}{16 (a+b) d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{-9 a-7 b}{16 (a+b)^2 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{1}{16 (a-b) d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{9 a-7 b}{16 (a-b)^2 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}$$

Problem 1367: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int \frac{\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^5}{a+b\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 233 leaves, 4 steps):

$$-\frac{\left(8\,a^2+21\,a\,b+15\,b^2\right)\,\mathrm{Log}[1-\mathrm{Sin}[c+d\,x]]}{16\,(a+b)^3\,d}+\frac{\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a\,d}-\frac{\left(8\,a^2-21\,a\,b+15\,b^2\right)\,\mathrm{Log}[1+\mathrm{Sin}[c+d\,x]]}{16\,(a-b)^3\,d}+\frac{b^6\,\mathrm{Log}[a+b\,\mathrm{Sin}[c+d\,x]]}{a\,\left(a^2-b^2\right)^3\,d}+\frac{1}{16\,(a+b)\,d\,(1-\mathrm{Sin}[c+d\,x])^2}+\frac{5\,a+7\,b}{16\,(a+b)^2\,d\,(1-\mathrm{Sin}[c+d\,x])}+\frac{1}{16\,(a-b)\,d\,(1+\mathrm{Sin}[c+d\,x])^2}+\frac{5\,a-7\,b}{16\,(a-b)^2\,d\,(1+\mathrm{Sin}[c+d\,x])}$$

Result (type 3, 521 leaves):

$$-\frac{2\,i\,\left(a^5-3\,a^3\,b^2+3\,a\,b^4\right)\,(c+d\,x)}{(a-b)^3\,(a+b)^3\,d}+\frac{1}{8\,(a+b)^3\,d}i\,\left(-8\,a^2-21\,a\,b-15\,b^2\right)\,\mathrm{ArcTan}\Big[\mathrm{Csc}[c+d\,x]\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{1}{8\,(a-b)^3\,d}i\,\left(-8\,a^2+21\,a\,b-15\,b^2\right)\,\mathrm{ArcTan}\Big[\mathrm{Csc}[c+d\,x]\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{\left(-8\,a^2-21\,a\,b-15\,b^2\right)\,\mathrm{Log}\left[\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a+b)^3\,d}+\frac{\left(-8\,a^2+21\,a\,b-15\,b^2\right)\,\mathrm{Log}\left[\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a-b)^3\,d}+\frac{\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a\,d}+\frac{b^6\,\mathrm{Log}[a+b\,\mathrm{Sin}[c+d\,x]]}{a\,\left(a^2-b^2\right)^3\,d}+\frac{1}{16\,(a+b)\,d\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{5\,a+7\,b}{16\,(a+b)^2\,d\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{1}{16\,(a-b)\,d\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{5\,a-7\,b}{16\,(a-b)^2\,d\,\left(\mathrm{Cos}\left[\tfrac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\tfrac{1}{2}\,(c+d\,x)\right]\right)^2}$$

Problem 1368: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[c+d x]^2 \,\text{Sec}[c+d x]^5}{a+b \,\text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 250 leaves, 4 steps):

$$-\frac{\text{Csc}[c+d x]}{a d}-\frac{\left(15 a^2+37 a b+24 b^2\right) \text{Log}[1-\text{Sin}[c+d x]]}{16 (a+b)^3 d}-\frac{b \,\text{Log}[\text{Sin}[c+d x]]}{a^2 d}+\frac{\left(15 a^2-37 a b+24 b^2\right) \text{Log}[1+\text{Sin}[c+d x]]}{16 (a-b)^3 d}-\frac{b^7 \,\text{Log}[a+b \,\text{Sin}[c+d x]]}{a^2 \left(a^2-b^2\right)^3 d}+\frac{1}{16 (a+b) d (1-\text{Sin}[c+d x])^2}+\frac{7 a+9 b}{16 (a+b)^2 d (1-\text{Sin}[c+d x])}-\frac{1}{16 (a-b) d (1+\text{Sin}[c+d x])^2}-\frac{7 a-9 b}{16 (a-b)^2 d (1+\text{Sin}[c+d x])}$$

Result (type 3, 565 leaves):

$$\frac{2\,i\,\left(a^4\,b-3\,a^2\,b^3+3\,b^5\right)\,\left(c+d\,x\right)}{\left(a-b\right)^3\,\left(a+b\right)^3\,d}+\frac{1}{8\,\left(a+b\right)^3\,d}i\,\left(-15\,a^2-37\,a\,b-24\,b^2\right)\,\text{ArcTan}\Big[$$
$$\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\Big]+$$
$$\frac{1}{8\,\left(a-b\right)^3\,d}i\,\left(15\,a^2-37\,a\,b+24\,b^2\right)\,\text{ArcTan}\Big[$$
$$\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\Big]-$$
$$\frac{\text{Cot}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}{2\,a\,d}+\frac{\left(-15\,a^2-37\,a\,b-24\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^2\right]}{16\,\left(a+b\right)^3\,d}+$$
$$\frac{\left(15\,a^2-37\,a\,b+24\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^2\right]}{16\,\left(a-b\right)^3\,d}-$$
$$\frac{b\,\text{Log}[\text{Sin}[c+d\,x]]}{a^2\,d}-\frac{b^7\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^2\,\left(a^2-b^2\right)^3\,d}+$$
$$\frac{1}{16\,\left(a+b\right)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^4}+$$
$$\frac{7\,a+9\,b}{16\,\left(a+b\right)^2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^2}-$$
$$\frac{1}{16\,\left(a-b\right)\,d\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^4}+$$
$$\frac{-7\,a+9\,b}{16\,\left(a-b\right)^2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^2}-\frac{\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}{2\,a\,d}$$

Problem 1369: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^5}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 274 leaves, 4 steps):

$$\frac{b\,\text{Csc}[c+d\,x]}{a^2\,d}-\frac{\text{Csc}[c+d\,x]^2}{2\,a\,d}-\frac{\left(24\,a^2+57\,a\,b+35\,b^2\right)\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\,(a+b)^3\,d}+\frac{\left(3\,a^2+b^2\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^3\,d}-\frac{\left(24\,a^2-57\,a\,b+35\,b^2\right)\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\,(a-b)^3\,d}+\frac{b^8\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^3\,\left(a^2-b^2\right)^3\,d}+\frac{1}{16\,(a+b)\,d\,(1-\text{Sin}[c+d\,x])^2}+\frac{9\,a+11\,b}{16\,(a+b)^2\,d\,(1-\text{Sin}[c+d\,x])}+\frac{1}{16\,(a-b)\,d\,(1+\text{Sin}[c+d\,x])^2}+\frac{9\,a-11\,b}{16\,(a-b)^2\,d\,(1+\text{Sin}[c+d\,x])}$$

Result (type 3, 618 leaves):

$$-\frac{2\,i\,\left(3\,a^5-8\,a^3\,b^2+6\,a\,b^4\right)\,(c+d\,x)}{(a-b)^3\,(a+b)^3\,d}+\frac{1}{8\,(a+b)^3\,d}i\,\left(-24\,a^2-57\,a\,b-35\,b^2\right)\,\text{ArcTan}\Big[\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{1}{8\,(a-b)^3\,d}i\,\left(-24\,a^2+57\,a\,b-35\,b^2\right)\,\text{ArcTan}\Big[\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big]+\frac{b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,a^2\,d}-\frac{\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,a\,d}+\frac{\left(-24\,a^2-57\,a\,b-35\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a+b)^3\,d}+\frac{\left(-24\,a^2+57\,a\,b-35\,b^2\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{16\,(a-b)^3\,d}+\frac{\left(3\,a^2+b^2\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^3\,d}+\frac{b^8\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{a^3\,\left(a^2-b^2\right)^3\,d}-\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,a\,d}+\frac{1}{16\,(a+b)\,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{9\,a+11\,b}{16\,(a+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}{16\,(a-b)\,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{9\,a-11\,b}{16\,(a-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{b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,a^2\,d}$$

Problem 1370: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{g\,\text{Cos}[e+f\,x]}\ \text{Sin}[e+f\,x]^4}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 500 leaves, 21 steps):

$$\frac{a^4\sqrt{g}\ \text{ArcTan}\left[\frac{\sqrt{b}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{b^{9/2}\left(-a^2+b^2\right)^{1/4} f}-\frac{a^4\sqrt{g}\ \text{ArcTanh}\left[\frac{\sqrt{b}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{b^{9/2}\left(-a^2+b^2\right)^{1/4} f}-$$
$$\frac{2\,a^2\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{3\,b^3\,f\,g}-\frac{2\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{3\,b\,f\,g}+\frac{2\left(g\,\text{Cos}[e+f\,x]\right)^{7/2}}{7\,b\,f\,g^3}-$$
$$\frac{2\,a^3\sqrt{g\,\text{Cos}[e+f\,x]}\ \text{EllipticE}\left[\frac{1}{2}(e+f\,x),2\right]}{b^4\,f\sqrt{\text{Cos}[e+f\,x]}}-\frac{4\,a\sqrt{g\,\text{Cos}[e+f\,x]}\ \text{EllipticE}\left[\frac{1}{2}(e+f\,x),2\right]}{5\,b^2\,f\sqrt{\text{Cos}[e+f\,x]}}+$$
$$\frac{a^5\,g\sqrt{\text{Cos}[e+f\,x]}\ \text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^5\left(b-\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}+$$
$$\frac{a^5\,g\sqrt{\text{Cos}[e+f\,x]}\ \text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^5\left(b+\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\,a\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\text{Sin}[e+f\,x]}{5\,b^2\,f\,g}$$

Result (type 6, 1210 leaves):

$$-\frac{1}{5\,b^3\,f\sqrt{\text{Cos}[e+f\,x]}}$$
$$a\sqrt{g\,\text{Cos}[e+f\,x]}\left(\frac{1}{6\sqrt{1-\text{Cos}[e+f\,x]^2}\ (a+b\,\text{Sin}[e+f\,x])}\,a\,b\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$
$$\left.\text{Cos}[e+f\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\ \left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+\right.\right.\right.$$
$$\left.f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-$$
$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\ \sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\right[\right.\right.$$

$$1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{(-a^2+b^2)^{1/4}}\Big]-\text{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\,(-a^2+b^2)^{1/4}$$
$$\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\,(-a^2+b^2)^{1/4}$$
$$\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\Big]\Bigg)\Bigg)\Big/\left(\sqrt{b}\,(-a^2+b^2)^{1/4}\right)\Bigg)\,\text{Sin}[e+fx]-$$
$$\frac{1}{(1-\text{Cos}[e+fx]^2)\,(a+b\,\text{Sin}[e+fx])}\,2\,(5a^2+2b^2)\left(a+b\sqrt{1-\text{Cos}[e+fx]^2}\right)$$
$$\Bigg(\Bigg(7\,b\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]$$
$$\text{Cos}[e+fx]^{3/2}\sqrt{1-\text{Cos}[e+fx]^2}\Bigg)\Big/$$
$$\Bigg(3\,\Bigg(-7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]+2$$
$$\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]+$$
$$(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]\Bigg)$$
$$\text{Cos}[e+fx]^2\Bigg)\,\left(a^2+b^2\,(-1+\text{Cos}[e+fx]^2)\right)\Bigg)+$$
$$\Bigg(a\,\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{(a^2-b^2)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{(a^2-b^2)^{1/4}}\Big]+$$
$$\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[e+fx]}+b\,\text{Cos}[e+fx]\Big]-$$
$$\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[e+fx]}+$$
$$b\,\text{Cos}[e+fx]\Big]\Bigg)\Bigg)\Big/\left(4\sqrt{2}\,b^{3/2}\,(a^2-b^2)^{1/4}\right)\Bigg)\,\text{Sin}[e+fx]^2\Bigg)+$$
$$\frac{\sqrt{g\,\text{Cos}[e+fx]}\left(-\frac{(28a^2+19b^2)\,\text{Cos}[e+fx]}{42\,b^3}+\frac{\text{Cos}[3\,(e+fx)]}{14\,b}+\frac{a\,\text{Sin}[2\,(e+fx)]}{5\,b^2}\right)}{f}$$

Problem 1371: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{g\,\text{Cos}[e+fx]}\,\text{Sin}[e+fx]^3}{a+b\,\text{Sin}[e+fx]}\,dx$$

Optimal (type 4, 448 leaves, 18 steps):

$$-\frac{a^3\sqrt{g}\,\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{7/2}\left(-a^2+b^2\right)^{1/4}f}+\frac{a^3\sqrt{g}\,\text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{7/2}\left(-a^2+b^2\right)^{1/4}f}+\frac{2\,a\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{3\,b^2\,f\,g}+$$

$$\frac{2\,a^2\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{b^3\,f\sqrt{\text{Cos}[e+f\,x]}}+\frac{4\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{5\,b\,f\sqrt{\text{Cos}[e+f\,x]}}-$$

$$\frac{a^4\,g\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^4\left(b-\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}-$$

$$\frac{a^4\,g\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^4\left(b+\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{2\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\text{Sin}[e+f\,x]}{5\,b\,f\,g}$$

Result (type 6, 1183 leaves):

$$\frac{1}{5\,b^2\,f\sqrt{\text{Cos}[e+f\,x]}}$$

$$\sqrt{g\,\text{Cos}[e+f\,x]}\left(\frac{1}{6\sqrt{1-\text{Cos}[e+f\,x]^2}\left(a+b\,\text{Sin}[e+f\,x]\right)}a\,b\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,\mathbb{i}\right)\left(2\,\text{ArcTan}\left[1-\frac{\left(1+\mathbb{i}\right)\sqrt{b}\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{\left(1+\mathbb{i}\right)\sqrt{b}\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+\mathbb{i}\right)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[e+f\,x]}+\mathbb{i}\,b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+\mathbb{i}\right)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\sqrt{\text{Cos}[e+f\,x]}+\mathbb{i}\,b\,\text{Cos}[e+f\,x]\right]\right)\right/\left(\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right)\right)\text{Sin}[e+f\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\left(a+b\,\text{Sin}[e+f\,x]\right)}2\left(5\,a^2+2\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\left(\left(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\text{Cos}[e+f x]^{3/2}\sqrt{1-\text{Cos}[e+f x]^2}\Bigg)\Bigg/\Bigg(3\Bigg(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+2\Bigg(2b^2\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\Bigg)\text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]-\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\Bigg)\Bigg)\Bigg/\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\Bigg)\text{Sin}[e+f x]^2\Bigg)+$$

$$\frac{\sqrt{g\,\text{Cos}[e+f x]}\left(\frac{2a\,\text{Cos}[e+f x]}{3b^2}-\frac{\text{Sin}[2(e+f x)]}{5b}\right)}{f}$$

Problem 1372: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{g\,\text{Cos}[e+f x]}\,\text{Sin}[e+f x]^2}{a+b\,\text{Sin}[e+f x]}\,dx$$

Optimal (type 4, 369 leaves, 15 steps):

$$\frac{a^2\sqrt{g}\,\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{g\,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{5/2}\left(-a^2+b^2\right)^{1/4}f}-\frac{a^2\sqrt{g}\,\text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{g\,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{5/2}\left(-a^2+b^2\right)^{1/4}f}-\frac{2\left(g\,\text{Cos}[e+f x]\right)^{3/2}}{3bfg}-\frac{2a\sqrt{g\,\text{Cos}[e+f x]}\,\text{EllipticE}\left[\frac{1}{2}(e+f x),2\right]}{b^2f\sqrt{\text{Cos}[e+f x]}}+\frac{a^3g\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{b^3\left(b-\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f x]}}+\frac{a^3g\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{b^3\left(b+\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f x]}}$$

Result (type 6, 608 leaves):

$$-\frac{2\,\text{Cos}[e+f\,x]\,\sqrt{g\,\text{Cos}[e+f\,x]}}{3\,b\,f}+\frac{1}{b\,f\,\sqrt{\text{Cos}[e+f\,x]}\,\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,2\,a\,\sqrt{g\,\text{Cos}[e+f\,x]}$$

$$\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\,\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[e+f\,x]^{3/2}\,\sqrt{1-\text{Cos}[e+f\,x]^2}\Bigg)\Bigg/$$

$$\left(3\,\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)\Bigg/$$

$$\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\,\text{Sin}[e+f\,x]^2$$

Problem 1373: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{Sin}[e+f\,x]}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 341 leaves, 12 steps):

$$-\frac{a\sqrt{g}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{1/4}f}+\frac{a\sqrt{g}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{1/4}f}+$$

$$\frac{2\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}(e+f\,x),2\right]}{b\,f\sqrt{\text{Cos}[e+f\,x]}}-$$

$$\frac{a^2\,g\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^2\left(b-\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}-$$

$$\frac{a^2\,g\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^2\left(b+\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 575 leaves):

$$-\frac{1}{f\sqrt{\text{Cos}[e+f\,x]}\left(1-\text{Cos}[e+f\,x]^2\right)\left(a+b\,\text{Sin}[e+f\,x]\right)}$$

$$2\sqrt{g\,\text{Cos}[e+f\,x]}\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\Bigg(\Bigg(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]$$

$$\text{Cos}[e+f\,x]^{3/2}\sqrt{1-\text{Cos}[e+f\,x]^2}\Bigg)\Big/$$

$$\Bigg(3\Bigg(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+$$

$$2\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+$$

$$\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\Bigg)$$

$$\text{Cos}[e+f\,x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]-$$

$$\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\Bigg)\Bigg)\Big/$$

$$\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\Bigg)\,\text{Sin}[e+f\,x]^2$$

Problem 1374: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{g\,\text{Cos}[e+f\,x]}\;\text{Csc}[e+f\,x]}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 355 leaves, 16 steps):

$$\frac{\sqrt{g}\;\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f}-\frac{\sqrt{b}\;\sqrt{g}\;\text{ArcTan}\left[\frac{\sqrt{b}\;\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\left(-a^2+b^2\right)^{1/4}f}-\frac{\sqrt{g}\;\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f}+$$
$$\frac{\sqrt{b}\;\sqrt{g}\;\text{ArcTanh}\left[\frac{\sqrt{b}\;\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\left(-a^2+b^2\right)^{1/4}f}-\frac{g\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{\left(b-\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}-$$
$$\frac{g\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{\left(b+\sqrt{-a^2+b^2}\right)f\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 700 leaves):

$$-\frac{1}{f\sqrt{\text{Cos}[e+f\,x]}\left(1-\text{Cos}[e+f\,x]^2\right)\left(b+a\,\text{Csc}[e+f\,x]\right)}$$
$$2\sqrt{g\,\text{Cos}[e+f\,x]}\left(-1+\text{Cos}[e+f\,x]^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\text{Csc}[e+f\,x]$$
$$\left(\left(\left(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\right)\Big/\right.\right.$$
$$\left(3\sqrt{1-\text{Cos}[e+f\,x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.\right.$$
$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$
$$\frac{1}{8\,a\left(a^2-b^2\right)^{1/4}}\left(2\sqrt{2}\;\sqrt{b}\;\text{ArcTan}\left[1-\frac{\sqrt{2}\;\sqrt{b}\;\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.$$
$$2\sqrt{2}\;\sqrt{b}\;\text{ArcTan}\left[1+\frac{\sqrt{2}\;\sqrt{b}\;\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\left(a^2-b^2\right)^{1/4}\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]+$$
$$2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]-2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]-$$
$$\sqrt{2}\;\sqrt{b}\;\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\;\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+$$
$$\left.\left.\sqrt{2}\;\sqrt{b}\;\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\;\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)$$

Problem 1375: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{g \operatorname{Cos}[e+f x]} \operatorname{Csc}[e+f x]^2}{a+b \operatorname{Sin}[e+f x]} \, dx$$

Optimal (type 4, 433 leaves, 19 steps):

$$-\frac{b \sqrt{g} \operatorname{ArcTan}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f}+\frac{b^{3/2} \sqrt{g} \operatorname{ArcTan}\left[\frac{\sqrt{b} \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 \left(-a^2+b^2\right)^{1/4} f}+\frac{b \sqrt{g} \operatorname{ArcTanh}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f}-\frac{b^{3/2} \sqrt{g} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 \left(-a^2+b^2\right)^{1/4} f}-\frac{(g \operatorname{Cos}[e+f x])^{3/2} \operatorname{Csc}[e+f x]}{a f g}-\frac{\sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right]}{a f \sqrt{\operatorname{Cos}[e+f x]}}+\frac{b g \sqrt{\operatorname{Cos}[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a \left(b-\sqrt{-a^2+b^2}\right) f \sqrt{g \operatorname{Cos}[e+f x]}}+\frac{b g \sqrt{\operatorname{Cos}[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a \left(b+\sqrt{-a^2+b^2}\right) f \sqrt{g \operatorname{Cos}[e+f x]}}$$

Result (type 6, 2385 leaves):

$$-\frac{\sqrt{g \operatorname{Cos}[e+f x]} \operatorname{Cot}[e+f x]}{a f}+\frac{1}{4 a f \sqrt{\operatorname{Cos}[e+f x]}} \sqrt{g \operatorname{Cos}[e+f x]} \left(-\frac{1}{6 \sqrt{1-\operatorname{Cos}[e+f x]^2} \, (b+a \operatorname{Csc}[e+f x])} a \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right) \left(-\left(\left(56 a \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \operatorname{Cos}[e+f x]^{3/2}\right) \Big/ \left(\sqrt{1-\operatorname{Cos}[e+f x]^2} \left(7 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]-2 \left(2 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\right)\right) -$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\left(-1+2\,\text{Cos}[e+f\,x]^2\right)\left(b+a\,\text{Csc}[e+f\,x]\right)}$$

$$2\,b\left(-1+\text{Cos}[e+f\,x]^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\text{Cos}[2\,(e+f\,x)]\,\text{Csc}[e+f\,x]$$

$$\left(\left(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/\left(2\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\right.$$

$$\left(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/\left(2\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]}{2\,a}-$$

$$\left(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\right)\Big/$$

$$\left(3\sqrt{1-\text{Cos}[e+f\,x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\left(22\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{7/2}\right)\Big/\left(7\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(11\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\,\Big(2\,b^2\,\text{AppellF1}\Big[\frac{11}{4},\,\frac{1}{2},\,2,\,\frac{15}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)$$

$$\text{AppellF1}\Big[\frac{11}{4},\,\frac{3}{2},\,1,\,\frac{15}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\Big]\Big)\,\text{Cos}[e+f\,x]^2\Big)$$

$$\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\Big)\Big)+\frac{\text{Log}\Big[1-\sqrt{\text{Cos}[e+f\,x]}\Big]}{4\,a}-$$

$$\frac{\text{Log}\Big[1+\sqrt{\text{Cos}[e+f\,x]}\Big]}{4\,a}+\Big(\Big(\left(a^2-b^2\right)^{3/4}\,\left(-2\,a^2+b^2\right)\,\text{Log}\Big[\sqrt{a^2-b^2}-$$

$$\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\Big]\Big)\Big/\left(4\,\sqrt{2}\,a\,b^{3/2}\,\left(-a^2+b^2\right)\right)-$$

$$\Big(\left(a^2-b^2\right)^{3/4}\,\left(-2\,a^2+b^2\right)\,\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+$$

$$b\,\text{Cos}[e+f\,x]\Big]\Big)\Big/\left(4\,\sqrt{2}\,a\,b^{3/2}\,\left(-a^2+b^2\right)\right)\Big)+$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(b+a\,\text{Csc}[e+f\,x]\right)}\,10\,b\,\left(-1+\text{Cos}[e+f\,x]^2\right)$$

$$\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\text{Csc}[e+f\,x]$$

$$\Big(\Big(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\Big]\,\text{Cos}[e+f\,x]^{3/2}\Big)\Big/$$

$$\Big(3\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\Big(7\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\Big]-2\,\Big(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)\,\text{AppellF1}\Big[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\Big]\Big)\,\text{Cos}[e+f\,x]^2\Big)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\Big)+$$

$$\frac{1}{8\,a\,\left(a^2-b^2\right)^{1/4}}\,\Big(2\,\sqrt{2}\,\sqrt{b}\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]-2\,\sqrt{2}\,\sqrt{b}$$

$$\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+4\,\left(a^2-b^2\right)^{1/4}\,\text{ArcTan}\Big[\sqrt{\text{Cos}[e+f\,x]}\Big]+$$

$$2\,\left(a^2-b^2\right)^{1/4}\,\text{Log}\Big[1-\sqrt{\text{Cos}[e+f\,x]}\Big]-2\,\left(a^2-b^2\right)^{1/4}\,\text{Log}\Big[1+\sqrt{\text{Cos}[e+f\,x]}\Big]-$$

$$\sqrt{2}\,\sqrt{b}\,\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\Big]+$$

$$\sqrt{2}\,\sqrt{b}\,\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\Big]\Big)\Big)\Big)$$

Problem 1376: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{g \operatorname{Cos}[e+f x]} \operatorname{Csc}[e+f x]^3}{a+b \operatorname{Sin}[e+f x]} \, dx$$

Optimal (type 4, 544 leaves, 25 steps):

$$\frac{\sqrt{g} \operatorname{ArcTan}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{4 a f}+\frac{b^2 \sqrt{g} \operatorname{ArcTan}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^3 f}-\frac{b^{5/2} \sqrt{g} \operatorname{ArcTan}\left[\frac{\sqrt{b} \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^3 \left(-a^2+b^2\right)^{1/4} f}-\frac{\sqrt{g} \operatorname{ArcTanh}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{4 a f}-\frac{b^2 \sqrt{g} \operatorname{ArcTanh}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^3 f}+\frac{b^{5/2} \sqrt{g} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^3 \left(-a^2+b^2\right)^{1/4} f}+\frac{b \left(g \operatorname{Cos}[e+f x]\right)^{3/2} \operatorname{Csc}[e+f x]}{a^2 f g}-\frac{\left(g \operatorname{Cos}[e+f x]\right)^{3/2} \operatorname{Csc}[e+f x]^2}{2 a f g}+\frac{b \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right]}{a^2 f \sqrt{\operatorname{Cos}[e+f x]}}-\frac{b^2 g \sqrt{\operatorname{Cos}[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a^2 \left(b-\sqrt{-a^2+b^2}\right) f \sqrt{g \operatorname{Cos}[e+f x]}}-\frac{b^2 g \sqrt{\operatorname{Cos}[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a^2 \left(b+\sqrt{-a^2+b^2}\right) f \sqrt{g \operatorname{Cos}[e+f x]}}$$

Result (type 6, 2419 leaves):

$$\frac{\sqrt{g \operatorname{Cos}[e+f x]} \left(\frac{b \operatorname{Cot}[e+f x]}{a^2}-\frac{\operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]}{2 a}\right)}{f}-\frac{1}{4 a^2 f \sqrt{\operatorname{Cos}[e+f x]}} \sqrt{g \operatorname{Cos}[e+f x]} \left(-\frac{1}{4 \sqrt{1-\operatorname{Cos}[e+f x]^2} \left(b+a \operatorname{Csc}[e+f x]\right)} a b \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right) \left(-\left(\left(56 a \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \operatorname{Cos}[e+f x]^{3/2}\right) \Big/ \left(\sqrt{1-\operatorname{Cos}[e+f x]^2} \left(7 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]-2 \left(2 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\right)\right)-\right.$$

$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\left(-1+2\,\text{Cos}[e+f\,x]^2\right)\left(b+a\,\text{Csc}[e+f\,x]\right)}$$

$$2\,b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\text{Cos}[2\,(e+f\,x)]\,\text{Csc}[e+f\,x]$$

$$\left(\left(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/\left(2\,\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\right.$$

$$\left(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/$$

$$\left(2\,\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]}{2\,a}-$$

$$\left(7\,b\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\right)\Big/$$

$$\left(3\,\sqrt{1-\text{Cos}[e+f\,x]^2}\left(7\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\left(22\,b\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{7/2}\right)\Big/\left(7\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(11\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2b^2\,\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+fx]^2\Big)$$
$$\left.\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\right)+\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+fx]}\right]}{4a}-$$
$$\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+fx]}\right]}{4a}+\left(\left(a^2-b^2\right)^{3/4}\left(-2a^2+b^2\right)\text{Log}\left[\sqrt{a^2-b^2}-\right.\right.$$
$$\left.\left.\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+b\,\text{Cos}[e+fx]\right]\right)\Big/\left(4\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)-$$
$$\left(\left(a^2-b^2\right)^{3/4}\left(-2a^2+b^2\right)\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+\right.\right.$$
$$\left.\left.\left.b\,\text{Cos}[e+fx]\right]\right)\Big/\left(4\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)\right)-$$
$$\frac{1}{\left(1-\text{Cos}[e+fx]^2\right)\left(b+a\,\text{Csc}[e+fx]\right)}2\left(-a^2-5b^2\right)\left(-1+\text{Cos}[e+fx]^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[e+fx]^2}\right)$$
$$\text{Csc}[e+fx]$$
$$\left(\left(7b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\text{Cos}[e+fx]^{3/2}\right)\Big/\right.$$
$$\left(3\sqrt{1-\text{Cos}[e+fx]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]-2\left(2b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+fx]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+fx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\right)+$$
$$\frac{1}{8a\left(a^2-b^2\right)^{1/4}}\left(2\sqrt{2}\sqrt{b}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(a^2-b^2\right)^{1/4}}\right]-2\sqrt{2}\sqrt{b}\right.$$
$$\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\left(a^2-b^2\right)^{1/4}\text{ArcTan}\left[\sqrt{\text{Cos}[e+fx]}\right]+$$
$$2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1-\sqrt{\text{Cos}[e+fx]}\right]-2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1+\sqrt{\text{Cos}[e+fx]}\right]-$$
$$\sqrt{2}\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+b\,\text{Cos}[e+fx]\right]+$$
$$\left.\left.\sqrt{2}\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+b\,\text{Cos}[e+fx]\right]\right)\right)\right)$$

Problem 1377: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g\,\text{Cos}[e+f\,x])^{3/2}\,\text{Sin}[e+f\,x]^3}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 621 leaves, 24 steps):

$$\frac{a^3\left(-a^2+b^2\right)^{1/4} g^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{9/2}\,f}+\frac{a^3\left(-a^2+b^2\right)^{1/4} g^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{9/2}\,f}-$$

$$\frac{2\,a^3\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}{b^4\,f}+\frac{2\,a\,(g\,\text{Cos}[e+f\,x])^{5/2}}{5\,b^2\,f\,g}-\frac{2\,a^4\,g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]}{b^5\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{2\,a^2\,g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]}{3\,b^3\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{4\,g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]}{21\,b\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{a^4\left(a^2-b^2\right) g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^5\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right) f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{a^4\left(a^2-b^2\right) g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^5\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right) f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{2\,a^2\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{Sin}[e+f\,x]}{3\,b^3\,f}+$$

$$\frac{4\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{Sin}[e+f\,x]}{21\,b\,f}-\frac{2\,(g\,\text{Cos}[e+f\,x])^{5/2}\,\text{Sin}[e+f\,x]}{7\,b\,f\,g}$$

Result (type 6, 2191 leaves):

$$-\frac{1}{420\,b^3\,f\,\text{Cos}[e+f\,x]^{3/2}}\,(g\,\text{Cos}[e+f\,x])^{3/2}$$

$$\Bigg(-\frac{1}{\sqrt{1-\text{Cos}[e+f\,x]^2}\,(a+b\,\text{Sin}[e+f\,x])}\,2\left(70\,a^3-19\,a\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\Bigg(\Bigg(5\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\Bigg)\Bigg/$$

$$\Bigg(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\Bigg(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\Bigg)\text{Cos}[e+f\,x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]-\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\right)\text{Sin}[e+f x]+$$

$$\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(a+b\,\text{Sin}[e+f x]\right)}\left(210\,a^3-21\,a\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\text{Cos}[2(e+f x)]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2a^2+b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2a^2+b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\sqrt{\text{Cos}[e+f x]}}{b}+\right.$$

$$\left(10\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)-$$

$$\left(36\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{5/2}\right)\Big/\left(5\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+\Bigg(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$

$$\left.\left.(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\, b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+\right.\right.$$

$$\left.\left.\left.i\, b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[e+f x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(a+b\,\text{Sin}[e+f x]\right)}2\left(-98 a^2 b-40 b^3\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(5 b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]$$

$$\left.\sqrt{\text{Cos}[e+f x]}\sqrt{1-\text{Cos}[e+f x]^2}\right)\Big/$$

$$\Bigg(\Bigg(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+2$$

$$\Bigg(2 b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$

$$\Bigg(a\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+\text{Log}\Big[$$

$$\left.\left.\left.\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\right)\text{Sin}[e+f x]^2\Bigg)+\frac{1}{f}$$

$$\left(g\,\text{Cos}[e+f x]\right)^{3/2}\text{Sec}[e+f x]\left(\frac{a\,\text{Cos}[2\left(e+f x\right)]}{5 b^2}+\right.$$

$$\frac{\left(28 a^2+5 b^2\right)\text{Sin}[e+f x]}{42 b^3}-$$

$$\left.\frac{\text{Sin}[3\left(e+f x\right)]}{14 b}\right)$$

Problem 1378: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g \cos[e+f x])^{3/2} \sin[e+f x]^2}{a+b \sin[e+f x]} \, dx$$

Optimal (type 4, 514 leaves, 20 steps):

$$-\frac{a^2 \left(-a^2+b^2\right)^{1/4} g^{3/2} \operatorname{ArcTan}\left[\frac{\sqrt{b} \sqrt{g \cos[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{b^{7/2} f}-\frac{a^2 \left(-a^2+b^2\right)^{1/4} g^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{g \cos[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{b^{7/2} f}+\frac{2 a^2 g \sqrt{g \cos[e+f x]}}{b^3 f}-\frac{2 (g \cos[e+f x])^{5/2}}{5 b f g}+\frac{2 a^3 g^2 \sqrt{\cos[e+f x]} \operatorname{EllipticF}\left[\frac{1}{2} (e+f x), 2\right]}{b^4 f \sqrt{g \cos[e+f x]}}-\frac{2 a g^2 \sqrt{\cos[e+f x]} \operatorname{EllipticF}\left[\frac{1}{2} (e+f x), 2\right]}{3 b^2 f \sqrt{g \cos[e+f x]}}-\frac{a^3 \left(a^2-b^2\right) g^2 \sqrt{\cos[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{b^4 \left(a^2-b \left(b-\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \cos[e+f x]}}-\frac{a^3 \left(a^2-b^2\right) g^2 \sqrt{\cos[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{b^4 \left(a^2-b \left(b+\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \cos[e+f x]}}-\frac{2 a g \sqrt{g \cos[e+f x]} \sin[e+f x]}{3 b^2 f}$$

Result (type 6, 2153 leaves):

$$\frac{(g \cos[e+f x])^{3/2} \sec[e+f x] \left(-\frac{\cos[2 (e+f x)]}{5 b}-\frac{2 a \sin[e+f x]}{3 b^2}\right)}{f}+\frac{1}{60 b^2 f \cos[e+f x]^{3/2}} (g \cos[e+f x])^{3/2} \left(-\frac{1}{\sqrt{1-\cos[e+f x]^2} (a+b \sin[e+f x])} 2 \left(10 a^2+3 b^2\right) \left(a+b \sqrt{1-\cos[e+f x]^2}\right) \left(\left(5 a \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \cos[e+f x]^2, \frac{b^2 \cos[e+f x]^2}{-a^2+b^2}\right] \sqrt{\cos[e+f x]}\right) \middle/ \left(\sqrt{1-\cos[e+f x]^2} \left(5 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \cos[e+f x]^2, \frac{b^2 \cos[e+f x]^2}{-a^2+b^2}\right]-2\right.\right.\right.\right.$$

$$\left(2 b^2 \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(-a^2+b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\Big) \left(a^2+b^2 \left(-1+\text{Cos}[e+f x]^2\right)\right)\Big) - \frac{1}{\left(-a^2+b^2\right)^{3/4}} \left(\frac{1}{8} - \frac{i}{8}\right) \sqrt{b}$$

$$\left(2 \text{ArcTan}\left[1 - \frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right] - 2 \text{ArcTan}\left[1 + \frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right] + \text{Log}\left[\sqrt{-a^2+b^2} - (1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]} + i b \text{Cos}[e+f x]\right] - \text{Log}\left[\sqrt{-a^2+b^2} + (1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]} + i b \text{Cos}[e+f x]\right]\right)\Bigg)$$

$$\text{Sin}[e+f x] + \frac{1}{\sqrt{1-\text{Cos}[e+f x]^2} \left(-1+2 \text{Cos}[e+f x]^2\right) (a+b \text{Sin}[e+f x])}$$

$$\left(30 a^2-3 b^2\right) \left(a+b \sqrt{1-\text{Cos}[e+f x]^2}\right) \text{Cos}[2 (e+f x)]$$

$$\left(\frac{\left(\frac{1}{2} - \frac{i}{2}\right) \left(-2 a^2+b^2\right) \text{ArcTan}\left[1 - \frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2} \left(-a^2+b^2\right)^{3/4}} - \frac{\left(\frac{1}{2} - \frac{i}{2}\right) \left(-2 a^2+b^2\right) \text{ArcTan}\left[1 + \frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2} \left(-a^2+b^2\right)^{3/4}} + \frac{4 \sqrt{\text{Cos}[e+f x]}}{b} + \right.$$

$$\left(10 a \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{\text{Cos}[e+f x]}\right) \Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f x]^2} \left(5 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] - 2 \left(2 b^2 \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(-a^2+b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\text{Cos}[e+f x]^2\right)\right)\right) -$$

$$\left(36 a \left(a^2-b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] \text{Cos}[e+f x]^{5/2}\right) \Big/ \left(5 \sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(9 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] - 2 \left(2 b^2 \text{AppellF1}\left[\frac{9}{4}, \frac{1}{2}, 2, \frac{13}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(-a^2+b^2\right)\right.\right.$$

$$\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\Big)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Big)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$

$$\left.\left.(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+\right.\right.$$

$$\left.\left.\left.i\,b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[e+f x]+$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(a+b\,\text{Sin}[e+f x]\right)}28\,a\,b\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\left(\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\sqrt{\text{Cos}[e+f x]}\sqrt{1-\text{Cos}[e+f x]^2}\right)\Big/$$

$$\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\text{Sin}[e+f x]^2\right)$$

Problem 1379: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\text{Sin}[e+f x]}{a+b\,\text{Sin}[e+f x]}\,dx$$

Optimal (type 4, 426 leaves, 13 steps):

$$\frac{a\left(-a^2+b^2\right)^{1/4} g^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{5/2}\,f}+\frac{a\left(-a^2+b^2\right)^{1/4} g^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{5/2}\,f}-\frac{2\left(3\,a^2-b^2\right) g^2\sqrt{\mathrm{Cos}[e+f\,x]}\;\mathrm{EllipticF}\left[\frac{1}{2}\,(e+f\,x),\,2\right]}{3\,b^3\,f\sqrt{g\,\mathrm{Cos}[e+f\,x]}}+\frac{a^2\left(a^2-b^2\right) g^2\sqrt{\mathrm{Cos}[e+f\,x]}\;\mathrm{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{b^3\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right) f\sqrt{g\,\mathrm{Cos}[e+f\,x]}}+\frac{a^2\left(a^2-b^2\right) g^2\sqrt{\mathrm{Cos}[e+f\,x]}\;\mathrm{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{b^3\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right) f\sqrt{g\,\mathrm{Cos}[e+f\,x]}}-\frac{2\,g\sqrt{g\,\mathrm{Cos}[e+f\,x]}\;\left(3\,a-b\,\mathrm{Sin}[e+f\,x]\right)}{3\,b^2\,f}$$

Result (type 6, 2109 leaves):

$$-\frac{1}{6\,b\,f\,\mathrm{Cos}[e+f\,x]^{3/2}}\left(g\,\mathrm{Cos}[e+f\,x]\right)^{3/2}\Bigg(-\frac{1}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\;\left(a+b\,\mathrm{Sin}[e+f\,x]\right)}\,2\,a\left(a+b\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)$$

$$\Bigg(\bigg(5\,a\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\mathrm{Cos}[e+f\,x]}\bigg)\Big/$$

$$\bigg(\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\;\bigg(5\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\bigg(2\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\mathrm{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\bigg)\mathrm{Cos}[e+f\,x]^2\bigg)\left(a^2+b^2\left(-1+\mathrm{Cos}[e+f\,x]^2\right)\right)\bigg)-$$

$$\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}\,\Bigg(2\,\mathrm{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\mathrm{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\mathrm{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[e+f\,x]}+i\,b\,\mathrm{Cos}[e+f\,x]\right]-\mathrm{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[e+f\,x]}+i\,b\,\mathrm{Cos}[e+f\,x]\right]\Bigg)\Bigg)\,\mathrm{Sin}[e+f\,x]+$$

$$\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\,\left(-1+2\,\text{Cos}[e+f x]^2\right)\,(a+b\,\text{Sin}[e+f x])}$$

$$3\,a\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\text{Cos}[2\,(e+f x)]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\sqrt{\text{Cos}[e+f x]}}{b}+$$

$$\left(10\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$

$$\left.\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)-$$

$$\left(36\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.$$

$$\left.\text{Cos}[e+f x]^{5/2}\right)\Big/\left(5\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)$$

$$\left.\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2\,a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$

$$\left.\left.(1+i)\,\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2\,a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+\right.\right.$$

$$\left.\left.\left.i\,b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[e+f x]+$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\,\left(a+b\,\text{Sin}[e+f x]\right)}\,4\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f x]^2}\right)$$
$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[e+f x]}\,\sqrt{1-\text{Cos}[e+f x]^2}\right)\Big/$$
$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+2\right.\right.$$
$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[e+f x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+\text{Log}\Big[$$
$$\left.\left.\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\Big]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\right)\,\text{Sin}[e+f x]^2\,\Bigg)+\frac{2\,\left(g\,\text{Cos}[e+f x]\right)^{3/2}\,\text{Tan}[e+f x]}{3\,b\,f}$$

Problem 1380: Result unnecessarily involves higher level functions.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\,\text{Csc}[e+f x]}{a+b\,\text{Sin}[e+f x]}\,dx$$

Optimal (type 4, 439 leaves, 21 steps):

$$-\frac{g^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f}+\frac{\left(-a^2+b^2\right)^{1/4}g^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\,\sqrt{b}\,f}-$$

$$\frac{g^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f}+\frac{\left(-a^2+b^2\right)^{1/4}g^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\,\sqrt{b}\,f}-$$

$$\frac{2\,g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]}{b\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{\left(a^2-b^2\right)g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{\left(a^2-b^2\right)g^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 700 leaves) :

$$-\frac{1}{f\,\text{Cos}[e+f\,x]^{3/2}\left(1-\text{Cos}[e+f\,x]^2\right)\left(b+a\,\text{Csc}[e+f\,x]\right)}$$

$$2\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\left(-1+\text{Cos}[e+f\,x]^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\text{Csc}[e+f\,x]$$

$$\left(\left(9\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{5/2}\right)\Big/\right.$$

$$\left(5\sqrt{1-\text{Cos}[e+f\,x]^2}\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-$$

$$\frac{1}{8\,a\,\sqrt{b}}\left(2\sqrt{2}\left(a^2-b^2\right)^{1/4}\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.$$

$$2\sqrt{2}\left(a^2-b^2\right)^{1/4}\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\sqrt{b}\,\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]-$$

$$2\sqrt{b}\,\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]+2\sqrt{b}\,\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]+$$

$$\sqrt{2}\left(a^2-b^2\right)^{1/4}\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]-$$

$$\left.\left.\sqrt{2}\left(a^2-b^2\right)^{1/4}\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)$$

Problem 1381: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{3/2} \operatorname{Csc}[e+f x]^2}{a+b \operatorname{Sin}[e+f x]} \, dx$$

Optimal (type 4, 469 leaves, 24 steps):

$$\frac{b\, g^{3/2} \operatorname{ArcTan}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f} - \frac{\sqrt{b}\, \left(-a^2+b^2\right)^{1/4} g^{3/2} \operatorname{ArcTan}\left[\frac{\sqrt{b}\, \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 f} +$$

$$\frac{b\, g^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f} - \frac{\sqrt{b}\, \left(-a^2+b^2\right)^{1/4} g^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{b}\, \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 f} -$$

$$\frac{g \sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{Csc}[e+f x]}{a f} + \frac{g^2 \sqrt{\operatorname{Cos}[e+f x]}\, \operatorname{EllipticF}\left[\frac{1}{2} (e+f x), 2\right]}{a f \sqrt{g \operatorname{Cos}[e+f x]}} -$$

$$\frac{\left(a^2-b^2\right) g^2 \sqrt{\operatorname{Cos}[e+f x]}\, \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a \left(a^2-b \left(b-\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \operatorname{Cos}[e+f x]}} -$$

$$\frac{\left(a^2-b^2\right) g^2 \sqrt{\operatorname{Cos}[e+f x]}\, \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a \left(a^2-b \left(b+\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \operatorname{Cos}[e+f x]}}$$

Result (type 6, 2381 leaves):

$$-\frac{1}{4 a f \operatorname{Cos}[e+f x]^{3/2}}$$

$$(g \operatorname{Cos}[e+f x])^{3/2} \left(-\frac{1}{\sqrt{1-\operatorname{Cos}[e+f x]^2}\, (b+a \operatorname{Csc}[e+f x])} 4 a \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)\right.$$

$$\left(\left(5 a \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{\operatorname{Cos}[e+f x]}\right)\right/$$

$$\left(\sqrt{1-\operatorname{Cos}[e+f x]^2} \left(5 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[e+f x]^2,\right.\right.\right.$$

$$\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] - 2 \left(2 b^2 \operatorname{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \operatorname{Cos}[e+f x]^2,\right.\right.$$

$$\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \operatorname{Cos}[e+f x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\right) -$$

$$\frac{1}{\left(-a^2+b^2\right)^{3/4}} \left(\frac{1}{8}-\frac{i}{8}\right) \sqrt{b} \left(2 \operatorname{ArcTan}\left[1-\frac{(1+i) \sqrt{b}\, \sqrt{\operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right] -\right.$$

$$2\,\text{ArcTan}\left[1+\frac{(1+\mathrm{i})\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+\mathrm{i})\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+\mathrm{i}\,b\,\text{Cos}[e+f\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+\mathrm{i})\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+\mathrm{i}\,b\,\text{Cos}[e+f\,x]\right]\right)\right)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(-1+2\,\text{Cos}[e+f\,x]^2\right)\,\left(b+a\,\text{Csc}[e+f\,x]\right)}$$
$$b\,\left(-1+\text{Cos}[e+f\,x]^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$
$$\text{Cos}[2\,(e+f\,x)]\,\text{Csc}[e+f\,x]$$
$$\left(\left(\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\,\text{ArcTan}\left[\frac{-\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\right]\right)\right/\right.\right.$$
$$\left.\left(\sqrt{2}\,a\,\sqrt{b}\,\left(-a^2+b^2\right)\right)+$$
$$\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/$$
$$\left(\sqrt{2}\,a\,\sqrt{b}\,\left(-a^2+b^2\right)\right)-\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]}{a}-$$
$$\left(10\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\right)\Big/$$
$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$
$$\left(36\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{5/2}\right)\Big/$$
$$\left(5\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(9\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$
$$\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]}{2\,a}-\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]}{2\,a}-\left(\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\Big)\Big/$$
$$\left(2\sqrt{2}\,a\,\sqrt{b}\,\left(-a^2+b^2\right)\right)+\Bigg(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}$$
$$\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\Big]\Bigg)\Big/\left(2\sqrt{2}\,a\,\sqrt{b}\,\left(-a^2+b^2\right)\right)\Bigg)-$$
$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}\,6\,b\,\left(-1+\text{Cos}[e+f x]^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$
$$\text{Csc}[e+f x]$$
$$\Bigg(\Bigg(5\,b\,\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\sqrt{\text{Cos}[e+f x]}\Bigg)\Big/$$
$$\Bigg(\sqrt{1-\text{Cos}[e+f x]^2}\,\Bigg(5\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,$$
$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,$$
$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,$$
$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)-$$
$$\frac{1}{8\,a\,\left(a^2-b^2\right)^{3/4}}\Bigg(-2\sqrt{2}\,b^{3/2}\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\sqrt{2}\,b^{3/2}$$
$$\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+4\left(a^2-b^2\right)^{3/4}\text{ArcTan}\Big[\sqrt{\text{Cos}[e+f x]}\Big]-$$
$$2\left(a^2-b^2\right)^{3/4}\text{Log}\Big[1-\sqrt{\text{Cos}[e+f x]}\Big]+2\left(a^2-b^2\right)^{3/4}\text{Log}\Big[1+\sqrt{\text{Cos}[e+f x]}\Big]-$$
$$\sqrt{2}\,b^{3/2}\,\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\Big]+$$
$$\sqrt{2}\,b^{3/2}\,\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\Big]\Bigg)\Bigg)\Bigg)-$$
$$\frac{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\text{Csc}[e+f x]\,\text{Sec}[e+f x]}{a\,f}$$

Problem 1382: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\text{Csc}[e+f x]^3}{a+b\,\text{Sin}[e+f x]}\,dx$$

Optimal (type 4, 574 leaves, 30 steps):

$$\frac{g^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{4\,a\,f}-\frac{b^2\,g^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a^3\,f}+$$

$$\frac{b^{3/2}\,\left(-a^2+b^2\right)^{1/4}\,g^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{a^3\,f}+\frac{g^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{4\,a\,f}-$$

$$\frac{b^2\,g^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a^3\,f}+\frac{b^{3/2}\,\left(-a^2+b^2\right)^{1/4}\,g^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{a^3\,f}+$$

$$\frac{b\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{Csc}[e+f\,x]}{a^2\,f}-\frac{g\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{Csc}[e+f\,x]^2}{2\,a\,f}-$$

$$\frac{b\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}\,(e+f\,x),2\right]}{a^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{b\,\left(a^2-b^2\right)\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{a^2\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{b\,\left(a^2-b^2\right)\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{a^2\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 2411 leaves):

$$\frac{1}{4\,a^2\,f\,\text{Cos}[e+f\,x]^{3/2}}$$

$$\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\left(-\frac{1}{\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(b+a\,\text{Csc}[e+f\,x]\right)}\,2\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[e+f\,x]}\right)\right/$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)$$

$$\left.\left.\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\, b\, \text{Cos}[e+f x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\, b\, \text{Cos}[e+f x]\right]\right)\right)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}$$
$$b^2\left(-1+\text{Cos}[e+f x]^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$
$$\text{Cos}[2\,(e+f x)]\,\text{Csc}[e+f x]$$
$$\left(\left(\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\right/\right.\right.$$
$$\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)+$$
$$\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/$$
$$\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)-\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]}{a}-$$
$$\left(10\, b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/$$
$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2 b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$
$$\left(36\, b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{5/2}\right)\Big/$$
$$\left(5\sqrt{1-\text{Cos}[e+f x]^2}\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2 b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$
$$\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]}{2 a}-\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]}{2 a}-\left(\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right)\right.\right.$$
$$\left.\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\Big/$$

$$
\begin{aligned}
&\left(2\sqrt{2}\,a\sqrt{b}\,\left(-a^2+b^2\right)\right)+\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{a^2-b^2}+\right.\right.\\
&\qquad\left.\left.\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\Big/\left(2\sqrt{2}\,a\sqrt{b}\,\left(-a^2+b^2\right)\right)\Bigg)-\\
&\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(b+a\,\text{Csc}[e+f\,x]\right)}\,2\,\left(-a^2+3\,b^2\right)\,\left(-1+\text{Cos}[e+f\,x]^2\right)\\
&\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\\
&\text{Csc}[e+f\,x]\\
&\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\right)\Big/\right.\\
&\quad\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.\\
&\qquad\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.\right.\\
&\qquad\quad\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.\\
&\qquad\quad\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-\\
&\quad\frac{1}{8\,a\,\left(a^2-b^2\right)^{3/4}}\left(-2\sqrt{2}\,b^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\sqrt{2}\,b^{3/2}\right.\\
&\qquad\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\,\left(a^2-b^2\right)^{3/4}\,\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]-\\
&\qquad 2\,\left(a^2-b^2\right)^{3/4}\,\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]+2\,\left(a^2-b^2\right)^{3/4}\,\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]-\\
&\qquad\sqrt{2}\,b^{3/2}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+\\
&\qquad\left.\left.\sqrt{2}\,b^{3/2}\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)\Bigg)+\\
&\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\left(\frac{b\,\text{Csc}[e+f\,x]}{a^2}-\frac{\text{Csc}[e+f\,x]^2}{2\,a}\right)\,\text{Sec}[e+f\,x]}{f}
\end{aligned}
$$

Problem 1383: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\text{Sin}[e+f\,x]^3}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 610 leaves, 24 steps):

$$-\frac{a^3\left(-a^2+b^2\right)^{3/4} g^{5/2} \text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{11/2}\,f}+$$

$$\frac{a^3\left(-a^2+b^2\right)^{3/4} g^{5/2} \text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{11/2}\,f}-\frac{2\,a^3\,g\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{3\,b^4\,f}+$$

$$\frac{2\,a\,\left(g\,\text{Cos}[e+f\,x]\right)^{7/2}}{7\,b^2\,f\,g}-\frac{2\,a^4\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),\,2\right]}{b^5\,f\,\sqrt{\text{Cos}[e+f\,x]}}+$$

$$\frac{6\,a^2\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),\,2\right]}{5\,b^3\,f\,\sqrt{\text{Cos}[e+f\,x]}}+$$

$$\frac{4\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),\,2\right]}{15\,b\,f\,\sqrt{\text{Cos}[e+f\,x]}}+$$

$$\frac{a^4\left(a^2-b^2\right) g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{b^6\left(b-\sqrt{-a^2+b^2}\right) f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{a^4\left(a^2-b^2\right) g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{b^6\left(b+\sqrt{-a^2+b^2}\right) f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{2\,a^2\,g\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\text{Sin}[e+f\,x]}{5\,b^3\,f}+$$

$$\frac{4\,g\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\text{Sin}[e+f\,x]}{45\,b\,f}-\frac{2\,\left(g\,\text{Cos}[e+f\,x]\right)^{7/2}\,\text{Sin}[e+f\,x]}{9\,b\,f\,g}$$

Result (type 6, 1261 leaves):

$$-\frac{1}{15\,b^4\,f\,\text{Cos}[e+f\,x]^{5/2}}$$

$$\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\left(\frac{1}{12\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\left(6\,a^3\,b-2\,a\,b^3\right)\right.$$

$$\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.\right.\right.$$

$$\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[e+f\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\right)$$

$$\mathrm{Cos}[e+f x]^2\Big)\ \left(a^2+b^2\ \left(-1+\mathrm{Cos}[e+f x]^2\right)\right)\Big)\Big) -$$

$$\Bigg(\left(3+3\ i\right)\ \Bigg(2\ \mathrm{ArcTan}\Big[1-\frac{\left(1+i\right)\ \sqrt{b}\ \sqrt{\mathrm{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-2\ \mathrm{ArcTan}\Big[$$

$$1+\frac{\left(1+i\right)\ \sqrt{b}\ \sqrt{\mathrm{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-\mathrm{Log}\Big[\sqrt{-a^2+b^2}-\left(1+i\right)\ \sqrt{b}\ \left(-a^2+b^2\right)^{1/4}$$

$$\sqrt{\mathrm{Cos}[e+f x]}+i\ b\ \mathrm{Cos}[e+f x]\Big]+\mathrm{Log}\Big[\sqrt{-a^2+b^2}+\left(1+i\right)\ \sqrt{b}\ \left(-a^2+b^2\right)^{1/4}$$

$$\sqrt{\mathrm{Cos}[e+f x]}+i\ b\ \mathrm{Cos}[e+f x]\Big]\Bigg)\Bigg)\Big/\ \left(\sqrt{b}\ \left(-a^2+b^2\right)^{1/4}\right)\Bigg)\ \mathrm{Sin}[e+f x]-$$

$$\frac{1}{\left(1-\mathrm{Cos}[e+f x]^2\right)\ \left(a+b\ \mathrm{Sin}[e+f x]\right)}\ 2\ \left(15\ a^4-9\ a^2\ b^2-2\ b^4\right)$$

$$\left(a+b\sqrt{1-\mathrm{Cos}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(7\ b\ \left(a^2-b^2\right)\ \mathrm{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\mathrm{Cos}[e+f x]^2,\frac{b^2\ \mathrm{Cos}[e+f x]^2}{-a^2+b^2}\Big]$$

$$\mathrm{Cos}[e+f x]^{3/2}\sqrt{1-\mathrm{Cos}[e+f x]^2}\Bigg)\Big/$$

$$\Bigg(3\ \Bigg(-7\ \left(a^2-b^2\right)\ \mathrm{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\mathrm{Cos}[e+f x]^2,\frac{b^2\ \mathrm{Cos}[e+f x]^2}{-a^2+b^2}\Big]+2$$

$$\Bigg(2\ b^2\ \mathrm{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\mathrm{Cos}[e+f x]^2,\frac{b^2\ \mathrm{Cos}[e+f x]^2}{-a^2+b^2}\Big]+$$

$$\left(a^2-b^2\right)\ \mathrm{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\mathrm{Cos}[e+f x]^2,\frac{b^2\ \mathrm{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)$$

$$\mathrm{Cos}[e+f x]^2\Bigg)\ \left(a^2+b^2\ \left(-1+\mathrm{Cos}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\ \Bigg(-2\ \mathrm{ArcTan}\Big[1-\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{\mathrm{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\ \mathrm{ArcTan}\Big[1+\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{\mathrm{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+$$

$$\mathrm{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\ \sqrt{b}\ \left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Cos}[e+f x]}+b\ \mathrm{Cos}[e+f x]\Big]-\mathrm{Log}\Big[$$

$$\sqrt{a^2-b^2}+\sqrt{2}\ \sqrt{b}\ \left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Cos}[e+f x]}+b\ \mathrm{Cos}[e+f x]\Big]\Bigg)\Bigg)\Big/$$

$$\left(4\sqrt{2}\ b^{3/2}\ \left(a^2-b^2\right)^{1/4}\right)\Bigg)\ \mathrm{Sin}[e+f x]^2\Bigg)+\frac{1}{f}$$

$$\left(g\ \mathrm{Cos}[e+f x]\right)^{5/2}\ \mathrm{Sec}[e+f x]^2\ \Bigg(-\frac{a\ \left(28\ a^2-9\ b^2\right)\ \mathrm{Cos}[e+f x]}{42\ b^4}+$$

$$\frac{a\ \mathrm{Cos}[3\ (e+f x)]}{14\ b^2}-$$

$$\frac{\left(-18\ a^2+b^2\right)\ \mathrm{Sin}[2\ (e+f x)]}{90\ b^3}-$$

$$\left.\frac{\text{Sin}[4\,(e+f\,x)]}{36\,b}\right)$$

Problem 1384: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g\,\text{Cos}[e+f\,x])^{5/2}\,\text{Sin}[e+f\,x]^2}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 501 leaves, 20 steps):

$$\frac{a^2\,(-a^2+b^2)^{3/4}\,g^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{g}}\right]}{b^{9/2}\,f}-\frac{a^2\,(-a^2+b^2)^{3/4}\,g^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{g}}\right]}{b^{9/2}\,f}+\frac{2\,a^2\,g\,(g\,\text{Cos}[e+f\,x])^{3/2}}{3\,b^3\,f}-\frac{2\,(g\,\text{Cos}[e+f\,x])^{7/2}}{7\,b\,f\,g}+\frac{2\,a^3\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{b^4\,f\,\sqrt{\text{Cos}[e+f\,x]}}-\frac{6\,a\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{5\,b^2\,f\,\sqrt{\text{Cos}[e+f\,x]}}-\frac{a^3\,(a^2-b^2)\,g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{b^5\,\left(b-\sqrt{-a^2+b^2}\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{a^3\,(a^2-b^2)\,g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{b^5\,\left(b+\sqrt{-a^2+b^2}\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{2\,a\,g\,(g\,\text{Cos}[e+f\,x])^{3/2}\,\text{Sin}[e+f\,x]}{5\,b^2\,f}$$

Result (type 6, 1218 leaves):

$$\frac{1}{5\,b^3\,f\,\text{Cos}[e+f\,x]^{5/2}}$$

$$a\,(g\,\text{Cos}[e+f\,x])^{5/2}\left(\frac{1}{6\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,(a+b\,\text{Sin}[e+f\,x])}\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[e+f\,x]^{3/2}\right)\right/\right.\right.$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2\,\Big(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Big)\,\text{Cos}[e+f x]^2\Big)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\Big)\Big)-$$

$$\Big(\left(3+3\,\mathrm{i}\right)\,\Big(2\,\text{ArcTan}\Big[1-\frac{\left(1+\mathrm{i}\right)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-2\,\text{ArcTan}\Big[1+\frac{\left(1+\mathrm{i}\right)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-\text{Log}\Big[\sqrt{-a^2+b^2}-\left(1+\mathrm{i}\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+\mathrm{i}\,b\,\text{Cos}[e+f x]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+\left(1+\mathrm{i}\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+\mathrm{i}\,b\,\text{Cos}[e+f x]\Big]\Big)\Big)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\Big)\,\text{Sin}[e+f x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\,\left(a+b\,\text{Sin}[e+f x]\right)}\,2\,\left(5\,a^2-3\,b^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\Big(\Big(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\,\text{Cos}[e+f x]^{3/2}\,\sqrt{1-\text{Cos}[e+f x]^2}\Big)\Big/$$

$$\Big(3\,\Big(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+2\,\Big(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Big)\,\text{Cos}[e+f x]^2\Big)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\Big)+$$

$$\Big(a\,\Big(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\Big]-\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\Big]\Big)\Big)\Big/$$

$$\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\Big)\,\text{Sin}[e+f x]^2\Big)+\frac{1}{f}$$

$$\left(g\,\text{Cos}[e+f x]\right)^{5/2}\,\text{Sec}[e+f x]^2\,\Big(-\frac{\left(-28\,a^2+9\,b^2\right)\,\text{Cos}[e+f x]}{42\,b^3}-$$

$$\frac{\text{Cos}[3\,\left(e+f x\right)]}{14\,b}-$$

$$\left.\frac{a\,\text{Sin}\left[2\,\left(e+f\,x\right)\right]}{5\,b^2}\right)$$

Problem 1385: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\text{Sin}[e+f\,x]}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 413 leaves, 13 steps):

$$-\frac{a\,\left(-a^2+b^2\right)^{3/4}\,g^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{b^{7/2}\,f}+\frac{a\,\left(-a^2+b^2\right)^{3/4}\,g^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{b^{7/2}\,f}-\frac{2\,\left(5\,a^2-3\,b^2\right)\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,\left(e+f\,x\right),2\right]}{5\,b^3\,f\,\sqrt{\text{Cos}[e+f\,x]}}+\frac{a^2\,\left(a^2-b^2\right)\,g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(e+f\,x\right),2\right]}{b^4\,\left(b-\sqrt{-a^2+b^2}\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{a^2\,\left(a^2-b^2\right)\,g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(e+f\,x\right),2\right]}{b^4\,\left(b+\sqrt{-a^2+b^2}\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{2\,g\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\left(5\,a-3\,b\,\text{Sin}[e+f\,x]\right)}{15\,b^2\,f}$$

Result (type 6, 1191 leaves):

$$-\frac{1}{5\,b^2\,f\,\text{Cos}[e+f\,x]^{5/2}}\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\left(\frac{1}{6\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$
$$\left.\text{Cos}[e+f\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+\right.\right.\right.$$
$$f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\Big]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-$$

$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\Bigg/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\text{Sin}[e+f\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,(a+b\,\text{Sin}[e+f\,x])}\,2\,\left(5\,a^2-3\,b^2\right)\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Bigg/\right.$$

$$\left(3\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]-\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\Bigg/\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\right)\text{Sin}[e+f\,x]^2+$$

$$\frac{(g\,\text{Cos}[e+f\,x])^{5/2}\,\text{Sec}[e+f\,x]^2\left(-\frac{2\,a\,\text{Cos}[e+f\,x]}{3\,b^2}+\frac{\text{Sin}[2\,(e+f\,x)]}{5\,b}\right)}{f}$$

Problem 1386: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(g\,\text{Cos}[e+f\,x])^{5/2}\,\text{Csc}[e+f\,x]}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 425 leaves, 21 steps):

$$\frac{g^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f}-\frac{\left(-a^2+b^2\right)^{3/4}g^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\,b^{3/2}\,f}-\frac{g^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f}+$$
$$\frac{\left(-a^2+b^2\right)^{3/4}g^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\,b^{3/2}\,f}-\frac{2\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{b\,f\,\sqrt{\text{Cos}[e+f\,x]}}+$$
$$\frac{\left(a^2-b^2\right)g^3\,\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^2\left(b-\sqrt{-a^2+b^2}\right)f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$
$$\frac{\left(a^2-b^2\right)g^3\,\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^2\left(b+\sqrt{-a^2+b^2}\right)f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 1818 leaves):

$$\frac{1}{2\,f\,\text{Cos}[e+f\,x]^{5/2}}$$
$$\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\left(-\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\left(-1+2\,\text{Cos}[e+f\,x]^2\right)\left(b+a\,\text{Csc}[e+f\,x]\right)}\right.$$
$$2\left(-1+\text{Cos}[e+f\,x]^2\right)\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\text{Cos}\left[2\left(e+f\,x\right)\right]\text{Csc}[e+f\,x]$$
$$\left(\left(\left(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\right/\right.\right.$$
$$\left.\left(2\,\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+$$
$$\left(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Bigg/$$
$$\left(2\,\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]}{2\,a}-$$
$$\left(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\right)\Bigg/$$
$$\left(3\,\sqrt{1-\text{Cos}[e+f\,x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$
$$\left(22\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{7/2}\right)\Bigg/$$

$$\left(7\sqrt{1-\text{Cos}[e+f x]^2}\left(11\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2 b^2\,\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$

$$\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]}{4 a}-\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]}{4 a}+\left(\left(a^2-b^2\right)^{3/4}\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\Big/\left(4\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)-\left(\left(a^2-b^2\right)^{3/4}\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\Big/\left(4\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}2\left(-1+\text{Cos}[e+f x]^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\text{Csc}[e+f x]$$

$$\Bigg(\left(7 b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{3/2}\right)\Big/$$

$$\left(3\sqrt{1-\text{Cos}[e+f x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2 b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$

$$\frac{1}{8 a\left(a^2-b^2\right)^{1/4}}\Bigg(2\sqrt{2}\sqrt{b}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-2\sqrt{2}\sqrt{b}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\left(a^2-b^2\right)^{1/4}\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]+$$

$$2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]-2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]-\sqrt{2}\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+\sqrt{2}\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\Bigg)\Bigg)\Bigg)$$

Problem 1387: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{5/2} \operatorname{Csc}[e+f x]^2}{a+b \operatorname{Sin}[e+f x]} \, dx$$

Optimal (type 4, 462 leaves, 24 steps):

$$-\frac{b g^{5/2} \operatorname{ArcTan}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f}+\frac{\left(-a^2+b^2\right)^{3/4} g^{5/2} \operatorname{ArcTan}\left[\frac{\sqrt{b} \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 \sqrt{b} f}+$$
$$\frac{b g^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f}-\frac{\left(-a^2+b^2\right)^{3/4} g^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{g \operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 \sqrt{b} f}-$$
$$\frac{g (g \operatorname{Cos}[e+f x])^{3/2} \operatorname{Csc}[e+f x]}{a f}-\frac{g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right]}{a f \sqrt{\operatorname{Cos}[e+f x]}}-$$
$$\frac{\left(a^2-b^2\right) g^3 \sqrt{\operatorname{Cos}[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a b \left(b-\sqrt{-a^2+b^2}\right) f \sqrt{g \operatorname{Cos}[e+f x]}}-$$
$$\frac{\left(a^2-b^2\right) g^3 \sqrt{\operatorname{Cos}[e+f x]} \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{a b \left(b+\sqrt{-a^2+b^2}\right) f \sqrt{g \operatorname{Cos}[e+f x]}}$$

Result (type 6, 2391 leaves):

$$\frac{1}{4 a f \operatorname{Cos}[e+f x]^{5/2}}$$
$$(g \operatorname{Cos}[e+f x])^{5/2} \left(-\frac{1}{2 \sqrt{1-\operatorname{Cos}[e+f x]^2} \, (b+a \operatorname{Csc}[e+f x])} a \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)\right.$$
$$\left(-\left(\left(56 a \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.\right.\right.$$
$$\left.\operatorname{Cos}[e+f x]^{3/2}\right) \Big/ \left(\sqrt{1-\operatorname{Cos}[e+f x]^2} \left(7 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+\right.\right.\right.$$
$$\left.f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]-2 \left(2 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2,\right.\right.$$
$$\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2,\right.$$
$$\left.\left.\left.\left.\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\right)\right)-$$
$$\left(\left(3+3 i\right) \left(2 \operatorname{ArcTan}\left[1-\frac{(1+i) \sqrt{b} \sqrt{\operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2 \operatorname{ArcTan}\left[\right.\right.\right.$$

$$1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{(-a^2+b^2)^{1/4}}\Big]-\text{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\,(-a^2+b^2)^{1/4}$$

$$\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}$$

$$(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\Big]\Bigg)\Bigg)\Bigg/\left(\sqrt{b}\,(-a^2+b^2)^{1/4}\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+fx]^2\right)\left(-1+2\,\text{Cos}[e+fx]^2\right)\left(b+a\,\text{Csc}[e+fx]\right)}$$

$$2\,b\left(-1+\text{Cos}[e+fx]^2\right)\left(a+b\sqrt{1-\text{Cos}[e+fx]^2}\right)\text{Cos}[2\,(e+fx)]\,\text{Csc}[e+fx]$$

$$\Bigg(\Bigg(\left((a^2-b^2)^{3/4}(-2a^2+b^2)\,\text{ArcTan}\Big[\frac{-\sqrt{2}\,(a^2-b^2)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\sqrt{2}\,(a^2-b^2)^{1/4}}\Big]\right)\Bigg/$$

$$\left(2\sqrt{2}\,a\,b^{3/2}(-a^2+b^2)\right)+$$

$$\left((a^2-b^2)^{3/4}(-2a^2+b^2)\,\text{ArcTan}\Big[\frac{\sqrt{2}\,(a^2-b^2)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\sqrt{2}\,(a^2-b^2)^{1/4}}\Big]\right)\Bigg/$$

$$\left(2\sqrt{2}\,a\,b^{3/2}(-a^2+b^2)\right)+\frac{\text{ArcTan}\Big[\sqrt{\text{Cos}[e+fx]}\Big]}{2\,a}-$$

$$\left(7\,b\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]\text{Cos}[e+fx]^{3/2}\right)\Bigg/$$

$$\Bigg(3\sqrt{1-\text{Cos}[e+fx]^2}\,\Bigg(7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,$$

$$\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]-2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+fx]^2,$$

$$\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]+(-a^2+b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,$$

$$\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]\Bigg)\text{Cos}[e+fx]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\Bigg)+$$

$$\Bigg(22\,b\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]$$

$$\text{Cos}[e+fx]^{7/2}\Bigg)\Bigg/\Bigg(7\sqrt{1-\text{Cos}[e+fx]^2}$$

$$\Bigg(11\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]-$$

$$2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]+(-a^2+b^2)$$

$$\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\Big]\Bigg)\text{Cos}[e+fx]^2\Bigg)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Big)\Bigg)+\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]}{4 a}-$$

$$\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]}{4 a}+\Bigg(\Big(\left(a^2-b^2\right)^{3/4}\left(-2 a^2+b^2\right)\text{Log}\Big[\sqrt{a^2-b^2}-$$

$$\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\Big]\Big)\Big/\left(4\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)-$$

$$\Big(\left(a^2-b^2\right)^{3/4}\left(-2 a^2+b^2\right)\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+$$

$$b\,\text{Cos}[e+f x]\Big]\Big)\Big/\left(4\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)\Bigg)+$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}10\,b\left(-1+\text{Cos}[e+f x]^2\right)$$

$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\text{Csc}[e+f x]$$

$$\Bigg(\Bigg(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{3/2}\Bigg)\Bigg/$$

$$\Bigg(3\sqrt{1-\text{Cos}[e+f x]^2}\,\Bigg(7\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+$$

$$\frac{1}{8\,a\left(a^2-b^2\right)^{1/4}}\Bigg(2\sqrt{2}\sqrt{b}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-2\sqrt{2}\sqrt{b}$$

$$\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\left(a^2-b^2\right)^{1/4}\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]+$$

$$2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]-2\left(a^2-b^2\right)^{1/4}\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]-$$

$$\sqrt{2}\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+$$

$$\sqrt{2}\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\Bigg)\Bigg)\Bigg)-$$

$$\frac{\left(g\,\text{Cos}[e+f x]\right)^{5/2}\text{Csc}[e+f x]\,\text{Sec}[e+f x]}{a\,f}$$

Problem 1388: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g\,\text{Cos}[e+f\,x])^{5/2}\,\text{Csc}[e+f\,x]^3}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 557 leaves, 30 steps):

$$-\frac{3\,g^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{4\,a\,f}+\frac{b^2\,g^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a^3\,f}-$$
$$\frac{\sqrt{b}\,\left(-a^2+b^2\right)^{3/4}\,g^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{a^3\,f}+\frac{3\,g^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{4\,a\,f}-$$
$$\frac{b^2\,g^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a^3\,f}+\frac{\sqrt{b}\,\left(-a^2+b^2\right)^{3/4}\,g^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{a^3\,f}+$$
$$\frac{b\,g\,(g\,\text{Cos}[e+f\,x])^{3/2}\,\text{Csc}[e+f\,x]}{a^2\,f}-\frac{g\,(g\,\text{Cos}[e+f\,x])^{3/2}\,\text{Csc}[e+f\,x]^2}{2\,a\,f}+$$
$$\frac{b\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),\,2\right]}{a^2\,f\,\sqrt{\text{Cos}[e+f\,x]}}+$$
$$\frac{\left(a^2-b^2\right)\,g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{a^2\,\left(b-\sqrt{-a^2+b^2}\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$
$$\frac{\left(a^2-b^2\right)\,g^3\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{a^2\,\left(b+\sqrt{-a^2+b^2}\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 2427 leaves):

$$-\frac{1}{4\,a^2\,f\,\text{Cos}[e+f\,x]^{5/2}}$$
$$(g\,\text{Cos}[e+f\,x])^{5/2}\,\left(-\frac{1}{4\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(b+a\,\text{Csc}[e+f\,x]\right)}\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$
$$\left.\text{Cos}[e+f\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$
$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\right)$$

$$\text{Cos}[e+f x]^2\Big)\,\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Big)\Big)-$$

$$\Bigg(\left(3+3\,i\right)\Bigg(2\,\text{ArcTan}\Big[1-\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-2\,\text{ArcTan}\Big[$$

$$1+\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-\text{Log}\Big[\sqrt{-a^2+b^2}-\left(1+i\right)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}$$

$$\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+\left(1+i\right)\sqrt{b}$$

$$\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big]\Bigg)\Bigg)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}$$

$$2$$

$$b^2$$

$$\left(-1+\text{Cos}[e+f x]^2\right)$$

$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\text{Cos}\left[2\,\left(e+f x\right)\right]\,\text{Csc}[e+f x]$$

$$\Bigg(\Bigg(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\Big[\frac{-\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\Big]\Bigg)\Big/$$

$$\left(2\,\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+$$

$$\Bigg(\left(a^2-b^2\right)^{3/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\Big[\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\Big]\Bigg)\Big/$$

$$\left(2\,\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]}{2\,a}-$$

$$\Bigg(7\,b\,\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\,\text{Cos}[e+f x]^{3/2}\Bigg)\Big/$$

$$\Bigg(3\,\sqrt{1-\text{Cos}[e+f x]^2}\,\Bigg(7\,\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[e+f x]^2\Bigg)\,\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(22\,b\,\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]$$

$$\text{Cos}[e+f x]^{7/2}\Bigg)\Big/\Bigg(7\,\sqrt{1-\text{Cos}[e+f x]^2}$$

$$\Bigg(11\,\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2$$

$$\left(2 b^2 \text{AppellF1}\left[\frac{11}{4}, \frac{1}{2}, 2, \frac{15}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \text{AppellF1}\left[\frac{11}{4}, \frac{3}{2}, 1, \frac{15}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\Big)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Big)+\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]}{4 a}-$$

$$\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]}{4 a}+\left(\left(a^2-b^2\right)^{3/4}\left(-2 a^2+b^2\right) \text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+b \text{Cos}[e+f x]\right]\right) \Big/ \left(4 \sqrt{2}\, a\, b^{3/2}\left(-a^2+b^2\right)\right)-$$

$$\left(\left(a^2-b^2\right)^{3/4}\left(-2 a^2+b^2\right) \text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+b \text{Cos}[e+f x]\right]\right) \Big/ \left(4 \sqrt{2}\, a\, b^{3/2}\left(-a^2+b^2\right)\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(b+a \text{Csc}[e+f x]\right)} 2\left(3 a^2-5 b^2\right)\left(-1+\text{Cos}[e+f x]^2\right)\left(a+b \sqrt{1-\text{Cos}[e+f x]^2}\right) \text{Csc}[e+f x]$$

$$\Bigg(\left(7 b\left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] \text{Cos}[e+f x]^{3/2}\right) \Big/$$

$$\Bigg(3 \sqrt{1-\text{Cos}[e+f x]^2}\, \Bigg(7\left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\Bigg(2 b^2 \text{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \text{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\Bigg) \text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+$$

$$\frac{1}{8 a\left(a^2-b^2\right)^{1/4}}\Bigg(2 \sqrt{2} \sqrt{b} \text{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-2 \sqrt{2} \sqrt{b} \text{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\left(a^2-b^2\right)^{1/4} \text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]+$$

$$2\left(a^2-b^2\right)^{1/4} \text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]-2\left(a^2-b^2\right)^{1/4} \text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]-$$

$$\sqrt{2} \sqrt{b} \text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2} \sqrt{b}\left(a^2-b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+b \text{Cos}[e+f x]\right]+$$

$$\sqrt{2} \sqrt{b} \text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2} \sqrt{b}\left(a^2-b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+b \text{Cos}[e+f x]\right]\Bigg)\Bigg)\Bigg)+$$

$$\frac{\left(g \text{Cos}[e+f x]\right)^{5/2}\left(\frac{b \text{Cot}[e+f x]}{a^2}-\frac{\text{Cot}[e+f x] \text{Csc}[e+f x]}{2 a}\right) \text{Sec}[e+f x]^2}{f}$$

Problem 1389: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[e+f x]^4}{\sqrt{g \,\text{Cos}[e+f x]}\,\left(a+b \,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 509 leaves, 23 steps):

$$-\frac{a^4 \,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g \,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{7/2}\left(-a^2+b^2\right)^{3/4} f \sqrt{g}}-\frac{a^4 \,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g \,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{7/2}\left(-a^2+b^2\right)^{3/4} f \sqrt{g}}-$$
$$\frac{2 a^2 \sqrt{g \,\text{Cos}[e+f x]}}{b^3 f g}-\frac{2 \sqrt{g \,\text{Cos}[e+f x]}}{b f g}+\frac{2 \left(g \,\text{Cos}[e+f x]\right)^{5/2}}{5 b f g^3}-$$
$$\frac{2 a^3 \sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f x),2\right]}{b^4 f \sqrt{g \,\text{Cos}[e+f x]}}-\frac{4 a \sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f x),2\right]}{3 b^2 f \sqrt{g \,\text{Cos}[e+f x]}}+$$
$$\frac{a^5 \sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{b^4 \left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \,\text{Cos}[e+f x]}}+$$
$$\frac{a^5 \sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{b^4 \left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \,\text{Cos}[e+f x]}}+\frac{2 a \sqrt{g \,\text{Cos}[e+f x]}\,\text{Sin}[e+f x]}{3 b^2 f g}$$

Result (type 6, 2153 leaves):

$$\frac{\text{Cos}[e+f x]\left(\frac{\text{Cos}[2(e+f x)]}{5 b}+\frac{2 a \,\text{Sin}[e+f x]}{3 b^2}\right)}{f \sqrt{g \,\text{Cos}[e+f x]}}-$$
$$\frac{1}{60 b^2 f \sqrt{g \,\text{Cos}[e+f x]}}\sqrt{\text{Cos}[e+f x]}\left(-\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\left(a+b \,\text{Sin}[e+f x]\right)}\right.$$
$$2\left(10 a^2-27 b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\left(\left(5 a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$
$$\left.\left.\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$
$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2 b^2 \,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\Bigg(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]-$$

$$\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\Bigg)\Bigg)$$

$$\text{Sin}[e+f x]+\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(a+b\,\text{Sin}[e+f x]\right)}$$

$$\left(30\,a^2+27\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\text{Cos}\left[2\,(e+f x)\right]$$

$$\Bigg(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\sqrt{\text{Cos}[e+f x]}}{b}+$$

$$\left(10\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/$$

$$\Bigg(\sqrt{1-\text{Cos}[e+f x]^2}\Bigg(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\Bigg)\text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)-$$

$$\Bigg(36\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]$$

$$\text{Cos}[e+f x]^{5/2}\Bigg)\Big/\Bigg(5\sqrt{1-\text{Cos}[e+f x]^2}$$

$$\Bigg(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-$$

$$2\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)$$

$$\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\Bigg)\text{Cos}[e+f x]^2\Bigg)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+\Bigg(\Bigg(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2\,a^2+b^2\right)\text{Log}\Big[\sqrt{-a^2+b^2}-$$

$$(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\Big]\Big)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+\right.\right.\right.$$

$$\left.\left.i\,b\,\text{Cos}[e+fx]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\Bigg)\text{Sin}[e+fx]+$$

$$\frac{1}{\left(1-\text{Cos}[e+fx]^2\right)\left(a+b\,\text{Sin}[e+fx]\right)}28\,a\,b\left(a+b\sqrt{1-\text{Cos}[e+fx]^2}\right)$$

$$\left(\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\sqrt{\text{Cos}[e+fx]}\sqrt{1-\text{Cos}[e+fx]^2}\right)\Big/$$

$$\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+fx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+b\,\text{Cos}[e+fx]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+b\,\text{Cos}[e+fx]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\text{Sin}[e+fx]^2\right)$$

Problem 1390: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sin}[e+fx]^3}{\sqrt{g\,\text{Cos}[e+fx]}\left(a+b\,\text{Sin}[e+fx]\right)}\,dx$$

Optimal (type 4, 457 leaves, 19 steps):

$$\frac{a^3 \text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g \text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{b^{5/2} \left(-a^2+b^2\right)^{3/4} f \sqrt{g}}+\frac{a^3 \text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g \text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{b^{5/2} \left(-a^2+b^2\right)^{3/4} f \sqrt{g}}+\frac{2 a \sqrt{g \text{Cos}[e+f x]}}{b^2 f g}+$$

$$\frac{2 a^2 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticF}\left[\frac{1}{2} (e+f x), 2\right]}{b^3 f \sqrt{g \text{Cos}[e+f x]}}+\frac{4 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticF}\left[\frac{1}{2} (e+f x), 2\right]}{3 b f \sqrt{g \text{Cos}[e+f x]}}-$$

$$\frac{a^4 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{b^3 \left(a^2-b \left(b-\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \text{Cos}[e+f x]}}-$$

$$\frac{a^4 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (e+f x), 2\right]}{b^3 \left(a^2-b \left(b+\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \text{Cos}[e+f x]}}-\frac{2 \sqrt{g \text{Cos}[e+f x]}\ \text{Sin}[e+f x]}{3 b f g}$$

Result (type 6, 2115 leaves):

$$-\frac{2 \text{Cos}[e+f x] \text{Sin}[e+f x]}{3 b f \sqrt{g \text{Cos}[e+f x]}}+$$

$$\frac{1}{6 b f \sqrt{g \text{Cos}[e+f x]}} \sqrt{\text{Cos}[e+f x]} \left(-\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2} \left(a+b \text{Sin}[e+f x]\right)}\right.$$

$$2 a \left(a+b \sqrt{1-\text{Cos}[e+f x]^2}\right) \left(\left(5 a \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4},\right.\right.\right.$$

$$\left.\left.\text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{\text{Cos}[e+f x]}\right) \Big/ \left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(5 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2 b^2 \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\right)$$

$$\left.\left.\left(a^2+b^2 \left(-1+\text{Cos}[e+f x]^2\right)\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}} \left(\frac{1}{8}-\frac{i}{8}\right) \sqrt{b}$$

$$\left(2 \text{ArcTan}\left[1-\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2 \text{ArcTan}\left[1+\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+i b \text{Cos}[e+f x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+i b \text{Cos}[e+f x]\right]\right)\right)$$

$$\text{Sin}[e+f x]+\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2} \left(-1+2 \text{Cos}[e+f x]^2\right) \left(a+b \text{Sin}[e+f x]\right)}$$

$$3\,a\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\,\text{Cos}\left[2\,\left(e+f\,x\right)\right]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,\left(-2\,a^2+b^2\right)\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\,\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,\left(-2\,a^2+b^2\right)\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\,\left(-a^2+b^2\right)^{3/4}}+\frac{4\,\sqrt{\text{Cos}[e+f\,x]}}{b}+$$

$$\left(10\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[e+f\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-$$

$$\left(36\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.$$

$$\left.\text{Cos}[e+f\,x]^{5/2}\right)\Big/\left(5\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(9\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2},\,2,\,\frac{13}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{9}{4},\,\frac{3}{2},\,1,\,\frac{13}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)$$

$$\left.\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{-a^2+b^2}\right.\right.-$$

$$\left.\left.\left(1+i\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\Big/\left(b^{3/2}\,\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+i\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+\right.\right.$$

$$\left.\left.\left.i\,b\,\text{Cos}[e+f\,x]\right]\right)\Big/\left(b^{3/2}\,\left(-a^2+b^2\right)^{3/4}\right)\right)\,\text{Sin}[e+f\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,8\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Big/$$
$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\right)\,\text{Sin}[e+f\,x]^2$$

Problem 1391: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sin}[e+f\,x]^2}{\sqrt{g\,\text{Cos}[e+f\,x]}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 380 leaves, 15 steps):

$$-\frac{a^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{g}}\right]}{b^{3/2}\,(-a^2+b^2)^{3/4}\,f\,\sqrt{g}}-\frac{a^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{g}}\right]}{b^{3/2}\,(-a^2+b^2)^{3/4}\,f\,\sqrt{g}}-$$

$$\frac{2\,\sqrt{g\,\text{Cos}[e+f\,x]}}{b\,f\,g}-\frac{2\,a\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticF}\left[\frac{1}{2}\,(e+f\,x),\,2\right]}{b^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{a^3\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{b^2\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{a^3\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f\,x),\,2\right]}{b^2\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 1526 leaves):

$$\frac{1}{2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

$$\sqrt{\text{Cos}[e+f\,x]}\,\left(-\frac{1}{\sqrt{1-\text{Cos}[e+f\,x]^2}\,\,(a+b\,\text{Sin}[e+f\,x])}\,2\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(\left(5\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[e+f\,x]}\right)\right/$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-$$

$$\frac{1}{(-a^2+b^2)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}\,\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}}\right]-\right.$$

$$2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}}\right]+$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\right)$$

$$\text{Sin}[e+f\,x]-\frac{1}{\sqrt{1-\text{Cos}[e+f\,x]^2}\,\,\left(-1+2\,\text{Cos}[e+f\,x]^2\right)\,\,(a+b\,\text{Sin}[e+f\,x])}$$

$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\text{Cos}\left[2\left(e+f x\right)\right]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2a^2+b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2a^2+b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\sqrt{\text{Cos}[e+f x]}}{b}+$$

$$\left(10a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-\right.\right.$$

$$2\left(2b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)$$

$$\left.\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)-\left(36a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\right.\right.$$

$$\left.\left.\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{5/2}\right)\Big/\left(5\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)$$

$$\left.\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$

$$\left.\left.(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+\right.\right.$$

$$\left.\left.\left.i\,b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[e+f x]$$

Problem 1392: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Sin}[e+f x]}{\sqrt{g\,\text{Cos}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 352 leaves, 12 steps):

$$\frac{a\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{\sqrt{b}\,\left(-a^2+b^2\right)^{3/4}f\,\sqrt{g}}+\frac{a\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{\sqrt{b}\,\left(-a^2+b^2\right)^{3/4}f\,\sqrt{g}}+\frac{2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]}{b\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{a^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b\left(a^2-b^2+b\sqrt{-a^2+b^2}\right)f\,\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{a^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 573 leaves):

$$-\frac{1}{f\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\left(1-\text{Cos}[e+f\,x]^2\right)\left(a+b\,\text{Sin}[e+f\,x]\right)}2\sqrt{\text{Cos}[e+f\,x]}\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\left(\left(\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Big/\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)\Big/\left(4\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\right)\text{Sin}[e+f\,x]^2$$

Problem 1393: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Csc}[e+f x]}{\sqrt{g \text{Cos}[e+f x]}\,(a+b \text{Sin}[e+f x])}\,dx$$

Optimal (type 4, 369 leaves, 16 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{g \text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a f \sqrt{g}}+\frac{b^{3/2} \text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g \text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{a\,(-a^2+b^2)^{3/4} f \sqrt{g}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{g \text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a f \sqrt{g}}+$$
$$\frac{b^{3/2} \text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g \text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{a\,(-a^2+b^2)^{3/4} f \sqrt{g}}-\frac{b \sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2}(e+f x), 2\right]}{\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \text{Cos}[e+f x]}}-$$
$$\frac{b \sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2}(e+f x), 2\right]}{\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \text{Cos}[e+f x]}}$$

Result (type 6, 698 leaves):

$$-\frac{1}{f \sqrt{g \text{Cos}[e+f x]}\,(1-\text{Cos}[e+f x]^2)\,(b+a \text{Csc}[e+f x])}$$
$$2 \sqrt{\text{Cos}[e+f x]}\,(-1+\text{Cos}[e+f x]^2)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right) \text{Csc}[e+f x]$$
$$\left(\left(5 b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{\text{Cos}[e+f x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]-\right.\right.$$
$$2\left(2 b^2 \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.(-a^2+b^2)\,\text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[e+f x]^2\right)\left(a^2+b^2\,(-1+\text{Cos}[e+f x]^2)\right)\right)-$$
$$\frac{1}{8 a\,(a^2-b^2)^{3/4}}\left(-2\sqrt{2}\, b^{3/2} \text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{(a^2-b^2)^{1/4}}\right]+\right.$$
$$2\sqrt{2}\, b^{3/2} \text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{(a^2-b^2)^{1/4}}\right]+4\,(a^2-b^2)^{3/4} \text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]-$$
$$2\,(a^2-b^2)^{3/4} \text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]+2\,(a^2-b^2)^{3/4} \text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]-$$
$$\sqrt{2}\, b^{3/2} \text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[e+f x]}+b \text{Cos}[e+f x]\right]+$$
$$\left.\left.\sqrt{2}\, b^{3/2} \text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[e+f x]}+b \text{Cos}[e+f x]\right]\right)\right)$$

Problem 1394: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]^2}{\sqrt{g \,\text{Cos}[e+f x]}\,\left(a+b \,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 448 leaves, 19 steps):

$$\frac{b \,\text{ArcTan}\left[\frac{\sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f \sqrt{g}}-\frac{b^{5/2} \,\text{ArcTan}\left[\frac{\sqrt{b} \sqrt{g \,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 \left(-a^2+b^2\right)^{3/4} f \sqrt{g}}+$$
$$\frac{b \,\text{ArcTanh}\left[\frac{\sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f \sqrt{g}}-\frac{b^{5/2} \,\text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{g \,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{a^2 \left(-a^2+b^2\right)^{3/4} f \sqrt{g}}-$$
$$\frac{\sqrt{g \,\text{Cos}[e+f x]}\,\text{Csc}[e+f x]}{a f g}+\frac{\sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f x),2\right]}{a f \sqrt{g \,\text{Cos}[e+f x]}}+$$
$$\frac{b^2 \sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{a \left(a^2-b^2+b \sqrt{-a^2+b^2}\right) f \sqrt{g \,\text{Cos}[e+f x]}}+$$
$$\frac{b^2 \sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{a \left(a^2-b \left(b+\sqrt{-a^2+b^2}\right)\right) f \sqrt{g \,\text{Cos}[e+f x]}}$$

Result (type 6, 2375 leaves):

$$-\frac{\text{Cot}[e+f x]}{a f \sqrt{g \,\text{Cos}[e+f x]}}-$$
$$\frac{1}{4 a f \sqrt{g \,\text{Cos}[e+f x]}}\sqrt{\text{Cos}[e+f x]}\left(\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\,\left(b+a \,\text{Csc}[e+f x]\right)}\right.$$
$$4 a \left(a+b \sqrt{1-\text{Cos}[e+f x]^2}\right)\left(\left(5 a \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$
$$\left.\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{\text{Cos}[e+f x]}\Bigg)\Bigg/\left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$
$$\left(5 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-\right.$$
$$2 \left(2 b^2 \,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\right)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Big) - \frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\Bigg(2\,\text{ArcTan}\Big[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big] - 2\,\text{ArcTan}\Big[1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big] +$$

$$\text{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big] -$$

$$\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big]\Bigg)\Bigg) -$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}$$

$$b\left(-1+\text{Cos}[e+f x]^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\text{Cos}[2\,(e+f x)]\,\text{Csc}[e+f x]$$

$$\Bigg(\Bigg(\left(a^2-b^2\right)^{1/4}\left(-2a^2+b^2\right)\text{ArcTan}\Big[\frac{-\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\Big]\Bigg)\Big/$$

$$\left(\sqrt{2}\,a\sqrt{b}\,\left(-a^2+b^2\right)\right) +$$

$$\Bigg(\left(a^2-b^2\right)^{1/4}\left(-2a^2+b^2\right)\text{ArcTan}\Big[\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}}\Big]\Bigg)\Big/$$

$$\left(\sqrt{2}\,a\sqrt{b}\,\left(-a^2+b^2\right)\right) - \frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]}{a} -$$

$$\Bigg(10\,b\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\sqrt{\text{Cos}[e+f x]}\Bigg)\Big/$$

$$\Bigg(\sqrt{1-\text{Cos}[e+f x]^2}\,\Bigg(5\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] - 2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] + \left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg) +$$

$$\Bigg(36\,b\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\text{Cos}[e+f x]^{5/2}\Bigg)\Big/$$

$$\Bigg(5\sqrt{1-\text{Cos}[e+f x]^2}\,\Bigg(9\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] - 2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] + \left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg) +$$

$$\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]}{2 a}-\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]}{2 a}-\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right)\right.$$
$$\left.\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\Big/$$
$$\left(2\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)+\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{a^2-b^2}+\right.\right.$$
$$\left.\left.\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\Big/\left(2\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)\Bigg)-$$
$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}6 b\left(-1+\text{Cos}[e+f x]^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$
$$\text{Csc}[e+f x]$$
$$\left(\left(5 b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2 b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)-$$
$$\frac{1}{8 a\left(a^2-b^2\right)^{3/4}}\left(-2\sqrt{2}\,b^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\sqrt{2}\,b^{3/2}\right.$$
$$\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\left(a^2-b^2\right)^{3/4}\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]-$$
$$2\left(a^2-b^2\right)^{3/4}\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]+2\left(a^2-b^2\right)^{3/4}\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]-$$
$$\sqrt{2}\,b^{3/2}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+$$
$$\left.\left.\left.\sqrt{2}\,b^{3/2}\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\right)\right)$$

Problem 1395: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+f x]^3}{\sqrt{g\,\text{Cos}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 557 leaves, 25 steps):

$$-\frac{3\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{4\,a\,f\,\sqrt{g}}-\frac{b^2\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a^3\,f\,\sqrt{g}}+$$

$$\frac{b^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a^3\,\left(-a^2+b^2\right)^{3/4}\,f\,\sqrt{g}}-\frac{3\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{4\,a\,f\,\sqrt{g}}-\frac{b^2\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a^3\,f\,\sqrt{g}}+$$

$$\frac{b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a^3\,\left(-a^2+b^2\right)^{3/4}\,f\,\sqrt{g}}+\frac{b\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\,\text{Csc}[e+f\,x]}{a^2\,f\,g}-$$

$$\frac{\sqrt{g\,\text{Cos}[e+f\,x]}\,\,\text{Csc}[e+f\,x]^2}{2\,a\,f\,g}-\frac{b\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticF}\left[\frac{1}{2}\,(e+f\,x),2\right]}{a^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}-$$

$$\frac{b^3\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{a^2\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}-$$

$$\frac{b^3\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{a^2\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 2411 leaves):

$$\frac{\text{Cos}[e+f\,x]\,\left(\frac{b\,\text{Csc}[e+f\,x]}{a^2}-\frac{\text{Csc}[e+f\,x]^2}{2\,a}\right)}{f\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{1}{4\,a^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}}\sqrt{\text{Cos}[e+f\,x]}\,\left(-\frac{1}{\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(b+a\,\text{Csc}[e+f\,x]\right)}\right.$$

$$2\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\,\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$

$$\left.\left.\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\Big)$$

$$\left.\left.\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\right)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}$$
$$b^2\left(-1+\text{Cos}[e+f x]^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$
$$\text{Cos}[2\,(e+f x)]\,\text{Csc}[e+f x]$$
$$\left(\left(\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\right/\right.\right.$$
$$\left.\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)+\right.$$
$$\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/$$
$$\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)-\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]}{a}-$$
$$\left(10\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/$$
$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$
$$\left(36\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{5/2}\right)\Big/$$
$$\left(5\sqrt{1-\text{Cos}[e+f x]^2}\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$
$$\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]}{2\,a}-\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]}{2\,a}-\left(\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\right.\right.$$
$$\left.\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\Big/$$

$$\left(2\sqrt{2}\ a\sqrt{b}\ \left(-a^2+b^2\right)\right)+\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\ \sqrt{b}\ \left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\Big/\left(2\sqrt{2}\ a\sqrt{b}\ \left(-a^2+b^2\right)\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\left(b+a\,\text{Csc}[e+f\,x]\right)}\,2\left(3\,a^2+3\,b^2\right)\left(-1+\text{Cos}[e+f\,x]^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\text{Csc}[e+f\,x]$$

$$\left(\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\right)\Big/\right.$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-$$

$$\frac{1}{8\,a\left(a^2-b^2\right)^{3/4}}\left(-2\sqrt{2}\ b^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\sqrt{2}\ b^{3/2}\right.$$

$$\text{ArcTan}\left[1+\frac{\sqrt{2}\ \sqrt{b}\ \sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\left(a^2-b^2\right)^{3/4}\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]-$$

$$2\left(a^2-b^2\right)^{3/4}\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]+2\left(a^2-b^2\right)^{3/4}\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]-$$

$$\sqrt{2}\ b^{3/2}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\ \sqrt{b}\ \left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+$$

$$\left.\sqrt{2}\ b^{3/2}\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\ \sqrt{b}\ \left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\Bigg)\Bigg)$$

Problem 1396: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sin}[e+f\,x]^4}{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 584 leaves, 22 steps) :

$$\frac{a^4\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{5/2}\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}-\frac{a^4\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{5/2}\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}-$$

$$\frac{2\,b}{\left(a^2-b^2\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\,a^2\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{3\,b\left(a^2-b^2\right)f\,g^3}-\frac{2\,b\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{3\left(a^2-b^2\right)f\,g^3}-$$

$$\frac{4\,a\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{\left(a^2-b^2\right)f\,g^2\,\sqrt{\text{Cos}[e+f\,x]}}+\frac{2\,a^3\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{b^2\left(a^2-b^2\right)f\,g^2\,\sqrt{\text{Cos}[e+f\,x]}}-$$

$$\frac{a^5\,\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^3\left(a^2-b^2\right)\left(b-\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}-$$

$$\frac{a^5\,\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^3\left(a^2-b^2\right)\left(b+\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\,a\,\text{Sin}[e+f\,x]}{\left(a^2-b^2\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 1214 leaves):

$$\frac{\text{Cos}[e+f\,x]^2\left(\frac{2\,\text{Cos}[e+f\,x]}{3\,b}+\frac{2\,\text{Sec}[e+f\,x]\,\left(-b+a\,\text{Sin}[e+f\,x]\right)}{a^2-b^2}\right)}{f\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}+$$

$$\frac{1}{\left(a-b\right)b\left(a+b\right)f\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}\,a\,\text{Cos}[e+f\,x]^{3/2}$$

$$\left(-\frac{1}{6\sqrt{1-\text{Cos}[e+f\,x]^2}\;\left(a+b\,\text{Sin}[e+f\,x]\right)}\,a\,b\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\left(-\left(\left(56\,a\left(a^2-b^2\right)\right.\right.\right.\right.$$

$$\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\Big)\Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\;\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{\left(1+i\right)\sqrt{b}\;\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{\left(1+i\right)\sqrt{b}\;\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+i\right)\sqrt{b}\;\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+i\right)\sqrt{b}\;\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\sqrt{\operatorname{Cos}[e+f x]}+i b \operatorname{Cos}[e+f x]\right]\right)\right) \Big/ \left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right) \operatorname{Sin}[e+f x]-$$

$$\frac{1}{\left(1-\operatorname{Cos}[e+f x]^2\right)\left(a+b \operatorname{Sin}[e+f x]\right)} 2\left(a^2-2 b^2\right)\left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)$$

$$\left(\left(\left(7 b\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4},-\frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\left.\operatorname{Cos}[e+f x]^{3/2} \sqrt{1-\operatorname{Cos}[e+f x]^2}\right) \Big/$$

$$\left(3\left(-7\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4},-\frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2 b^2 \operatorname{AppellF1}\left[\frac{7}{4},-\frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\operatorname{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\right)+$$

$$\left(a\left(-2 \operatorname{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\operatorname{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2 \operatorname{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\operatorname{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\operatorname{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}+b \operatorname{Cos}[e+f x]\right]-$$

$$\left.\left.\operatorname{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}+b \operatorname{Cos}[e+f x]\right]\right)\right) \Big/$$

$$\left.\left(4 \sqrt{2}\, b^{3/2}\left(a^2-b^2\right)^{1/4}\right) \operatorname{Sin}[e+f x]^2\right)$$

Problem 1397: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sin}[e+f x]^3}{\left(g \operatorname{Cos}[e+f x]\right)^{3/2}\left(a+b \operatorname{Sin}[e+f x]\right)} \, dx$$

Optimal (type 4, 509 leaves, 18 steps):

$$-\frac{a^3\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}+\frac{a^3\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}+\frac{2\,a}{\left(a^2-b^2\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}-$$

$$\frac{2\,a^2\sqrt{g\,\text{Cos}[e+f\,x]}\;\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{b\left(a^2-b^2\right)f\,g^2\sqrt{\text{Cos}[e+f\,x]}}+\frac{4\,b\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{\left(a^2-b^2\right)f\,g^2\sqrt{\text{Cos}[e+f\,x]}}+$$

$$\frac{a^4\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^2\left(a^2-b^2\right)\left(b-\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{a^4\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{b^2\left(a^2-b^2\right)\left(b+\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{2\,b\,\text{Sin}[e+f\,x]}{\left(a^2-b^2\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 1187 leaves):

$$\frac{2\,\text{Cos}[e+f\,x]\left(a-b\,\text{Sin}[e+f\,x]\right)}{\left(a^2-b^2\right)f\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}-$$

$$\frac{1}{(a-b)(a+b)f\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}\text{Cos}[e+f\,x]^{3/2}\left(-\frac{1}{6\sqrt{1-\text{Cos}[e+f\,x]^2}\left(a+b\,\text{Sin}[e+f\,x]\right)}\right.$$

$$a\,b\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\left(-\left(\left(56\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\right.\right.\right.\right.$$

$$\left.\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\text{Cos}[e+f\,x]^{3/2}\Bigg)\Bigg/\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\left.\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-$$

$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\Bigg]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\Bigg]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\right)\Bigg/\left(\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right)\text{Sin}[e+f\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\,\left(a+b\,\text{Sin}[e+f x]\right)}\,2\,\left(a^2-2\,b^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\text{Cos}[e+f x]^{3/2}\,\sqrt{1-\text{Cos}[e+f x]^2}\right)\Big/$$

$$\left(3\,\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,-\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$

$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\right)\Big/$$

$$\left.\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\right)\,\text{Sin}[e+f x]^2$$

Problem 1398: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[e+f x]^2}{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\,\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 453 leaves, 15 steps):

$$\frac{a^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{\sqrt{b}\,\left(-a^2+b^2\right)^{5/4}\,f\,g^{3/2}}-\frac{a^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{\sqrt{b}\,\left(-a^2+b^2\right)^{5/4}\,f\,g^{3/2}}-$$

$$\frac{2\,b}{\left(a^2-b^2\right)\,f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}-\frac{2\,a\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),2\right]}{\left(a^2-b^2\right)\,f\,g^2\,\sqrt{\text{Cos}[e+f\,x]}}-$$

$$\frac{a^3\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{b\,\left(a^2-b^2\right)\,\left(b-\sqrt{-a^2+b^2}\right)\,f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}-$$

$$\frac{a^3\,\sqrt{\text{Cos}[e+f\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{b\,\left(a^2-b^2\right)\,\left(b+\sqrt{-a^2+b^2}\right)\,f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\,a\,\text{Sin}[e+f\,x]}{\left(a^2-b^2\right)\,f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 1180 leaves):

$$\frac{2\,\text{Cos}[e+f\,x]\,\left(-b+a\,\text{Sin}[e+f\,x]\right)}{\left(a^2-b^2\right)\,f\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}-\frac{1}{(a-b)\,(a+b)\,f\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}$$

$$a\,\text{Cos}[e+f\,x]^{3/2}\left(\frac{1}{6\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,a\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[e+f\,x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\,\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\right/\left.\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\,\text{Sin}[e+f\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,2\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\text{Cos}[e+f\,x]^{3/2}\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Big/$$

$$\left(3\left(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)\Big/$$

$$\left.\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\text{Sin}[e+f\,x]^2\right)$$

Problem 1399: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sin}[e+f\,x]}{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 413 leaves, 13 steps):

$$-\frac{a\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}+\frac{a\,\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}+$$

$$\frac{2\,b\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}\left(e+f\,x\right),2\right]}{\left(a^2-b^2\right)f\,g^2\,\sqrt{\text{Cos}[e+f\,x]}}+$$

$$\frac{a^2\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{\left(a^2-b^2\right)\left(b-\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$

$$\frac{a^2\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f\,x\right),2\right]}{\left(a^2-b^2\right)\left(b+\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\left(a-b\,\text{Sin}[e+f\,x]\right)}{\left(a^2-b^2\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 1178 leaves):

$$\frac{2\,\text{Cos}[e+f\,x]\,\left(a-b\,\text{Sin}[e+f\,x]\right)}{\left(a^2-b^2\right)\,f\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}+\frac{1}{(a-b)\,(a+b)\,f\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}$$

$$b\,\text{Cos}[e+f\,x]^{3/2}\left(\frac{1}{6\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,a\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[e+f\,x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\,\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\left.\sqrt{\text{Cos}[e+f\,x]}+i\,b\,\text{Cos}[e+f\,x]\right]\right)\right)\right/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\,\text{Sin}[e+f\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,2\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\left(\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\left.\left.\text{Cos}[e+f\,x]^{3/2}\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right/$$

$$\left(3\,\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\text{Sin}[e+f\,x]^2\right)$$

Problem 1400: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+f\,x]}{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 507 leaves, 21 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f\,g^{3/2}}-\frac{b^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}-$$
$$\frac{\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}}\right]}{a\,f\,g^{3/2}}+\frac{b^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}+$$
$$\frac{2}{a\,f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\,b\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[\frac{1}{2}(e+f\,x),2\right]}{\left(a^2-b^2\right)f\,g^2\sqrt{\text{Cos}[e+f\,x]}}+$$
$$\frac{b^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{\left(a^2-b^2\right)\left(b-\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$
$$\frac{b^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{\left(a^2-b^2\right)\left(b+\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\,b\left(b-a\,\text{Sin}[e+f\,x]\right)}{a\left(a^2-b^2\right)f\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}$$

Result (type 6, 2424 leaves):

$$-\frac{1}{2\,(a-b)\,(a+b)\,f\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}$$
$$\text{Cos}[e+f\,x]^{3/2}\left(-\frac{1}{3\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(b+a\,\text{Csc}[e+f\,x]\right)}a\,b\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$
$$\left.\text{Cos}[e+f\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]-\right.$$
$$2\left(2b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\left.\text{Cos}[e+fx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\right)\right)-$$
$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{\left(1+i\right)\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$
$$1+\frac{\left(1+i\right)\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(-a^2+b^2\right)^{1/4}}\Bigg]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+i\right)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$
$$\left.\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+i\right)\sqrt{b}\right.$$
$$\left.\left.\left.\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\right]\right)\right)\Big/\left(\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+fx]^2\right)\left(-1+2\,\text{Cos}[e+fx]^2\right)\left(b+a\,\text{Csc}[e+fx]\right)}$$
$$2$$
$$b^2$$
$$\left(-1+\text{Cos}[e+fx]^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[e+fx]^2}\right)$$
$$\text{Cos}\left[2\left(e+fx\right)\right]\text{Csc}[e+fx]$$
$$\left(\left(\left(\left(a^2-b^2\right)^{3/4}\left(-2a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/\right.\right.\right.$$
$$\left(2\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+$$
$$\left(\left(a^2-b^2\right)^{3/4}\left(-2a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/$$
$$\left(2\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+fx]}\right]}{2a}-$$
$$\left(7b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\text{Cos}[e+fx]^{3/2}\right)\Big/$$
$$\left(3\sqrt{1-\text{Cos}[e+fx]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]-2\left(2b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+fx]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+fx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\right)+$$

$$\left(22\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.$$
$$\left.\text{Cos}[e+f\,x]^{7/2}\right)\bigg/\left(7\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$
$$\left(11\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{4},\,\frac{1}{2},\,2,\,\frac{15}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2},\,1,\,\frac{15}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)$$
$$\left.\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]}{4\,a}-$$
$$\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]}{4\,a}+\left(\left(\left(a^2-b^2\right)^{3/4}\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\right.\right.\right.$$
$$\left.\left.\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\bigg/\left(4\,\sqrt{2}\,a\,b^{3/2}\,\left(-a^2+b^2\right)\right)-$$
$$\left(\left(a^2-b^2\right)^{3/4}\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+\right.\right.$$
$$\left.\left.\left.b\,\text{Cos}[e+f\,x]\right]\right)\bigg/\left(4\,\sqrt{2}\,a\,b^{3/2}\,\left(-a^2+b^2\right)\right)\right)-$$
$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(b+a\,\text{Csc}[e+f\,x]\right)}\,2\,\left(-2\,a^2+b^2\right)\,\left(-1+\text{Cos}[e+f\,x]^2\right)$$
$$\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$
$$\text{Csc}[e+f\,x]$$
$$\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[e+f\,x]^{3/2}\right)\bigg/\right.$$
$$\left(3\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$
$$\frac{1}{8\,a\,\left(a^2-b^2\right)^{1/4}}\,\left(2\,\sqrt{2}\,\sqrt{b}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-2\,\sqrt{2}\,\sqrt{b}\right.$$
$$\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\,\left(a^2-b^2\right)^{1/4}\,\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]+$$
$$2\,\left(a^2-b^2\right)^{1/4}\,\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]-2\,\left(a^2-b^2\right)^{1/4}\,\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]-$$
$$\sqrt{2}\,\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+$$

$$\sqrt{2}\,\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+\right.$$

$$\left.\left.\left.b\,\text{Cos}[e+f x]\right]\right)\right)\right)+\frac{2\,\text{Cos}[e+f x]\,\left(a-b\,\text{Sin}[e+f x]\right)}{\left(a^2-b^2\right)\,f\,\left(g\,\text{Cos}[e+f x]\right)^{3/2}}$$

Problem 1401: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]^2}{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 627 leaves, 25 steps):

$$-\frac{b\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2\,f\,g^{3/2}}+\frac{b^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a^2\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}+\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2\,f\,g^{3/2}}-$$

$$\frac{b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a^2\left(-a^2+b^2\right)^{5/4}f\,g^{3/2}}-\frac{2\,b}{a^2\,f\,g\,\sqrt{g\,\text{Cos}[e+f x]}}-\frac{\text{Csc}[e+f x]}{a\,f\,g\,\sqrt{g\,\text{Cos}[e+f x]}}-$$

$$\frac{3\,\sqrt{g\,\text{Cos}[e+f x]}\,\text{EllipticE}\left[\frac{1}{2}\left(e+f x\right),2\right]}{a\,f\,g^2\,\sqrt{\text{Cos}[e+f x]}}-\frac{2\,b^2\,\sqrt{g\,\text{Cos}[e+f x]}\,\text{EllipticE}\left[\frac{1}{2}\left(e+f x\right),2\right]}{a\left(a^2-b^2\right)f\,g^2\,\sqrt{\text{Cos}[e+f x]}}-$$

$$\frac{b^3\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f x\right),2\right]}{a\left(a^2-b^2\right)\left(b-\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f x]}}-$$

$$\frac{b^3\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(e+f x\right),2\right]}{a\left(a^2-b^2\right)\left(b+\sqrt{-a^2+b^2}\right)f\,g\,\sqrt{g\,\text{Cos}[e+f x]}}+$$

$$\frac{3\,\text{Sin}[e+f x]}{a\,f\,g\,\sqrt{g\,\text{Cos}[e+f x]}}-\frac{2\,b^2\left(b-a\,\text{Sin}[e+f x]\right)}{a^2\left(a^2-b^2\right)f\,g\,\sqrt{g\,\text{Cos}[e+f x]}}$$

Result (type 6, 2469 leaves):

$$-\frac{1}{4\,a\,(a-b)\,(a+b)\,f\,\left(g\,\text{Cos}[e+f x]\right)^{3/2}}$$

$$\text{Cos}[e+f x]^{3/2}\left(\frac{1}{12\,\sqrt{1-\text{Cos}[e+f x]^2}\,\left(b+a\,\text{Csc}[e+f x]\right)}\left(6\,a^3+2\,a\,b^2\right)\right.$$

$$\left(a+b\,\sqrt{1-\text{Cos}[e+f x]^2}\right)\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+f x]^2,\right.\right.\right.\right.$$

$$\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]-\right.$$
$$2\left(2b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\left.\text{Cos}[e+fx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\right)\right)-$$
$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$
$$\left.1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$
$$\left.\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\right.$$
$$\left.\left.\left.\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+fx]}+i\,b\,\text{Cos}[e+fx]\right]\right)\right)\Big/\left(\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right)\right)-$$

$$\frac{1}{\left(1-\text{Cos}[e+fx]^2\right)\left(-1+2\,\text{Cos}[e+fx]^2\right)\left(b+a\,\text{Csc}[e+fx]\right)}$$
$$2\left(-3a^2b+b^3\right)$$
$$\left(-1+\text{Cos}[e+fx]^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[e+fx]^2}\right)$$
$$\text{Cos}[2(e+fx)]\,\text{Csc}[e+fx]$$
$$\left(\left(\left(\left(a^2-b^2\right)^{3/4}\left(-2a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/\right.\right.$$
$$\left(2\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+$$
$$\left(\left(a^2-b^2\right)^{3/4}\left(-2a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+fx]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Big/$$
$$\left(2\sqrt{2}\,a\,b^{3/2}\left(-a^2+b^2\right)\right)+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+fx]}\right]}{2a}-$$
$$\left(7b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\text{Cos}[e+fx]^{3/2}\right)\Big/$$
$$\left(3\sqrt{1-\text{Cos}[e+fx]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[e+fx]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]-2\left(2b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[e+fx]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[e+fx]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+fx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+fx]^2\right)\right)\right)+$$

$$\left(22\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.$$

$$\left.\text{Cos}[e+f\,x]^{7/2}\right)\Big/\left(7\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left(11\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{4},\,\frac{1}{2},\,2,\,\frac{15}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2},\,1,\,\frac{15}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)$$

$$\left.\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]}{4\,a}-$$

$$\frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]}{4\,a}+\left(\left(a^2-b^2\right)^{3/4}\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\right.\right.$$

$$\left.\left.\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\Big/\left(4\,\sqrt{2}\,a\,b^{3/2}\,\left(-a^2+b^2\right)\right)-$$

$$\left(\left(a^2-b^2\right)^{3/4}\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+\right.\right.$$

$$\left.\left.\left.b\,\text{Cos}[e+f\,x]\right]\right)\Big/\left(4\,\sqrt{2}\,a\,b^{3/2}\,\left(-a^2+b^2\right)\right)\right)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(b+a\,\text{Csc}[e+f\,x]\right)}\,2\,\left(7\,a^2\,b-5\,b^3\right)\,\left(-1+\text{Cos}[e+f\,x]^2\right)$$

$$\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\text{Csc}[e+f\,x]$$

$$\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[e+f\,x]^{3/2}\right)\Big/\right.$$

$$\left(3\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\frac{1}{8\,a\,\left(a^2-b^2\right)^{1/4}}\,\left(2\,\sqrt{2}\,\sqrt{b}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-2\,\sqrt{2}\,\sqrt{b}\right.$$

$$\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4\,\left(a^2-b^2\right)^{1/4}\,\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]+$$

$$2\,\left(a^2-b^2\right)^{1/4}\,\text{Log}\left[1-\sqrt{\text{Cos}[e+f\,x]}\right]-2\,\left(a^2-b^2\right)^{1/4}\,\text{Log}\left[1+\sqrt{\text{Cos}[e+f\,x]}\right]-$$

$$\sqrt{2}\,\sqrt{b}\,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+$$

$$\left.\left.\left.\sqrt{2}\ \sqrt{b}\ \mathrm{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\ \sqrt{b}\ \left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Cos}[e+f\,x]}+b\,\mathrm{Cos}[e+f\,x]\right]\right)\right)\right)+$$

$$\frac{\mathrm{Cos}[e+f\,x]^2\left(-\frac{\mathrm{Cot}[e+f\,x]}{a}+\frac{2\,\mathrm{Sec}[e+f\,x]\,(-b+a\,\mathrm{Sin}[e+f\,x])}{a^2-b^2}\right)}{f\,(g\,\mathrm{Cos}[e+f\,x])^{3/2}}$$

Problem 1402: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Sin}[e+f\,x]^4}{(g\,\mathrm{Cos}[e+f\,x])^{5/2}\,(a+b\,\mathrm{Sin}[e+f\,x])}\,dx$$

Optimal (type 4, 601 leaves, 22 steps):

$$-\frac{a^4\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{b^{3/2}\,(-a^2+b^2)^{7/4}\,f\,g^{5/2}}-\frac{a^4\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{b^{3/2}\,(-a^2+b^2)^{7/4}\,f\,g^{5/2}}-$$

$$\frac{2\,b}{3\,(a^2-b^2)\,f\,g\,(g\,\mathrm{Cos}[e+f\,x])^{3/2}}+\frac{2\,a^2\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{b\,(a^2-b^2)\,f\,g^3}-\frac{2\,b\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{(a^2-b^2)\,f\,g^3}-$$

$$\frac{4\,a\sqrt{\mathrm{Cos}[e+f\,x]}\ \mathrm{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]}{3\,(a^2-b^2)\,f\,g^2\sqrt{g\,\mathrm{Cos}[e+f\,x]}}+\frac{2\,a^3\sqrt{\mathrm{Cos}[e+f\,x]}\ \mathrm{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]}{b^2\,(a^2-b^2)\,f\,g^2\sqrt{g\,\mathrm{Cos}[e+f\,x]}}-$$

$$\frac{a^5\sqrt{\mathrm{Cos}[e+f\,x]}\ \mathrm{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^2\,(a^2-b^2)\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)f\,g^2\sqrt{g\,\mathrm{Cos}[e+f\,x]}}-$$

$$\frac{a^5\sqrt{\mathrm{Cos}[e+f\,x]}\ \mathrm{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f\,x),2\right]}{b^2\,(a^2-b^2)\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)f\,g^2\sqrt{g\,\mathrm{Cos}[e+f\,x]}}+\frac{2\,a\,\mathrm{Sin}[e+f\,x]}{3\,(a^2-b^2)\,f\,g\,(g\,\mathrm{Cos}[e+f\,x])^{3/2}}$$

Result (type 6, 2158 leaves):

$$\frac{2\,\mathrm{Cos}[e+f\,x]\,(-b+a\,\mathrm{Sin}[e+f\,x])}{3\,(a^2-b^2)\,f\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}}+$$

$$\frac{1}{6\,(a-b)\,(a+b)\,f\,(g\,\mathrm{Cos}[e+f\,x])^{5/2}}\mathrm{Cos}[e+f\,x]^{5/2}\left(-\frac{1}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,(a+b\,\mathrm{Sin}[e+f\,x])}\right.$$

$$2\,(-7\,a^2+3\,b^2)\left(a+b\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\left(\left(5\,a\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$

$$\left.\left.\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\mathrm{Cos}[e+f\,x]}\right)\Big/\left(\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right.$$

$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]-\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\Bigg)$$

$$\text{Sin}[e+f x]+\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(a+b\,\text{Sin}[e+f x]\right)}$$

$$\left(3\,a^2-3\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\text{Cos}\left[2\left(e+f x\right)\right]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\sqrt{\text{Cos}[e+f x]}}{b}+$$

$$\left(10\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)-$$

$$\left(36\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{5/2}\right)\Big/\left(5\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2 b^2 \text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\Big)$$
$$\left.\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+\left(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.\right.$$
$$\left.\left.(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\, b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$
$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+\right.\right.$$
$$\left.\left.\left.i\, b\,\text{Cos}[e+f x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[e+f x]-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)(a+b\,\text{Sin}[e+f x])}4 a b\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$
$$\left(\left(5 b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[e+f x]}\sqrt{1-\text{Cos}[e+f x]^2}\right)\Big/$$
$$\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\left(2 b^2 \text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$
$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\right)\Big/$$
$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\text{Sin}[e+f x]^2\right)$$

Problem 1403: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[e+f x]^3}{(g\,\text{Cos}[e+f x])^{5/2}\,(a+b\,\text{Sin}[e+f x])}\,dx$$

Optimal (type 4, 528 leaves, 18 steps):

$$\frac{a^3\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}\,\sqrt{g}}\right]}{\sqrt{b}\,(-a^2+b^2)^{7/4}\,f\,g^{5/2}}+\frac{a^3\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}\,\sqrt{g}}\right]}{\sqrt{b}\,(-a^2+b^2)^{7/4}\,f\,g^{5/2}}+\frac{2\,a}{3\,(a^2-b^2)\,f\,g\,(g\,\text{Cos}[e+f x])^{3/2}}-$$

$$\frac{2\,a^2\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}\,(e+f x),2\right]}{b\,(a^2-b^2)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f x]}}+\frac{4\,b\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}\,(e+f x),2\right]}{3\,(a^2-b^2)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f x]}}+$$

$$\frac{a^4\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f x),2\right]}{b\,(a^2-b^2)\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f x]}}+$$

$$\frac{a^4\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f x),2\right]}{b\,(a^2-b^2)\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f x]}}-\frac{2\,b\,\text{Sin}[e+f x]}{3\,(a^2-b^2)\,f\,g\,(g\,\text{Cos}[e+f x])^{3/2}}$$

Result (type 6, 1193 leaves):

$$\frac{2\,\text{Cos}[e+f x]\,(a-b\,\text{Sin}[e+f x])}{3\,(a^2-b^2)\,f\,(g\,\text{Cos}[e+f x])^{5/2}}-$$

$$\frac{1}{3\,(a-b)\,(a+b)\,f\,(g\,\text{Cos}[e+f x])^{5/2}}\,\text{Cos}[e+f x]^{5/2}\left(\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\,(a+b\,\text{Sin}[e+f x])}\right.$$

$$4\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f x]^2}\right)\left(\left(5\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$

$$\left.\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\Bigg)\Bigg/\left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\right.$$

$$\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\Bigg)$$

$$\left.\left.(a^2+b^2\,(-1+\text{Cos}[e+f x]^2))\right)\right)-\frac{1}{(-a^2+b^2)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\right)$$

$$\text{Sin}[e+f x] - \frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\,\left(a+b\,\text{Sin}[e+f x]\right)}\,2\,\left(3\,a^2-2\,b^2\right)$$

$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\left(\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\left.\sqrt{\text{Cos}[e+f x]}\,\sqrt{1-\text{Cos}[e+f x]^2}\right)\Big/$$

$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[e+f x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$

$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\right)\Big/$$

$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\right)\,\text{Sin}[e+f x]^2\Bigg)$$

Problem 1404: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[e+f x]^2}{\left(g\,\text{Cos}[e+f x]\right)^{5/2}\,\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 468 leaves, 15 steps):

$$-\frac{a^2 \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{b}\ \sqrt{g \text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{\left(-a^2+b^2\right)^{7/4} f g^{5/2}}-\frac{a^2 \sqrt{b}\ \text{ArcTanh}\left[\frac{\sqrt{b}\ \sqrt{g \text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{g}}\right]}{\left(-a^2+b^2\right)^{7/4} f g^{5/2}}-$$

$$\frac{2 b}{3 \left(a^2-b^2\right) f g \left(g \text{Cos}[e+f x]\right)^{3/2}}+\frac{2 a \sqrt{\text{Cos}[e+f x]}\ \text{EllipticF}\left[\frac{1}{2} (e+f x),2\right]}{3 \left(a^2-b^2\right) f g^2 \sqrt{g \text{Cos}[e+f x]}}-$$

$$\frac{a^3 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}},\frac{1}{2} (e+f x),2\right]}{\left(a^2-b^2\right) \left(a^2-b \left(b-\sqrt{-a^2+b^2}\right)\right) f g^2 \sqrt{g \text{Cos}[e+f x]}}-$$

$$\frac{a^3 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}},\frac{1}{2} (e+f x),2\right]}{\left(a^2-b^2\right) \left(a^2-b \left(b+\sqrt{-a^2+b^2}\right)\right) f g^2 \sqrt{g \text{Cos}[e+f x]}}+\frac{2 a \text{Sin}[e+f x]}{3 \left(a^2-b^2\right) f g \left(g \text{Cos}[e+f x]\right)^{3/2}}$$

Result (type 6, 1184 leaves):

$$\frac{2 \text{Cos}[e+f x] \left(-b+a \text{Sin}[e+f x]\right)}{3 \left(a^2-b^2\right) f \left(g \text{Cos}[e+f x]\right)^{5/2}}-$$

$$\frac{1}{3 (a-b) (a+b) f \left(g \text{Cos}[e+f x]\right)^{5/2}} a \text{Cos}[e+f x]^{5/2} \left(-\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\ \left(a+b \text{Sin}[e+f x]\right)}\right.$$

$$4 a \left(a+b \sqrt{1-\text{Cos}[e+f x]^2}\right) \left(\left(5 a \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$

$$\left.\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{\text{Cos}[e+f x]}\Bigg) \Bigg/ \left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(5 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2 b^2 \text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\right)$$

$$\left.\left.\left(a^2+b^2 \left(-1+\text{Cos}[e+f x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}} \left(\frac{1}{8}-\frac{i}{8}\right) \sqrt{b}$$

$$\left(2 \text{ArcTan}\left[1-\frac{(1+i) \sqrt{b}\ \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2 \text{ArcTan}\left[1+\frac{(1+i) \sqrt{b}\ \sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i) \sqrt{b}\ \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+i b \text{Cos}[e+f x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i) \sqrt{b}\ \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[e+f x]}+i b \text{Cos}[e+f x]\right]\right)\right)$$

$$\text{Sin}[e+f x]+\frac{1}{\left(1-\text{Cos}[e+f x]^2\right) \left(a+b \text{Sin}[e+f x]\right)} 2 b \left(a+b \sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Big/$$
$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}+b\,\text{Cos}[e+f\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\,\text{Sin}[e+f\,x]^2\right)$$

Problem 1405: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sin}[e+f\,x]}{\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 432 leaves, 13 steps):

$$\frac{a\,b^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{\left(-a^2+b^2\right)^{7/4}\,f\,g^{5/2}}+\frac{a\,b^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{g}}\right]}{\left(-a^2+b^2\right)^{7/4}\,f\,g^{5/2}}-$$
$$\frac{2\,b\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}\,(e+f\,x),2\right]}{3\,\left(a^2-b^2\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$
$$\frac{a^2\,b\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{\left(a^2-b^2\right)\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}}+$$
$$\frac{a^2\,b\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(e+f\,x),2\right]}{\left(a^2-b^2\right)\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}}+\frac{2\,\left(a-b\,\text{Sin}[e+f\,x]\right)}{3\,\left(a^2-b^2\right)\,f\,g\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}$$

Result (type 6, 1183 leaves) :

$$\frac{2\,\text{Cos}[e+f x]\,\left(a-b\,\text{Sin}[e+f x]\right)}{3\,\left(a^2-b^2\right)\,f\,\left(g\,\text{Cos}[e+f x]\right)^{5/2}}+$$

$$\frac{1}{3\,(a-b)\,(a+b)\,f\,\left(g\,\text{Cos}[e+f x]\right)^{5/2}}\,b\,\text{Cos}[e+f x]^{5/2}\,\Bigg(-\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\,\left(a+b\,\text{Sin}[e+f x]\right)}$$

$$4\,a\,\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\,\Bigg(\Bigg(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},$$

$$\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\,\sqrt{\text{Cos}[e+f x]}\Bigg)\Bigg/\Bigg(\sqrt{1-\text{Cos}[e+f x]^2}$$

$$\Bigg(5\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2$$

$$\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)$$

$$\text{AppellF1}\Big[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[e+f x]^2\Bigg)$$

$$\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\Bigg(2\,\text{ArcTan}\Big[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-2\,\text{ArcTan}\Big[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]+$$

$$\text{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big]-$$

$$\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big]\Bigg)\Bigg)$$

$$\text{Sin}[e+f x]+\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\,\left(a+b\,\text{Sin}[e+f x]\right)}\,2\,b\,\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\,-\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]$$

$$\sqrt{\text{Cos}[e+f x]}\,\sqrt{1-\text{Cos}[e+f x]^2}\Bigg)\Bigg/$$

$$\Bigg(\Bigg(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\,-\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+$$

$$2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+$$

$$\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)$$

$$\text{Cos}[e+f x]^2\Bigg)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\,\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big]-$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\,\text{Cos}[e+f x]\right]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\,\text{Sin}[e+f x]^2\right)$$

Problem 1406: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]}{(g\,\text{Cos}[e+f x])^{5/2}\,(a+b\,\text{Sin}[e+f x])}\,dx$$

Optimal (type 4, 527 leaves, 21 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a\,f\,g^{5/2}}+\frac{b^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\,\left(-a^2+b^2\right)^{7/4}\,f\,g^{5/2}}-$$
$$\frac{\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a\,f\,g^{5/2}}+\frac{b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{g}}\right]}{a\,\left(-a^2+b^2\right)^{7/4}\,f\,g^{5/2}}+$$
$$\frac{2}{3\,a\,f\,g\,(g\,\text{Cos}[e+f x])^{3/2}}-\frac{2\,b\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}\,(e+f x),\,2\right]}{3\,\left(a^2-b^2\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f x]}}+$$
$$\frac{b^3\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f x),\,2\right]}{\left(a^2-b^2\right)\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f x]}}+$$
$$\frac{b^3\,\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(e+f x),\,2\right]}{\left(a^2-b^2\right)\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,f\,g^2\,\sqrt{g\,\text{Cos}[e+f x]}}+\frac{2\,b\,(b-a\,\text{Sin}[e+f x])}{3\,a\,\left(a^2-b^2\right)\,f\,g\,(g\,\text{Cos}[e+f x])^{3/2}}$$

Result (type 6, 2418 leaves):

$$\frac{1}{6\,(a-b)\,(a+b)\,f\,(g\,\text{Cos}[e+f x])^{5/2}}$$
$$\text{Cos}[e+f x]^{5/2}\left(-\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\,\left(b+a\,\text{Csc}[e+f x]\right)}\,8\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f x]^2}\right)\right.$$
$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[e+f x]^2,\,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)$$

$$\left.\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\right]\right)\right)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}$$

$$b^2\left(-1+\text{Cos}[e+f x]^2\right)$$

$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\text{Cos}[2(e+f x)]\,\text{Csc}[e+f x]$$

$$\left(\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\right/$$

$$\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)+$$

$$\left(\left(a^2-b^2\right)^{1/4}\left(-2\,a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)-\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]}{a}-$$

$$\left(10\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Bigg/$$

$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\right)+$$

$$\left(36\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\text{Cos}[e+f x]^{5/2}\right)\Bigg/$$

$$\left(5\sqrt{1-\text{Cos}[e+f x]^2}\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$

$$\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] - 2\left(2 b^2 \,\text{AppellF1}\Big[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] + \left(-a^2+b^2\right) \text{AppellF1}\Big[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\right) \text{Cos}[e+f x]^2\Bigg) \left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg) +$$

$$\frac{\text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right]}{2 a} - \frac{\text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right]}{2 a} - \Bigg(\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right) \text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b \,\text{Cos}[e+f x]\right]\right) \Big/ \left(2\sqrt{2}\, a \sqrt{b}\left(-a^2+b^2\right)\right)\Bigg) + \Bigg(\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right) \text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b \,\text{Cos}[e+f x]\right]\right) \Big/ \left(2\sqrt{2}\, a \sqrt{b}\left(-a^2+b^2\right)\right)\Bigg) -$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(b+a \,\text{Csc}[e+f x]\right)} 2\left(6 a^2-7 b^2\right)\left(-1+\text{Cos}[e+f x]^2\right) \left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right) \text{Csc}[e+f x]$$

$$\Bigg(\Bigg(\left(5 b\left(a^2-b^2\right) \text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\sqrt{\text{Cos}[e+f x]}\right) \Big/ \Bigg(\sqrt{1-\text{Cos}[e+f x]^2}\Bigg(5\left(a^2-b^2\right) \text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] - 2\left(2 b^2 \,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big] + \left(-a^2+b^2\right) \text{AppellF1}\Big[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2 \,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\right) \text{Cos}[e+f x]^2\Bigg) \left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg) -$$

$$\frac{1}{8 a\left(a^2-b^2\right)^{3/4}}\Bigg(-2\sqrt{2}\, b^{3/2} \,\text{ArcTan}\Big[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big] + 2\sqrt{2}\, b^{3/2} \,\text{ArcTan}\Big[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\Big] + 4\left(a^2-b^2\right)^{3/4} \text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right] - 2\left(a^2-b^2\right)^{3/4} \text{Log}\left[1-\sqrt{\text{Cos}[e+f x]}\right] + 2\left(a^2-b^2\right)^{3/4} \text{Log}\left[1+\sqrt{\text{Cos}[e+f x]}\right] - \sqrt{2}\, b^{3/2} \,\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b \,\text{Cos}[e+f x]\right] + \sqrt{2}\, b^{3/2} \,\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+b\, \text{Cos}[e+f x]\right]\Bigg)\Bigg)\Bigg) + \frac{2 \,\text{Cos}[e+f x]\left(a-b \,\text{Sin}[e+f x]\right)}{3\left(a^2-b^2\right) f\left(g \,\text{Cos}[e+f x]\right)^{5/2}}$$

Problem 1407: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]^2}{(g\,\text{Cos}[e+f x])^{5/2}\,(a+b\,\text{Sin}[e+f x])}\,dx$$

Optimal (type 4, 651 leaves, 25 steps):

$$\frac{b\,\text{ArcTan}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f g^{5/2}}-\frac{b^{9/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{a^2\,(-a^2+b^2)^{7/4} f g^{5/2}}+\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}}\right]}{a^2 f g^{5/2}}-$$
$$\frac{b^{9/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{g\,\text{Cos}[e+f x]}}{(-a^2+b^2)^{1/4}\sqrt{g}}\right]}{a^2\,(-a^2+b^2)^{7/4} f g^{5/2}}-\frac{2 b}{3 a^2 f g\,(g\,\text{Cos}[e+f x])^{3/2}}-\frac{\text{Csc}[e+f x]}{a f g\,(g\,\text{Cos}[e+f x])^{3/2}}+$$
$$\frac{5\sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f x),2\right]}{3 a f g^2\sqrt{g\,\text{Cos}[e+f x]}}+\frac{2 b^2\sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f x),2\right]}{3 a\,(a^2-b^2) f g^2\sqrt{g\,\text{Cos}[e+f x]}}-$$
$$\frac{b^4\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{a\,(a^2-b^2)\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right) f g^2\sqrt{g\,\text{Cos}[e+f x]}}-$$
$$\frac{b^4\sqrt{\text{Cos}[e+f x]}\,\text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(e+f x),2\right]}{a\,(a^2-b^2)\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right) f g^2\sqrt{g\,\text{Cos}[e+f x]}}+$$
$$\frac{5\,\text{Sin}[e+f x]}{3 a f g\,(g\,\text{Cos}[e+f x])^{3/2}}-\frac{2 b^2\,(b-a\,\text{Sin}[e+f x])}{3 a^2\,(a^2-b^2) f g\,(g\,\text{Cos}[e+f x])^{3/2}}$$

Result (type 6, 2465 leaves):

$$\frac{1}{12 a\,(a-b)\,(a+b)\,f\,(g\,\text{Cos}[e+f x])^{5/2}}\,\text{Cos}[e+f x]^{5/2}$$
$$\left(-\frac{1}{\sqrt{1-\text{Cos}[e+f x]^2}\,(b+a\,\text{Csc}[e+f x])}\,2\,(10 a^3-18 a b^2)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\right.$$
$$\left(\left(5 a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\right/$$
$$\left(\sqrt{1-\text{Cos}[e+f x]^2}\right.$$
$$\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2 b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\Bigg(2\,\text{ArcTan}\Big[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-2\,\text{ArcTan}\Big[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]+$$

$$\text{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big]-$$

$$\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f x]}+i\,b\,\text{Cos}[e+f x]\Big]\Bigg)\Bigg)-$$

$$\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)\left(-1+2\,\text{Cos}[e+f x]^2\right)\left(b+a\,\text{Csc}[e+f x]\right)}$$

$$\left(-5a^2 b+3b^3\right)$$

$$\left(-1+\text{Cos}[e+f x]^2\right)$$

$$\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\text{Cos}[2(e+f x)]\,\text{Csc}[e+f x]$$

$$\Bigg(\Bigg(\left(a^2-b^2\right)^{1/4}\left(-2a^2+b^2\right)\text{ArcTan}\Big[\frac{-\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\Big]\Bigg)\Big/$$

$$\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)+$$

$$\Bigg(\left(a^2-b^2\right)^{1/4}\left(-2a^2+b^2\right)\text{ArcTan}\Big[\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}+2\sqrt{b}\sqrt{\text{Cos}[e+f x]}}{\sqrt{2}\left(a^2-b^2\right)^{1/4}}\Big]\Bigg)\Big/$$

$$\left(\sqrt{2}\,a\sqrt{b}\left(-a^2+b^2\right)\right)-\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right]}{a}-$$

$$\Bigg(10\,b\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\sqrt{\text{Cos}[e+f x]}\Bigg)\Big/$$

$$\Bigg(\sqrt{1-\text{Cos}[e+f x]^2}\,\Bigg(5\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2\Bigg(2b^2\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\text{Cos}[e+f x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(36\,b\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\text{Cos}[e+f x]^{5/2}\Bigg)\Big/$$

$$\Bigg(5\sqrt{1-\text{Cos}[e+f x]^2}\,\Bigg(9\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]-2\Bigg(2b^2\,\text{AppellF1}\Big[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[e+f x]^2,$$

$$\left.\left.\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\Bigg) +$$

$$\frac{\operatorname{Log}\left[1-\sqrt{\operatorname{Cos}[e+f x]}\right]}{2 a}-\frac{\operatorname{Log}\left[1+\sqrt{\operatorname{Cos}[e+f x]}\right]}{2 a}-\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right)\right.$$

$$\left.\operatorname{Log}\left[\sqrt{a^2-b^2}-\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}+b \operatorname{Cos}[e+f x]\right]\right)\Big/$$

$$\left(2 \sqrt{2}\, a \sqrt{b} \left(-a^2+b^2\right)\right)+\left(\left(a^2-b^2\right)^{1/4}\left(-2 a^2+b^2\right) \operatorname{Log}\left[\sqrt{a^2-b^2}+\right.\right.$$

$$\left.\left.\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}+b \operatorname{Cos}[e+f x]\right]\right)\Big/\left(2 \sqrt{2}\, a \sqrt{b} \left(-a^2+b^2\right)\right)\Bigg) -$$

$$\frac{1}{\left(1-\operatorname{Cos}[e+f x]^2\right) \left(b+a \operatorname{Csc}[e+f x]\right)} 2 \left(-7 a^2 b+9 b^3\right) \left(-1+\operatorname{Cos}[e+f x]^2\right)$$

$$\left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)$$

$$\operatorname{Csc}[e+f x]$$

$$\left(\left(5 b \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{\operatorname{Cos}[e+f x]}\right)\Big/\right.$$

$$\left(\sqrt{1-\operatorname{Cos}[e+f x]^2} \left(5 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[e+f x]^2,\right.\right.\right.$$

$$\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]-2 \left(2 b^2 \operatorname{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \operatorname{Cos}[e+f x]^2,\right.\right.$$

$$\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \operatorname{Cos}[e+f x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\right) -$$

$$\frac{1}{8 a \left(a^2-b^2\right)^{3/4}} \left(-2 \sqrt{2}\, b^{3/2} \operatorname{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2 \sqrt{2}\, b^{3/2}\right.$$

$$\operatorname{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[e+f x]}}{\left(a^2-b^2\right)^{1/4}}\right]+4 \left(a^2-b^2\right)^{3/4} \operatorname{ArcTan}\left[\sqrt{\operatorname{Cos}[e+f x]}\right]-$$

$$2 \left(a^2-b^2\right)^{3/4} \operatorname{Log}\left[1-\sqrt{\operatorname{Cos}[e+f x]}\right]+2 \left(a^2-b^2\right)^{3/4} \operatorname{Log}\left[1+\sqrt{\operatorname{Cos}[e+f x]}\right]-$$

$$\sqrt{2}\, b^{3/2} \operatorname{Log}\left[\sqrt{a^2-b^2}-\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}+b \operatorname{Cos}[e+f x]\right]+$$

$$\left.\left.\left.\sqrt{2}\, b^{3/2} \operatorname{Log}\left[\sqrt{a^2-b^2}+\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}+b \operatorname{Cos}[e+f x]\right]\right)\right)\right) +$$

$$\frac{\operatorname{Cos}[e+f x]^3 \left(-\frac{\operatorname{Csc}[e+f x]}{a}+\frac{2 \operatorname{Sec}[e+f x]^2 (-b+a \operatorname{Sin}[e+f x])}{3 \left(a^2-b^2\right)}\right)}{f \left(g \operatorname{Cos}[e+f x]\right)^{5/2}}$$

Problem 1408: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{g \operatorname{Cos}[e+f x]}\, (d \operatorname{Sin}[e+f x])^{5/2}}{a+b \operatorname{Sin}[e+f x]}\, dx$$

Optimal (type 4, 926 leaves, 31 steps):

$$\frac{a^2 d^{5/2} \sqrt{g}\, \operatorname{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{d \operatorname{Sin}[e+f x]}}\right]}{\sqrt{2}\, b^3 f}+\frac{d^{5/2} \sqrt{g}\, \operatorname{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{d \operatorname{Sin}[e+f x]}}\right]}{4 \sqrt{2}\, b f}-$$

$$\frac{a^2 d^{5/2} \sqrt{g}\, \operatorname{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{d \operatorname{Sin}[e+f x]}}\right]}{\sqrt{2}\, b^3 f}-\frac{d^{5/2} \sqrt{g}\, \operatorname{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{d \operatorname{Sin}[e+f x]}}\right]}{4 \sqrt{2}\, b f}-$$

$$\frac{a^2 d^{5/2} \sqrt{g}\, \operatorname{Log}\left[\sqrt{g}+\sqrt{g} \operatorname{Cot}[e+f x]-\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{d \operatorname{Sin}[e+f x]}}\right]}{2 \sqrt{2}\, b^3 f}-$$

$$\frac{d^{5/2} \sqrt{g}\, \operatorname{Log}\left[\sqrt{g}+\sqrt{g} \operatorname{Cot}[e+f x]-\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{d \operatorname{Sin}[e+f x]}}\right]}{8 \sqrt{2}\, b f}+$$

$$\frac{a^2 d^{5/2} \sqrt{g}\, \operatorname{Log}\left[\sqrt{g}+\sqrt{g} \operatorname{Cot}[e+f x]+\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{d \operatorname{Sin}[e+f x]}}\right]}{2 \sqrt{2}\, b^3 f}+$$

$$\frac{d^{5/2} \sqrt{g}\, \operatorname{Log}\left[\sqrt{g}+\sqrt{g} \operatorname{Cot}[e+f x]+\frac{\sqrt{2} \sqrt{d} \sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{d \operatorname{Sin}[e+f x]}}\right]}{8 \sqrt{2}\, b f}-$$

$$\left(2 \sqrt{2}\, a^3 d^3 \sqrt{g}\, \operatorname{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/$$

$$\left(b^3 \sqrt{-a+b} \sqrt{a+b}\, f \sqrt{d \operatorname{Sin}[e+f x]}\right)+$$

$$\left(2 \sqrt{2}\, a^3 d^3 \sqrt{g}\, \operatorname{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/$$

$$\left(b^3 \sqrt{-a+b} \sqrt{a+b}\, f \sqrt{d \operatorname{Sin}[e+f x]}\right)-\frac{d^2 (g \operatorname{Cos}[e+f x])^{3/2} \sqrt{d \operatorname{Sin}[e+f x]}}{2 b f g}-$$

$$\frac{a\, d^2 \sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{b^2 f \sqrt{\operatorname{Sin}[2 e+2 f x]}}$$

Result (type 6, 2886 leaves):

$$-\frac{\sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x] (d \operatorname{Sin}[e+f x])^{5/2}}{2 b f}+\frac{1}{4 b f \sqrt{\operatorname{Cos}[e+f x]}\, \operatorname{Sin}[e+f x]^{5/2}}$$

$$\sqrt{g\,\text{Cos}[e+f\,x]}\;\left(d\,\text{Sin}[e+f\,x]\right)^{5/2}\left(-\left(\left(14\,b\,\left(a^2-b^2\right)\,\text{Cos}[e+f\,x]^{3/2}\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.\right.\right.$$

$$\left(\left(b\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right/$$

$$\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)+$$

$$\left(a\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/$$

$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{7}{4},\frac{5}{4},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\right)$$

$$\left.\text{Sin}[e+f\,x]^{3/2}\right)\Big/\left(3\,\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right.$$

$$\left.\left.\left(a+b\,\text{Sin}[e+f\,x]\right)\right)\right)-$$

$$\left(2\,a\,\sqrt{\text{Tan}[e+f\,x]}\,\left(b\,\text{Tan}[e+f\,x]+a\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right)\right.$$

$$\left(\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]+\right.\right.$$

$$2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]-$$

$$\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]+$$

$$\left.\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\right.\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$

$$a^2 \,\text{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg) \left(-b^2 \,\text{Tan}[e+f x]^2 + a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg) \Bigg/$$

$$\left(\text{Cos}[e+f x]^{3/2} \sqrt{\text{Sin}[e+f x]} \left(a + b \,\text{Sin}[e+f x]\right) \left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right) +$$

$$\Bigg(4 a \,\text{Cos}\left[2 \left(e+f x\right)\right] \sqrt{\text{Tan}[e+f x]}$$

$$\left(b \,\text{Tan}[e+f x] + a \sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(-\frac{a \,\text{ArcTan}\left[\frac{-\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\, b^2} - \frac{a \,\text{ArcTan}\left[\frac{\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\, b^2} +$$

$$\frac{\left(2 a^2-b^2\right) \text{ArcTan}\left[\frac{-\sqrt{2} \sqrt{a}+2 \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{2} \sqrt{a}}\right]}{2 \sqrt{2} \sqrt{a}\, b^2 \left(a^2-b^2\right)^{1/4}} +$$

$$\frac{\left(2 a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{2} \sqrt{a}+2 \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{2} \sqrt{a}}\right]}{2 \sqrt{2} \sqrt{a}\, b^2 \left(a^2-b^2\right)^{1/4}} +$$

$$\frac{a \,\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[e+f x]} + \text{Tan}[e+f x]\right]}{2 \sqrt{2}\, b^2} -$$

$$\frac{a \,\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[e+f x]} + \text{Tan}[e+f x]\right]}{2 \sqrt{2}\, b^2} -$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[-a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]} - \sqrt{a^2-b^2}\, \text{Tan}[e+f x]\right]\right) \Bigg/$$

$$\left(4 \sqrt{2} \sqrt{a}\, b^2 \left(a^2-b^2\right)^{1/4}\right) +$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]} + \sqrt{a^2-b^2}\, \text{Tan}[e+f x]\right]\right) \Bigg/$$

$$\left(4 \sqrt{2} \sqrt{a}\, b^2 \left(a^2-b^2\right)^{1/4}\right) + \frac{\text{Tan}[e+f x]^{3/2}}{b \sqrt{1+\text{Tan}[e+f x]^2}} +$$

$$\left(7 a^4 \,\text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right] \text{Tan}[e+f x]^{3/2}\right) \Bigg/$$

$$\Bigg(b \sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7 a^2 \,\text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] + 2$$

$$\Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] +$$

$$a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)+$$

$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\,b\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)\Big)\Big/$$

$$\left(\text{Cos}[e+fx]^{3/2}\sqrt{\text{Sin}[e+fx]}\ (a+b\,\text{Sin}[e+fx])\ \left(-1+\text{Tan}[e+fx]^2\right)\sqrt{1+\text{Tan}[e+fx]^2}\right)$$

Problem 1409: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{g\,\text{Cos}[e+fx]}\ (d\,\text{Sin}[e+fx])^{3/2}}{a+b\,\text{Sin}[e+fx]}\,dx$$

Optimal (type 4, 578 leaves, 19 steps):

$$-\frac{a\,d^{3/2}\sqrt{g}\ \text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+fx]}}{\sqrt{g}\sqrt{d\,\text{Sin}[e+fx]}}\right]}{\sqrt{2}\ b^2 f}+\frac{a\,d^{3/2}\sqrt{g}\ \text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+fx]}}{\sqrt{g}\sqrt{d\,\text{Sin}[e+fx]}}\right]}{\sqrt{2}\ b^2 f}+$$
$$\frac{a\,d^{3/2}\sqrt{g}\ \text{Log}\left[\sqrt{g}+\sqrt{g}\ \text{Cot}[e+fx]-\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+fx]}}{\sqrt{d\,\text{Sin}[e+fx]}}\right]}{2\sqrt{2}\ b^2 f}-$$
$$\frac{a\,d^{3/2}\sqrt{g}\ \text{Log}\left[\sqrt{g}+\sqrt{g}\ \text{Cot}[e+fx]+\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+fx]}}{\sqrt{d\,\text{Sin}[e+fx]}}\right]}{2\sqrt{2}\ b^2 f}+$$
$$\left(2\sqrt{2}\ a^2 d^2\sqrt{g}\ \text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\ \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+fx]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+fx]}}\right],\ -1\right]\sqrt{\text{Sin}[e+fx]}\right)\Big/$$
$$\left(b^2\sqrt{-a+b}\ \sqrt{a+b}\ f\sqrt{d\,\text{Sin}[e+fx]}\right)-$$
$$\left(2\sqrt{2}\ a^2 d^2\sqrt{g}\ \text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\ \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+fx]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+fx]}}\right],\ -1\right]\sqrt{\text{Sin}[e+fx]}\right)\Big/$$
$$\left(b^2\sqrt{-a+b}\ \sqrt{a+b}\ f\sqrt{d\,\text{Sin}[e+fx]}\right)+$$
$$\frac{d\sqrt{g\,\text{Cos}[e+fx]}\ \text{EllipticE}\left[e-\frac{\pi}{4}+fx,\ 2\right]\sqrt{d\,\text{Sin}[e+fx]}}{b\,f\sqrt{\text{Sin}[2e+2fx]}}$$

Result (type 6, 520 leaves):

$$\frac{1}{3\,f\,\left(-a+b\,\text{Sin}[e+f\,x]\right)\,\left(a+b\,\text{Sin}[e+f\,x]\right)^2}$$

$$14\,\left(a^2-b^2\right)\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\text{Cot}[e+f\,x]\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}\,\left(a+b\,\sqrt{\text{Sin}[e+f\,x]^2}\right)$$

$$\left(\left(a\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/\right.$$

$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)+$$

$$\left(b\,\text{AppellF1}\left[\frac{3}{4},-\frac{3}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Sin}[e+f\,x]^2}\right)\Big/$$

$$\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{3}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{3}{4},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.\left.3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{4},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\right)$$

Problem 1410: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{g\,\text{Cos}[e+f\,x]}\;\sqrt{d\,\text{Sin}[e+f\,x]}}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 509 leaves, 16 steps):

$$\frac{\sqrt{d}\,\sqrt{g}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{\sqrt{2}\,b\,f}-\frac{\sqrt{d}\,\sqrt{g}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{\sqrt{2}\,b\,f}-$$

$$\frac{\sqrt{d}\,\sqrt{g}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f\,x]-\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{2\,\sqrt{2}\,b\,f}+$$

$$\frac{\sqrt{d}\,\sqrt{g}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f\,x]+\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{2\,\sqrt{2}\,b\,f}-$$

$$\left(2\,\sqrt{2}\,a\,d\,\sqrt{g}\,\text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f\,x]}}\right],\,-1\right]\sqrt{\text{Sin}[e+f\,x]}\right)\Big/$$
$$\left(b\,\sqrt{-a+b}\,\sqrt{a+b}\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}\right)+$$
$$\left(2\,\sqrt{2}\,a\,d\,\sqrt{g}\,\text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f\,x]}}\right],\,-1\right]\sqrt{\text{Sin}[e+f\,x]}\right)\Big/$$
$$\left(b\,\sqrt{-a+b}\,\sqrt{a+b}\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}\right)$$

Result (type 4, 201 leaves):

$$-\Bigg(\Bigg(2\,\sqrt{2}\,d\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\Bigg(\text{EllipticPi}\left[-i,\,-\text{ArcSin}\left[\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right],\,-1\right]+$$
$$\text{EllipticPi}\left[i,\,-\text{ArcSin}\left[\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right],\,-1\right]-$$
$$\text{EllipticPi}\left[\frac{a}{-b+\sqrt{-a^2+b^2}},\,-\text{ArcSin}\left[\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right],\,-1\right]-$$
$$\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\,-\text{ArcSin}\left[\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right],\,-1\right]\Bigg)$$
$$\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\Bigg)\Bigg/\left(b\,f\,\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}\,\sqrt{d\,\text{Sin}[e+f\,x]}\right)\Bigg)$$

Problem 1411: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 208 leaves, 5 steps):

$$\left(2\sqrt{2}\sqrt{g}\,\text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+f\,x]}}\right],-1\right]\sqrt{\text{Sin}[e+f\,x]}\right)\Big/\left(\sqrt{-a+b}\sqrt{a+b}\,f\sqrt{d\,\text{Sin}[e+f\,x]}\right)-\left(2\sqrt{2}\sqrt{g}\,\text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+f\,x]}}\right],-1\right]\sqrt{\text{Sin}[e+f\,x]}\right)\Big/\left(\sqrt{-a+b}\sqrt{a+b}\,f\sqrt{d\,\text{Sin}[e+f\,x]}\right)$$

Result (type 6, 577 leaves):

$$\frac{1}{f\sqrt{d\,\text{Sin}[e+f\,x]}\,(a+b\,\text{Sin}[e+f\,x])\,\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}}2\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{Sec}[e+f\,x]^2\sqrt{\text{Tan}[e+f\,x]}\left(b\,\text{Tan}[e+f\,x]+a\sqrt{1+\text{Tan}[e+f\,x]^2}\right)\left(\left(\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]-\text{Log}\left[-a+\sqrt{2}\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]+\text{Log}\left[a+\sqrt{2}\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/\left(4\sqrt{2}\sqrt{a}\,(a^2-b^2)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f\,x]^2}\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\left(2\,(a^2-b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)\right)$$

Problem 1412: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{(d\,\text{Sin}[e+f\,x])^{3/2}\,(a+b\,\text{Sin}[e+f\,x])}\,dx$$

Optimal (type 4, 320 leaves):

$$-\frac{2\,(g\,\mathrm{Cos}[e+f\,x])^{3/2}}{a\,d\,f\,g\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}-\left(2\sqrt{2}\,b\,\sqrt{g}\,\mathrm{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\mathrm{ArcSin}\left[\frac{\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\mathrm{Sin}[e+f\,x]}}\right],\,-1\right]\sqrt{\mathrm{Sin}[e+f\,x]}\right)\Big/\left(a\,\sqrt{-a+b}\,\sqrt{a+b}\,d\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right)+\left(2\sqrt{2}\,b\,\sqrt{g}\,\mathrm{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\mathrm{ArcSin}\left[\frac{\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\mathrm{Sin}[e+f\,x]}}\right],\,-1\right]\sqrt{\mathrm{Sin}[e+f\,x]}\right)\Big/\left(a\,\sqrt{-a+b}\,\sqrt{a+b}\,d\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right)-\frac{2\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\mathrm{EllipticE}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\sqrt{d\,\mathrm{Sin}[e+f\,x]}}{a\,d^2\,f\,\sqrt{\mathrm{Sin}[2\,e+2\,f\,x]}}$$

Result (type 6, 2881 leaves):

$$-\frac{2\,\mathrm{Cos}[e+f\,x]\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\mathrm{Sin}[e+f\,x]}{a\,f\,(d\,\mathrm{Sin}[e+f\,x])^{3/2}}+\frac{1}{a\,f\,\sqrt{\mathrm{Cos}[e+f\,x]}\,(d\,\mathrm{Sin}[e+f\,x])^{3/2}}\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\mathrm{Sin}[e+f\,x]^{3/2}\left(\left(28\,a\,(a^2-b^2)\,\mathrm{Cos}[e+f\,x]^{3/2}\left(a+b\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\left(\left(b\,\mathrm{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\Big/\left(-7\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(4\,b^2\,\mathrm{AppellF1}\left[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+f\,x]^2\right)+\left(a\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/\left(7\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{4},2,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{5}{4},1,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+f\,x]^2\right)\right)\mathrm{Sin}[e+f\,x]^{3/2}\right)\Big/\left(3\,(1-\mathrm{Cos}[e+f\,x]^2)\,(a^2+b^2\,(-1+\mathrm{Cos}[e+f\,x]^2))\,(a+b\,\mathrm{Sin}[e+f\,x])\right)-\left(4\,b\,\sqrt{\mathrm{Tan}[e+f\,x]}\left(b\,\mathrm{Tan}[e+f\,x]+a\sqrt{1+\mathrm{Tan}[e+f\,x]^2}\right)\right.$$

$$\left(\left(\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+\right.\right.\right.$$

$$2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]-$$

$$\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]+$$

$$\left.\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\right.\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\,\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\left(2\,b\,\text{Cos}\left[2\,\left(e+f x\right)\right]\sqrt{\text{Tan}[e+f x]}\,\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)\right.$$

$$\left(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\right.$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[-a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2} \text{Tan}[e+f x]\right]\right)\Big/ \left(4 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2} \text{Tan}[e+f x]\right]\right)\Big/ \left(4 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f x]^{3/2}}{b \sqrt{1+\text{Tan}[e+f x]^2}}+$$

$$\left(7 a^4 \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right] \text{Tan}[e+f x]^{3/2}\right)\Big/ \left(b \sqrt{1+\text{Tan}[e+f x]^2} \left(-7 a^2 \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+2 \left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+a^2 \text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right) \left(-b^2 \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(7 a^2 b \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right] \text{Tan}[e+f x]^{3/2}\right)\Big/ \left(3 \sqrt{1+\text{Tan}[e+f x]^2} \left(-7 a^2 \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+2 \left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+a^2 \text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right) \left(-b^2 \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(11 a^4 \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right] \text{Tan}[e+f x]^{7/2}\right)\Big/ \left(7 b \sqrt{1+\text{Tan}[e+f x]^2} \left(-11 a^2 \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+2 \left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+a^2 \text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right)\right.\right.$$

$$\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)-$$

$$\Big(11\,a^2\,b\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\Big]$$

$$\text{Tan}[e+f x]^{7/2}\Big)\Big/\Big(7\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Big(-11\,a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+2$$

$$\Big(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)\Big)\Big/$$

$$\Big(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)$$

$$\sqrt{1+\text{Tan}[e+f x]^2}\,\Big)$$

Problem 1413: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\left(d\,\text{Sin}[e+f x]\right)^{5/2}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 366 leaves, 11 steps):

$$-\frac{2\left(g\,\text{Cos}[e+f x]\right)^{3/2}}{3\,a\,d\,f\,g\left(d\,\text{Sin}[e+f x]\right)^{3/2}}+\frac{2\,b\left(g\,\text{Cos}[e+f x]\right)^{3/2}}{a^2\,d^2\,f\,g\sqrt{d\,\text{Sin}[e+f x]}}+$$

$$\Big(2\sqrt{2}\,b^2\sqrt{g}\,\text{EllipticPi}\Big[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\text{ArcSin}\Big[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+f x]}}\Big],-1\Big]\sqrt{\text{Sin}[e+f x]}\Big)\Big/$$

$$\left(a^2\sqrt{-a+b}\,\sqrt{a+b}\,d^2\,f\sqrt{d\,\text{Sin}[e+f x]}\right)-$$

$$\Big(2\sqrt{2}\,b^2\sqrt{g}\,\text{EllipticPi}\Big[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\text{ArcSin}\Big[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+f x]}}\Big],-1\Big]\sqrt{\text{Sin}[e+f x]}\Big)\Big/$$

$$\left(a^2\sqrt{-a+b}\,\sqrt{a+b}\,d^2\,f\sqrt{d\,\text{Sin}[e+f x]}\right)+$$

$$\frac{2\,b\sqrt{g\,\text{Cos}[e+f x]}\,\text{EllipticE}\Big[e-\frac{\pi}{4}+f x,2\Big]\sqrt{d\,\text{Sin}[e+f x]}}{a^2\,d^3\,f\sqrt{\text{Sin}[2\,e+2\,f x]}}$$

Result (type 6, 2907 leaves):

$$\frac{\sqrt{g\,\mathrm{Cos}[e+f\,x]}\left(\frac{2\,b\,\mathrm{Cot}[e+f\,x]}{a^2}-\frac{2\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]}{3\,a}\right)\mathrm{Sin}[e+f\,x]^3}{f\,\left(d\,\mathrm{Sin}[e+f\,x]\right)^{5/2}}-$$

$$\frac{1}{a^2\,f\,\sqrt{\mathrm{Cos}[e+f\,x]}\,\left(d\,\mathrm{Sin}[e+f\,x]\right)^{5/2}}$$

$$b\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\mathrm{Sin}[e+f\,x]^{5/2}\left(\left(28\,a\,\left(a^2-b^2\right)\,\mathrm{Cos}[e+f\,x]^{3/2}\,\left(a+b\,\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\right.\right.$$

$$\left(\left(b\,\mathrm{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\Big/\right.$$

$$\left(-7\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\mathrm{AppellF1}\left[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\mathrm{AppellF1}\left[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+f\,x]^2\right)+$$

$$\left(a\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/$$

$$\left(7\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{4},2,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\left.\mathrm{AppellF1}\left[\frac{7}{4},\frac{5}{4},1,\frac{11}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+f\,x]^2\right)\right)$$

$$\left.\mathrm{Sin}[e+f\,x]^{3/2}\right)\Big/\left(3\,\left(1-\mathrm{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\mathrm{Cos}[e+f\,x]^2\right)\right)\right.$$

$$\left.\left(a+b\,\mathrm{Sin}[e+f\,x]\right)\right)-$$

$$\left(4\,b\,\sqrt{\mathrm{Tan}[e+f\,x]}\,\left(b\,\mathrm{Tan}[e+f\,x]+a\,\sqrt{1+\mathrm{Tan}[e+f\,x]^2}\right)\right.$$

$$\left(\left(-2\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+f\,x]}}{\sqrt{a}}\right]+\right.\right.$$

$$2\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+f\,x]}}{\sqrt{a}}\right]-$$

$$\mathrm{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\mathrm{Tan}[e+f\,x]\right]+$$

$$\left.\mathrm{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\mathrm{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\mathrm{Tan}[e+f\,x]^2,\right.\right.$$

$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] \text{Tan}[e+f x]^{3/2}\Bigg) \Bigg/ \Bigg(3 \sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7 a^2 \text{AppellF1}\Big[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] + 2$$

$$\Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] +$$

$$a^2 \text{AppellF1}\Big[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg) \left(-b^2 \text{Tan}[e+f x]^2 + a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg) \Bigg/$$

$$\left(\text{Cos}[e+f x]^{3/2} \sqrt{\text{Sin}[e+f x]} \left(a+b \text{Sin}[e+f x]\right) \left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right) +$$

$$\Bigg(2 b \text{Cos}\left[2 (e+f x)\right] \sqrt{\text{Tan}[e+f x]} \left(b \text{Tan}[e+f x] + a \sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(-\frac{a \text{ArcTan}\Big[\frac{-\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\Big]}{\sqrt{2} b^2} - \frac{a \text{ArcTan}\Big[\frac{\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\Big]}{\sqrt{2} b^2} +$$

$$\frac{\left(2 a^2-b^2\right) \text{ArcTan}\Big[\frac{-\sqrt{2} \sqrt{a}+2 \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{2} \sqrt{a}}\Big]}{2 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}} +$$

$$\frac{\left(2 a^2-b^2\right) \text{ArcTan}\Big[\frac{\sqrt{2} \sqrt{a}+2 \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{2} \sqrt{a}}\Big]}{2 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}} +$$

$$\frac{a \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2 \sqrt{2} b^2} -$$

$$\frac{a \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2 \sqrt{2} b^2} -$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[-a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]} - \sqrt{a^2-b^2} \text{Tan}[e+f x]\right]\right) \Big/$$

$$\left(4 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}\right) +$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]} + \sqrt{a^2-b^2} \text{Tan}[e+f x]\right]\right) \Big/$$

$$\left(4 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}\right) + \frac{\text{Tan}[e+f x]^{3/2}}{b \sqrt{1+\text{Tan}[e+f x]^2}} +$$

$$\left(7 a^4 \text{AppellF1}\Big[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\Big] \text{Tan}[e+f x]^{3/2}\right) \Big/$$

$$\Bigg(b \sqrt{1+\text{Tan}[e+f x]^2}$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\text{Tan}[e+f\,x]^2\right)\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big)-$$
$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\text{Tan}[e+f\,x]^2\right)\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big)+$$
$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{7/2}\right)\Big/\left(7\,b\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\text{Tan}[e+f\,x]^2\right)\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big)-$$
$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{7/2}\right)\Big/\left(7\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\left.\mathrm{Tan}[e+fx]^2\right)\left(-b^2\,\mathrm{Tan}[e+fx]^2+a^2\left(1+\mathrm{Tan}[e+fx]^2\right)\right)\right)\right)\Big/$$

$$\left(\mathrm{Cos}[e+fx]^{3/2}\sqrt{\mathrm{Sin}[e+fx]}\,\left(a+b\,\mathrm{Sin}[e+fx]\right)\left(-1+\mathrm{Tan}[e+fx]^2\right)\right.$$

$$\left.\left.\sqrt{1+\mathrm{Tan}[e+fx]^2}\right)\right)$$

Problem 1414: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{g\,\mathrm{Cos}[e+fx]}}{\left(d\,\mathrm{Sin}[e+fx]\right)^{7/2}\left(a+b\,\mathrm{Sin}[e+fx]\right)}\,dx$$

Optimal (type 4, 513 leaves, 16 steps):

$$-\frac{2\left(g\,\mathrm{Cos}[e+fx]\right)^{3/2}}{5\,a\,d\,f\,g\left(d\,\mathrm{Sin}[e+fx]\right)^{5/2}}+\frac{2\,b\left(g\,\mathrm{Cos}[e+fx]\right)^{3/2}}{3\,a^2\,d^2\,f\,g\left(d\,\mathrm{Sin}[e+fx]\right)^{3/2}}-\frac{4\left(g\,\mathrm{Cos}[e+fx]\right)^{3/2}}{5\,a\,d^3\,f\,g\sqrt{d\,\mathrm{Sin}[e+fx]}}-\frac{2\,b^2\left(g\,\mathrm{Cos}[e+fx]\right)^{3/2}}{a^3\,d^3\,f\,g\sqrt{d\,\mathrm{Sin}[e+fx]}}-$$

$$\left(2\sqrt{2}\,b^3\sqrt{g}\,\mathrm{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\mathrm{ArcSin}\left[\frac{\sqrt{g\,\mathrm{Cos}[e+fx]}}{\sqrt{g}\,\sqrt{1+\mathrm{Sin}[e+fx]}}\right],\,-1\right]\sqrt{\mathrm{Sin}[e+fx]}\right)\Big/$$

$$\left(a^3\sqrt{-a+b}\,\sqrt{a+b}\,d^3\,f\sqrt{d\,\mathrm{Sin}[e+fx]}\right)+$$

$$\left(2\sqrt{2}\,b^3\sqrt{g}\,\mathrm{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\mathrm{ArcSin}\left[\frac{\sqrt{g\,\mathrm{Cos}[e+fx]}}{\sqrt{g}\,\sqrt{1+\mathrm{Sin}[e+fx]}}\right],\,-1\right]\sqrt{\mathrm{Sin}[e+fx]}\right)\Big/$$

$$\left(a^3\sqrt{-a+b}\,\sqrt{a+b}\,d^3\,f\sqrt{d\,\mathrm{Sin}[e+fx]}\right)-$$

$$\frac{4\sqrt{g\,\mathrm{Cos}[e+fx]}\,\mathrm{EllipticE}\left[e-\frac{\pi}{4}+fx,\,2\right]\sqrt{d\,\mathrm{Sin}[e+fx]}}{5\,a\,d^4\,f\sqrt{\mathrm{Sin}[2e+2fx]}}-$$

$$\frac{2\,b^2\sqrt{g\,\mathrm{Cos}[e+fx]}\,\mathrm{EllipticE}\left[e-\frac{\pi}{4}+fx,\,2\right]\sqrt{d\,\mathrm{Sin}[e+fx]}}{a^3\,d^4\,f\sqrt{\mathrm{Sin}[2e+2fx]}}$$

Result (type 6, 2987 leaves):

$$\left(\sqrt{g\,\mathrm{Cos}[e+fx]}\left(-\frac{2\left(2\,a^2\,\mathrm{Cos}[e+fx]+5\,b^2\,\mathrm{Cos}[e+fx]\right)\mathrm{Csc}[e+fx]}{5\,a^3}+\right.\right.$$

$$\left.\left.\frac{2\,b\,\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]}{3\,a^2}-\frac{2\,\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]^2}{5\,a}\right)\mathrm{Sin}[e+fx]^4\right)\Big/$$

$$\left(f\left(d\,\mathrm{Sin}[e+fx]\right)^{7/2}\right)-\frac{1}{5\,a^3\,f\sqrt{\mathrm{Cos}[e+fx]}\,\left(d\,\mathrm{Sin}[e+fx]\right)^{7/2}}\sqrt{g\,\mathrm{Cos}[e+fx]}$$

$$\text{Sin}[e+f x]^{7/2} \Bigg(-\Bigg(\Bigg(\Bigg(14\,(a^2-b^2)\,(4 a^3+10 a b^2)\,\text{Cos}[e+f x]^{3/2}\,\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(b\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\sqrt{1-\text{Cos}[e+f x]^2}\Bigg)\Bigg/$$

$$\Bigg(-7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+$$

$$\Bigg(4 b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+(a^2-b^2)$$

$$\text{AppellF1}\Big[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[e+f x]^2\Bigg)+$$

$$\Bigg(a\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\Bigg/\Bigg(7\,(a^2-b^2)$$

$$\text{AppellF1}\Big[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\Bigg(-4 b^2\,\text{AppellF1}\Big[\frac{7}{4},$$

$$\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{5}{4},1,$$

$$\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[e+f x]^2\Bigg)\Bigg)\,\text{Sin}[e+f x]^{3/2}\Bigg)\Bigg/$$

$$\left(3\,(1-\text{Cos}[e+f x]^2)\,(a^2+b^2\,(-1+\text{Cos}[e+f x]^2))\,(a+b\,\text{Sin}[e+f x])\right)\Bigg)+$$

$$\Bigg(2\,(2 a^2 b+10 b^3)\,\sqrt{\text{Tan}[e+f x]}\,\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]+$$

$$2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]-$$

$$\text{Log}\Big[-a+\sqrt{2}\,\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]+$$

$$\text{Log}\Big[a+\sqrt{2}\,\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]\Bigg)\Bigg/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,(a^2-b^2)^{1/4}\right)+\Bigg(7 a^2 b\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Tan}[e+f x]^{3/2}\Bigg)\Bigg/\Bigg(3\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7 a^2\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+2$$

$$\Bigg(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\Bigg(2\left(-2\,a^2\,b-5\,b^3\right)\text{Cos}\left[2\left(e+f x\right)\right]\sqrt{\text{Tan}[e+f x]}$$

$$\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\left(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\right.$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2\,a^2-b^2\right)\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f x]^{3/2}}{b\sqrt{1+\text{Tan}[e+f x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\text{Tan}[e+f x]^{3/2}\right)\Big/$$

$$\left(b\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\,b\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)\right.$$

$$\left.\sqrt{1+\text{Tan}[e+f x]^2}\right)\Bigg)$$

Problem 1415: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{g \,\text{Cos}[e+f x]}}{(d \,\text{Sin}[e+f x])^{9/2}\,(a+b \,\text{Sin}[e+f x])}\, dx$$

Optimal (type 4, 598 leaves, 19 steps):

$$-\frac{2\,(g \,\text{Cos}[e+f x])^{3/2}}{7\, a\, d\, f\, g\,(d \,\text{Sin}[e+f x])^{7/2}}+\frac{2\, b\,(g \,\text{Cos}[e+f x])^{3/2}}{5\, a^2\, d^2\, f\, g\,(d \,\text{Sin}[e+f x])^{5/2}}-\frac{8\,(g \,\text{Cos}[e+f x])^{3/2}}{21\, a\, d^3\, f\, g\,(d \,\text{Sin}[e+f x])^{3/2}}-$$
$$\frac{2\, b^2\,(g \,\text{Cos}[e+f x])^{3/2}}{3\, a^3\, d^3\, f\, g\,(d \,\text{Sin}[e+f x])^{3/2}}+\frac{4\, b\,(g \,\text{Cos}[e+f x])^{3/2}}{5\, a^2\, d^4\, f\, g\,\sqrt{d \,\text{Sin}[e+f x]}}+\frac{2\, b^3\,(g \,\text{Cos}[e+f x])^{3/2}}{a^4\, d^4\, f\, g\,\sqrt{d \,\text{Sin}[e+f x]}}+$$
$$\left(2\sqrt{2}\, b^4 \sqrt{g}\, \text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/$$
$$\left(a^4 \sqrt{-a+b}\,\sqrt{a+b}\, d^4 f \sqrt{d \,\text{Sin}[e+f x]}\right)-$$
$$\left(2\sqrt{2}\, b^4 \sqrt{g}\, \text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/$$
$$\left(a^4 \sqrt{-a+b}\,\sqrt{a+b}\, d^4 f \sqrt{d \,\text{Sin}[e+f x]}\right)+$$
$$\frac{4\, b\,\sqrt{g \,\text{Cos}[e+f x]}\, \text{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \,\text{Sin}[e+f x]}}{5\, a^2\, d^5\, f\,\sqrt{\text{Sin}[2 e+2 f x]}}+$$
$$\frac{2\, b^3\,\sqrt{g \,\text{Cos}[e+f x]}\, \text{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \,\text{Sin}[e+f x]}}{a^4\, d^5\, f\,\sqrt{\text{Sin}[2 e+2 f x]}}$$

Result (type 6, 3029 leaves):

$$\left(\sqrt{g \,\text{Cos}[e+f x]}\,\left(\frac{2\,(2\, a^2\, b \,\text{Cos}[e+f x]+5\, b^3 \,\text{Cos}[e+f x])\,\text{Csc}[e+f x]}{5\, a^4}-\right.\right.$$
$$\frac{2\,(4\, a^2 \,\text{Cos}[e+f x]+7\, b^2 \,\text{Cos}[e+f x])\,\text{Csc}[e+f x]^2}{21\, a^3}+\frac{2\, b \,\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2}{5\, a^2}-$$
$$\left.\left.\frac{2 \,\text{Cot}[e+f x]\,\text{Csc}[e+f x]^3}{7\, a}\right)\text{Sin}[e+f x]^5\right) \Big/ \left(f\,(d \,\text{Sin}[e+f x])^{9/2}\right)+$$
$$\frac{1}{5\, a^4\, f\,\sqrt{\text{Cos}[e+f x]}\,(d \,\text{Sin}[e+f x])^{9/2}}\, b\,\sqrt{g \,\text{Cos}[e+f x]}\,\text{Sin}[e+f x]^{9/2}$$
$$\left(-\left(\left(14\,(a^2-b^2)\,(4\, a^3+10\, a\, b^2)\,\text{Cos}[e+f x]^{3/2}\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\right.\right.\right.$$

$$\left(\left(\left(b\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{1-\text{Cos}[e+f x]^2}\right)\Big/\right.\right.$$
$$\left(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$
$$\left(4\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)+$$
$$\left(a\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\Big/\left(7\left(a^2-b^2\right)\right.$$
$$\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\text{AppellF1}\left[\frac{7}{4},\right.\right.$$
$$\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{5}{4},1,$$
$$\left.\left.\left.\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\right)\text{Sin}[e+f x]^{3/2}\right)\Big/$$
$$\left.\left(3\left(1-\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\left(a+b\,\text{Sin}[e+f x]\right)\right)\right)+$$
$$\left(2\left(2\,a^2\,b+10\,b^3\right)\sqrt{\text{Tan}[e+f x]}\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)\right.$$
$$\left(\left(\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+\right.\right.\right.$$
$$2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]-$$
$$\text{Log}\left[-a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]+$$
$$\left.\text{Log}\left[a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$
$$\left(4\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\right.\right.$$
$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$
$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$
$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\left(2\left(-2a^2b-5b^3\right)\operatorname{Cos}\left[2\left(e+fx\right)\right]\sqrt{\operatorname{Tan}[e+fx]}\right.$$

$$\left(b\operatorname{Tan}[e+fx]+a\sqrt{1+\operatorname{Tan}[e+fx]^2}\right)$$

$$\left(-\frac{a\operatorname{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\operatorname{Tan}[e+fx]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\operatorname{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\operatorname{Tan}[e+fx]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\right.$$

$$\frac{\left(2a^2-b^2\right)\operatorname{ArcTan}\left[\frac{-\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+fx]}}{\sqrt{2}\sqrt{a}}\right]}{2\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2a^2-b^2\right)\operatorname{ArcTan}\left[\frac{\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+fx]}}{\sqrt{2}\sqrt{a}}\right]}{2\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\operatorname{Log}\left[1-\sqrt{2}\sqrt{\operatorname{Tan}[e+fx]}+\operatorname{Tan}[e+fx]\right]}{2\sqrt{2}\,b^2}-$$

$$\frac{a\operatorname{Log}\left[1+\sqrt{2}\sqrt{\operatorname{Tan}[e+fx]}+\operatorname{Tan}[e+fx]\right]}{2\sqrt{2}\,b^2}-$$

$$\left(\left(2a^2-b^2\right)\operatorname{Log}\left[-a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+fx]}-\sqrt{a^2-b^2}\operatorname{Tan}[e+fx]\right]\right)\Big/$$

$$\left(4\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2a^2-b^2\right)\operatorname{Log}\left[a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+fx]}+\sqrt{a^2-b^2}\operatorname{Tan}[e+fx]\right]\right)\Big/$$

$$\left(4\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+\frac{\operatorname{Tan}[e+fx]^{3/2}}{b\sqrt{1+\operatorname{Tan}[e+fx]^2}}+$$

$$\left(7a^4\operatorname{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\operatorname{Tan}[e+fx]^2,\frac{\left(-a^2+b^2\right)\operatorname{Tan}[e+fx]^2}{a^2}\right]\operatorname{Tan}[e+fx]^{3/2}\right)\Big/$$

$$\left(b\sqrt{1+\operatorname{Tan}[e+fx]^2}\right.$$

$$\left(-7a^2\operatorname{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\operatorname{Tan}[e+fx]^2,\left(-1+\frac{b^2}{a^2}\right)\operatorname{Tan}[e+fx]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\operatorname{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\operatorname{Tan}[e+fx]^2,\left(-1+\frac{b^2}{a^2}\right)\operatorname{Tan}[e+fx]^2\right]+\right.$$

$$\left.a^2\operatorname{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\operatorname{Tan}[e+fx]^2,\left(-1+\frac{b^2}{a^2}\right)\operatorname{Tan}[e+fx]^2\right]\right)$$

$$\left.\left.\operatorname{Tan}[e+fx]^2\right)\left(-b^2\operatorname{Tan}[e+fx]^2+a^2\left(1+\operatorname{Tan}[e+fx]^2\right)\right)\right)-$$

$$\left(7a^2b\operatorname{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\operatorname{Tan}[e+fx]^2,\frac{\left(-a^2+b^2\right)\operatorname{Tan}[e+fx]^2}{a^2}\right]\right.$$

$$\text{Tan}[e+f x]^{3/2}\Bigg)\Bigg/\Bigg(3\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7 a^2 \text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+2$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(11 a^4\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\Big]$$

$$\text{Tan}[e+f x]^{7/2}\Bigg)\Bigg/\Bigg(7 b\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-11 a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+2$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)-$$

$$\Bigg(11 a^2 b\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\Big]$$

$$\text{Tan}[e+f x]^{7/2}\Bigg)\Bigg/\Bigg(7\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-11 a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+2$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)$$

$$\sqrt{1+\text{Tan}[e+f x]^2}\Bigg)$$

Problem 1416: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{3/2} (d \operatorname{Sin}[e+f x])^{3/2}}{a+b \operatorname{Sin}[e+f x]} \, dx$$

Optimal (type 4, 982 leaves, 31 steps):

$$\frac{3\,d^{3/2}\,g^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{4\,\sqrt{2}\,b\,f}+$$

$$\frac{\left(a^2-b^2\right)\,d^{3/2}\,g^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{\sqrt{2}\,b^3\,f}-\frac{3\,d^{3/2}\,g^{3/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{4\,\sqrt{2}\,b\,f}-$$

$$\frac{\left(a^2-b^2\right)\,d^{3/2}\,g^{3/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{\sqrt{2}\,b^3\,f}+\left(2\,\sqrt{2}\,a\,\sqrt{-a^2+b^2}\,d^{3/2}\,g^2\right.$$

$$\left.\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/$$

$$\left(b^3\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)-\left(2\,\sqrt{2}\,a\,\sqrt{-a^2+b^2}\,d^{3/2}\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/\left(b^3\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)-$$

$$\frac{3\,d^{3/2}\,g^{3/2}\,\text{Log}\left[\sqrt{d}-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{8\,\sqrt{2}\,b\,f}-$$

$$\frac{\left(a^2-b^2\right)\,d^{3/2}\,g^{3/2}\,\text{Log}\left[\sqrt{d}-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^3\,f}+$$

$$\frac{3\,d^{3/2}\,g^{3/2}\,\text{Log}\left[\sqrt{d}+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{8\,\sqrt{2}\,b\,f}+$$

$$\frac{\left(a^2-b^2\right)\,d^{3/2}\,g^{3/2}\,\text{Log}\left[\sqrt{d}+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^3\,f}-$$

$$\frac{a\,d\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{b^2\,f}+\frac{g\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}{2\,b\,f}+$$

$$\frac{a\,d^2\,g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\,\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{2\,b^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\sqrt{d\,\text{Sin}[e+f\,x]}}$$

Result (type 6, 2370 leaves):

$$\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\text{Sec}[e+f\,x]\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}{2\,b\,f}-$$

$$\frac{1}{4\,b\,f\,\text{Cos}[e+f\,x]^{3/2}\,\text{Sin}[e+f\,x]^{3/2}}\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}$$

$$\left(\left(1\Big/\left(\left(1-\mathrm{Cos}[e+fx]^2\right)\left(a^2+b^2\left(-1+\mathrm{Cos}[e+fx]^2\right)\right)\left(a+b\,\mathrm{Sin}[e+fx]\right)\right)\right)\right.$$

$$10\,b\left(a^2-b^2\right)\sqrt{\mathrm{Cos}[e+fx]}\left(a+b\sqrt{1-\mathrm{Cos}[e+fx]^2}\right)$$

$$\left(\left(b\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]\sqrt{1-\mathrm{Cos}[e+fx]^2}\right)\Big/\right.$$

$$\left(-5\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{1}{4},-\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{3}{4},2,\frac{9}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]+3\left(a^2-b^2\right)\right.$$

$$\left.\left.\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+fx]^2\right)+$$

$$\left(a\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{4},1,\frac{5}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)\Big/$$

$$\left(5\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{4},1,\frac{5}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{4},2,\frac{9}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\left.\mathrm{AppellF1}\left[\frac{5}{4},\frac{3}{4},1,\frac{9}{4},\mathrm{Cos}[e+fx]^2,\frac{b^2\,\mathrm{Cos}[e+fx]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+fx]^2\right)\right)$$

$$\mathrm{Sin}[e+fx]^{5/2}+\left(4\,a\,\mathrm{Cos}\left[2\left(e+fx\right)\right]\sqrt{\mathrm{Sin}[e+fx]}\left(b\,\mathrm{Tan}[e+fx]+a\sqrt{1+\mathrm{Tan}[e+fx]^2}\right)\right.$$

$$\left(-\frac{a\,\mathrm{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\mathrm{Tan}[e+fx]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\mathrm{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\mathrm{Tan}[e+fx]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\right.$$

$$\frac{\sqrt{a}\left(2\,a^2-b^2\right)\mathrm{ArcTan}\left[\frac{-\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+fx]}}{\sqrt{2}\sqrt{a}}\right]}{2\sqrt{2}\,b^2\left(a^2-b^2\right)^{3/4}}+$$

$$\frac{\sqrt{a}\left(2\,a^2-b^2\right)\mathrm{ArcTan}\left[\frac{\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+fx]}}{\sqrt{2}\sqrt{a}}\right]}{2\sqrt{2}\,b^2\left(a^2-b^2\right)^{3/4}}-$$

$$\frac{a\,\mathrm{Log}\left[1-\sqrt{2}\sqrt{\mathrm{Tan}[e+fx]}+\mathrm{Tan}[e+fx]\right]}{2\sqrt{2}\,b^2}+$$

$$\frac{a\,\mathrm{Log}\left[1+\sqrt{2}\sqrt{\mathrm{Tan}[e+fx]}+\mathrm{Tan}[e+fx]\right]}{2\sqrt{2}\,b^2}+\left(\sqrt{a}\left(2\,a^2-b^2\right)\mathrm{Log}\left[-a+\sqrt{2}\sqrt{a}\right.\right.$$

$$\left.\left.\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+fx]}-\sqrt{a^2-b^2}\,\mathrm{Tan}[e+fx]\right]\right)\Big/\left(4\sqrt{2}\,b^2\left(a^2-b^2\right)^{3/4}\right)-$$

$$\left(\sqrt{a}\,\left(2 a^2-b^2\right) \text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4 \sqrt{2}\, b^2 \left(a^2-b^2\right)^{3/4}\right)-\frac{\sqrt{\text{Tan}[e+f x]}}{b \sqrt{1+\text{Tan}[e+f x]^2}}-\left(5 a^4\, \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.$$

$$\left.\left.-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right] \sqrt{\text{Tan}[e+f x]}\right)\Big/\left(b \sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-5 a^2\, \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\, \text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\, \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(9 a^4\, \text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{5/2}\right)\Big/\left(5 b \sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-9 a^2\, \text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\, \text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\, \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{5/2} \left(a+b\, \text{Sin}[e+f x]\right) \sqrt{\text{Tan}[e+f x]} \left(-1+\text{Tan}[e+f x]^2\right)\right.$$

$$\left.\sqrt{1+\text{Tan}[e+f x]^2}\right)+$$

$$\left(2 a \sqrt{\text{Sin}[e+f x]} \left(b\, \text{Tan}[e+f x]+a \sqrt{1+\text{Tan}[e+f x]^2}\right)\right.$$

$$\left(\left(\left(\sqrt{a} \left(-2\, \text{ArcTan}\left[1-\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+2\right.\right.\right.\right.$$

$$\text{ArcTan}\left[1+\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+\text{Log}\Big[$$

$$-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]-\text{Log}\Big[$$

$$a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]\Big)\Big)\Big/$$

$$\left(4\sqrt{2}\,\left(a^2-b^2\right)^{3/4}\right)+\Bigg(9\,a^2\,b\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Tan}[e+f x]^{5/2}\Bigg)\Big/\Bigg(5\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-9\,a^2\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+2$$

$$\Bigg(2\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg)\Big/$$

$$\left(\text{Cos}[e+f x]^{5/2}\,\left(a+b\,\text{Sin}[e+f x]\right)\sqrt{\text{Tan}[e+f x]}\,\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)\Bigg)$$

Problem 1417: Result unnecessarily involves higher level functions.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\sqrt{d\,\text{Sin}[e+f x]}}{a+b\,\text{Sin}[e+f x]}\,dx$$

Optimal (type 4, 611 leaves, 19 steps):

$$-\frac{a\sqrt{d}\,g^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{\sqrt{2}\,b^2\,f}+\frac{a\sqrt{d}\,g^{3/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{\sqrt{2}\,b^2\,f}-\left(2\sqrt{2}\,\sqrt{-a^2+b^2}\,\sqrt{d}\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/$$

$$\left(b^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)+\left(2\sqrt{2}\,\sqrt{-a^2+b^2}\,\sqrt{d}\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\right.$$

$$\left.\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/\left(b^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)+$$

$$\frac{a\sqrt{d}\,g^{3/2}\,\text{Log}\left[\sqrt{d}-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{2\sqrt{2}\,b^2\,f}-$$

$$\frac{a\sqrt{d}\,g^{3/2}\,\text{Log}\left[\sqrt{d}+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{2\sqrt{2}\,b^2\,f}+$$

$$\frac{g\sqrt{g\,\text{Cos}[e+f\,x]}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{b\,f}-$$

$$\frac{d\,g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{2\,b\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\sqrt{d\,\text{Sin}[e+f\,x]}}$$

Result (type 6, 999 leaves) :

$$-\left(\left(\left((g\,\text{Cos}[e+f\,x])^{3/2}\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.\right.\right.$$

$$\left(-\left(\left(25\,(a^2-b^2)^2\,\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\right/\right.$$

$$\left(b\,\left(-5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+3\,(-a^2+b^2)\right.$$

$$\left.\left.\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\right)\right)+$$

$$\left(18\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right.$$

$$\left.\text{Cos}[e+f\,x]^2\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Big/$$

$$\left(9\,(a^2-b^2)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{4},2,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.(a^2-b^2)\,\text{AppellF1}\left[\frac{9}{4},\frac{5}{4},1,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)+$$

$$\left(-5\,\left(-4\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{3}{4},2,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$\left.3\,(a^2-b^2)\,\text{AppellF1}\left[\frac{9}{4},\frac{7}{4},1,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$

$$\text{Cos}[e+f\,x]^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)-$$

$$9\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]$$

$$\left(a^4\,\left(-5+3\,\text{Cos}[e+f\,x]^2\right)+b^4\,\left(-5+9\,\text{Cos}[e+f\,x]^2-5\,\text{Cos}[e+f\,x]^4\right)+\right.$$

$$\left.\left.a^2\,b^2\,\left(10-12\,\text{Cos}[e+f\,x]^2+5\,\text{Cos}[e+f\,x]^4\right)\right)\right)\Big/$$

$$\left(b\,\left(-9\,(a^2-b^2)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{3}{4},2,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+3\,(-a^2+b^2)\right.$$

$$\left.\left.\left.\left.\text{AppellF1}\left[\frac{9}{4},\frac{7}{4},1,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\right)\right)$$

$$\left.\sqrt{d\,\text{Sin}[e+f\,x]}\,\text{Tan}[e+f\,x]\right)\Big/\left(5\,f\,\left(1-\text{Cos}[e+f\,x]^2\right)^{3/2}\right.$$

$$\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)$$

$$\left.\left.(a+b\,\text{Sin}[e+f\,x])\right)\right)$$

Problem 1418: Result unnecessarily involves higher level functions.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{3/2}}{\sqrt{d \operatorname{Sin}[e+f x]}\,(a+b \operatorname{Sin}[e+f x])}\,dx$$

Optimal (type 4, 577 leaves, 18 steps):

$$\frac{g^{3/2} \operatorname{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{g \operatorname{Cos}[e+f x]}}\right]}{\sqrt{2}\,b\,\sqrt{d}\,f}-\frac{g^{3/2} \operatorname{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{g \operatorname{Cos}[e+f x]}}\right]}{\sqrt{2}\,b\,\sqrt{d}\,f}+\left(2\sqrt{2}\,\sqrt{-a^2+b^2}\,g^2\,\sqrt{\operatorname{Cos}[e+f x]}\,\operatorname{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\operatorname{ArcSin}\left[\frac{\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{1+\operatorname{Cos}[e+f x]}}\right],-1\right]\right)\Big/\left(a\,b\,\sqrt{d}\,f\,\sqrt{g \operatorname{Cos}[e+f x]}\right)-\left(2\sqrt{2}\,\sqrt{-a^2+b^2}\,g^2\,\sqrt{\operatorname{Cos}[e+f x]}\,\operatorname{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\operatorname{ArcSin}\left[\frac{\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{1+\operatorname{Cos}[e+f x]}}\right],-1\right]\right)\Big/\left(a\,b\,\sqrt{d}\,f\,\sqrt{g \operatorname{Cos}[e+f x]}\right)-\frac{g^{3/2} \operatorname{Log}\left[\sqrt{d}-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{g \operatorname{Cos}[e+f x]}}+\sqrt{d}\,\operatorname{Tan}[e+f x]\right]}{2\sqrt{2}\,b\,\sqrt{d}\,f}+\frac{g^{3/2} \operatorname{Log}\left[\sqrt{d}+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{g \operatorname{Cos}[e+f x]}}+\sqrt{d}\,\operatorname{Tan}[e+f x]\right]}{2\sqrt{2}\,b\,\sqrt{d}\,f}+\frac{g^2 \operatorname{EllipticF}\left[e-\frac{\pi}{4}+f x,2\right]\sqrt{\operatorname{Sin}[2 e+2 f x]}}{a\,f\,\sqrt{g \operatorname{Cos}[e+f x]}\,\sqrt{d \operatorname{Sin}[e+f x]}}$$

Result (type 6, 520 leaves):

$$\frac{1}{5\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}\,\left(-a+b\,\text{Sin}[e+f\,x]\right)\,\left(a+b\,\text{Sin}[e+f\,x]\right)^2}$$
$$18\,\left(a^2-b^2\right)\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\text{Cot}[e+f\,x]\,\left(a+b\,\sqrt{\text{Sin}[e+f\,x]^2}\right)$$
$$\left(\left(a\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/\right.$$
$$\left(9\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left(-4\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{3}{4},2,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left.3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{9}{4},\frac{7}{4},1,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)+$$
$$\left(b\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Sin}[e+f\,x]^2}\right)\Big/$$
$$\left(-9\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left(4\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{4},2,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left.\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{9}{4},\frac{5}{4},1,\frac{13}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\right)$$

Problem 1419: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 321 leaves, 8 steps):

$$-\left(\left(\left(2\,\sqrt{2}\,\sqrt{-a^2+b^2}\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\right.\right.\right.\right.$$
$$\left.\left.\left.\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],-1\right]\right)\Big/\left(a^2\,d^{3/2}\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)\right)+$$
$$\left(2\,\sqrt{2}\,\sqrt{-a^2+b^2}\,g^2\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\right.\right.$$
$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],-1\right]\right)\Big/\left(a^2\,d^{3/2}\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)-$$
$$\frac{2\,g\,\sqrt{g\,\text{Cos}[e+f\,x]}}{a\,d\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}}-\frac{b\,g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,2\right]\,\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{a^2\,d\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\sqrt{d\,\text{Sin}[e+f\,x]}}$$

Result (type 6, 1287 leaves):

$$-\frac{2\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\text{Tan}[e+f\,x]}{a\,f\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}-\frac{1}{a\,f\,\text{Cos}[e+f\,x]^{3/2}\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\text{Sin}[e+f\,x]^{3/2}$$

$$\left(-\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)^{1/4}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,2\,b\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\right)\right/$$

$$\left(\left(1-\text{Cos}[e+f\,x]^2\right)^{3/4}\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-$$

$$\left(\left(\frac{1}{8}-\frac{i}{8}\right)b\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]-2\right.\right.$$

$$\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\right.$$

$$\left.\frac{i\,a\,\text{Cos}[e+f\,x]}{\sqrt{-1+\text{Cos}[e+f\,x]^2}}-\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}}{\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\text{Log}\Big[$$

$$\left.\left.\sqrt{-a^2+b^2}+\frac{i\,a\,\text{Cos}[e+f\,x]}{\sqrt{-1+\text{Cos}[e+f\,x]^2}}+\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}}{\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]\right)\right/$$

$$\left.\left(\sqrt{a}\,\left(-a^2+b^2\right)^{3/4}\right)\right)\sqrt{\text{Sin}[e+f\,x]}+$$

$$\left(2\,a\,\sqrt{\text{Sin}[e+f\,x]}\,\left(b\,\text{Tan}[e+f\,x]+a\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right)\right.$$

$$\left(\left(\sqrt{a}\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]+2\right.\right.\right.$$

$$\text{ArcTan}\left[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]+\text{Log}\Big[$$

$$-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\Big]-\text{Log}\Big[$$

$$a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\Big]\Big)\Big)\Big/$$

$$\left(4\sqrt{2}\,\left(a^2-b^2\right)^{3/4}\right)+\Bigg(9\,a^2\,b\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]^{5/2}\Bigg)\Big/\Bigg(5\sqrt{1+\text{Tan}[e+f\,x]^2}$$

$$\Bigg(-9\,a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2$$

$$\Bigg(2\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+$$

$$a^2\,\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\Bigg)$$

$$\text{Tan}[e+f\,x]^2\Bigg)\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Bigg)\Bigg)\Bigg)\Big/$$

$$\left(\text{Cos}[e+f\,x]^{5/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)\sqrt{\text{Tan}[e+f\,x]}\,\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}\right)$$

Problem 1420: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{\left(d\,\text{Sin}[e+f\,x]\right)^{5/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 435 leaves, 12 steps):

$$\Bigg(2\sqrt{2}\,b\sqrt{-a^2+b^2}\,g^2\sqrt{\text{Cos}[e+f\,x]}$$

$$\text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],-1\right]\Bigg)\Big/$$

$$\left(a^3\,d^{5/2}\,f\sqrt{g\,\text{Cos}[e+f\,x]}\right)-\Bigg(2\sqrt{2}\,b\sqrt{-a^2+b^2}\,g^2\sqrt{\text{Cos}[e+f\,x]}$$

$$\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],-1\right]\Bigg)\Big/$$

$$\left(a^3\,d^{5/2}\,f\sqrt{g\,\text{Cos}[e+f\,x]}\right)-\frac{2\,g\sqrt{g\,\text{Cos}[e+f\,x]}}{3\,a\,d\,f\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}+\frac{2\,b\,g\sqrt{g\,\text{Cos}[e+f\,x]}}{a^2\,d^2\,f\sqrt{d\,\text{Sin}[e+f\,x]}}+$$

$$\frac{2\,g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,2\right]\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{3\,a\,d^2\,f\sqrt{g\,\text{Cos}[e+f\,x]}\,\sqrt{d\,\text{Sin}[e+f\,x]}}-$$

$$\frac{\left(a^2-b^2\right)g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,2\right]\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{a^3\,d^2\,f\sqrt{g\,\text{Cos}[e+f\,x]}\,\sqrt{d\,\text{Sin}[e+f\,x]}}$$

Result (type 6, 1330 leaves):

$$\frac{(g\,\mathrm{Cos}[e+f\,x])^{3/2}\left(\frac{2\,b\,\mathrm{Csc}[e+f\,x]}{a^2}-\frac{2\,\mathrm{Csc}[e+f\,x]^2}{3\,a}\right)\mathrm{Sin}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]}{f\,(d\,\mathrm{Sin}[e+f\,x])^{5/2}}-$$

$$\frac{1}{3\,a^2\,f\,\mathrm{Cos}[e+f\,x]^{3/2}\,(d\,\mathrm{Sin}[e+f\,x])^{5/2}}\,(g\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Sin}[e+f\,x]^{5/2}$$

$$\left(-\frac{1}{\left(1-\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\,(a+b\,\mathrm{Sin}[e+f\,x])}\,2\,(a^2-3\,b^2)\left(a+b\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\right.$$

$$\left(\left(5\,a\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\mathrm{Cos}[e+f\,x]}\right)\Big/\right.$$

$$\left(\left(1-\mathrm{Cos}[e+f\,x]^2\right)^{3/4}\left(5\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+3\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\mathrm{Cos}[e+f\,x]^2\right)\right)\right)-$$

$$\left(\left(\frac{1}{8}-\frac{i}{8}\right)b\left(2\,\mathrm{ArcTan}\left[1-\frac{(1+i)\sqrt{a}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]-2\right.\right.$$

$$\mathrm{ArcTan}\left[1+\frac{(1+i)\sqrt{a}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{(-a^2+b^2)^{1/4}\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]+\mathrm{Log}\left[\sqrt{-a^2+b^2}+\right.$$

$$\left.\frac{i\,a\,\mathrm{Cos}[e+f\,x]}{\sqrt{-1+\mathrm{Cos}[e+f\,x]^2}}-\frac{(1+i)\sqrt{a}\,(-a^2+b^2)^{1/4}\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\mathrm{Log}\left[\right.$$

$$\left.\left.\left.\sqrt{-a^2+b^2}+\frac{i\,a\,\mathrm{Cos}[e+f\,x]}{\sqrt{-1+\mathrm{Cos}[e+f\,x]^2}}+\frac{(1+i)\sqrt{a}\,(-a^2+b^2)^{1/4}\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]\right)\right)\Big/$$

$$\left.\left(\sqrt{a}\,(-a^2+b^2)^{3/4}\right)\right)\sqrt{\mathrm{Sin}[e+f\,x]}-$$

$$\left(4\,a\,b\sqrt{\mathrm{Sin}[e+f\,x]}\left(b\,\mathrm{Tan}[e+f\,x]+a\sqrt{1+\mathrm{Tan}[e+f\,x]^2}\right)\right.$$

$$\left(\left(\sqrt{a}\left(-2\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\mathrm{Tan}[e+f\,x]}}{\sqrt{a}}\right]+2\right.\right.\right.$$

$$\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\mathrm{Tan}[e+f\,x]}}{\sqrt{a}}\right]+\mathrm{Log}\left[\right.$$

$$\left.-a+\sqrt{2}\,\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\mathrm{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\mathrm{Tan}[e+f\,x]\right]-\mathrm{Log}\left[\right.$$

$$a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\Big]\Big)\Big)\Big/$$

$$\left(4\,\sqrt{2}\,\left(a^2-b^2\right)^{3/4}\right)+\Big(9\,a^2\,b\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\Big]\,\text{Tan}[e+f\,x]^{5/2}\Big)\Big/\Big(5\,\sqrt{1+\text{Tan}[e+f\,x]^2}$$

$$\Big(-9\,a^2\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\Big]+2$$

$$\Big(2\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\Big]\Big)$$

$$\text{Tan}[e+f\,x]^2\Big)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big)\Big)\Big)\Big/$$

$$\left(\text{Cos}[e+f\,x]^{5/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)\,\sqrt{\text{Tan}[e+f\,x]}\,\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}\right)$$

Problem 1421: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{\left(d\,\text{Sin}[e+f\,x]\right)^{7/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 525 leaves, 15 steps):

$$-\left(\left(2\sqrt{2}\, b^2 \sqrt{-a^2+b^2}\, g^2 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\right.\right.\right.$$
$$\left.\left.\left.\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f x]}}{\sqrt{d}\ \sqrt{1+\text{Cos}[e+f x]}}\right],-1\right]\right)\Big/\left(a^4 d^{7/2} f \sqrt{g\,\text{Cos}[e+f x]}\right)\right)+$$
$$\left(2\sqrt{2}\, b^2 \sqrt{-a^2+b^2}\, g^2 \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\right.\right.$$
$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f x]}}{\sqrt{d}\ \sqrt{1+\text{Cos}[e+f x]}}\right],-1\right]\right)\Big/\left(a^4 d^{7/2} f \sqrt{g\,\text{Cos}[e+f x]}\right)-$$
$$\frac{2 g \sqrt{g\,\text{Cos}[e+f x]}}{5 a d f \left(d\,\text{Sin}[e+f x]\right)^{5/2}}+\frac{2 b g \sqrt{g\,\text{Cos}[e+f x]}}{3 a^2 d^2 f \left(d\,\text{Sin}[e+f x]\right)^{3/2}}-$$
$$\frac{8 g \sqrt{g\,\text{Cos}[e+f x]}}{5 a d^3 f \sqrt{d\,\text{Sin}[e+f x]}}+$$
$$\frac{2\left(a^2-b^2\right) g \sqrt{g\,\text{Cos}[e+f x]}}{a^3 d^3 f \sqrt{d\,\text{Sin}[e+f x]}}-$$
$$\frac{2 b g^2\, \text{EllipticF}\left[e-\frac{\pi}{4}+f x,2\right] \sqrt{\text{Sin}[2 e+2 f x]}}{3 a^2 d^3 f \sqrt{g\,\text{Cos}[e+f x]}\ \sqrt{d\,\text{Sin}[e+f x]}}+$$
$$\frac{b\left(a^2-b^2\right) g^2\, \text{EllipticF}\left[e-\frac{\pi}{4}+f x,2\right] \sqrt{\text{Sin}[2 e+2 f x]}}{a^4 d^3 f \sqrt{g\,\text{Cos}[e+f x]}\ \sqrt{d\,\text{Sin}[e+f x]}}$$

Result (type 6, 1357 leaves):

$$\left(\left(g\,\text{Cos}[e+f x]\right)^{3/2}\left(\frac{2\left(a^2-5 b^2\right)\text{Csc}[e+f x]}{5 a^3}+\frac{2 b\,\text{Csc}[e+f x]^2}{3 a^2}-\frac{2\,\text{Csc}[e+f x]^3}{5 a}\right)\right.$$
$$\left.\text{Sin}[e+f x]^3\,\text{Tan}[e+f x]\right)\Big/\left(f\left(d\,\text{Sin}[e+f x]\right)^{7/2}\right)+$$
$$\frac{1}{3 a^3 f\,\text{Cos}[e+f x]^{3/2}\left(d\,\text{Sin}[e+f x]\right)^{7/2}}\, b\left(g\,\text{Cos}[e+f x]\right)^{3/2}\text{Sin}[e+f x]^{7/2}$$
$$\left(-\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)^{1/4}\left(a+b\,\text{Sin}[e+f x]\right)}\,2\left(a^2-3 b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)\right.$$
$$\left(\left(5 a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f x]}\right)\Big/\right.$$
$$\left(\left(1-\text{Cos}[e+f x]^2\right)^{3/4}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-4 b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\text{Cos}[e+f x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+3\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\text{Cos}[e+f x]^2,\right.$$

$$\left.\left.\left.\frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\operatorname{Cos}[e+f x]^2\right)\right)\Bigg)-$$

$$\left(\left(\frac{1}{8}-\frac{i}{8}\right) b\left(2 \operatorname{ArcTan}\left[1-\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\left(-1+\operatorname{Cos}[e+f x]^2\right)^{1/4}}\right]-2\right.\right.$$

$$\operatorname{ArcTan}\left[1+\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\left(-1+\operatorname{Cos}[e+f x]^2\right)^{1/4}}\right]+\operatorname{Log}\left[\sqrt{-a^2+b^2}+\right.$$

$$\left.\frac{i a \operatorname{Cos}[e+f x]}{\sqrt{-1+\operatorname{Cos}[e+f x]^2}}-\frac{(1+i) \sqrt{a}\left(-a^2+b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}}{\left(-1+\operatorname{Cos}[e+f x]^2\right)^{1/4}}\right]-\operatorname{Log}\left[\right.$$

$$\left.\left.\left.\sqrt{-a^2+b^2}+\frac{i a \operatorname{Cos}[e+f x]}{\sqrt{-1+\operatorname{Cos}[e+f x]^2}}+\frac{(1+i) \sqrt{a}\left(-a^2+b^2\right)^{1/4} \sqrt{\operatorname{Cos}[e+f x]}}{\left(-1+\operatorname{Cos}[e+f x]^2\right)^{1/4}}\right]\right)\right) \Big/$$

$$\left.\left(\sqrt{a}\left(-a^2+b^2\right)^{3/4}\right)\right) \sqrt{\operatorname{Sin}[e+f x]}-$$

$$\left(4 a b \sqrt{\operatorname{Sin}[e+f x]}\left(b \operatorname{Tan}[e+f x]+a \sqrt{1+\operatorname{Tan}[e+f x]^2}\right)\right.$$

$$\left(\left(\sqrt{a}\left(-2 \operatorname{ArcTan}\left[1-\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Tan}[e+f x]}}{\sqrt{a}}\right]+2\right.\right.\right.$$

$$\operatorname{ArcTan}\left[1+\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Tan}[e+f x]}}{\sqrt{a}}\right]+\operatorname{Log}\left[\right.$$

$$\left.-a+\sqrt{2} \sqrt{a}\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Tan}[e+f x]}-\sqrt{a^2-b^2} \operatorname{Tan}[e+f x]\right]-\operatorname{Log}\left[\right.$$

$$\left.\left.\left.a+\sqrt{2} \sqrt{a}\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Tan}[e+f x]}+\sqrt{a^2-b^2} \operatorname{Tan}[e+f x]\right]\right)\right) \Big/$$

$$\left(4 \sqrt{2}\left(a^2-b^2\right)^{3/4}\right)+\left(9 a^2 b \operatorname{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4},-\operatorname{Tan}[e+f x]^2,\right.\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[e+f x]^2\right] \operatorname{Tan}[e+f x]^{5/2}\right) \Big/\left(5 \sqrt{1+\operatorname{Tan}[e+f x]^2}\right.$$

$$\left(-9 a^2 \operatorname{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4},-\operatorname{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{9}{4}, \frac{1}{2}, 2, \frac{13}{4},-\operatorname{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2 \operatorname{AppellF1}\left[\frac{9}{4}, \frac{3}{2}, 1, \frac{13}{4},-\operatorname{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\left.\operatorname{Tan}[e+f x]^2\right)\left(-b^2 \operatorname{Tan}[e+f x]^2+a^2\left(1+\operatorname{Tan}[e+f x]^2\right)\right)\right)\right)\right) \Big/$$

$$\left(\text{Cos}[e+f x]^{5/2}\,(a+b\,\text{Sin}[e+f x])\,\sqrt{\text{Tan}[e+f x]}\,\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)\Bigg)$$

Problem 1422: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g\,\text{Cos}[e+f x])^{3/2}}{(d\,\text{Sin}[e+f x])^{9/2}\,(a+b\,\text{Sin}[e+f x])}\,dx$$

Optimal (type 4, 688 leaves, 20 steps):

$$\left(2\sqrt{2}\,b^3\sqrt{-a^2+b^2}\,g^2\sqrt{\text{Cos}[e+f x]}\;\text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f x]}}\right],\,-1\right]\right)\Big/\left(a^5 d^{9/2} f\sqrt{g\,\text{Cos}[e+f x]}\right)-\left(2\sqrt{2}\,b^3\sqrt{-a^2+b^2}\,g^2\sqrt{\text{Cos}[e+f x]}\;\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f x]}}\right],\,-1\right]\right)\Big/\left(a^5 d^{9/2} f\sqrt{g\,\text{Cos}[e+f x]}\right)-\frac{2 g\sqrt{g\,\text{Cos}[e+f x]}}{7 a d f\,(d\,\text{Sin}[e+f x])^{7/2}}+\frac{2 b g\sqrt{g\,\text{Cos}[e+f x]}}{5 a^2 d^2 f\,(d\,\text{Sin}[e+f x])^{5/2}}-\frac{4 g\sqrt{g\,\text{Cos}[e+f x]}}{7 a d^3 f\,(d\,\text{Sin}[e+f x])^{3/2}}+\frac{2\left(a^2-b^2\right) g\sqrt{g\,\text{Cos}[e+f x]}}{3 a^3 d^3 f\,(d\,\text{Sin}[e+f x])^{3/2}}+\frac{8 b g\sqrt{g\,\text{Cos}[e+f x]}}{5 a^2 d^4 f\sqrt{d\,\text{Sin}[e+f x]}}-\frac{2 b\left(a^2-b^2\right) g\sqrt{g\,\text{Cos}[e+f x]}}{a^4 d^4 f\sqrt{d\,\text{Sin}[e+f x]}}+\frac{4 g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f x,\,2\right]\sqrt{\text{Sin}[2 e+2 f x]}}{7 a d^4 f\sqrt{g\,\text{Cos}[e+f x]}\,\sqrt{d\,\text{Sin}[e+f x]}}-\frac{2\left(a^2-b^2\right) g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f x,\,2\right]\sqrt{\text{Sin}[2 e+2 f x]}}{3 a^3 d^4 f\sqrt{g\,\text{Cos}[e+f x]}\,\sqrt{d\,\text{Sin}[e+f x]}}-\frac{b^2\left(a^2-b^2\right) g^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f x,\,2\right]\sqrt{\text{Sin}[2 e+2 f x]}}{a^5 d^4 f\sqrt{g\,\text{Cos}[e+f x]}\,\sqrt{d\,\text{Sin}[e+f x]}}$$

Result (type 6, 1402 leaves):

$$\Bigg((g\,\text{Cos}[e+f x])^{3/2}\left(-\frac{2 b\left(a^2-5 b^2\right)\text{Csc}[e+f x]}{5 a^4}+\frac{2\left(a^2-7 b^2\right)\text{Csc}[e+f x]^2}{21 a^3}+\frac{2 b\,\text{Csc}[e+f x]^3}{5 a^2}-\frac{2\,\text{Csc}[e+f x]^4}{7 a}\right)$$

$$\text{Sin}[e+f x]^4\,\text{Tan}[e+f x]\Big)\Big/\left(f\,(d\,\text{Sin}[e+f x])^{9/2}\right)-$$

$$\frac{1}{21\,a^4\,f\,\text{Cos}[e+f x]^{3/2}\,(d\,\text{Sin}[e+f x])^{9/2}}\,(g\,\text{Cos}[e+f x])^{3/2}\,\text{Sin}[e+f x]^{9/2}$$

$$\Bigg(-\frac{1}{\left(1-\text{Cos}[e+f x]^2\right)^{1/4}\,(a+b\,\text{Sin}[e+f x])}\,2\,\left(2\,a^4+7\,a^2\,b^2-21\,b^4\right)\,\left(a+b\,\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\,\sqrt{\text{Cos}[e+f x]}\Bigg)\Big/$$

$$\Bigg(\left(1-\text{Cos}[e+f x]^2\right)^{3/4}\,\Bigg(5\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\Bigg(-4\,b^2\,\text{AppellF1}\Big[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+3\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\text{Cos}[e+f x]^2,$$

$$\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[e+f x]^2\Bigg)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f x]^2\right)\right)\Bigg)-$$

$$\Bigg(\Bigg(\frac{1}{8}-\frac{i}{8}\Bigg)\,b\,\Bigg(2\,\text{ArcTan}\Big[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\text{Cos}[e+f x]^2\right)^{1/4}}\Big]-2$$

$$\text{ArcTan}\Big[1+\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Cos}[e+f x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\text{Cos}[e+f x]^2\right)^{1/4}}\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+$$

$$\frac{i\,a\,\text{Cos}[e+f x]}{\sqrt{-1+\text{Cos}[e+f x]^2}}-\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}}{\left(-1+\text{Cos}[e+f x]^2\right)^{1/4}}\Big]-\text{Log}\Big[$$

$$\sqrt{-a^2+b^2}+\frac{i\,a\,\text{Cos}[e+f x]}{\sqrt{-1+\text{Cos}[e+f x]^2}}+\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f x]}}{\left(-1+\text{Cos}[e+f x]^2\right)^{1/4}}\Big]\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{a}\,\left(-a^2+b^2\right)^{3/4}\right)\Bigg)\,\sqrt{\text{Sin}[e+f x]}+\Bigg(2\,\left(2\,a^3\,b-14\,a\,b^3\right)$$

$$\sqrt{\text{Sin}[e+f x]}\,\left(b\,\text{Tan}[e+f x]+a\,\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(\sqrt{a}\,\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]+2$$

$$\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]+\text{Log}\Big[$$

$$-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]-\text{Log}\Big[$$

$$a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]\Bigg)\Bigg)\Big/$$

$$\left(4\sqrt{2}\,\left(a^2-b^2\right)^{3/4}\right)+\left(9\,a^2\,b\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,\right.\right.$$
$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\,\text{Tan}[e+f\,x]^{5/2}\Big)\Big/\left(5\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-9\,a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)\Big)\Big/$$
$$\left(\text{Cos}[e+f\,x]^{5/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)\,\sqrt{\text{Tan}[e+f\,x]}\,\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}\right)$$

Problem 1423: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{a+b\,\text{Sin}[e+f\,x]}\,dx$$

Optimal (type 4, 936 leaves, 31 steps):

$$-\frac{\sqrt{d}\ g^{5/2}\ \text{ArcTan}\left[1-\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\ \sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{4\sqrt{2}\ b\,f}-\frac{\left(a^2-b^2\right)\sqrt{d}\ g^{5/2}\ \text{ArcTan}\left[1-\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\ \sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{\sqrt{2}\ b^3\,f}+$$

$$\frac{\sqrt{d}\ g^{5/2}\ \text{ArcTan}\left[1+\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\ \sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{4\sqrt{2}\ b\,f}+\frac{\left(a^2-b^2\right)\sqrt{d}\ g^{5/2}\ \text{ArcTan}\left[1+\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\ \sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{\sqrt{2}\ b^3\,f}+$$

$$\frac{\sqrt{d}\ g^{5/2}\ \text{Log}\left[\sqrt{g}+\sqrt{g}\ \text{Cot}[e+f\,x]-\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{8\sqrt{2}\ b\,f}+$$

$$\frac{\left(a^2-b^2\right)\sqrt{d}\ g^{5/2}\ \text{Log}\left[\sqrt{g}+\sqrt{g}\ \text{Cot}[e+f\,x]-\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{2\sqrt{2}\ b^3\,f}-$$

$$\frac{\sqrt{d}\ g^{5/2}\ \text{Log}\left[\sqrt{g}+\sqrt{g}\ \text{Cot}[e+f\,x]+\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{8\sqrt{2}\ b\,f}-$$

$$\frac{\left(a^2-b^2\right)\sqrt{d}\ g^{5/2}\ \text{Log}\left[\sqrt{g}+\sqrt{g}\ \text{Cot}[e+f\,x]+\frac{\sqrt{2}\ \sqrt{d}\ \sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{2\sqrt{2}\ b^3\,f}-$$

$$\left(2\sqrt{2}\ a\sqrt{-a+b}\ \sqrt{a+b}\ d\,g^{5/2}\ \text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\ \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\ \sqrt{1+\text{Sin}[e+f\,x]}}\right],\ -1\right]\right.$$
$$\left.\sqrt{\text{Sin}[e+f\,x]}\right)\Big/\left(b^3\,f\sqrt{d\,\text{Sin}[e+f\,x]}\right)+$$

$$\left(2\sqrt{2}\ a\sqrt{-a+b}\ \sqrt{a+b}\ d\,g^{5/2}\ \text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\ \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\ \sqrt{1+\text{Sin}[e+f\,x]}}\right],\ -1\right]\right.$$
$$\left.\sqrt{\text{Sin}[e+f\,x]}\right)\Big/\left(b^3\,f\sqrt{d\,\text{Sin}[e+f\,x]}\right)+\frac{g\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\sqrt{d\,\text{Sin}[e+f\,x]}}{2\,b\,f}+$$

$$\frac{a\,g^2\sqrt{g\,\text{Cos}[e+f\,x]}\ \text{EllipticE}\left[e-\frac{\pi}{4}+f\,x,\ 2\right]\sqrt{d\,\text{Sin}[e+f\,x]}}{b^2\,f\sqrt{\text{Sin}[2\,e+2\,f\,x]}}$$

Result (type 6, 2878 leaves):

$$\frac{\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\text{Sec}[e+f\,x]\sqrt{d\,\text{Sin}[e+f\,x]}}{2\,b\,f}-$$

$$\frac{1}{4\,b\,f\,\text{Cos}[e+f\,x]^{5/2}\sqrt{\text{Sin}[e+f\,x]}}\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\sqrt{d\,\text{Sin}[e+f\,x]}$$

$$\left(\left(1\Big/\left(\left(1-\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\left(a+b\,\text{Sin}[e+f\,x]\right)\right)\right)\right.$$

$$14\,b\,\left(a^2-b^2\right)\,\text{Cos}[e+f\,x]^{3/2}\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\left(\left(\left(b\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Big/\right.\right.$$

$$\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)+$$

$$\left(a\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/$$

$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\,\text{AppellF1}\left[\right.\right.$$

$$\left.\left.\left.\left.\frac{7}{4},\frac{5}{4},1,\frac{11}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)\right)\,\text{Sin}[e+f\,x]^{3/2}-$$

$$\left(2\,a\,\sqrt{\text{Tan}[e+f\,x]}\,\left(b\,\text{Tan}[e+f\,x]+a\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right)\,\left(\left(\left(-2\,\text{ArcTan}\left[1-\right.\right.\right.\right.\right.$$

$$\left.\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}\right]-$$

$$\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]+$$

$$\left.\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\right.\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\,\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\left.\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f\,x]^{3/2}\,\sqrt{\text{Sin}[e+f\,x]}\,\left(a+b\,\text{Sin}[e+f\,x]\right)\,\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}\right)+$$

$$\Bigg(4\,a\,\text{Cos}\left[2\,(e+f\,x)\right]\,\sqrt{\text{Tan}[e+f\,x]}\,\left(b\,\text{Tan}[e+f\,x]+a\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right)$$

$$\Bigg(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f\,x]^{3/2}}{b\,\sqrt{1+\text{Tan}[e+f\,x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\,\text{Tan}[e+f\,x]^{3/2}\right)\Big/$$

$$\Bigg(b\,\sqrt{1+\text{Tan}[e+f\,x]^2}$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\Big(-7\,a^2\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]+2\Big(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]+a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\,\Big(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\big(1+\text{Tan}[e+f\,x]^2\big)\Big)\Big)+$$

$$\Big(11\,a^4\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[e+f\,x]^2}{a^2}\Big]\,\text{Tan}[e+f\,x]^{7/2}\Big)\Big/\Big(7\,b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\,\Big(-11\,a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]+2\Big(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]+a^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\,\Big(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\big(1+\text{Tan}[e+f\,x]^2\big)\Big)\Big)-$$

$$\Big(11\,a^2\,b\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[e+f\,x]^2}{a^2}\Big]\,\text{Tan}[e+f\,x]^{7/2}\Big)\Big/\Big(7\,\sqrt{1+\text{Tan}[e+f\,x]^2}\,\Big(-11\,a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]+2\Big(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]+a^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f\,x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\,\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\,\Big(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\big(1+\text{Tan}[e+f\,x]^2\big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\text{Cos}[e+f\,x]^{3/2}\,\sqrt{\text{Sin}[e+f\,x]}\,\big(a+b\,\text{Sin}[e+f\,x]\big)\,\big(-1+\text{Tan}[e+f\,x]^2\big)\,\sqrt{1+\text{Tan}[e+f\,x]^2}\Big)$$

Problem 1424: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \frac{(g \,\text{Cos}[e+f x])^{5/2}}{\sqrt{d \,\text{Sin}[e+f x]}\, (a+b \,\text{Sin}[e+f x])} \, dx$$

Optimal (type 4, 572 leaves, 19 steps):

$$\frac{a g^{5/2} \,\text{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{d} \sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g} \sqrt{d \,\text{Sin}[e+f x]}}\right]}{\sqrt{2} \, b^2 \sqrt{d} \, f}-\frac{a g^{5/2} \,\text{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{d} \sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g} \sqrt{d \,\text{Sin}[e+f x]}}\right]}{\sqrt{2} \, b^2 \sqrt{d} \, f}-$$
$$\frac{a g^{5/2} \,\text{Log}\left[\sqrt{g}+\sqrt{g} \,\text{Cot}[e+f x]-\frac{\sqrt{2} \sqrt{d} \sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{d \,\text{Sin}[e+f x]}}\right]}{2 \sqrt{2} \, b^2 \sqrt{d} \, f}+$$
$$\frac{a g^{5/2} \,\text{Log}\left[\sqrt{g}+\sqrt{g} \,\text{Cot}[e+f x]+\frac{\sqrt{2} \sqrt{d} \sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{d \,\text{Sin}[e+f x]}}\right]}{2 \sqrt{2} \, b^2 \sqrt{d} \, f}+$$
$$\left(2 \sqrt{2} \sqrt{-a+b} \sqrt{a+b} \, g^{5/2} \,\text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\text{Sin}[e+f x]}}\right], -1\right]\right.$$
$$\left.\sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(b^2 f \sqrt{d \,\text{Sin}[e+f x]}\right)-$$
$$\left(2 \sqrt{2} \sqrt{-a+b} \sqrt{a+b} \, g^{5/2} \,\text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g \,\text{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\text{Sin}[e+f x]}}\right], -1\right]\right.$$
$$\left.\sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(b^2 f \sqrt{d \,\text{Sin}[e+f x]}\right)-$$
$$\frac{g^2 \sqrt{g \,\text{Cos}[e+f x]} \,\text{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \,\text{Sin}[e+f x]}}{b d f \sqrt{\text{Sin}[2 e+2 f x]}}$$

Result (type 6, 2299 leaves):

$$\frac{1}{2 f \,\text{Cos}[e+f x]^{5/2} \sqrt{d \,\text{Sin}[e+f x]}}$$
$$(g \,\text{Cos}[e+f x])^{5/2} \sqrt{\text{Sin}[e+f x]} \left(\left(2 \sqrt{\text{Tan}[e+f x]} \left(b \,\text{Tan}[e+f x]+a \sqrt{1+\text{Tan}[e+f x]^2}\right)\right.\right.$$
$$\left(\left(\left(-2 \,\text{ArcTan}\left[1-\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+\right.\right.\right.$$
$$2 \,\text{ArcTan}\left[1+\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]-$$
$$\text{Log}\left[-a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2} \,\text{Tan}[e+f x]\right]+$$

$$\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\Bigg)\Bigg/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\right)+\Bigg(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{3/2}\Bigg)\Bigg/\Bigg(3\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+$$

$$2\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+$$

$$a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\Bigg(2\,\text{Cos}[2\,(e+f x)]\,\sqrt{\text{Tan}[e+f x]}\,\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2\,a^2-b^2\right)\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f x]^{3/2}}{b\sqrt{1+\text{Tan}[e+f x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\,\text{Tan}[e+f\,x]^{3/2}\right)\Big/$$
$$\left(b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\,\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)-$$
$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\,\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)+$$
$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{7/2}\right)\Big/\left(7\,b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\,\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{11}{4},\,\frac{1}{2},\,2,\,\frac{15}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2},\,1,\,\frac{15}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)-$$
$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{7/2}\right)\Big/\left(7\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$2\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$
$$a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Bigg)$$
$$\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)$$
$$\left.\sqrt{1+\text{Tan}[e+f x]^2}\right)\Bigg)$$

Problem 1425: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{5/2}}{\left(d\,\text{Sin}[e+f x]\right)^{3/2}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 616 leaves, 20 steps):

$$-\frac{g^{5/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{\sqrt{2}\,b\,d^{3/2}\,f}+\frac{g^{5/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{\sqrt{2}\,b\,d^{3/2}\,f}+$$

$$\frac{g^{5/2}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f\,x]-\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{2\,\sqrt{2}\,b\,d^{3/2}\,f}-$$

$$\frac{g^{5/2}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f\,x]+\frac{\sqrt{2}\,\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\right]}{2\,\sqrt{2}\,b\,d^{3/2}\,f}-\frac{2\,g\,\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}}{a\,d\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}}-$$

$$\left(2\,\sqrt{2}\,\sqrt{-a+b}\,\sqrt{a+b}\,g^{5/2}\,\text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f\,x]}}\right],\,-1\right]\right.$$
$$\left.\sqrt{\text{Sin}[e+f\,x]}\right)\Big/\left(a\,b\,d\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}\right)+$$

$$\left(2\,\sqrt{2}\,\sqrt{-a+b}\,\sqrt{a+b}\,g^{5/2}\,\text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f\,x]}}\right],\,-1\right]\right.$$
$$\left.\sqrt{\text{Sin}[e+f\,x]}\right)\Big/\left(a\,b\,d\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}\right)-$$

$$\frac{2\,g^2\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\text{EllipticE}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\,\sqrt{d\,\text{Sin}[e+f\,x]}}{a\,d^2\,f\,\sqrt{\text{Sin}[2\,e+2\,f\,x]}}$$

Result (type 6, 2873 leaves):

$$-\frac{2\,\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\text{Tan}[e+f\,x]}{a\,f\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}+$$

$$\frac{1}{a\,f\,\text{Cos}[e+f\,x]^{5/2}\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}\left(g\,\text{Cos}[e+f\,x]\right)^{5/2}\,\text{Sin}[e+f\,x]^{3/2}$$

$$\left(\left(1\Big/\left(\left(1-\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\,\left(a+b\,\text{Sin}[e+f\,x]\right)\right)\right)\right.$$

$$14\,a\,\left(a^2-b^2\right)\,\text{Cos}[e+f\,x]^{3/2}\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)$$

$$\left(\left(b\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{4},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\Big/\right.$$

$$\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{4},\,1,\,\frac{7}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,-\frac{1}{4},\,2,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{4},\,1,\,\frac{11}{4},\,\text{Cos}[e+f\,x]^2,\,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[e+f\,x]^2\right)+$$

$$\left(a\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\Big/\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{5}{4},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\right)\text{Sin}[e+f x]^{3/2}-$$

$$\left(4\,b\,\sqrt{\text{Tan}[e+f x]}\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)\left(\left(\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]-\text{Log}\left[-a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]+\text{Log}\left[a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/\left(4\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\left(2\,b\,\text{Cos}[2(e+f x)]\sqrt{\text{Tan}[e+f x]}\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)\left(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\sqrt{a}}\right]}{2\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+\right.\right.$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f\,x]^{3/2}}{b\,\sqrt{1+\text{Tan}[e+f\,x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\,\text{Tan}[e+f\,x]^{3/2}\right)\Big/$$

$$\left(b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)+$$

$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$

$$\text{Tan}[e+f x]^{7/2}\Big) \Big/ \Big(7 b \sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Big(-11 a^2 \text{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}, 1, \frac{11}{4}, -\text{Tan}[e+f x]^2, \Big(-1+\frac{b^2}{a^2}\Big) \text{Tan}[e+f x]^2\Big] + 2$$

$$\Big(2 \left(a^2-b^2\right) \text{AppellF1}\Big[\frac{11}{4}, \frac{1}{2}, 2, \frac{15}{4}, -\text{Tan}[e+f x]^2, \Big(-1+\frac{b^2}{a^2}\Big) \text{Tan}[e+f x]^2\Big] +$$

$$a^2 \text{AppellF1}\Big[\frac{11}{4}, \frac{3}{2}, 1, \frac{15}{4}, -\text{Tan}[e+f x]^2, \Big(-1+\frac{b^2}{a^2}\Big) \text{Tan}[e+f x]^2\Big]\Big)$$

$$\text{Tan}[e+f x]^2\Big) \left(-b^2 \text{Tan}[e+f x]^2 + a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\Big) -$$

$$\Big(11 a^2 b \text{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}, 1, \frac{11}{4}, -\text{Tan}[e+f x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\Big]$$

$$\text{Tan}[e+f x]^{7/2}\Big) \Big/ \Big(7 \sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Big(-11 a^2 \text{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}, 1, \frac{11}{4}, -\text{Tan}[e+f x]^2, \Big(-1+\frac{b^2}{a^2}\Big) \text{Tan}[e+f x]^2\Big] + 2$$

$$\Big(2 \left(a^2-b^2\right) \text{AppellF1}\Big[\frac{11}{4}, \frac{1}{2}, 2, \frac{15}{4}, -\text{Tan}[e+f x]^2, \Big(-1+\frac{b^2}{a^2}\Big) \text{Tan}[e+f x]^2\Big] +$$

$$a^2 \text{AppellF1}\Big[\frac{11}{4}, \frac{3}{2}, 1, \frac{15}{4}, -\text{Tan}[e+f x]^2, \Big(-1+\frac{b^2}{a^2}\Big) \text{Tan}[e+f x]^2\Big]\Big)$$

$$\text{Tan}[e+f x]^2\Big) \left(-b^2 \text{Tan}[e+f x]^2 + a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)\Big) \Big/$$

$$\Big(\text{Cos}[e+f x]^{3/2} \sqrt{\text{Sin}[e+f x]} \left(a+b \text{Sin}[e+f x]\right) \left(-1+\text{Tan}[e+f x]^2\right)$$

$$\sqrt{1+\text{Tan}[e+f x]^2}\Big)$$

Problem 1426: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\left(g \text{Cos}[e+f x]\right)^{5/2}}{\left(d \text{Sin}[e+f x]\right)^{5/2} \left(a+b \text{Sin}[e+f x]\right)} \, dx$$

Optimal (type 4, 359 leaves, 10 steps):

$$-\frac{2\,g\,\left(g\,\mathrm{Cos}[e+f\,x]\right)^{3/2}}{3\,a\,d\,f\,\left(d\,\mathrm{Sin}[e+f\,x]\right)^{3/2}}+\frac{2\,b\,g\,\left(g\,\mathrm{Cos}[e+f\,x]\right)^{3/2}}{a^2\,d^2\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}+$$

$$\left(2\,\sqrt{2}\,\sqrt{-a+b}\,\sqrt{a+b}\,g^{5/2}\,\mathrm{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\mathrm{ArcSin}\left[\frac{\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\mathrm{Sin}[e+f\,x]}}\right],\,-1\right]\right.$$

$$\left.\sqrt{\mathrm{Sin}[e+f\,x]}\right)\Big/\left(a^2\,d^2\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right)-$$

$$\left(2\,\sqrt{2}\,\sqrt{-a+b}\,\sqrt{a+b}\,g^{5/2}\,\mathrm{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\,\mathrm{ArcSin}\left[\frac{\sqrt{g\,\mathrm{Cos}[e+f\,x]}}{\sqrt{g}\,\sqrt{1+\mathrm{Sin}[e+f\,x]}}\right],\,-1\right]\right.$$

$$\left.\sqrt{\mathrm{Sin}[e+f\,x]}\right)\Big/\left(a^2\,d^2\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right)+$$

$$\frac{2\,b\,g^2\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\,\mathrm{EllipticE}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}{a^2\,d^3\,f\,\sqrt{\mathrm{Sin}[2\,e+2\,f\,x]}}$$

Result (type 6, 2923 leaves):

$$\left(\left(g\,\mathrm{Cos}[e+f\,x]\right)^{5/2}\left(\frac{2\,b\,\mathrm{Cot}[e+f\,x]}{a^2}-\frac{2\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]}{3\,a}\right)\mathrm{Sin}[e+f\,x]\,\mathrm{Tan}[e+f\,x]^2\right)\Big/$$

$$\left(f\,\left(d\,\mathrm{Sin}[e+f\,x]\right)^{5/2}\right)-\frac{1}{a^2\,f\,\mathrm{Cos}[e+f\,x]^{5/2}\,\left(d\,\mathrm{Sin}[e+f\,x]\right)^{5/2}}$$

$$\left(g\,\mathrm{Cos}[e+f\,x]\right)^{5/2}\,\mathrm{Sin}[e+f\,x]^{5/2}\left(\left(28\,a\,b\,\left(a^2-b^2\right)\,\mathrm{Cos}[e+f\,x]^{3/2}\,\left(a+b\,\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\right.\right.$$

$$\left(\left(b\,\mathrm{AppellF1}\left[\frac{3}{4},\,-\frac{1}{4},\,1,\,\frac{7}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\Big/\right.$$

$$\left(-7\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},\,-\frac{1}{4},\,1,\,\frac{7}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\mathrm{AppellF1}\left[\frac{7}{4},\,-\frac{1}{4},\,2,\,\frac{11}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\mathrm{AppellF1}\left[\frac{7}{4},\,\frac{3}{4},\,1,\,\frac{11}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+f\,x]^2\right)+$$

$$\left(a\,\mathrm{AppellF1}\left[\frac{3}{4},\,\frac{1}{4},\,1,\,\frac{7}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/$$

$$\left(7\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},\,\frac{1}{4},\,1,\,\frac{7}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\mathrm{AppellF1}\left[\frac{7}{4},\,\frac{1}{4},\,2,\,\frac{11}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\left.\mathrm{AppellF1}\left[\frac{7}{4},\,\frac{5}{4},\,1,\,\frac{11}{4},\,\mathrm{Cos}[e+f\,x]^2,\,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[e+f\,x]^2\right)\right)$$

$$\left.\mathrm{Sin}[e+f\,x]^{3/2}\right)\Big/\left(3\,\left(1-\mathrm{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\mathrm{Cos}[e+f\,x]^2\right)\right)\right.$$

$$\left.\left(a+b\,\mathrm{Sin}[e+f\,x]\right)\right)+$$

$$\Bigg(2\left(a^2-2b^2\right)\sqrt{\text{Tan}[e+fx]}\left(b\,\text{Tan}[e+fx]+a\sqrt{1+\text{Tan}[e+fx]^2}\right)$$

$$\Bigg(\Bigg(\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+fx]}}{\sqrt{a}}\Big]+$$

$$2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+fx]}}{\sqrt{a}}\Big]-$$

$$\text{Log}\Big[-a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+fx]}-\sqrt{a^2-b^2}\,\text{Tan}[e+fx]\Big]+$$

$$\text{Log}\Big[a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+fx]}+\sqrt{a^2-b^2}\,\text{Tan}[e+fx]\Big]\Bigg)\Big/$$

$$\left(4\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\right)+\Bigg(7a^2b\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+fx]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+fx]^2\Big]\,\text{Tan}[e+fx]^{3/2}\Bigg)\Big/\Bigg(3\sqrt{1+\text{Tan}[e+fx]^2}$$

$$\Bigg(-7a^2\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+fx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+fx]^2\Big]+2$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+fx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+fx]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+fx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+fx]^2\Big]\Bigg)$$

$$\text{Tan}[e+fx]^2\Bigg)\left(-b^2\,\text{Tan}[e+fx]^2+a^2\left(1+\text{Tan}[e+fx]^2\right)\right)\Bigg)\Bigg)\Bigg)\Big/$$

$$\left(\text{Cos}[e+fx]^{3/2}\sqrt{\text{Sin}[e+fx]}\left(a+b\,\text{Sin}[e+fx]\right)\left(1+\text{Tan}[e+fx]^2\right)^{3/2}\right)+$$

$$\Bigg(2b^2\,\text{Cos}\left[2\left(e+fx\right)\right]\sqrt{\text{Tan}[e+fx]}\left(b\,\text{Tan}[e+fx]+a\sqrt{1+\text{Tan}[e+fx]^2}\right)$$

$$\Bigg(-\frac{a\,\text{ArcTan}\Big[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+fx]}}{\sqrt{2}}\Big]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\Big[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+fx]}}{\sqrt{2}}\Big]}{\sqrt{2}\,b^2}+$$

$$\frac{\left(2a^2-b^2\right)\text{ArcTan}\Big[\frac{-\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+fx]}}{\sqrt{2}\sqrt{a}}\Big]}{2\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2a^2-b^2\right)\text{ArcTan}\Big[\frac{\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+fx]}}{\sqrt{2}\sqrt{a}}\Big]}{2\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\Big[1-\sqrt{2}\sqrt{\text{Tan}[e+fx]}+\text{Tan}[e+fx]\Big]}{2\sqrt{2}\,b^2}-$$

$$\frac{a\,\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[e+f x]}+\mathrm{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\left(\left(2 a^2-b^2\right)\mathrm{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\mathrm{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2 a^2-b^2\right)\mathrm{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\mathrm{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+\frac{\mathrm{Tan}[e+f x]^{3/2}}{b\sqrt{1+\mathrm{Tan}[e+f x]^2}}+$$

$$\left(7 a^4\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\mathrm{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\mathrm{Tan}[e+f x]^2}{a^2}\right]\mathrm{Tan}[e+f x]^{3/2}\right)\Big/$$

$$\left(b\sqrt{1+\mathrm{Tan}[e+f x]^2}\right.$$

$$\left(-7 a^2\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\mathrm{Tan}[e+f x]^2\right)\left(-b^2\,\mathrm{Tan}[e+f x]^2+a^2\left(1+\mathrm{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(7 a^2 b\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\mathrm{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\mathrm{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\mathrm{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\mathrm{Tan}[e+f x]^2}\right.$$

$$\left(-7 a^2\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\mathrm{Tan}[e+f x]^2\right)\left(-b^2\,\mathrm{Tan}[e+f x]^2+a^2\left(1+\mathrm{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(11 a^4\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\mathrm{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\mathrm{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\mathrm{Tan}[e+f x]^{7/2}\right)\Big/\left(7 b\sqrt{1+\mathrm{Tan}[e+f x]^2}\right.$$

$$\left(-11 a^2\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\mathrm{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\right]+\right.$$

$$a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\Big)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)\right.$$

$$\left.\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

Problem 1427: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{5/2}}{\left(d\,\text{Sin}[e+f x]\right)^{7/2}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 519 leaves, 15 steps):

$$-\frac{2 g (g \operatorname{Cos}[e+f x])^{3/2}}{5 a d f (d \operatorname{Sin}[e+f x])^{5/2}}+\frac{2 b g (g \operatorname{Cos}[e+f x])^{3/2}}{3 a^2 d^2 f (d \operatorname{Sin}[e+f x])^{3/2}}-\frac{4 g (g \operatorname{Cos}[e+f x])^{3/2}}{5 a d^3 f \sqrt{d \operatorname{Sin}[e+f x]}}+\frac{2 (a^2-b^2) g (g \operatorname{Cos}[e+f x])^{3/2}}{a^3 d^3 f \sqrt{d \operatorname{Sin}[e+f x]}}-$$
$$\left(2 \sqrt{2} b \sqrt{-a+b} \sqrt{a+b} g^{5/2} \operatorname{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/ \left(a^3 d^3 f \sqrt{d \operatorname{Sin}[e+f x]}\right)+$$
$$\left(2 \sqrt{2} b \sqrt{-a+b} \sqrt{a+b} g^{5/2} \operatorname{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/ \left(a^3 d^3 f \sqrt{d \operatorname{Sin}[e+f x]}\right)-$$
$$\frac{4 g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{5 a d^4 f \sqrt{\operatorname{Sin}[2 e+2 f x]}}+$$
$$\left(2 (a^2-b^2) g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}\right) \Big/ \left(a^3 d^4 f \sqrt{\operatorname{Sin}[2 e+2 f x]}\right)$$

Result (type 6, 2995 leaves):

$$\left((g \operatorname{Cos}[e+f x])^{5/2} \left(\frac{2 (3 a^2 \operatorname{Cos}[e+f x]-5 b^2 \operatorname{Cos}[e+f x]) \operatorname{Csc}[e+f x]}{5 a^3}+\frac{2 b \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]}{3 a^2}-\frac{2 \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]^2}{5 a}\right) \operatorname{Sin}[e+f x]^2 \operatorname{Tan}[e+f x]^2\right) \Big/$$
$$\left(f (d \operatorname{Sin}[e+f x])^{7/2}\right)+\frac{1}{5 a^3 f \operatorname{Cos}[e+f x]^{5/2} (d \operatorname{Sin}[e+f x])^{7/2}} (g \operatorname{Cos}[e+f x])^{5/2}$$
$$\operatorname{Sin}[e+f x]^{7/2} \left(-\left(\left(14 (a^2-b^2) (6 a^3-10 a b^2) \operatorname{Cos}[e+f x]^{3/2} \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)\right.\right.\right.$$
$$\left(\left(b \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{1-\operatorname{Cos}[e+f x]^2}\right) \Big/\right.$$
$$\left(-7 (a^2-b^2) \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$
$$\left(4 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, -\frac{1}{4}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+(a^2-b^2)\right.$$
$$\left.\left.\operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{4}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right)+$$
$$\left(a \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \Big/ \left(7 (a^2-b^2)\right.$$

$$\text{AppellF1}\left[\frac{3}{4}, \frac{1}{4}, 1, \frac{7}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(-4 b^2 \text{AppellF1}\left[\frac{7}{4}, \frac{1}{4}, 2, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4}, \frac{5}{4}, 1, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\Big)\Big) \text{Sin}[e+f x]^{3/2}\Big) \Big/$$

$$\left(3 \left(1-\text{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\text{Cos}[e+f x]^2\right)\right) (a+b \text{Sin}[e+f x])\right)\Big) +$$

$$\Bigg(2 \left(8 a^2 b-10 b^3\right) \sqrt{\text{Tan}[e+f x]} \left(b \text{Tan}[e+f x]+a \sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(-2 \text{ArcTan}\left[1-\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right] + 2 \text{ArcTan}\left[1+\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right] -$$

$$\text{Log}\left[-a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2} \text{Tan}[e+f x]\right] +$$

$$\text{Log}\left[a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2} \text{Tan}[e+f x]\right]\Bigg) \Big/$$

$$\left(4 \sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4}\right) + \Bigg(7 a^2 b \text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Tan}[e+f x]^{3/2}\Bigg) \Big/ \Bigg(3 \sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7 a^2 \text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] + 2$$

$$\Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] +$$

$$a^2 \text{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg) \left(-b^2 \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg) \Big/$$

$$\left(\text{Cos}[e+f x]^{3/2} \sqrt{\text{Sin}[e+f x]} (a+b \text{Sin}[e+f x]) \left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right) +$$

$$\Bigg(2 \left(-3 a^2 b+5 b^3\right) \text{Cos}[2 (e+f x)] \sqrt{\text{Tan}[e+f x]}$$

$$\left(b \text{Tan}[e+f x]+a \sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(-\frac{a \text{ArcTan}\left[\frac{-\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2} b^2} - \frac{a \text{ArcTan}\left[\frac{\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2} b^2} +$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$
$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$
$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f\,x]^{3/2}}{b\,\sqrt{1+\text{Tan}[e+f\,x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\,\text{Tan}[e+f\,x]^{3/2}\right)\Big/$$
$$\left(b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\text{Tan}[e+f x]^2\Big)\,\left(-b^2\,\text{Tan}[e+f x]^2+a^2\,\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)+$$

$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\,b\,\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{11}{4},\,\frac{1}{2},\,2,\,\frac{15}{4},\,-\text{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2},\,1,\,\frac{15}{4},\,-\text{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f x]^2\right]\right)$$

$$\text{Tan}[e+f x]^2\Big)\,\left(-b^2\,\text{Tan}[e+f x]^2+a^2\,\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\,\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{11}{4},\,\frac{1}{2},\,2,\,\frac{15}{4},\,-\text{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2},\,1,\,\frac{15}{4},\,-\text{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f x]^2\right]\right)$$

$$\text{Tan}[e+f x]^2\Big)\,\left(-b^2\,\text{Tan}[e+f x]^2+a^2\,\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\,\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\,\left(-1+\text{Tan}[e+f x]^2\right)\right.$$

$$\left.\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

Problem 1428: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{5/2}}{\left(d\,\text{Sin}[e+f x]\right)^{9/2}\,\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 612 leaves, 18 steps):

$$-\frac{2 g \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{7 a d f \left(d \operatorname{Sin}[e+f x]\right)^{7/2}}+\frac{2 b g \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{5 a^2 d^2 f \left(d \operatorname{Sin}[e+f x]\right)^{5/2}}-\frac{8 g \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{21 a d^3 f \left(d \operatorname{Sin}[e+f x]\right)^{3/2}}+\frac{2 \left(a^2-b^2\right) g \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{3 a^3 d^3 f \left(d \operatorname{Sin}[e+f x]\right)^{3/2}}+\frac{4 b g \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{5 a^2 d^4 f \sqrt{d \operatorname{Sin}[e+f x]}}-\frac{2 b \left(a^2-b^2\right) g \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{a^4 d^4 f \sqrt{d \operatorname{Sin}[e+f x]}}+\left(2 \sqrt{2} b^2 \sqrt{-a+b} \sqrt{a+b} g^{5/2} \operatorname{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/ \left(a^4 d^4 f \sqrt{d \operatorname{Sin}[e+f x]}\right)-\left(2 \sqrt{2} b^2 \sqrt{-a+b} \sqrt{a+b} g^{5/2} \operatorname{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/ \left(a^4 d^4 f \sqrt{d \operatorname{Sin}[e+f x]}\right)+\frac{4 b g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{5 a^2 d^5 f \sqrt{\operatorname{Sin}[2 e+2 f x]}}-\left(2 b \left(a^2-b^2\right) g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}\right) \Big/ \left(a^4 d^5 f \sqrt{\operatorname{Sin}[2 e+2 f x]}\right)$$

Result (type 6, 3037 leaves):

$$\left(\left(g \operatorname{Cos}[e+f x]\right)^{5/2} \left(-\frac{2 \left(3 a^2 b \operatorname{Cos}[e+f x]-5 b^3 \operatorname{Cos}[e+f x]\right) \operatorname{Csc}[e+f x]}{5 a^4}+\frac{2 \left(3 a^2 \operatorname{Cos}[e+f x]-7 b^2 \operatorname{Cos}[e+f x]\right) \operatorname{Csc}[e+f x]^2}{21 a^3}+\frac{2 b \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]^2}{5 a^2}-\frac{2 \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]^3}{7 a}\right) \operatorname{Sin}[e+f x]^3 \operatorname{Tan}[e+f x]^2\right) \Big/ \left(f \left(d \operatorname{Sin}[e+f x]\right)^{9/2}\right)-\frac{1}{5 a^4 f \operatorname{Cos}[e+f x]^{5/2} \left(d \operatorname{Sin}[e+f x]\right)^{9/2}} b \left(g \operatorname{Cos}[e+f x]\right)^{5/2} \operatorname{Sin}[e+f x]^{9/2}$$

$$\left(-\left(\left(14 \left(a^2-b^2\right) \left(6 a^3-10 a b^2\right) \operatorname{Cos}[e+f x]^{3/2} \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)\right.\right.\right.$$

$$\left(\left(b \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{1-\operatorname{Cos}[e+f x]^2}\right) \Big/ \left(-7 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(4 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, -\frac{1}{4}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{4}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right)+$$

$$\left(a\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\Big/\left(7\left(a^2-b^2\right)\right.$$
$$\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\text{AppellF1}\left[\frac{7}{4},\right.\right.$$
$$\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7}{4},\frac{5}{4},1,$$
$$\left.\left.\left.\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\right)\right)\text{Sin}[e+f x]^{3/2}\Bigg)\Big/$$
$$\left(3\left(1-\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\left(a+b\,\text{Sin}[e+f x]\right)\right)\Bigg)+$$
$$\left(2\left(8\,a^2\,b-10\,b^3\right)\sqrt{\text{Tan}[e+f x]}\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)\right.$$
$$\left(\left(\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+\right.\right.\right.$$
$$2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]-$$
$$\text{Log}\left[-a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]+$$
$$\left.\text{Log}\left[a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$
$$\left(4\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\right.\right.$$
$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{3/2}\Bigg)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$
$$a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Bigg)$$
$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$
$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$
$$\left(2\left(-3\,a^2\,b+5\,b^3\right)\text{Cos}\left[2\left(e+f x\right)\right]\sqrt{\text{Tan}[e+f x]}\right.$$
$$\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\left(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\right.$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f\,x]^{3/2}}{b\,\sqrt{1+\text{Tan}[e+f\,x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\,\text{Tan}[e+f\,x]^{3/2}\right)\Big/$$

$$\left(b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)+$$

$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\text{Tan}[e+f x]^{7/2}\right)\Bigg/\left(7\,b\,\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\text{Tan}[e+f x]^{7/2}\right)\Bigg/\left(7\,\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

Problem 1429: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(g \operatorname{Cos}[e+f x])^{5/2}}{(d \operatorname{Sin}[e+f x])^{11/2} (a+b \operatorname{Sin}[e+f x])} \, dx$$

Optimal (type 4, 822 leaves, 24 steps):

$$-\frac{2 g (g \operatorname{Cos}[e+f x])^{3/2}}{9 a d f (d \operatorname{Sin}[e+f x])^{9/2}}+\frac{2 b g (g \operatorname{Cos}[e+f x])^{3/2}}{7 a^2 d^2 f (d \operatorname{Sin}[e+f x])^{7/2}}-\frac{4 g (g \operatorname{Cos}[e+f x])^{3/2}}{15 a d^3 f (d \operatorname{Sin}[e+f x])^{5/2}}+\frac{2 (a^2-b^2) g (g \operatorname{Cos}[e+f x])^{3/2}}{5 a^3 d^3 f (d \operatorname{Sin}[e+f x])^{5/2}}+\frac{8 b g (g \operatorname{Cos}[e+f x])^{3/2}}{21 a^2 d^4 f (d \operatorname{Sin}[e+f x])^{3/2}}-\frac{2 b (a^2-b^2) g (g \operatorname{Cos}[e+f x])^{3/2}}{3 a^4 d^4 f (d \operatorname{Sin}[e+f x])^{3/2}}-\frac{8 g (g \operatorname{Cos}[e+f x])^{3/2}}{15 a d^5 f \sqrt{d \operatorname{Sin}[e+f x]}}+\frac{4 (a^2-b^2) g (g \operatorname{Cos}[e+f x])^{3/2}}{5 a^3 d^5 f \sqrt{d \operatorname{Sin}[e+f x]}}+\frac{2 b^2 (a^2-b^2) g (g \operatorname{Cos}[e+f x])^{3/2}}{a^5 d^5 f \sqrt{d \operatorname{Sin}[e+f x]}}-\left(2 \sqrt{2} b^3 \sqrt{-a+b} \sqrt{a+b} g^{5/2} \operatorname{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/ \left(a^5 d^5 f \sqrt{d \operatorname{Sin}[e+f x]}\right)+\left(2 \sqrt{2} b^3 \sqrt{-a+b} \sqrt{a+b} g^{5/2} \operatorname{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/ \left(a^5 d^5 f \sqrt{d \operatorname{Sin}[e+f x]}\right)-\frac{8 g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{15 a d^6 f \sqrt{\operatorname{Sin}[2 e+2 f x]}}+\left(4 (a^2-b^2) g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}\right) \Big/ \left(5 a^3 d^6 f \sqrt{\operatorname{Sin}[2 e+2 f x]}\right)+\left(2 b^2 (a^2-b^2) g^2 \sqrt{g \operatorname{Cos}[e+f x]} \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}\right) \Big/ \left(a^5 d^6 f \sqrt{\operatorname{Sin}[2 e+2 f x]}\right)$$

Result (type 6, 3111 leaves):

$$\left((g \operatorname{Cos}[e+f x])^{5/2} \left(\frac{1}{15 a^5} 2 \left(2 a^4 \operatorname{Cos}[e+f x]+9 a^2 b^2 \operatorname{Cos}[e+f x]-15 b^4 \operatorname{Cos}[e+f x]\right) \operatorname{Csc}[e+f x]-\frac{2 \left(3 a^2 b \operatorname{Cos}[e+f x]-7 b^3 \operatorname{Cos}[e+f x]\right) \operatorname{Csc}[e+f x]^2}{21 a^4}+\frac{2 \left(a^2 \operatorname{Cos}[e+f x]-3 b^2 \operatorname{Cos}[e+f x]\right) \operatorname{Csc}[e+f x]^3}{15 a^3}+\frac{2 b \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]^3}{7 a^2}-\frac{2 \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]^4}{9 a}\right) \operatorname{Sin}[e+f x]^4 \operatorname{Tan}[e+f x]^2\right) \Big/ \left(f (d \operatorname{Sin}[e+f x])^{11/2}\right)+\frac{1}{15 a^5 f \operatorname{Cos}[e+f x]^{5/2} (d \operatorname{Sin}[e+f x])^{11/2}} (g \operatorname{Cos}[e+f x])^{5/2} \operatorname{Sin}[e+f x]^{11/2}$$

$$\Bigg(-\Bigg(\Bigg(14\,(a^2-b^2)\,(4 a^5+18 a^3 b^2-30 a b^4)\,\text{Cos}[e+f x]^{3/2}\,\left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(b\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\sqrt{1-\text{Cos}[e+f x]^2}\Bigg)\Big/$$

$$\Bigg(-7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+$$

$$\Bigg(4 b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+(a^2-b^2)$$

$$\text{AppellF1}\Big[\frac{7}{4},\frac{3}{4},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[e+f x]^2\Bigg)+$$

$$\Bigg(a\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\Big/\Bigg(7\,(a^2-b^2)$$

$$\text{AppellF1}\Big[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+\Bigg(-4 b^2\,\text{AppellF1}\Big[\frac{7}{4},$$

$$\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]+(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{5}{4},1,$$

$$\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[e+f x]^2\Bigg)\Bigg)\,\text{Sin}[e+f x]^{3/2}\Bigg)\Big/$$

$$\Big(3\,(1-\text{Cos}[e+f x]^2)\,(a^2+b^2\,(-1+\text{Cos}[e+f x]^2))\,(a+b\,\text{Sin}[e+f x])\Big)\Bigg)+$$

$$\Bigg(2\,(2 a^4 b+24 a^2 b^3-30 b^5)\,\sqrt{\text{Tan}[e+f x]}\,\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]+$$

$$2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]-$$

$$\text{Log}\Big[-a+\sqrt{2}\,\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]+$$

$$\text{Log}\Big[a+\sqrt{2}\,\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\Big]\Bigg)\Big/$$

$$\Big(4\sqrt{2}\,\sqrt{a}\,(a^2-b^2)^{1/4}\Big)+\Bigg(7 a^2 b\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Tan}[e+f x]^{3/2}\Bigg)\Big/\Bigg(3\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7 a^2\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+2$$

$$\Bigg(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\left(2\left(-2\,a^4\,b-9\,a^2\,b^3+15\,b^5\right)\text{Cos}\left[2\left(e+f x\right)\right]\sqrt{\text{Tan}[e+f x]}\right.$$

$$\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\left(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\right.$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2\,a^2-b^2\right)\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f x]^{3/2}}{b\sqrt{1+\text{Tan}[e+f x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\text{Tan}[e+f x]^{3/2}\right)\Big/$$

$$\left(b\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\,b\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)\right.$$

$$\left.\left.\sqrt{1+\operatorname{Tan}[e+f x]^2}\right)\right)$$

Problem 1430: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(d \operatorname{Sin}[e+f x])^{5/2}}{\sqrt{g \operatorname{Cos}[e+f x]}\,(a+b \operatorname{Sin}[e+f x])}\, dx$$

Optimal (type 4, 616 leaves, 19 steps):

$$\frac{a\, d^{5/2} \operatorname{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{g \operatorname{Cos}[e+f x]}}\right]}{\sqrt{2}\, b^2 f \sqrt{g}}-\frac{a\, d^{5/2} \operatorname{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{g \operatorname{Cos}[e+f x]}}\right]}{\sqrt{2}\, b^2 f \sqrt{g}}-$$
$$\left(2 \sqrt{2}\, a^2 d^{5/2} \sqrt{\operatorname{Cos}[e+f x]}\, \operatorname{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{1+\operatorname{Cos}[e+f x]}}\right], -1\right]\right) \Big/$$
$$\left(b^2 \sqrt{-a^2+b^2}\, f \sqrt{g \operatorname{Cos}[e+f x]}\right)+$$
$$\left(2 \sqrt{2}\, a^2 d^{5/2} \sqrt{\operatorname{Cos}[e+f x]}\, \operatorname{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{d}\,\sqrt{1+\operatorname{Cos}[e+f x]}}\right], -1\right]\right) \Big/$$
$$\left(b^2 \sqrt{-a^2+b^2}\, f \sqrt{g \operatorname{Cos}[e+f x]}\right)-\frac{a\, d^{5/2} \operatorname{Log}\left[\sqrt{d}-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{g \operatorname{Cos}[e+f x]}}+\sqrt{d}\, \operatorname{Tan}[e+f x]\right]}{2 \sqrt{2}\, b^2 f \sqrt{g}}+$$
$$\frac{a\, d^{5/2} \operatorname{Log}\left[\sqrt{d}+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d \operatorname{Sin}[e+f x]}}{\sqrt{g \operatorname{Cos}[e+f x]}}+\sqrt{d}\, \operatorname{Tan}[e+f x]\right]}{2 \sqrt{2}\, b^2 f \sqrt{g}}-\frac{d^2 \sqrt{g \operatorname{Cos}[e+f x]}\, \sqrt{d \operatorname{Sin}[e+f x]}}{b f g}+$$
$$\frac{d^3 \operatorname{EllipticF}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{\operatorname{Sin}[2 e+2 f x]}}{2 b f \sqrt{g \operatorname{Cos}[e+f x]}\, \sqrt{d \operatorname{Sin}[e+f x]}}$$

Result (type 6, 1790 leaves):

$$\frac{1}{2 f \sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{Sin}[e+f x]^{5/2}}$$
$$\sqrt{\operatorname{Cos}[e+f x]}\, (d \operatorname{Sin}[e+f x])^{5/2} \left(-\left(\left(2 \operatorname{Cos}[2 (e+f x)]\, \sqrt{\operatorname{Sin}[e+f x]}\right.\right.\right.$$
$$\left(b \operatorname{Tan}[e+f x]+a \sqrt{1+\operatorname{Tan}[e+f x]^2}\right)\left(-\frac{a \operatorname{ArcTan}\left[\frac{-\sqrt{2}+2 \sqrt{\operatorname{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\, b^2}-\right.$$

$$\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\frac{\sqrt{a}\,\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,b^2\,\left(a^2-b^2\right)^{3/4}}+$$

$$\frac{\sqrt{a}\,\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,b^2\,\left(a^2-b^2\right)^{3/4}}-$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}+$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}+\left(\sqrt{a}\,\left(2\,a^2-b^2\right)\,\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\right.\right.$$

$$\left.\left.\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/\left(4\,\sqrt{2}\,b^2\,\left(a^2-b^2\right)^{3/4}\right)-$$

$$\left(\sqrt{a}\,\left(2\,a^2-b^2\right)\,\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$

$$\left(4\,\sqrt{2}\,b^2\,\left(a^2-b^2\right)^{3/4}\right)-\frac{\sqrt{\text{Tan}[e+f\,x]}}{b\,\sqrt{1+\text{Tan}[e+f\,x]^2}}-\left(5\,a^4\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\right.\right.$$

$$\left.\left.-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\,\sqrt{\text{Tan}[e+f\,x]}\right)\Big/\left(b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-5\,a^2\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$2\,\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)+$$

$$\left(9\,a^4\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f\,x]^{5/2}\right)\Big/\left(5\,b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$

$$\left(-9\,a^2\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$2\,\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2},\,2,\,\frac{13}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{9}{4},\,\frac{3}{2},\,1,\,\frac{13}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)\right)\Big/$$

$$\left(\operatorname{Cos}[e+f x]^{5/2}\,(a+b\operatorname{Sin}[e+f x])\,\sqrt{\operatorname{Tan}[e+f x]}\,\left(-1+\operatorname{Tan}[e+f x]^2\right)\right.$$

$$\left.\left.\sqrt{1+\operatorname{Tan}[e+f x]^2}\right)\right)+$$

$$\left(2\sqrt{\operatorname{Sin}[e+f x]}\,\left(b\operatorname{Tan}[e+f x]+a\sqrt{1+\operatorname{Tan}[e+f x]^2}\right)\right.$$

$$\left(\left(\left(\sqrt{a}\,\left(-2\operatorname{ArcTan}\left[1-\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+f x]}}{\sqrt{a}}\right]+\right.\right.\right.\right.$$

$$2\operatorname{ArcTan}\left[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+f x]}}{\sqrt{a}}\right]+$$

$$\operatorname{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\operatorname{Tan}[e+f x]\right]-$$

$$\left.\left.\operatorname{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\operatorname{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\operatorname{Tan}[e+f x]\right]\right)\right)\Big/$$

$$\left(4\sqrt{2}\,\left(a^2-b^2\right)^{3/4}\right)+\left(9a^2 b\operatorname{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\operatorname{Tan}[e+f x]^2,\right.\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\operatorname{Tan}[e+f x]^2\right]\operatorname{Tan}[e+f x]^{5/2}\right)\Big/\left(5\sqrt{1+\operatorname{Tan}[e+f x]^2}\right.$$

$$\left(-9a^2\operatorname{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\operatorname{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\operatorname{Tan}[e+f x]^2\right]+\right.$$

$$2\left(2\left(a^2-b^2\right)\operatorname{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},-\operatorname{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\operatorname{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\operatorname{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},-\operatorname{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\operatorname{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\left.\operatorname{Tan}[e+f x]^2\right)\left(-b^2\operatorname{Tan}[e+f x]^2+a^2\left(1+\operatorname{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left.\left(\operatorname{Cos}[e+f x]^{5/2}\,(a+b\operatorname{Sin}[e+f x])\,\sqrt{\operatorname{Tan}[e+f x]}\,\left(1+\operatorname{Tan}[e+f x]^2\right)^{3/2}\right)\right)$$

Problem 1431: Result unnecessarily involves higher level functions.

$$\int\frac{(d\operatorname{Sin}[e+f x])^{3/2}}{\sqrt{g\operatorname{Cos}[e+f x]}\,(a+b\operatorname{Sin}[e+f x])}\,dx$$

Optimal (type 4, 508 leaves, 15 steps):

$$-\frac{d^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{\sqrt{2}\,b\,f\,\sqrt{g}}+\frac{d^{3/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{g\,\text{Cos}[e+f\,x]}}\right]}{\sqrt{2}\,b\,f\,\sqrt{g}}+$$

$$\left(2\sqrt{2}\,a\,d^{3/2}\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],-1\right]\right)\Big/$$

$$\left(b\sqrt{-a^2+b^2}\,f\sqrt{g\,\text{Cos}[e+f\,x]}\right)-$$

$$\left(2\sqrt{2}\,a\,d^{3/2}\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],-1\right]\right)\Big/$$

$$\left(b\sqrt{-a^2+b^2}\,f\sqrt{g\,\text{Cos}[e+f\,x]}\right)+\frac{d^{3/2}\,\text{Log}\left[\sqrt{d}-\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{2\sqrt{2}\,b\,f\,\sqrt{g}}-$$

$$\frac{d^{3/2}\,\text{Log}\left[\sqrt{d}+\frac{\sqrt{2}\,\sqrt{g}\,\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{g\,\text{Cos}[e+f\,x]}}+\sqrt{d}\,\text{Tan}[e+f\,x]\right]}{2\sqrt{2}\,b\,f\,\sqrt{g}}$$

Result (type 6, 518 leaves):

$$\frac{1}{f\sqrt{g\,\text{Cos}[e+f\,x]}\,\left(-a+b\,\text{Sin}[e+f\,x]\right)\left(a+b\,\text{Sin}[e+f\,x]\right)^2}$$

$$10\left(a^2-b^2\right)\text{Cot}[e+f\,x]\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}\left(a+b\sqrt{\text{Sin}[e+f\,x]^2}\right)$$

$$\left(\left(a\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\Big/\right.$$

$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{4},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)+$$

$$\left(b\,\text{AppellF1}\left[\frac{1}{4},-\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Sin}[e+f\,x]^2}\right)\Big/$$

$$\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{3}{4},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.\left.3\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\right)$$

Problem 1433: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 273 leaves, 7 steps):

$$\left(2\sqrt{2}\,b\sqrt{\mathrm{Cos}[e+f\,x]}\,\mathrm{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{d\,\mathrm{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\mathrm{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/$$
$$\left(a\sqrt{-a^2+b^2}\,\sqrt{d}\,f\sqrt{g\,\mathrm{Cos}[e+f\,x]}\right)-$$
$$\left(2\sqrt{2}\,b\sqrt{\mathrm{Cos}[e+f\,x]}\,\mathrm{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{d\,\mathrm{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\mathrm{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/$$
$$\left(a\sqrt{-a^2+b^2}\,\sqrt{d}\,f\sqrt{g\,\mathrm{Cos}[e+f\,x]}\right)+\frac{\mathrm{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\sqrt{\mathrm{Sin}[2\,e+2\,f\,x]}}{a\,f\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}$$

Result (type 6, 664 leaves):

$$
\begin{aligned}
&-\Bigg(\Bigg(2\sqrt{\mathrm{Cos}[e+f\,x]}\,\left(a+b\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\\
&\quad\Bigg(\left(5\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\mathrm{Cos}[e+f\,x]}\right)\Big/\\
&\qquad\Bigg(\left(1-\mathrm{Cos}[e+f\,x]^2\right)^{3/4}\Bigg(5\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\right.\\
&\qquad\qquad\left.\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\Bigg(-4\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\\
&\qquad\qquad 3\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\Bigg)\\
&\qquad\quad \mathrm{Cos}[e+f\,x]^2\Bigg)\,\left(a^2+b^2\,\left(-1+\mathrm{Cos}[e+f\,x]^2\right)\right)\Bigg)-\\
&\quad\Bigg(\left(\frac{1}{8}-\frac{i}{8}\right)\,b\,\Bigg(2\,\mathrm{ArcTan}\left[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\\
&\qquad 2\,\mathrm{ArcTan}\left[1+\frac{(1+i)\,\sqrt{a}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]+\\
&\qquad \mathrm{Log}\left[\sqrt{-a^2+b^2}+\frac{i\,a\,\mathrm{Cos}[e+f\,x]}{\sqrt{-1+\mathrm{Cos}[e+f\,x]^2}}-\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\\
&\qquad \mathrm{Log}\left[\sqrt{-a^2+b^2}+\frac{i\,a\,\mathrm{Cos}[e+f\,x]}{\sqrt{-1+\mathrm{Cos}[e+f\,x]^2}}+\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]\Bigg)\Bigg)\Big/\\
&\qquad\left(\sqrt{a}\,\left(-a^2+b^2\right)^{3/4}\right)\Bigg)\,\mathrm{Sin}[e+f\,x]\Bigg)\Big/\\
&\quad\Bigg(f\,\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\left(1-\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\\
&\qquad\left(a+b\,\mathrm{Sin}[e+f\,x]\right)\Bigg)\Bigg)
\end{aligned}
$$

Problem 1434: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{g\,\mathrm{Cos}[e+f\,x]}\,\left(d\,\mathrm{Sin}[e+f\,x]\right)^{3/2}\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 320 leaves, 9 steps):

$$- \left(\left(2 \sqrt{2} \, b^2 \sqrt{\text{Cos}[e + f x]} \, \text{EllipticPi}\left[- \frac{a}{b - \sqrt{-a^2 + b^2}}, \text{ArcSin}\left[\frac{\sqrt{d \, \text{Sin}[e + f x]}}{\sqrt{d} \sqrt{1 + \text{Cos}[e + f x]}} \right], -1 \right] \right) \Big/ \left(a^2 \sqrt{-a^2 + b^2} \, d^{3/2} f \sqrt{g \, \text{Cos}[e + f x]} \right) \right) +$$

$$\left(2 \sqrt{2} \, b^2 \sqrt{\text{Cos}[e + f x]} \, \text{EllipticPi}\left[- \frac{a}{b + \sqrt{-a^2 + b^2}}, \text{ArcSin}\left[\frac{\sqrt{d \, \text{Sin}[e + f x]}}{\sqrt{d} \sqrt{1 + \text{Cos}[e + f x]}} \right], -1 \right] \right) \Big/ \left(a^2 \sqrt{-a^2 + b^2} \, d^{3/2} f \sqrt{g \, \text{Cos}[e + f x]} \right) -$$

$$\frac{2 \sqrt{g \, \text{Cos}[e + f x]}}{a \, d \, f \, g \sqrt{d \, \text{Sin}[e + f x]}} - \frac{b \, \text{EllipticF}\left[e - \frac{\pi}{4} + f x, 2 \right] \sqrt{\text{Sin}[2 e + 2 f x]}}{a^2 \, d \, f \sqrt{g \, \text{Cos}[e + f x]} \sqrt{d \, \text{Sin}[e + f x]}}$$

Result (type 6, 715 leaves):

$$
\begin{aligned}
&-\frac{2\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]}{a\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}+\left(2\,b\,\sqrt{\text{Cos}[e+f\,x]}\,\left(a+b\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.\\
&\quad\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[e+f\,x]}\right)\Big/\right.\\
&\qquad\left(\left(1-\text{Cos}[e+f\,x]^2\right)^{3/4}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\right.\\
&\qquad\quad\left(-4\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.\\
&\qquad\qquad\left.3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\\
&\qquad\quad\left.\left.\text{Cos}[e+f\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-\\
&\qquad\left(\left(\frac{1}{8}-\frac{i}{8}\right)\,b\,\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\right.\right.\\
&\qquad\quad 2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]+\\
&\qquad\quad \text{Log}\left[\sqrt{-a^2+b^2}+\frac{i\,a\,\text{Cos}[e+f\,x]}{\sqrt{-1+\text{Cos}[e+f\,x]^2}}-\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\\
&\qquad\quad\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+\frac{i\,a\,\text{Cos}[e+f\,x]}{\sqrt{-1+\text{Cos}[e+f\,x]^2}}+\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]\right)\right)\Big/\\
&\qquad\left.\left.\left(\sqrt{a}\,\left(-a^2+b^2\right)^{3/4}\right)\right)\,\text{Sin}[e+f\,x]^2\right)\Big/\\
&\quad\left(a\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\,\left(1-\text{Cos}[e+f\,x]^2\right)^{1/4}\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}\right.\\
&\qquad\left.\left(a+b\,\text{Sin}[e+f\,x]\right)\right)
\end{aligned}
$$

Problem 1435: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$
\int\frac{1}{\sqrt{g\,\text{Cos}[e+f\,x]}\,\left(d\,\text{Sin}[e+f\,x]\right)^{5/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx
$$

Optimal (type 4, 424 leaves, 13 steps):

$$\left(2\sqrt{2}\,b^3\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/$$
$$\left(a^3\sqrt{-a^2+b^2}\;d^{5/2}\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)-$$
$$\left(2\sqrt{2}\,b^3\sqrt{\text{Cos}[e+f\,x]}\;\text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{d\,\text{Sin}[e+f\,x]}}{\sqrt{d}\,\sqrt{1+\text{Cos}[e+f\,x]}}\right],\,-1\right]\right)\Big/$$
$$\left(a^3\sqrt{-a^2+b^2}\;d^{5/2}\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\right)-\frac{2\sqrt{g\,\text{Cos}[e+f\,x]}}{3\,a\,d\,f\,g\,\left(d\,\text{Sin}[e+f\,x]\right)^{3/2}}+$$
$$\frac{2\,b\,\sqrt{g\,\text{Cos}[e+f\,x]}}{a^2\,d^2\,f\,g\,\sqrt{d\,\text{Sin}[e+f\,x]}}+\frac{2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{3\,a\,d^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\sqrt{d\,\text{Sin}[e+f\,x]}}+$$
$$\frac{b^2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{a^3\,d^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\sqrt{d\,\text{Sin}[e+f\,x]}}$$

Result (type 6, 1332 leaves):

$$\frac{\text{Cos}[e+f\,x]\left(\frac{2\,b\,\text{Csc}[e+f\,x]}{a^2}-\frac{2\,\text{Csc}[e+f\,x]^2}{3\,a}\right)\text{Sin}[e+f\,x]^3}{f\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\left(d\,\text{Sin}[e+f\,x]\right)^{5/2}}+$$
$$\frac{1}{3\,a^2\,f\,\sqrt{g\,\text{Cos}[e+f\,x]}\;\left(d\,\text{Sin}[e+f\,x]\right)^{5/2}}\sqrt{\text{Cos}[e+f\,x]}\;\text{Sin}[e+f\,x]^{5/2}$$
$$\left(-\frac{1}{\left(1-\text{Cos}[e+f\,x]^2\right)^{1/4}\left(a+b\,\text{Sin}[e+f\,x]\right)}\,2\left(2\,a^2+3\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[e+f\,x]^2}\right)\right.$$
$$\left(\left(5\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[e+f\,x]}\right)\Big/\right.$$
$$\left(\left(1-\text{Cos}[e+f\,x]^2\right)^{3/4}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\text{Cos}[e+f\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+3\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\text{Cos}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f\,x]^2\right)\right)\right)-$$
$$\left(\left(\frac{1}{8}-\frac{i}{8}\right)b\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{a}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]-2\right.\right.$$
$$\text{ArcTan}\left[1+\frac{(1+i)\sqrt{a}\,\sqrt{\text{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\right.$$
$$\left.\frac{i\,a\,\text{Cos}[e+f\,x]}{\sqrt{-1+\text{Cos}[e+f\,x]^2}}-\frac{(1+i)\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}}{\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\text{Log}\Big[$$

$$\sqrt{-a^2+b^2}+\frac{i\,a\,\text{Cos}[e+f\,x]}{\sqrt{-1+\text{Cos}[e+f\,x]^2}}+\frac{(1+i)\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[e+f\,x]}}{\left(-1+\text{Cos}[e+f\,x]^2\right)^{1/4}}]))\Big/$$

$$(\sqrt{a}\,\left(-a^2+b^2\right)^{3/4}))\,\sqrt{\text{Sin}[e+f\,x]}\,+$$

$$(4\,a\,b\,\sqrt{\text{Sin}[e+f\,x]}\,\left(b\,\text{Tan}[e+f\,x]+a\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right)$$

$$(((\sqrt{a}\,(-2\,\text{ArcTan}[1-\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}]+2$$

$$\text{ArcTan}[1+\frac{\sqrt{2}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{a}}]+\text{Log}[$$

$$-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]]-\text{Log}[$$

$$a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]]))\Big/$$

$$(4\,\sqrt{2}\,\left(a^2-b^2\right)^{3/4})+(9\,a^2\,b\,\text{AppellF1}[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2]\,\text{Tan}[e+f\,x]^{5/2})\Big/(5\,\sqrt{1+\text{Tan}[e+f\,x]^2}$$

$$(-9\,a^2\,\text{AppellF1}[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2]+2$$

$$(2\,\left(a^2-b^2\right)\text{AppellF1}[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2]+$$

$$a^2\,\text{AppellF1}[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2])$$

$$\text{Tan}[e+f\,x]^2)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right))))\Big/$$

$$(\text{Cos}[e+f\,x]^{5/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)\,\sqrt{\text{Tan}[e+f\,x]}\,\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2})$$

Problem 1436: Attempted integration timed out after 120 seconds.

$$\int\frac{\left(d\,\text{Sin}[e+f\,x]\right)^{5/2}}{\left(g\,\text{Cos}[e+f\,x]\right)^{3/2}\,\left(a+b\,\text{Sin}[e+f\,x]\right)}\,dx$$

Optimal (type 4, 1064 leaves, 31 steps):

$$-\frac{a^2 d^{5/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{d\,\text{Sin}[e+f x]}}\right]}{\sqrt{2}\,b\left(a^2-b^2\right) f\,g^{3/2}}+\frac{b\,d^{5/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{d\,\text{Sin}[e+f x]}}\right]}{\sqrt{2}\left(a^2-b^2\right) f\,g^{3/2}}+$$

$$\frac{a^2 d^{5/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{d\,\text{Sin}[e+f x]}}\right]}{\sqrt{2}\,b\left(a^2-b^2\right) f\,g^{3/2}}-\frac{b\,d^{5/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{d\,\text{Sin}[e+f x]}}\right]}{\sqrt{2}\left(a^2-b^2\right) f\,g^{3/2}}+$$

$$\frac{a^2 d^{5/2}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f x]-\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{d\,\text{Sin}[e+f x]}}\right]}{2\sqrt{2}\,b\left(a^2-b^2\right) f\,g^{3/2}}-$$

$$\frac{b\,d^{5/2}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f x]-\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{d\,\text{Sin}[e+f x]}}\right]}{2\sqrt{2}\left(a^2-b^2\right) f\,g^{3/2}}-$$

$$\frac{a^2 d^{5/2}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f x]+\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{d\,\text{Sin}[e+f x]}}\right]}{2\sqrt{2}\,b\left(a^2-b^2\right) f\,g^{3/2}}+$$

$$\frac{b\,d^{5/2}\,\text{Log}\left[\sqrt{g}+\sqrt{g}\,\text{Cot}[e+f x]+\frac{\sqrt{2}\sqrt{d}\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{d\,\text{Sin}[e+f x]}}\right]}{2\sqrt{2}\left(a^2-b^2\right) f\,g^{3/2}}-$$

$$\left(2\sqrt{2}\,a^3 d^3\,\text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}},\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+f x]}}\right],-1\right]\sqrt{\text{Sin}[e+f x]}\right)\Big/$$
$$\left(b\left(-a+b\right)^{3/2}\left(a+b\right)^{3/2} f\,g^{3/2}\sqrt{d\,\text{Sin}[e+f x]}\right)+$$
$$\left(2\sqrt{2}\,a^3 d^3\,\text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}},\text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\sqrt{1+\text{Sin}[e+f x]}}\right],-1\right]\sqrt{\text{Sin}[e+f x]}\right)\Big/$$
$$\left(b\left(-a+b\right)^{3/2}\left(a+b\right)^{3/2} f\,g^{3/2}\sqrt{d\,\text{Sin}[e+f x]}\right)-\frac{2\,b\,d^2\sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) f\,g\sqrt{g\,\text{Cos}[e+f x]}}+$$

$$\frac{2\,a\,d\left(d\,\text{Sin}[e+f x]\right)^{3/2}}{\left(a^2-b^2\right) f\,g\sqrt{g\,\text{Cos}[e+f x]}}-\frac{2\,a\,d^2\sqrt{g\,\text{Cos}[e+f x]}\,\text{EllipticE}\left[e-\frac{\pi}{4}+f x,2\right]\sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) f\,g^2\sqrt{\text{Sin}[2e+2f x]}}$$

Result (type 1, 1 leaves):

???

Problem 1437: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(d\,\text{Sin}[e+f x]\right)^{3/2}}{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 379 leaves, 10 steps):

$$\left(2\sqrt{2}\, a^2 d^2 \,\text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(\left(-a+b\right)^{3/2} \left(a+b\right)^{3/2} f\, g^{3/2} \sqrt{d\,\text{Sin}[e+f x]}\right) - \left(2\sqrt{2}\, a^2 d^2 \,\text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\,\sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(\left(-a+b\right)^{3/2} \left(a+b\right)^{3/2} f\, g^{3/2} \sqrt{d\,\text{Sin}[e+f x]}\right) + \frac{2 a d \sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) f g \sqrt{g\,\text{Cos}[e+f x]}} - \frac{2 b \left(d\,\text{Sin}[e+f x]\right)^{3/2}}{\left(a^2-b^2\right) f g \sqrt{g\,\text{Cos}[e+f x]}} + \frac{2 b d \sqrt{g\,\text{Cos}[e+f x]}\,\text{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) f g^2 \sqrt{\text{Sin}[2 e+2 f x]}}$$

Result (type 6, 2915 leaves):

$$\frac{2\,\text{Cot}[e+f x] \left(d\,\text{Sin}[e+f x]\right)^{3/2} \left(a-b\,\text{Sin}[e+f x]\right)}{\left(a^2-b^2\right) f \left(g\,\text{Cos}[e+f x]\right)^{3/2}} - \frac{1}{(a-b)\,(a+b)\, f \left(g\,\text{Cos}[e+f x]\right)^{3/2} \text{Sin}[e+f x]^{3/2}} \text{Cos}[e+f x]^{3/2} \left(d\,\text{Sin}[e+f x]\right)^{3/2} \left(\left(28 a b \left(a^2-b^2\right) \text{Cos}[e+f x]^{3/2} \left(a+b\sqrt{1-\text{Cos}[e+f x]^2}\right) \left(\left(b\,\text{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{1-\text{Cos}[e+f x]^2}\right) \Big/ \left(-7\left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(4 b^2 \text{AppellF1}\left[\frac{7}{4}, -\frac{1}{4}, 2, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4}, \frac{3}{4}, 1, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\right) + \left(a\,\text{AppellF1}\left[\frac{3}{4}, \frac{1}{4}, 1, \frac{7}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \Big/ \left(7\left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4}, \frac{1}{4}, 1, \frac{7}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(-4 b^2 \text{AppellF1}\left[\frac{7}{4}, \frac{1}{4}, 2, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right] + \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4}, \frac{5}{4}, 1, \frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \text{Cos}[e+f x]^2\right)\right) \text{Sin}[e+f x]^{3/2}\right) \Big/ \left(3\left(1-\text{Cos}[e+f x]^2\right) \left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right) \left(a+b\,\text{Sin}[e+f x]\right)\right) +$$

$$\left(2\left(a^2-b^2\right)\sqrt{\text{Tan}[e+f x]}\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)\right.$$

$$\left(\left(\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+\right.\right.\right.$$

$$2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]-$$

$$\text{Log}\left[-a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]+$$

$$\left.\text{Log}\left[a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/$$

$$\left(4\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\right)+\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\right.\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\left(2\,b^2\,\text{Cos}\left[2\left(e+f x\right)\right]\sqrt{\text{Tan}[e+f x]}\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)\right.$$

$$\left(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+\right.$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{-\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\sqrt{a}}\right]}{2\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{2}\sqrt{a}+2\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}\sqrt{a}}\right]}{2\sqrt{2}\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-$$

$$
\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2\sqrt{2}\,b^2}-
\left(\left(2a^2-b^2\right)\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/
\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+
\left(\left(2a^2-b^2\right)\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\right)\Big/
\left(4\sqrt{2}\,\sqrt{a}\,b^2\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f x]^{3/2}}{b\sqrt{1+\text{Tan}[e+f x]^2}}+
\left(7a^4\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\text{Tan}[e+f x]^{3/2}\right)\Big/
\left(b\sqrt{1+\text{Tan}[e+f x]^2}\right.
\left(-7a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.
\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.
\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)
\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-
\left(7a^2 b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.
\left.\text{Tan}[e+f x]^{3/2}\right)\Big/\left(3\sqrt{1+\text{Tan}[e+f x]^2}\right.
\left(-7a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.
\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.
\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)
\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)+
\left(11a^4\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.
\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7b\sqrt{1+\text{Tan}[e+f x]^2}\right.
\left(-11a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.
\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.
$$

$$a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)\right.$$

$$\left.\sqrt{1+\text{Tan}[e+f x]^2}\right)\Bigg)$$

Problem 1438: Attempted integration timed out after 120 seconds.

$$\int\frac{\sqrt{d\,\text{Sin}[e+f x]}}{\left(g\,\text{Cos}[e+f x]\right)^{3/2}\left(a+b\,\text{Sin}[e+f x]\right)}\,dx$$

Optimal (type 4, 374 leaves, 11 steps):

$$-\left(\left(2\sqrt{2}\ a\, b\, d\, \text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\ \sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(\left(-a+b\right)^{3/2} \left(a+b\right)^{3/2} f\, g^{3/2} \sqrt{d\,\text{Sin}[e+f x]}\right)\right) + \left(2\sqrt{2}\ a\, b\, d\, \text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\ \sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(\left(-a+b\right)^{3/2} \left(a+b\right)^{3/2} f\, g^{3/2} \sqrt{d\,\text{Sin}[e+f x]}\right) - \frac{2\, b \sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) f\, g \sqrt{g\,\text{Cos}[e+f x]}} + \frac{2\, a \left(d\,\text{Sin}[e+f x]\right)^{3/2}}{\left(a^2-b^2\right) d\, f\, g \sqrt{g\,\text{Cos}[e+f x]}} - \frac{2\, a \sqrt{g\,\text{Cos}[e+f x]}\ \text{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) f\, g^2 \sqrt{\text{Sin}[2 e+2 f x]}}$$

Result (type 1, 1 leaves):

???

Problem 1439: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{\left(g\,\text{Cos}[e+f x]\right)^{3/2} \sqrt{d\,\text{Sin}[e+f x]}\ \left(a+b\,\text{Sin}[e+f x]\right)}\, dx$$

Optimal (type 4, 380 leaves, 11 steps):

$$\left(2\sqrt{2}\ b^2\, \text{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\ \sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(\left(-a+b\right)^{3/2} \left(a+b\right)^{3/2} f\, g^{3/2} \sqrt{d\,\text{Sin}[e+f x]}\right) - \left(2\sqrt{2}\ b^2\, \text{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \text{ArcSin}\left[\frac{\sqrt{g\,\text{Cos}[e+f x]}}{\sqrt{g}\ \sqrt{1+\text{Sin}[e+f x]}}\right], -1\right] \sqrt{\text{Sin}[e+f x]}\right) \Big/ \left(\left(-a+b\right)^{3/2} \left(a+b\right)^{3/2} f\, g^{3/2} \sqrt{d\,\text{Sin}[e+f x]}\right) + \frac{2\, a \sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) d\, f\, g \sqrt{g\,\text{Cos}[e+f x]}} - \frac{2\, b \left(d\,\text{Sin}[e+f x]\right)^{3/2}}{\left(a^2-b^2\right) d^2\, f\, g \sqrt{g\,\text{Cos}[e+f x]}} + \frac{2\, b \sqrt{g\,\text{Cos}[e+f x]}\ \text{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d\,\text{Sin}[e+f x]}}{\left(a^2-b^2\right) d\, f\, g^2 \sqrt{\text{Sin}[2 e+2 f x]}}$$

Result (type 1, 1 leaves):

???

Problem 1440: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(g\,\text{Cos}[e+f x]\right)^{3/2} \left(d\,\text{Sin}[e+f x]\right)^{3/2} \left(a+b\,\text{Sin}[e+f x]\right)}\, dx$$

Optimal (type 4, 568 leaves, 16 steps):

$$-\frac{2 a}{\left(a^2-b^2\right) d f g \sqrt{g \operatorname{Cos}[e+f x]} \sqrt{d \operatorname{Sin}[e+f x]}}+\frac{2 b^2 (g \operatorname{Cos}[e+f x])^{3/2}}{a \left(a^2-b^2\right) d f g^3 \sqrt{d \operatorname{Sin}[e+f x]}}-$$

$$\left(2 \sqrt{2}\, b^3 \operatorname{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/$$

$$\left(a (-a+b)^{3/2} (a+b)^{3/2} d f g^{3/2} \sqrt{d \operatorname{Sin}[e+f x]}\right)+$$

$$\left(2 \sqrt{2}\, b^3 \operatorname{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/$$

$$\left(a (-a+b)^{3/2} (a+b)^{3/2} d f g^{3/2} \sqrt{d \operatorname{Sin}[e+f x]}\right)-\frac{2 b \sqrt{d \operatorname{Sin}[e+f x]}}{\left(a^2-b^2\right) d^2 f g \sqrt{g \operatorname{Cos}[e+f x]}}+$$

$$\frac{4 a (d \operatorname{Sin}[e+f x])^{3/2}}{\left(a^2-b^2\right) d^3 f g \sqrt{g \operatorname{Cos}[e+f x]}}-\frac{4 a \sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{\left(a^2-b^2\right) d^2 f g^2 \sqrt{\operatorname{Sin}[2 e+2 f x]}}+$$

$$\frac{2 b^2 \sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{a \left(a^2-b^2\right) d^2 f g^2 \sqrt{\operatorname{Sin}[2 e+2 f x]}}$$

Result (type 6, 2968 leaves):

$$\frac{\operatorname{Cos}[e+f x]^2 \operatorname{Sin}[e+f x]^2 \left(-\frac{2 \operatorname{Cot}[e+f x]}{a}+\frac{2 \operatorname{Sec}[e+f x] (-b+a \operatorname{Sin}[e+f x])}{a^2-b^2}\right)}{f (g \operatorname{Cos}[e+f x])^{3/2} (d \operatorname{Sin}[e+f x])^{3/2}}-$$

$$\frac{1}{a (a-b) (a+b) f (g \operatorname{Cos}[e+f x])^{3/2} (d \operatorname{Sin}[e+f x])^{3/2}} \operatorname{Cos}[e+f x]^{3/2} \operatorname{Sin}[e+f x]^{3/2}$$

$$\left(-\left(\left(14 \left(a^2-b^2\right) \left(4 a^3-2 a b^2\right) \operatorname{Cos}[e+f x]^{3/2} \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)\right.\right.\right.$$

$$\left(\left(b \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{1-\operatorname{Cos}[e+f x]^2}\right) \Big/\right.$$

$$\left(-7 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, -\frac{1}{4}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{4}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right)+$$

$$\left(a \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \Big/ \left(7 \left(a^2-b^2\right)\right.$$

$$\operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-4 b^2 \operatorname{AppellF1}\left[\frac{7}{4},\right.\right.$$

$$\frac{1}{4}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{5}{4}, 1,\right.$$

$$\frac{11}{4}, \text{Cos}[e+f x]^2, \frac{b^2 \text{Cos}[e+f x]^2}{-a^2+b^2}\Big]\Big) \text{Cos}[e+f x]^2\Big)\Big) \text{Sin}[e+f x]^{3/2}\Big) \Big/$$

$$\Big(3 \left(1-\text{Cos}[e+f x]^2\right) \left(a^2+b^2 \left(-1+\text{Cos}[e+f x]^2\right)\right) \left(a+b \text{Sin}[e+f x]\right)\Big)\Big) +$$

$$\Big(2 \left(2 a^2 b-2 b^3\right) \sqrt{\text{Tan}[e+f x]} \left(b \text{Tan}[e+f x]+a \sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Big(\Big(-2 \text{ArcTan}\Big[1-\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]+$$

$$2 \text{ArcTan}\Big[1+\frac{\sqrt{2} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\Big]-$$

$$\text{Log}\Big[-a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2} \text{Tan}[e+f x]\Big]+$$

$$\text{Log}\Big[a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2} \text{Tan}[e+f x]\Big]\Big) \Big/$$

$$\left(4 \sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4}\right)+\Big(7 a^2 b \text{AppellF1}\Big[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] \text{Tan}[e+f x]^{3/2}\Big) \Big/ \Big(3 \sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Big(-7 a^2 \text{AppellF1}\Big[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big]+2$$

$$\Big(2 \left(a^2-b^2\right) \text{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big]+$$

$$a^2 \text{AppellF1}\Big[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big]\Big)$$

$$\text{Tan}[e+f x]^2\Big) \left(-b^2 \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)\Big)\Big) \Big/$$

$$\left(\text{Cos}[e+f x]^{3/2} \sqrt{\text{Sin}[e+f x]} \left(a+b \text{Sin}[e+f x]\right) \left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\Big(2 \left(-2 a^2 b+b^3\right) \text{Cos}\left[2 \left(e+f x\right)\right] \sqrt{\text{Tan}[e+f x]}$$

$$\left(b \text{Tan}[e+f x]+a \sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Big(-\frac{a \text{ArcTan}\Big[\frac{-\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\Big]}{\sqrt{2} b^2}-\frac{a \text{ArcTan}\Big[\frac{\sqrt{2}+2 \sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\Big]}{\sqrt{2} b^2}+$$

$$\frac{\left(2 a^2-b^2\right) \text{ArcTan}\Big[\frac{-\sqrt{2} \sqrt{a}+2 \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{2} \sqrt{a}}\Big]}{2 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2 a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{2} \sqrt{a}+2 \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}}{\sqrt{2} \sqrt{a}}\right]}{2 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2 \sqrt{2} b^2}-$$

$$\frac{a \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[e+f x]}+\text{Tan}[e+f x]\right]}{2 \sqrt{2} b^2}-$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[-a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2} \text{Tan}[e+f x]\right]\right) \Big/$$
$$\left(4 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(\left(2 a^2-b^2\right) \text{Log}\left[a+\sqrt{2} \sqrt{a} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2} \text{Tan}[e+f x]\right]\right) \Big/$$
$$\left(4 \sqrt{2} \sqrt{a} b^2 \left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f x]^{3/2}}{b \sqrt{1+\text{Tan}[e+f x]^2}}+$$

$$\left(7 a^4 \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right] \text{Tan}[e+f x]^{3/2}\right) \Big/$$
$$\left(b \sqrt{1+\text{Tan}[e+f x]^2}\right.$$
$$\left(-7 a^2 \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+2\right.$$
$$\left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+\right.$$
$$\left.a^2 \text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f x]^2\right) \left(-b^2 \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(7 a^2 b \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f x]^{3/2}\right) \Big/ \left(3 \sqrt{1+\text{Tan}[e+f x]^2}\right.$$
$$\left(-7 a^2 \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+2\right.$$
$$\left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]+\right.$$
$$\left.a^2 \text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f x]^2\right) \left(-b^2 \text{Tan}[e+f x]^2+a^2 \left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(11 a^4 \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\text{Tan}[e+f x]^{7/2}\Bigg)\Bigg/\Bigg(7\, b\, \sqrt{1+\text{Tan}[e+f x]^2}\ \Bigg(-11\, a^2\, \text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\text{Tan}[e+f x]^2\Big]+2\ \Big(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\text{Tan}[e+f x]^2\Big]+a^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\text{Tan}[e+f x]^2\Big]\Big)\ \text{Tan}[e+f x]^2\Bigg)\ \Big(-b^2\,\text{Tan}[e+f x]^2+a^2\,\big(1+\text{Tan}[e+f x]^2\big)\Big)\Bigg)-$$

$$\Bigg(11\, a^2\, b\, \text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{(-a^2+b^2)\,\text{Tan}[e+f x]^2}{a^2}\Big]\ \text{Tan}[e+f x]^{7/2}\Bigg)\Bigg/\Bigg(7\,\sqrt{1+\text{Tan}[e+f x]^2}\ \Bigg(-11\, a^2\, \text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\text{Tan}[e+f x]^2\Big]+2\ \Big(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\text{Tan}[e+f x]^2\Big]+a^2\,\text{AppellF1}\Big[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\Big(-1+\frac{b^2}{a^2}\Big)\text{Tan}[e+f x]^2\Big]\Big)\ \text{Tan}[e+f x]^2\Bigg)\ \Big(-b^2\,\text{Tan}[e+f x]^2+a^2\,\big(1+\text{Tan}[e+f x]^2\big)\Big)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\text{Cos}[e+f x]^{3/2}\,\sqrt{\text{Sin}[e+f x]}\ (a+b\,\text{Sin}[e+f x])\ \big(-1+\text{Tan}[e+f x]^2\big)\ \sqrt{1+\text{Tan}[e+f x]^2}\Bigg)$$

Problem 1441: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{(g\,\text{Cos}[e+f x])^{3/2}\ (d\,\text{Sin}[e+f x])^{5/2}\ (a+b\,\text{Sin}[e+f x])}\,dx$$

Optimal (type 4, 673 leaves, 19 steps):

$$-\frac{2 a}{3 \left(a^2-b^2\right) d f g \sqrt{g \operatorname{Cos}[e+f x]} \left(d \operatorname{Sin}[e+f x]\right)^{3/2}}+\frac{2 b^2 \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{3 a \left(a^2-b^2\right) d f g^3 \left(d \operatorname{Sin}[e+f x]\right)^{3/2}}+$$

$$\frac{2 b}{\left(a^2-b^2\right) d^2 f g \sqrt{g \operatorname{Cos}[e+f x]} \sqrt{d \operatorname{Sin}[e+f x]}}-\frac{2 b^3 \left(g \operatorname{Cos}[e+f x]\right)^{3/2}}{a^2 \left(a^2-b^2\right) d^2 f g^3 \sqrt{d \operatorname{Sin}[e+f x]}}+$$

$$\left(2 \sqrt{2}\, b^4 \operatorname{EllipticPi}\left[-\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/$$

$$\left(a^2 (-a+b)^{3/2} (a+b)^{3/2} d^2 f g^{3/2} \sqrt{d \operatorname{Sin}[e+f x]}\right)-$$

$$\left(2 \sqrt{2}\, b^4 \operatorname{EllipticPi}\left[\frac{\sqrt{-a+b}}{\sqrt{a+b}}, \operatorname{ArcSin}\left[\frac{\sqrt{g \operatorname{Cos}[e+f x]}}{\sqrt{g} \sqrt{1+\operatorname{Sin}[e+f x]}}\right], -1\right] \sqrt{\operatorname{Sin}[e+f x]}\right) \Big/$$

$$\left(a^2 (-a+b)^{3/2} (a+b)^{3/2} d^2 f g^{3/2} \sqrt{d \operatorname{Sin}[e+f x]}\right)+\frac{8 a \sqrt{d \operatorname{Sin}[e+f x]}}{3 \left(a^2-b^2\right) d^3 f g \sqrt{g \operatorname{Cos}[e+f x]}}-$$

$$\frac{4 b \left(d \operatorname{Sin}[e+f x]\right)^{3/2}}{\left(a^2-b^2\right) d^4 f g \sqrt{g \operatorname{Cos}[e+f x]}}+\frac{4 b \sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{\left(a^2-b^2\right) d^3 f g^2 \sqrt{\operatorname{Sin}[2 e+2 f x]}}-$$

$$\frac{2 b^3 \sqrt{g \operatorname{Cos}[e+f x]}\, \operatorname{EllipticE}\left[e-\frac{\pi}{4}+f x, 2\right] \sqrt{d \operatorname{Sin}[e+f x]}}{a^2 \left(a^2-b^2\right) d^3 f g^2 \sqrt{\operatorname{Sin}[2 e+2 f x]}}$$

Result (type 6, 2988 leaves) :

$$\left(\operatorname{Cos}[e+f x]^2 \operatorname{Sin}[e+f x]^3\right.$$

$$\left.\left(\frac{2 b \operatorname{Cot}[e+f x]}{a^2}-\frac{2 \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]}{3 a}+\frac{2 \operatorname{Sec}[e+f x] \left(a-b \operatorname{Sin}[e+f x]\right)}{a^2-b^2}\right)\right) \Big/$$

$$\left(f \left(g \operatorname{Cos}[e+f x]\right)^{3/2} \left(d \operatorname{Sin}[e+f x]\right)^{5/2}\right)-$$

$$\frac{1}{a^2 (-a+b) (a+b) f \left(g \operatorname{Cos}[e+f x]\right)^{3/2} \left(d \operatorname{Sin}[e+f x]\right)^{5/2}} b \operatorname{Cos}[e+f x]^{3/2}$$

$$\operatorname{Sin}[e+f x]^{5/2} \left(-\left(\left(14 \left(a^2-b^2\right) \left(4 a^3-2 a b^2\right) \operatorname{Cos}[e+f x]^{3/2} \left(a+b \sqrt{1-\operatorname{Cos}[e+f x]^2}\right)\right.\right.\right.$$

$$\left(\left(b \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right] \sqrt{1-\operatorname{Cos}[e+f x]^2}\right) \Big/\right.$$

$$\left(-7 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, -\frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(4 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, -\frac{1}{4}, 2, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{4}, 1, \frac{11}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[e+f x]^2\right)+$$

$$\left(a \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{4}, 1, \frac{7}{4}, \operatorname{Cos}[e+f x]^2, \frac{b^2 \operatorname{Cos}[e+f x]^2}{-a^2+b^2}\right]\right) \Big/ \left(7 \left(a^2-b^2\right)\right.$$

$$\text{AppellF1}\left[\frac{3}{4},\frac{1}{4},1,\frac{7}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(-4\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{4},2,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{5}{4},1,\frac{11}{4},\text{Cos}[e+f x]^2,\frac{b^2\,\text{Cos}[e+f x]^2}{-a^2+b^2}\right]\right)\text{Cos}[e+f x]^2\Big)\Big)\,\text{Sin}[e+f x]^{3/2}\Big)\Big/$$

$$\left(3\left(1-\text{Cos}[e+f x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[e+f x]^2\right)\right)\left(a+b\,\text{Sin}[e+f x]\right)\right)\Big)+$$

$$\Bigg(2\left(2a^2 b-2b^3\right)\sqrt{\text{Tan}[e+f x]}\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(\Bigg(\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]+$$

$$2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}}{\sqrt{a}}\right]-$$

$$\text{Log}\left[-a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]+$$

$$\text{Log}\left[a+\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Tan}[e+f x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f x]\right]\Bigg)\Bigg/$$

$$\left(4\sqrt{2}\sqrt{a}\left(a^2-b^2\right)^{1/4}\right)+\Bigg(7a^2 b\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{3/2}\Bigg)\Bigg/\Bigg(3\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-7a^2\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+$$

$$a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\left(a+b\,\text{Sin}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\right)+$$

$$\Bigg(2\left(-2a^2 b+b^3\right)\text{Cos}\left[2\left(e+f x\right)\right]\sqrt{\text{Tan}[e+f x]}$$

$$\left(b\,\text{Tan}[e+f x]+a\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

$$\Bigg(-\frac{a\,\text{ArcTan}\left[\frac{-\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}-\frac{a\,\text{ArcTan}\left[\frac{\sqrt{2}+2\sqrt{\text{Tan}[e+f x]}}{\sqrt{2}}\right]}{\sqrt{2}\,b^2}+$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{-\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{2}\,\sqrt{a}+2\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}}+$$

$$\frac{a\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\frac{a\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[e+f\,x]}+\text{Tan}[e+f\,x]\right]}{2\,\sqrt{2}\,b^2}-$$

$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[-a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}-\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$
$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+$$
$$\left(\left(2\,a^2-b^2\right)\,\text{Log}\left[a+\sqrt{2}\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}+\sqrt{a^2-b^2}\,\text{Tan}[e+f\,x]\right]\right)\Big/$$
$$\left(4\,\sqrt{2}\,\sqrt{a}\,b^2\,\left(a^2-b^2\right)^{1/4}\right)+\frac{\text{Tan}[e+f\,x]^{3/2}}{b\,\sqrt{1+\text{Tan}[e+f\,x]^2}}+$$

$$\left(7\,a^4\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\,\text{Tan}[e+f\,x]^{3/2}\right)\Big/$$
$$\left(b\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)-$$

$$\left(7\,a^2\,b\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]^{3/2}\right)\Big/\left(3\,\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-7\,a^2\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+2\right.$$
$$\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left.a^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(11\,a^4\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\,b\,\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(11\,a^2\,b\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\right.$$

$$\left.\text{Tan}[e+f x]^{7/2}\right)\Big/\left(7\,\sqrt{1+\text{Tan}[e+f x]^2}\right.$$

$$\left(-11\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+2\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},2,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a^2\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},1,\frac{15}{4},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)$$

$$\left.\left.\left.\left.\text{Tan}[e+f x]^2\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(\text{Cos}[e+f x]^{3/2}\sqrt{\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)\left(-1+\text{Tan}[e+f x]^2\right)\right.$$

$$\left.\sqrt{1+\text{Tan}[e+f x]^2}\right)$$

Problem 1442: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(g\,\text{Cos}[e+f x]\right)^{3/2}}{\sqrt{d\,\text{Sin}[e+f x]}\,\left(a+b\,\text{Sin}[e+f x]\right)^2}\,dx$$

Optimal (type 4, 331 leaves, 8 steps):

$$\left(\sqrt{2}\ b\ g^2\ \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[-\frac{a}{b-\sqrt{-a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{d\ \text{Sin}[e+f x]}}{\sqrt{d}\ \sqrt{1+\text{Cos}[e+f x]}}\right],\ -1\right]\right)\Big/$$
$$\left(a^2\ \sqrt{-a^2+b^2}\ \sqrt{d}\ f\ \sqrt{g\ \text{Cos}[e+f x]}\right)-$$
$$\left(\sqrt{2}\ b\ g^2\ \sqrt{\text{Cos}[e+f x]}\ \text{EllipticPi}\left[-\frac{a}{b+\sqrt{-a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{d\ \text{Sin}[e+f x]}}{\sqrt{d}\ \sqrt{1+\text{Cos}[e+f x]}}\right],\ -1\right]\right)\Big/$$
$$\left(a^2\ \sqrt{-a^2+b^2}\ \sqrt{d}\ f\ \sqrt{g\ \text{Cos}[e+f x]}\right)+$$
$$\frac{g\ \sqrt{g\ \text{Cos}[e+f x]}\ \sqrt{d\ \text{Sin}[e+f x]}}{a\ d\ f\ (a+b\ \text{Sin}[e+f x])}+\frac{g^2\ \text{EllipticF}\left[e-\frac{\pi}{4}+f x,\ 2\right]\ \sqrt{\text{Sin}[2 e+2 f x]}}{2\ a^2\ f\ \sqrt{g\ \text{Cos}[e+f x]}\ \sqrt{d\ \text{Sin}[e+f x]}}$$

Result (type 6, 717 leaves) :

$$-\left(\left(\left(g\,\mathrm{Cos}[e+f\,x]\right)^{3/2}\left(a+b\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right)\right.\right.$$

$$\left(\left(5\,a\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\sqrt{\mathrm{Cos}[e+f\,x]}\right)\Big/\right.$$

$$\left(\left(1-\mathrm{Cos}[e+f\,x]^2\right)^{3/4}\right.$$

$$\left(5\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{1}{4},\frac{3}{4},1,\frac{5}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left(-4\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{3}{4},2,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.3\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{5}{4},\frac{7}{4},1,\frac{9}{4},\mathrm{Cos}[e+f\,x]^2,\frac{b^2\,\mathrm{Cos}[e+f\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\mathrm{Cos}[e+f\,x]^2\right)\left(a^2+b^2\left(-1+\mathrm{Cos}[e+f\,x]^2\right)\right)\right)-$$

$$\left(\left(\frac{1}{8}-\frac{i}{8}\right)b\left(2\,\mathrm{ArcTan}\left[1-\frac{(1+i)\sqrt{a}\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]-\right.\right.$$

$$2\,\mathrm{ArcTan}\left[1+\frac{(1+i)\sqrt{a}\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-a^2+b^2\right)^{1/4}\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]+$$

$$\mathrm{Log}\left[\sqrt{-a^2+b^2}+\frac{i\,a\,\mathrm{Cos}[e+f\,x]}{\sqrt{-1+\mathrm{Cos}[e+f\,x]^2}}-\frac{(1+i)\sqrt{a}\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]-$$

$$\mathrm{Log}\left[\sqrt{-a^2+b^2}+\frac{i\,a\,\mathrm{Cos}[e+f\,x]}{\sqrt{-1+\mathrm{Cos}[e+f\,x]^2}}+\right.$$

$$\left.\left.\left.\frac{(1+i)\sqrt{a}\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[e+f\,x]}}{\left(-1+\mathrm{Cos}[e+f\,x]^2\right)^{1/4}}\right]\right)\right)\Big/\left(\sqrt{a}\left(-a^2+b^2\right)^{3/4}\right)\right)$$

$$\left.\mathrm{Sin}[e+f\,x]\right)\Big/\left(a\,f\,\mathrm{Cos}[e+f\,x]^{3/2}\left(1-\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right.$$

$$\left.\left.\left(a+b\,\mathrm{Sin}[e+f\,x]\right)\right)\right)+$$

$$\frac{\left(g\,\mathrm{Cos}[e+f\,x]\right)^{3/2}\mathrm{Tan}[e+f\,x]}{a\,f\sqrt{d\,\mathrm{Sin}[e+f\,x]}\left(a+b\,\mathrm{Sin}[e+f\,x]\right)}$$

Problem 1449: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d\,x]^3\,\mathrm{Sec}[c+d\,x]^2\left(a+b\,\mathrm{Sin}[c+d\,x]\right)dx$$

Optimal (type 3, 75 leaves, 8 steps):

$$-\frac{3\,a\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{b\,\text{Cot}[c+d\,x]}{d}+\frac{3\,a\,\text{Sec}[c+d\,x]}{2\,d}-\frac{a\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]}{2\,d}+\frac{b\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 172 leaves):

$$-\frac{2\,b\,\text{Cot}[2\,(c+d\,x)]}{d}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{8\,d}+\frac{a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}$$

Problem 1455: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 100 leaves, 10 steps):

$$-\frac{\left(3\,a^2+2\,b^2\right)\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{2\,a\,b\,\text{Cot}[c+d\,x]}{d}+\frac{\left(3\,a^2+2\,b^2\right)\,\text{Sec}[c+d\,x]}{2\,d}-\frac{a^2\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]}{2\,d}+\frac{2\,a\,b\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 238 leaves):

$$\frac{1}{2\,d\left(\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\text{Csc}[c+d\,x]^4\left(2\,a^2+4\,b^2-2\,\left(3\,a^2+2\,b^2\right)\,\text{Cos}[2\,(c+d\,x)]+3\,a^2\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+2\,b^2\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\left(3\,a^2+2\,b^2\right)\,\text{Cos}[c+d\,x]\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)-3\,a^2\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-2\,b^2\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+8\,a\,b\,\text{Sin}[c+d\,x]-8\,a\,b\,\text{Sin}[3\,(c+d\,x)]\right)$$

Problem 1462: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 132 leaves, 14 steps):

$$-\frac{3a^3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2d}-\frac{3ab^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{d}-\frac{3a^2b\,\text{Cot}[c+d\,x]}{d}+\frac{3a^3\,\text{Sec}[c+d\,x]}{2d}+\frac{3ab^2\,\text{Sec}[c+d\,x]}{d}-\frac{a^3\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]}{2d}+\frac{3a^2b\,\text{Tan}[c+d\,x]}{d}+\frac{b^3\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 267 leaves):

$$\frac{1}{2d\left(\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2-\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\text{Csc}[c+d\,x]^4\left(2a^3+12ab^2-6\left(a^3+2ab^2\right)\text{Cos}[2(c+d\,x)]+3a^3\,\text{Cos}[3(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]+6ab^2\,\text{Cos}[3(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]-3a\left(a^2+2b^2\right)\text{Cos}[c+d\,x]\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)-3a^3\,\text{Cos}[3(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-6ab^2\,\text{Cos}[3(c+d\,x)]\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+12a^2b\,\text{Sin}[c+d\,x]+6b^3\,\text{Sin}[c+d\,x]-12a^2b\,\text{Sin}[3(c+d\,x)]-2b^3\,\text{Sin}[3(c+d\,x)]\right)$$

Problem 1479: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sec}[e+f\,x]^2\,(a+b\,\text{Sin}[e+f\,x])^{3/2}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 4, 312 leaves, ? steps):

$$\frac{\text{Sec}[e+f\,x]\,(b+a\,\text{Sin}[e+f\,x])\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{f\sqrt{d\,\text{Sin}[e+f\,x]}}-\frac{1}{\sqrt{d}\,f}(a+b)^{3/2}\sqrt{-\frac{a\,(-1+\text{Csc}[e+f\,x])}{a+b}}\sqrt{\frac{a\,(1+\text{Csc}[e+f\,x])}{a-b}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\right],-\frac{a+b}{a-b}\right]\text{Tan}[e+f\,x]-\left(b\,(a+b)\sqrt{-\frac{a\,(-1+\text{Csc}[e+f\,x])}{a+b}}\sqrt{\frac{b+a\,\text{Csc}[e+f\,x]}{-a+b}}\,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{b+a\,\text{Csc}[e+f\,x]}{a-b}}\right],\frac{-a+b}{a+b}\right](1+\text{Sin}[e+f\,x])\,\text{Tan}[e+f\,x]\right)\Big/\left(f\sqrt{\frac{a\,(1+\text{Csc}[e+f\,x])}{a-b}}\sqrt{d\,\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)$$

Result (type 4, 1515 leaves):

$$-\frac{1}{f\sqrt{d\,\text{Sin}[e+f x]}}2 a^2\sqrt{\text{Sin}[e+f x]}\left(\left(\sqrt{\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}[e+f x]}{a}}}{\sqrt{2}}\right],\frac{2 a}{a+b}\right]\right.\right.$$

$$\text{Sec}[e+f x]\,\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2(a+b\,\text{Sin}[e+f x])}{a}}\right)\Big/$$

$$\left(\sqrt{\text{Sin}[e+f x]}\ \sqrt{a+b\,\text{Sin}[e+f x]}\right)-\left(b\sqrt{\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2}\right.$$

$$\text{EllipticPi}\left[\frac{a}{a+b},\text{ArcSin}\left[\frac{\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}[e+f x]}{a}}}{\sqrt{2}}\right],\frac{2 a}{a+b}\right]\text{Sec}[e+f x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2\text{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2(a+b\,\text{Sin}[e+f x])}{a}}\right)\Big/$$

$$\left.\left((a+b)\sqrt{\text{Sin}[e+f x]}\ \sqrt{a+b\,\text{Sin}[e+f x]}\right)\right)-$$

$$\frac{1}{f\sqrt{d\,\text{Sin}[e+f x]}}b\sqrt{\text{Sin}[e+f x]}\left(\sqrt{2}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]\sqrt{\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right.$$

$$\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\;-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}}\,\sqrt{2}\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}$$

$$\left(\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\,\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\mathrm{i}\,\left(b-\sqrt{-a^2+b^2}\right)\right.$$

$$\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\,\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^{3/2}\,\sqrt{1+\frac{a}{b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]-\sqrt{-a^2+b^2}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\;-$$

$$a\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.$$

$$\left.\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\,\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]$$

$$\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^{3/2}\,\sqrt{1+\frac{a}{b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]-\sqrt{-a^2+b^2}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\;+$$

$$a\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\text{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.$$

$$\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\ \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^{3/2}$$

$$\left.\left.\sqrt{1+\frac{a}{b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]-\sqrt{-a^2+b^2}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right)\right)+$$

$$\frac{(a+b\,\text{Sin}[e+f\,x])^{3/2}\,\text{Tan}[e+f\,x]}{f\,\sqrt{d\,\text{Sin}[e+f\,x]}}$$

Problem 1480: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sec}[e+f\,x]^4\,(a+b\,\text{Sin}[e+f\,x])^{5/2}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 4, 366 leaves, ? steps):

$$\frac{5\,a\,\text{Sec}[e+f\,x]\,(b+a\,\text{Sin}[e+f\,x])\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{6\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}}+$$

$$\frac{\text{Sec}[e+f\,x]^3\,\sqrt{d\,\text{Sin}[e+f\,x]}\,(a+b\,\text{Sin}[e+f\,x])^{5/2}}{3\,d\,f}-\frac{1}{6\,\sqrt{d}\,f}$$

$$5\,a\,(a+b)^{3/2}\,\sqrt{-\frac{a\,(-1+\text{Csc}[e+f\,x])}{a+b}}\,\sqrt{\frac{a\,(1+\text{Csc}[e+f\,x])}{a-b}}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\right],\ -\frac{a+b}{a-b}\right]\,\text{Tan}[e+f\,x]-$$

$$\left(5\,a\,b\,(a+b)\,\sqrt{-\frac{a\,(-1+\text{Csc}[e+f\,x])}{a+b}}\,\sqrt{\frac{b+a\,\text{Csc}[e+f\,x]}{-a+b}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{b+a\,\text{Csc}[e+f\,x]}{a-b}}\right],\ \frac{-a+b}{a+b}\right]\,(1+\text{Sin}[e+f\,x])\,\text{Tan}[e+f\,x]\right)\Big/$$

$$\left(6\,f\,\sqrt{\frac{a\,(1+\text{Csc}[e+f\,x])}{a-b}}\,\sqrt{d\,\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)$$

Result (type 4, 9121 leaves) :

$$-\frac{1}{3\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}}\,5\,a^3\,\sqrt{\text{Sin}[e+f\,x]}$$

$$\left(\left(\sqrt{\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Sin}[e+f\,x]}{a}}}{\sqrt{2}}\right],\frac{2\,a}{a+b}\right]\right.\right.$$

$$\text{Sec}[e+f\,x]\;\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,(a+b\,\text{Sin}[e+f\,x])}{a}}\right)\Big/$$

$$\left(\sqrt{\text{Sin}[e+f\,x]}\;\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)-\left(b\,\sqrt{\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}\right.$$

$$\text{EllipticPi}\left[\frac{a}{a+b},\text{ArcSin}\left[\frac{\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Sin}[e+f\,x]}{a}}}{\sqrt{2}}\right],\frac{2\,a}{a+b}\right]\text{Sec}[e+f\,x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,(a+b\,\text{Sin}[e+f\,x])}{a}}\right)\Big/$$

$$\left.\left((a+b)\,\sqrt{\text{Sin}[e+f\,x]}\;\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)\right)+$$

$$\left(\text{Sin}[e+f\,x]\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\,\left(\frac{1}{3}\,\text{Sec}[e+f\,x]^3\,\left(a^2+b^2+2\,a\,b\,\text{Sin}[e+f\,x]\right)+\right.\right.$$

$$\left.\left.\frac{1}{6}\,\text{Sec}[e+f\,x]\,\left(5\,a^2-2\,b^2+5\,a\,b\,\text{Sin}[e+f\,x]\right)\right)\right)\Big/$$

$$\left(f\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right)-\Bigg(5\,a\,b\,\mathrm{Sin}[e+f\,x]\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}$$

$$\Bigg(\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\sqrt{\frac{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\,\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}$$

$$\sqrt{2}\,\Bigg(\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\,\left(a+2\,b\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$

$$\Bigg(i\,\left(b-\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}$$

$$\Bigg(\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\,\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\mathrm{EllipticF}\Bigg[$$

$$i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\,\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\Bigg]\Bigg)\Bigg)\Bigg/\left(\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)-$$

$$\Bigg(a\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}$$

$$\mathrm{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{-a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Big/\left(\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)+$$

$$\left(a\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\;\text{EllipticPi}\right[$$

$$\left.\left.\frac{i\,\left(b+\sqrt{-a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\,\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Big/$$

$$\left.\left(\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)\right)\left(\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{3/2}$$

$$\left.\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\right)\right)\Big/$$

$$\left(6\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}\;\left(\frac{1}{\sqrt{2}}\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\sqrt{\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\right.\right.$$

$$\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\;+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\;\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}$$

$$\sqrt{2}\left(\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(a+2\,b\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\right.$$

$$\left(\mathbb{i}\left(b-\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\right.$$

$$\left(\text{EllipticE}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\text{EllipticF}\left[\right.\right.$$

$$\left.\left.\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\right)\Big/\left(\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)-$$

$$\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\,\text{EllipticPi}\left[\right.\right.$$

$$\left.\left.-\frac{\mathbb{i}\left(b+\sqrt{-a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Big/$$

$$\left(\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)+\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Big/\left(\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)\right)$$

$$\left(b\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2+a\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(\frac{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{3/2}$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\;-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}$$

$$2\sqrt{2}\;\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(a+2\,b\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]+a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)+\right.$$

$$\left(\mathrm{i}\left(b-\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\right.$$

$$\left(\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\mathrm{EllipticF}\left[\right.\right.$$

$$\left.\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\right)\Big/\left(\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)-$$

$$\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\;\mathrm{EllipticPi}\left[\right.\right.$$

$$\left.\left.-\frac{\mathrm{i}\left(b+\sqrt{-a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Big/$$

$$\left(\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)+\left(a\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\;\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\,\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Bigg/\left(\left(\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\left(\frac{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{3/2}\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\;-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}$$

$$\sqrt{2}\left(\frac{i\,a\,\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\;\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}}\right.-$$

$$\left(i\,a\,\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\;\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Bigg/$$

$$\left(4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right)+$$

$$\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(-b\,\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2-a\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)-$$

$$\left(i\left(b-\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\right.$$

$$\left(\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\mathrm{EllipticF}\left[\right.\right.$$

$$\left.\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/$$

$$\left(4\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{3/2}\right)+\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\;\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/$$

$$\left(4\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{3/2}\right)-\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\;\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/$$

$$\left(4\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^{3/2}\right)-\left(i\,a\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right.$$

$$\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\right)\Big/$$

$$\left(4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)-$$

$$\left(i\,a\,\left(b-\sqrt{-a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\,\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\right.$$

$$\left.\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\right)\Big/$$

$$\left(4\,\left(b+\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)+$$

$$\left(a^2\,\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\,\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{EllipticPi}\left[\right.\right.$$

$$-\frac{\mathrm{i}\left(b+\sqrt{-a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}}\right],\ \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\Bigg)\Bigg/$$

$$\left(4\left(b-\sqrt{-a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\left(e+f x\right)\right]}{b-\sqrt{-a^2+b^2}}}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}\right)+$$

$$\left(a^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\left(e+f x\right)\right]}{b-\sqrt{-a^2+b^2}}}\ \mathrm{Csc}\left[\frac{1}{2}\left(e+f x\right)\right]^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}}\right],\ \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Bigg/$$

$$\left(4\left(b+\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\left(e+f x\right)\right]}{b+\sqrt{-a^2+b^2}}}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}\right)-$$

$$\left(a^2\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\left(e+f x\right)\right]}{b+\sqrt{-a^2+b^2}}}\ \mathrm{Csc}\left[\frac{1}{2}\left(e+f x\right)\right]^2\,\mathrm{EllipticPi}\left[\right.\right.$$

$$\left.\left.\frac{\mathrm{i}\left(b+\sqrt{-a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}}\right],\ \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Bigg/$$

$$\left(4\left(b-\sqrt{-a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\left(e+f x\right)\right]}{b-\sqrt{-a^2+b^2}}}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}\right)-$$

$$\left(a^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\left(e+f x\right)\right]}{b-\sqrt{-a^2+b^2}}}\ \mathrm{Csc}\left[\frac{1}{2}\left(e+f x\right)\right]^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{-a^2+b^2}\right)}{a},\right.\right.$$

$$\left. i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\ \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right) \Big/$$

$$\left(4\,\left(b+\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}\;+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\ \sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)+$$

$$\left(i\,\left(b-\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}\;+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\ \left(\left(i\,\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Big/\right.$$

$$\left(4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^{3/2}\right)-$$

$$\left.\left.\frac{i\,\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^{3/2}}\right)\right)\Big/$$

$$\left.\left(\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)\right)\left(\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{3/2}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\ +$$

$$\left(\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\sqrt{\frac{a+2b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}\right.$$

$$\left.\left(-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}+\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)}\right)\right)\Big/$$

$$\left(\sqrt{2}\sqrt{\frac{\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}\right)-$$

$$\left(1\Big/\left(\sqrt{2}\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(a+2b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\right)$$

$$3\left(\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(a+2b\,\mathrm{Cot}\left[\frac{1}{2}(e+fx)\right]+a\,\mathrm{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)+\right.$$

$$\left(i\left(b-\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(e+fx)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(e+fx)\right]}{b-\sqrt{-a^2+b^2}}}\right.$$

$$\left(\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\mathrm{EllipticF}\left[\right.\right.$$

$$\left.\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\right],\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\right)\Big/\left(\sqrt{\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}\right)-$$

$$\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(e+fx)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(e+fx)\right]}{b-\sqrt{-a^2+b^2}}}\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{-a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\ \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\Bigg)\Bigg/\left(\sqrt{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)+$$

$$\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\ \text{EllipticPi}\left[\frac{i\left(b+\sqrt{-a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right],\ \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Bigg/$$

$$\left(\sqrt{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\Bigg)\sqrt{\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}$$

$$\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}\right)+$$

$$\left(\text{Tan}\left[\frac{1}{2}(e+f x)\right]\sqrt{\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right.$$

$$\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}-\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Bigg/$$

$$\left.\left.\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\right)\Big/$$

$$\left(\sqrt{2}\sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]+a \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right)-$$

$$\left(\left(\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\left(a+2 b \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]+a \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)+\right.\right.$$

$$\left(i\left(b-\sqrt{-a^2+b^2}\right)\sqrt{\frac{b+\sqrt{-a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\right.$$

$$\left(\operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right], \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]-\right.$$

$$\left.\left.\operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right], \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\right)\Big/$$

$$\left(\sqrt{\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)-\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]}{b+\sqrt{-a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]}{b-\sqrt{-a^2+b^2}}}\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{-a^2+b^2}\right)}{a}, i\right.$$

$$\left.\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right], \frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Big/\left(\sqrt{\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)+$$

$$\left(a\sqrt{\frac{b+\sqrt{-a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b+\sqrt{-a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]}{b-\sqrt{-a^2+b^2}}}\;\text{EllipticPi}\right[$$

$$\left.\frac{\mathrm{i}\,\left(b+\sqrt{-a^2+b^2}\right)}{a},\;\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right],\;\frac{b+\sqrt{-a^2+b^2}}{b-\sqrt{-a^2+b^2}}\right]\right)\Big/$$

$$\left(\left(\sqrt{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}\right)\right)\left(\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{3/2}\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2$$

$$\left(\frac{b\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}-\right.$$

$$\left(\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)\Big/$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{-a^2+b^2}}}\,\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right.$$

$$\left.\left.\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\right)\right)$$

Problem 1483: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]^5\,dx$$

Optimal (type 3, 116 leaves, 7 steps):

$$-\frac{(8a+15b)\,\mathrm{Log}[1-\mathrm{Sin}[c+dx]]}{16d}-\frac{(8a-15b)\,\mathrm{Log}[1+\mathrm{Sin}[c+dx]]}{16d}-\frac{15b\,\mathrm{Sin}[c+dx]}{8d}-\frac{(4a+5b\,\mathrm{Sin}[c+dx])\,\mathrm{Tan}[c+dx]^2}{8d}+\frac{(a+b\,\mathrm{Sin}[c+dx])\,\mathrm{Tan}[c+dx]^4}{4d}$$

Result (type 3, 246 leaves):

$$-\frac{a\,\mathrm{Log}[\mathrm{Cos}[c+dx]]}{d}-\frac{15b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right]}{8d}+\frac{15b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right]}{8d}-\frac{a\,\mathrm{Sec}[c+dx]^2}{d}+\frac{a\,\mathrm{Sec}[c+dx]^4}{4d}+\frac{b}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^4}-\frac{9b}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}-\frac{b}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^4}+\frac{9b}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}-\frac{b\,\mathrm{Sin}[c+dx]}{d}$$

Problem 1484: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+dx]\,(a+b\,\mathrm{Sin}[c+dx])\,\mathrm{Tan}[c+dx]^4\,dx$$

Optimal (type 3, 103 leaves, 7 steps):

$$\frac{3a\,\mathrm{ArcTanh}[\mathrm{Sin}[c+dx]]}{8d}-\frac{b\,\mathrm{Log}[\mathrm{Cos}[c+dx]]}{d}-\frac{3a\,\mathrm{Sec}[c+dx]\,\mathrm{Tan}[c+dx]}{8d}-\frac{b\,\mathrm{Tan}[c+dx]^2}{2d}+\frac{a\,\mathrm{Sec}[c+dx]\,\mathrm{Tan}[c+dx]^3}{4d}+\frac{b\,\mathrm{Tan}[c+dx]^4}{4d}$$

Result (type 3, 234 leaves):

$$-\frac{b\,\mathrm{Log}[\mathrm{Cos}[c+dx]]}{d}-\frac{3a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right]}{8d}+\frac{3a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right]}{8d}-\frac{b\,\mathrm{Sec}[c+dx]^2}{d}+\frac{b\,\mathrm{Sec}[c+dx]^4}{4d}+\frac{a}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^4}-\frac{5a}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}-\frac{a}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^4}+\frac{5a}{16d\left(\mathrm{Cos}\left[\frac{1}{2}(c+dx)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}$$

Problem 1486: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}[c+d\,x]^2\,dx$$

Optimal (type 3, 74 leaves, 6 steps):

$$-\frac{a\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,d}-\frac{a\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{8\,d}+\frac{a\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]}{4\,d}+\frac{b\,\mathrm{Tan}[c+d\,x]^4}{4\,d}$$

Result (type 3, 207 leaves):

$$\frac{a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}-\frac{a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{a}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{a}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{a}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+\frac{b\,\mathrm{Tan}[c+d\,x]^4}{4\,d}$$

Problem 1487: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^4\,(a+b\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}[c+d\,x]\,dx$$

Optimal (type 3, 74 leaves, 6 steps):

$$-\frac{b\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,d}+\frac{a\,\mathrm{Sec}[c+d\,x]^4}{4\,d}-\frac{b\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{8\,d}+\frac{b\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]}{4\,d}$$

Result (type 3, 207 leaves):

$$\frac{b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}-\frac{b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{a\,\mathrm{Sec}[c+d\,x]^4}{4\,d}+\frac{b}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{b}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{b}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{b}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}$$

Problem 1488: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[c+d x] \operatorname{Sec}[c+d x]^5 (a+b \operatorname{Sin}[c+d x]) \, dx$$

Optimal (type 3, 99 leaves, 8 steps):

$$\frac{3 b \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{8 d}+\frac{a \operatorname{Log}[\operatorname{Tan}[c+d x]]}{d}+\frac{3 b \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{8 d}+\frac{b \operatorname{Sec}[c+d x]^3 \operatorname{Tan}[c+d x]}{4 d}+\frac{a \operatorname{Tan}[c+d x]^2}{d}+\frac{a \operatorname{Tan}[c+d x]^4}{4 d}$$

Result (type 3, 248 leaves):

$$-\frac{a \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}-\frac{3 b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d}+\frac{3 b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d}+\frac{a \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}+\frac{a \operatorname{Sec}[c+d x]^2}{2 d}+\frac{a \operatorname{Sec}[c+d x]^4}{4 d}+\frac{b}{16 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{3 b}{16 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{b}{16 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{3 b}{16 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}$$

Problem 1489: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[c+d x]^2 \operatorname{Sec}[c+d x]^5 (a+b \operatorname{Sin}[c+d x]) \, dx$$

Optimal (type 3, 115 leaves, 10 steps):

$$\frac{15 a \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{8 d}-\frac{15 a \operatorname{Csc}[c+d x]}{8 d}+\frac{b \operatorname{Log}[\operatorname{Tan}[c+d x]]}{d}+\frac{5 a \operatorname{Csc}[c+d x] \operatorname{Sec}[c+d x]^2}{8 d}+\frac{a \operatorname{Csc}[c+d x] \operatorname{Sec}[c+d x]^4}{4 d}+\frac{b \operatorname{Tan}[c+d x]^2}{d}+\frac{b \operatorname{Tan}[c+d x]^4}{4 d}$$

Result (type 3, 284 leaves):

$$-\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{2\,d}-\frac{b\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{15\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{15\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{b\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{b\,\text{Sec}[c+d\,x]^2}{2\,d}+\frac{b\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{7\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{7\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\,d}$$

Problem 1490: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^5\,(a+b\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 135 leaves, 10 steps):

$$\frac{15\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}-\frac{a\,\text{Cot}[c+d\,x]^2}{2\,d}-\frac{15\,b\,\text{Csc}[c+d\,x]}{8\,d}+\frac{3\,a\,\text{Log}[\text{Tan}[c+d\,x]]}{d}+\frac{5\,b\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^2}{8\,d}+\frac{b\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{3\,a\,\text{Tan}[c+d\,x]^2}{2\,d}+\frac{a\,\text{Tan}[c+d\,x]^4}{4\,d}$$

Result (type 3, 298 leaves):

$$-\frac{b\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{2\,d}-\frac{a\,\text{Csc}[c+d\,x]^2}{2\,d}-\frac{3\,a\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{15\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{15\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{a\,\text{Sec}[c+d\,x]^2}{d}+\frac{a\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{b}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{7\,b}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{b}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{7\,b}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\,d}$$

Problem 1491: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[c+d x]^4 \operatorname{Sec}[c+d x]^5 (a+b \operatorname{Sin}[c+d x]) \, dx$$

Optimal (type 3, 155 leaves, 11 steps):

$$\frac{35 a \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{8 d}-\frac{b \operatorname{Cot}[c+d x]^2}{2 d}-\frac{35 a \operatorname{Csc}[c+d x]}{8 d}-\frac{35 a \operatorname{Csc}[c+d x]^3}{24 d}+\frac{3 b \operatorname{Log}[\operatorname{Tan}[c+d x]]}{d}+\frac{7 a \operatorname{Csc}[c+d x]^3 \operatorname{Sec}[c+d x]^2}{8 d}+\frac{a \operatorname{Csc}[c+d x]^3 \operatorname{Sec}[c+d x]^4}{4 d}+\frac{3 b \operatorname{Tan}[c+d x]^2}{2 d}+\frac{b \operatorname{Tan}[c+d x]^4}{4 d}$$

Result (type 3, 358 leaves):

$$-\frac{19 a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{12 d}-\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right] \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{24 d}-\frac{b \operatorname{Csc}[c+d x]^2}{2 d}-\frac{3 b \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}-\frac{35 a \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d}+\frac{35 a \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{8 d}+\frac{3 b \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}+\frac{b \operatorname{Sec}[c+d x]^2}{d}+\frac{b \operatorname{Sec}[c+d x]^4}{4 d}+\frac{a}{16 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{11 a}{16 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{a}{16 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{11 a}{16 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{19 a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{12 d}-\frac{a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{24 d}$$

Problem 1495: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^2 (a+b \operatorname{Sin}[c+d x])^2 \operatorname{Tan}[c+d x]^3 \, dx$$

Optimal (type 3, 116 leaves, 7 steps):

$$-\frac{b (3 a+4 b) \operatorname{Log}[1-\operatorname{Sin}[c+d x]]}{8 d}+\frac{(3 a-4 b) b \operatorname{Log}[1+\operatorname{Sin}[c+d x]]}{8 d}+\frac{\operatorname{Sec}[c+d x]^4 (a+b \operatorname{Sin}[c+d x])^2}{4 d}-\frac{\operatorname{Sec}[c+d x]^2 (a+b \operatorname{Sin}[c+d x]) (2 a+3 b \operatorname{Sin}[c+d x])}{4 d}$$

Result (type 3, 264 leaves):

$$-\frac{b^2 \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}-\frac{3 a b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{4 d}+\frac{3 a b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{4 d}-\frac{b^2 \operatorname{Sec}[c+d x]^2}{d}+\frac{b^2 \operatorname{Sec}[c+d x]^4}{4 d}+\frac{a b}{8 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{5 a b}{8 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{a b}{8 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{5 a b}{8 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}+\frac{a^2 \operatorname{Tan}[c+d x]^4}{4 d}$$

Problem 1496: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^3 (a+b \operatorname{Sin}[c+d x])^2 \operatorname{Tan}[c+d x]^2 \, dx$$

Optimal (type 3, 93 leaves, 5 steps):

$$-\frac{\left(a^2-3 b^2\right) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{8 d}-\frac{\operatorname{Sec}[c+d x]^2 \left(4 a b+\left(a^2+3 b^2\right) \operatorname{Sin}[c+d x]\right)}{8 d}+\frac{\operatorname{Sec}[c+d x]^3 (a+b \operatorname{Sin}[c+d x])^2 \operatorname{Tan}[c+d x]}{4 d}$$

Result (type 3, 216 leaves):

$$\frac{1}{16 d}\left(2\left(a^2-3 b^2\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-2\left(a^2-3 b^2\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\frac{(a+b)^2}{\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{a^2+6 a b+5 b^2}{\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{(a-b)^2}{\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{a^2-6 a b+5 b^2}{\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)$$

Problem 1497: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^4 (a+b \operatorname{Sin}[c+d x])^2 \operatorname{Tan}[c+d x] \, dx$$

Optimal (type 3, 72 leaves, 6 steps):

$$-\frac{a b \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{4 d}+\frac{\operatorname{Sec}[c+d x]^4 (a+b \operatorname{Sin}[c+d x])^2}{4 d}-\frac{\operatorname{Sec}[c+d x]^2 \left(b^2+a b \operatorname{Sin}[c+d x]\right)}{4 d}$$

Result (type 3, 200 leaves) :

$$\frac{1}{16\,d}\left(4\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-4\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\frac{(a+b)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{a^2-2\,a\,b-3\,b^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{(a-b)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{a^2+2\,a\,b-3\,b^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 1500: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^5\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 185 leaves, 6 steps) :

$$-\frac{2\,a\,b\,\text{Csc}[c+d\,x]}{d}-\frac{a^2\,\text{Csc}[c+d\,x]^2}{2\,d}-\frac{\left(12\,a^2+15\,a\,b+4\,b^2\right)\,\text{Log}[1-\text{Sin}[c+d\,x]]}{8\,d}+\frac{\left(3\,a^2+b^2\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-\frac{\left(12\,a^2-15\,a\,b+4\,b^2\right)\,\text{Log}[1+\text{Sin}[c+d\,x]]}{8\,d}+\frac{\text{Sec}[c+d\,x]^4\,\left(a^2+b^2+2\,a\,b\,\text{Sin}[c+d\,x]\right)}{4\,d}+\frac{\text{Sec}[c+d\,x]^2\,\left(2\,\left(2\,a^2+b^2\right)+7\,a\,b\,\text{Sin}[c+d\,x]\right)}{4\,d}$$

Result (type 3, 717 leaves) :

$$-\frac{a\,b\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\,(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sin}[c+d\,x]^2}{d\,(a+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{a^2\,\mathrm{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\,(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sin}[c+d\,x]^2}{8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\left(\left(-12\,a^2-15\,a\,b-4\,b^2\right)(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sin}[c+d\,x]^2\right)\Big/\left(4\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^2\right)+$$

$$\left(\left(-12\,a^2+15\,a\,b-4\,b^2\right)(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sin}[c+d\,x]^2\right)\Big/\left(4\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^2\right)+$$

$$\frac{\left(3\,a^2+b^2\right)(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\,\mathrm{Sin}[c+d\,x]^2}{d\,(a+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{a^2\,(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\mathrm{Sin}[c+d\,x]^2}{8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{\left(a^2+2\,a\,b+b^2\right)(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sin}[c+d\,x]^2}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4(a+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{\left(9\,a^2+14\,a\,b+5\,b^2\right)(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sin}[c+d\,x]^2}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2(a+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{\left(a^2-2\,a\,b+b^2\right)(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sin}[c+d\,x]^2}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4(a+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{\left(9\,a^2-14\,a\,b+5\,b^2\right)(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sin}[c+d\,x]^2}{16\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2(a+b\,\mathrm{Sin}[c+d\,x])^2}-$$

$$\frac{a\,b\,(b+a\,\mathrm{Csc}[c+d\,x])^2\,\mathrm{Sin}[c+d\,x]^2\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{d\,(a+b\,\mathrm{Sin}[c+d\,x])^2}$$

Problem 1505: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^4\,(a+b\,\mathrm{Sin}[c+d\,x])^3\,\mathrm{Tan}[c+d\,x]\,dx$$

Optimal (type 3, 90 leaves, 5 steps):

$$-\frac{3\,b\left(a^2-b^2\right)\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,d}+\frac{\mathrm{Sec}[c+d\,x]^4\,(a+b\,\mathrm{Sin}[c+d\,x])^3}{4\,d}-\frac{3\,\mathrm{Sec}[c+d\,x]^2\,(a+b\,\mathrm{Sin}[c+d\,x])\left(b^2+a\,b\,\mathrm{Sin}[c+d\,x]\right)}{8\,d}$$

Result (type 3, 212 leaves) :

$$\frac{1}{16\,d}\left(6\,b\,\left(a^2-b^2\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$
$$6\,b\,\left(-a^2+b^2\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$\frac{(a+b)^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{(a-5\,b)\,(a+b)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+$$
$$\left.\frac{(a-b)^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{(a-b)^2\,(a+5\,b)}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 1508: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3\,dx$$

Optimal (type 3, 221 leaves, 6 steps) :

$$-\frac{3\,a^2\,b\,\text{Csc}[c+d\,x]}{d}-\frac{a^3\,\text{Csc}[c+d\,x]^2}{2\,d}-\frac{3\,(a+b)\,\left(8\,a^2+7\,a\,b+b^2\right)\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\,d}+$$
$$\frac{3\,a\,\left(a^2+b^2\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-\frac{3\,(a-b)\,\left(8\,a^2-7\,a\,b+b^2\right)\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\,d}+$$
$$\frac{b^2\,\text{Sec}[c+d\,x]^4\,\left(a\,\left(3+\frac{a^2}{b^2}\right)+\left(1+\frac{3\,a^2}{b^2}\right)\,b\,\text{Sin}[c+d\,x]\right)}{4\,d}+$$
$$\frac{b^2\,\text{Sec}[c+d\,x]^2\,\left(4\,a\,\left(3+\frac{2\,a^2}{b^2}\right)+3\,\left(1+\frac{7\,a^2}{b^2}\right)\,b\,\text{Sin}[c+d\,x]\right)}{8\,d}$$

Result (type 3, 772 leaves) :

$$-\frac{3\,a^2\,b\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{2\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-\frac{a^3\,\mathrm{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-$$

$$\left(3\,\left(8\,a^3+15\,a^2\,b+8\,a\,b^2+b^3\right)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\mathrm{Sin}[c+d\,x]^3\right)\Big/\left(8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)-$$

$$\left(3\,\left(8\,a^3-15\,a^2\,b+8\,a\,b^2-b^3\right)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\mathrm{Sin}[c+d\,x]^3\right)\Big/\left(8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3\right)+$$

$$\frac{3\,\left(a^3+a\,b^2\right)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\,\mathrm{Sin}[c+d\,x]^3}{d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-\frac{a^3\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Sin}[c+d\,x]^3}{8\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{\left(a^3+3\,a^2\,b+3\,a\,b^2+b^3\right)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{3\,\left(3\,a^3+7\,a^2\,b+5\,a\,b^2+b^3\right)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{\left(a^3-3\,a^2\,b+3\,a\,b^2-b^3\right)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{3\,\left(3\,a^3-7\,a^2\,b+5\,a\,b^2-b^3\right)\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3}{16\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-$$

$$\frac{3\,a^2\,b\,(b+a\,\mathrm{Csc}[c+d\,x])^3\,\mathrm{Sin}[c+d\,x]^3\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}$$

Problem 1509: Unable to integrate problem.

$$\int \mathrm{Sec}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]^n\,(a+b\,\mathrm{Sin}[c+d\,x])^4\,dx$$

Optimal (type 5, 295 leaves, 6 steps):

$$-\frac{1}{8\,d\,(1+n)}\left(6\,a^2\,b^2\,(1-n^2)-a^4\,(3-4\,n+n^2)-b^4\,(3+4\,n+n^2)\right)$$
$$\text{Hypergeometric2F1}\left[1,\frac{1+n}{2},\frac{3+n}{2},\text{Sin}[c+d\,x]^2\right]\text{Sin}[c+d\,x]^{1+n}-\frac{1}{2\,d\,(2+n)}$$
$$a\,b\,n\,\left(a^2\,(2-n)-b^2\,(2+n)\right)\text{Hypergeometric2F1}\left[1,\frac{2+n}{2},\frac{4+n}{2},\text{Sin}[c+d\,x]^2\right]\text{Sin}[c+d\,x]^{2+n}+$$
$$\frac{1}{4\,d}\text{Sec}[c+d\,x]^4\,\text{Sin}[c+d\,x]^{1+n}\left(a^4+6\,a^2\,b^2+b^4+4\,a\,b\,(a^2+b^2)\,\text{Sin}[c+d\,x]\right)+\frac{1}{8\,d}\text{Sec}[c+d\,x]^2$$
$$\text{Sin}[c+d\,x]^{1+n}\left(a^4\,(3-n)-6\,a^2\,b^2\,(1+n)-b^4\,(5+n)+4\,a\,b\,\left(a^2\,(2-n)-b^2\,(2+n)\right)\text{Sin}[c+d\,x]\right)$$

Result (type 8, 31 leaves):

$$\int \text{Sec}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n\,(a+b\,\text{Sin}[c+d\,x])^4\,dx$$

Problem 1513: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 5, 360 leaves, 10 steps):

$$\left((3\,a^2-9\,a\,b+8\,b^2)\,\text{Hypergeometric2F1}[1,1+n,2+n,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}\right)\Big/$$
$$\left(16\,(a-b)^3\,d\,(1+n)\right)+$$
$$\left((3\,a^2+9\,a\,b+8\,b^2)\,\text{Hypergeometric2F1}[1,1+n,2+n,\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}\right)\Big/$$
$$\left(16\,(a+b)^3\,d\,(1+n)\right)-\frac{b^6\,\text{Hypergeometric2F1}\left[1,1+n,2+n,-\frac{b\,\text{Sin}[c+d\,x]}{a}\right]\text{Sin}[c+d\,x]^{1+n}}{a\,(a^2-b^2)^3\,d\,(1+n)}+$$
$$\left((3\,a-5\,b)\,\text{Hypergeometric2F1}[2,1+n,2+n,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}\right)\Big/$$
$$\left(16\,(a-b)^2\,d\,(1+n)\right)+$$
$$\left((3\,a+5\,b)\,\text{Hypergeometric2F1}[2,1+n,2+n,\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}\right)\Big/$$
$$\left(16\,(a+b)^2\,d\,(1+n)\right)+\frac{\text{Hypergeometric2F1}[3,1+n,2+n,-\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}}{8\,(a-b)\,d\,(1+n)}+$$
$$\frac{\text{Hypergeometric2F1}[3,1+n,2+n,\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^{1+n}}{8\,(a+b)\,d\,(1+n)}$$

Result (type 6, 16 959 leaves):

$$\left(\text{Sec}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n\right.$$
$$\left(-\left(\left(a^3\,(3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}\,(-1+n),1,\frac{3+n}{2},-\text{Tan}[c+d\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\right]\right.\right.\right.$$

$$\left.\mathrm{Tan}[c+d\,x]^2\left(\frac{\mathrm{Tan}[c+d\,x]}{\sqrt{1+\mathrm{Tan}[c+d\,x]^2}}\right)^{-1+n}\right)\Big/$$

$$\left((1+n)\left(-a^2\,(3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}(-1+n),1,\frac{3+n}{2},-\mathrm{Tan}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]+\left(2\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}(-1+n),\right.\right.$$

$$\left.2,\frac{5+n}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]+a^2\,(-1+n)$$

$$\left.\mathrm{AppellF1}\left[\frac{3+n}{2},\frac{1+n}{2},1,\frac{5+n}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\left.\mathrm{Tan}[c+d\,x]^2\right)\left(-b^2\,\mathrm{Tan}[c+d\,x]^2+a^2\left(1+\mathrm{Tan}[c+d\,x]^2\right)\right)\right)\right)+$$

$$\left(a^2\,b\,(4+n)\,\mathrm{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\mathrm{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\mathrm{Tan}[c+d\,x]^2}{a^2}\right]\right.$$

$$\left.\mathrm{Tan}[c+d\,x]^2\left(\frac{\mathrm{Tan}[c+d\,x]}{\sqrt{1+\mathrm{Tan}[c+d\,x]^2}}\right)^{n}\right)\Big/$$

$$\left((2+n)\left(-a^2\,(4+n)\,\mathrm{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\left(2\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},2,\frac{6+n}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]+\right.$$

$$\left.a^2\,n\,\mathrm{AppellF1}\left[\frac{4+n}{2},\frac{2+n}{2},1,\frac{6+n}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\mathrm{Tan}[c+d\,x]^2\right)\left(-b^2\,\mathrm{Tan}[c+d\,x]^2+a^2\left(1+\mathrm{Tan}[c+d\,x]^2\right)\right)\right)-$$

$$\left(2\,a^3\,(5+n)\,\mathrm{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}(-1+n),1,\frac{5+n}{2},-\mathrm{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\mathrm{Tan}[c+d\,x]^2}{a^2}\right]\right.$$

$$\left.\mathrm{Tan}[c+d\,x]^4\left(\frac{\mathrm{Tan}[c+d\,x]}{\sqrt{1+\mathrm{Tan}[c+d\,x]^2}}\right)^{-1+n}\right)\Big/$$

$$\left((3+n)\left(-a^2\,(5+n)\,\mathrm{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}(-1+n),1,\frac{5+n}{2},-\mathrm{Tan}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]+\left(2\left(a^2-b^2\right)\mathrm{AppellF1}\left[\frac{5+n}{2},\frac{1}{2}(-1+n),\right.\right.$$

$$\left.2,\frac{7+n}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]+a^2\,(-1+n)$$

$$\left.\mathrm{AppellF1}\left[\frac{5+n}{2},\frac{1+n}{2},1,\frac{7+n}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]\right)$$

$$\text{Tan}[c+d\,x]^2\Big)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Big)+$$

$$\Bigg(2\,a^2\,b\,(6+n)\,\text{AppellF1}\Big[\frac{4+n}{2},\frac{n}{2},1,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]$$

$$\text{Tan}[c+d\,x]^4\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^n\Bigg)\Big/$$

$$\Bigg((4+n)\left(-a^2\,(6+n)\,\text{AppellF1}\Big[\frac{4+n}{2},\frac{n}{2},1,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\right.$$

$$\Big(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{6+n}{2},\frac{n}{2},2,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\,n\,\text{AppellF1}\Big[\frac{6+n}{2},\frac{2+n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Big)$$

$$\text{Tan}[c+d\,x]^2\Big)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Bigg)-$$

$$\Bigg(a^3\,(7+n)\,\text{AppellF1}\Big[\frac{5+n}{2},\frac{1}{2}\left(-1+n\right),1,\frac{7+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]$$

$$\text{Tan}[c+d\,x]^6\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}\Bigg)\Big/$$

$$\Bigg((5+n)\left(-a^2\,(7+n)\,\text{AppellF1}\Big[\frac{5+n}{2},\frac{1}{2}\left(-1+n\right),1,\frac{7+n}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\Big(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7+n}{2},\frac{1}{2}\left(-1+n\right),$$

$$2,\frac{9+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\left(-1+n\right)$$

$$\text{AppellF1}\Big[\frac{7+n}{2},\frac{1+n}{2},1,\frac{9+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Big)$$

$$\text{Tan}[c+d\,x]^2\Big)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a^2\,b\left(8+n\right)\text{AppellF1}\Big[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]$$

$$\text{Tan}[c+d\,x]^6\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^n\Bigg)\Big/$$

$$\Bigg((6+n)\left(-a^2\left(8+n\right)\text{AppellF1}\Big[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\right.$$

$$\Big(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{8+n}{2},\frac{n}{2},2,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\,n\,\text{AppellF1}\left[\frac{8+n}{2},\frac{2+n}{2},1,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(d\left(a+b\,\text{Sin}[c+d\,x]\right)\left(\left(a^3\left(3+n\right)\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}\left(-1+n\right),1,\frac{3+n}{2},\right.\right.\right.\right.$$

$$\left.-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Tan}[c+d\,x]^2$$

$$\left(2\,a^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-2\,b^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)$$

$$\left.\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}\right)\Big/$$

$$\left(\left(1+n\right)\left(-a^2\left(3+n\right)\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}\left(-1+n\right),1,\frac{3+n}{2},-\text{Tan}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}\left(-1+n\right),\right.\right.$$

$$\left.2,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2\left(-1+n\right)$$

$$\left.\text{AppellF1}\left[\frac{3+n}{2},\frac{1+n}{2},1,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)^2\right)-$$

$$\left(a^2\,b\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\right.$$

$$\text{Tan}[c+d\,x]^2\left(2\,a^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-2\,b^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)$$

$$\left.\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{n}\right)\Big/$$

$$\left(\left(2+n\right)\left(-a^2\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},2,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left.a^2\,n\,\text{AppellF1}\left[\frac{4+n}{2},\frac{2+n}{2},1,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)^2\right)+$$

$$\left(2\,a^3\,(5+n)\,\text{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}\left(-1+n\right),1,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\right.$$

$$\text{Tan}[c+d\,x]^4\left(2\,a^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-2\,b^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)$$

$$\left(\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{-1+n}\right)\Big/$$

$$\left(\left(3+n\right)\left(-a^2\,(5+n)\,\text{AppellF1}\left[\frac{3+n}{2},\,\frac{1}{2}\left(-1+n\right),\,1,\,\frac{5+n}{2},\,-\text{Tan}[c+d x]^2,\right.\right.\right.$$
$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5+n}{2},\,\frac{1}{2}\left(-1+n\right),\right.\right.$$
$$\left.2,\,\frac{7+n}{2},\,-\text{Tan}[c+d x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+a^2\left(-1+n\right)$$
$$\left.\text{AppellF1}\left[\frac{5+n}{2},\,\frac{1+n}{2},\,1,\,\frac{7+n}{2},\,-\text{Tan}[c+d x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$
$$\left.\left.\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)^2\right)-$$

$$\left(2\,a^2\,b\,(6+n)\,\text{AppellF1}\left[\frac{4+n}{2},\,\frac{n}{2},\,1,\,\frac{6+n}{2},\,-\text{Tan}[c+d x]^2,\,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\right.$$
$$\text{Tan}[c+d x]^4\left(2\,a^2\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-2\,b^2\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)$$
$$\left.\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{n}\right)\Big/$$

$$\left(\left(4+n\right)\left(-a^2\,(6+n)\,\text{AppellF1}\left[\frac{4+n}{2},\,\frac{n}{2},\,1,\,\frac{6+n}{2},\,-\text{Tan}[c+d x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{6+n}{2},\,\frac{n}{2},\,2,\,\frac{8+n}{2},\,-\text{Tan}[c+d x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.$$
$$\left.a^2\,n\,\text{AppellF1}\left[\frac{6+n}{2},\,\frac{2+n}{2},\,1,\,\frac{8+n}{2},\,-\text{Tan}[c+d x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$
$$\left.\left.\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)^2\right)+$$

$$\left(a^3\,(7+n)\,\text{AppellF1}\left[\frac{5+n}{2},\,\frac{1}{2}\left(-1+n\right),\,1,\,\frac{7+n}{2},\,-\text{Tan}[c+d x]^2,\,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\right.$$
$$\text{Tan}[c+d x]^6\left(2\,a^2\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-2\,b^2\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)$$
$$\left.\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{-1+n}\right)\Big/$$

$$\left(\left(5+n\right)\left(-a^2\,(7+n)\,\text{AppellF1}\left[\frac{5+n}{2},\,\frac{1}{2}\left(-1+n\right),\,1,\,\frac{7+n}{2},\,-\text{Tan}[c+d x]^2,\right.\right.\right.$$
$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7+n}{2},\,\frac{1}{2}\left(-1+n\right),\right.\right.$$
$$\left.2,\,\frac{9+n}{2},\,-\text{Tan}[c+d x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+a^2\left(-1+n\right)$$
$$\left.\text{AppellF1}\left[\frac{7+n}{2},\,\frac{1+n}{2},\,1,\,\frac{9+n}{2},\,-\text{Tan}[c+d x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)^2\right)-$$

$$\left(a^2\,b\,(8+n)\,\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\right.$$

$$\text{Tan}[c+d x]^6\left(2\,a^2\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-2\,b^2\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)$$

$$\left.\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^n\right)\Big/$$

$$\left((6+n)\left(-a^2\,(8+n)\,\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{8+n}{2},\frac{n}{2},2,5+\frac{n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.$$

$$\left.a^2\,n\,\text{AppellF1}\left[\frac{8+n}{2},\frac{2+n}{2},1,5+\frac{n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)^2\right)-$$

$$\left(2\,a^3\,(3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}(-1+n),1,\frac{3+n}{2},-\text{Tan}[c+d x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\right.$$

$$\left.\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{-1+n}\right)\Big/$$

$$\left((1+n)\left(-a^2\,(3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}(-1+n),1,\frac{3+n}{2},-\text{Tan}[c+d x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}(-1+n),2,\frac{5+n}{2},\right.\right.$$

$$\left.-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+a^2\,(-1+n)\,\text{AppellF1}\left[\frac{3+n}{2},\right.$$

$$\left.\left.\frac{1+n}{2},1,\frac{5+n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)\text{Tan}[c+d x]^2\right)$$

$$\left.\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\right)-\left(a^3\,(3+n)\,\text{Tan}[c+d x]^2\right.$$

$$\left(-\frac{1}{3+n}(-1+n)\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},1+\frac{1}{2}(-1+n),1,1+\frac{3+n}{2},\right.\right.$$

$$\left.-\text{Tan}[c+d x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+\frac{1}{a^2\,(3+n)}$$

$$2\left(-a^2+b^2\right)(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\frac{1}{2}(-1+n),2,1+\frac{3+n}{2},-\text{Tan}[c+d x]^2,\right.$$

$$\left.\left.\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\left.\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{-1+n}\right)\Big/$$

$$\left((1+n)\left(-a^2(3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}(-1+n),1,\frac{3+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}(-1+n),2,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2(-1+n)\,\text{AppellF1}\left[\frac{3+n}{2},\frac{1+n}{2},1,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)+$$

$$\left(2\,a^2\,b\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^n\right)\Big/$$

$$\left((2+n)\left(-a^2(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},2,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2\,n\,\text{AppellF1}\left[\frac{4+n}{2},\frac{2+n}{2},1,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a^2\,b\,(4+n)\,\text{Tan}[c+d\,x]^2\left(-\frac{1}{4+n}n(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},1+\frac{n}{2},1,1+\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+\frac{1}{a^2(4+n)}2\left(-a^2+b^2\right)(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},\frac{n}{2},2,1+\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^n\right)\Big/$$

$$\left((2+n)\left(-a^2(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},2,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2\,n\,\text{AppellF1}\left[\frac{4+n}{2},\frac{2+n}{2},1,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)-$$

$$\left(8 a^3 (5+n) \text{AppellF1}\left[\frac{3+n}{2}, \frac{1}{2}(-1+n), 1, \frac{5+n}{2}, -\text{Tan}[c+d x]^2, \frac{(-a^2+b^2)\text{Tan}[c+d x]^2}{a^2}\right]\right.$$

$$\left.\text{Sec}[c+d x]^2 \text{Tan}[c+d x]^3 \left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{-1+n}\right) \Big/$$

$$\left((3+n)\left(-a^2 (5+n) \text{AppellF1}\left[\frac{3+n}{2}, \frac{1}{2}(-1+n), 1, \frac{5+n}{2}, -\text{Tan}[c+d x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right] + \left(2 (a^2-b^2) \text{AppellF1}\left[\frac{5+n}{2}, \frac{1}{2}(-1+n), 2, \frac{7+n}{2},\right.\right.$$

$$\left.-\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right] + a^2 (-1+n) \text{AppellF1}\left[\frac{5+n}{2},\right.$$

$$\left.\left.\left.\frac{1+n}{2}, 1, \frac{7+n}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)\text{Tan}[c+d x]^2\right)$$

$$\left.\left(-b^2 \text{Tan}[c+d x]^2 + a^2 \left(1+\text{Tan}[c+d x]^2\right)\right)\right) - \left(2 a^3 (5+n) \text{Tan}[c+d x]^4\right.$$

$$\left(-\frac{1}{5+n}(-1+n)(3+n) \text{AppellF1}\left[1+\frac{3+n}{2}, 1+\frac{1}{2}(-1+n), 1, 1+\frac{5+n}{2},\right.\right.$$

$$\left.-\text{Tan}[c+d x]^2, \frac{(-a^2+b^2)\text{Tan}[c+d x]^2}{a^2}\right] \text{Sec}[c+d x]^2 \text{Tan}[c+d x] + \frac{1}{a^2 (5+n)}$$

$$2 (-a^2+b^2)(3+n) \text{AppellF1}\left[1+\frac{3+n}{2}, \frac{1}{2}(-1+n), 2, 1+\frac{5+n}{2}, -\text{Tan}[c+d x]^2,\right.$$

$$\left.\left.\left.\frac{(-a^2+b^2)\text{Tan}[c+d x]^2}{a^2}\right] \text{Sec}[c+d x]^2 \text{Tan}[c+d x]\right) \left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{-1+n}\right) \Big/$$

$$\left((3+n)\left(-a^2 (5+n) \text{AppellF1}\left[\frac{3+n}{2}, \frac{1}{2}(-1+n), 1, \frac{5+n}{2}, -\text{Tan}[c+d x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right] + \left(2 (a^2-b^2) \text{AppellF1}\left[\frac{5+n}{2}, \frac{1}{2}(-1+n),\right.\right.$$

$$\left.2, \frac{7+n}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right] + a^2 (-1+n)$$

$$\left.\text{AppellF1}\left[\frac{5+n}{2}, \frac{1+n}{2}, 1, \frac{7+n}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)\left(-b^2 \text{Tan}[c+d x]^2 + a^2 \left(1+\text{Tan}[c+d x]^2\right)\right)\right) +$$

$$\left(8 a^2 b (6+n) \text{AppellF1}\left[\frac{4+n}{2}, \frac{n}{2}, 1, \frac{6+n}{2}, -\text{Tan}[c+d x]^2, \frac{(-a^2+b^2)\text{Tan}[c+d x]^2}{a^2}\right]\right.$$

$$\left.\text{Sec}[c+d x]^2 \text{Tan}[c+d x]^3 \left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{n}\right) \Big/$$

$$\left((4+n)\left(-a^2(6+n)\,\text{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},1,\frac{6+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},2,\frac{8+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+a^2\,n\,\text{AppellF1}\left[\frac{6+n}{2},\frac{2+n}{2},1,\frac{8+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\right)\text{Tan}[c+dx]^2\right)\left(-b^2\,\text{Tan}[c+dx]^2+a^2\left(1+\text{Tan}[c+dx]^2\right)\right)\right)+$$

$$\left(2\,a^2\,b\,(6+n)\,\text{Tan}[c+dx]^4\left(-\frac{1}{6+n}n\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},1+\frac{n}{2},1,1+\frac{6+n}{2},-\text{Tan}[c+dx]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+dx]^2}{a^2}\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]+\frac{1}{a^2\,(6+n)}2\left(-a^2+b^2\right)(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},\frac{n}{2},2,1+\frac{6+n}{2},-\text{Tan}[c+dx]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+dx]^2}{a^2}\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]\right)\left(\frac{\text{Tan}[c+dx]}{\sqrt{1+\text{Tan}[c+dx]^2}}\right)^n\right)\Big/$$

$$\left((4+n)\left(-a^2(6+n)\,\text{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},1,\frac{6+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},2,\frac{8+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+a^2\,n\,\text{AppellF1}\left[\frac{6+n}{2},\frac{2+n}{2},1,\frac{8+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\right)\text{Tan}[c+dx]^2\right)\left(-b^2\,\text{Tan}[c+dx]^2+a^2\left(1+\text{Tan}[c+dx]^2\right)\right)\right)-$$

$$\left(6\,a^3\,(7+n)\,\text{AppellF1}\left[\frac{5+n}{2},\frac{1}{2}(-1+n),1,\frac{7+n}{2},-\text{Tan}[c+dx]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+dx]^2}{a^2}\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]^5\left(\frac{\text{Tan}[c+dx]}{\sqrt{1+\text{Tan}[c+dx]^2}}\right)^{-1+n}\right)\Big/$$

$$\left((5+n)\left(-a^2(7+n)\,\text{AppellF1}\left[\frac{5+n}{2},\frac{1}{2}(-1+n),1,\frac{7+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7+n}{2},\frac{1}{2}(-1+n),2,\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+a^2(-1+n)\,\text{AppellF1}\left[\frac{7+n}{2},\frac{1+n}{2},1,\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\right)\text{Tan}[c+dx]^2\right)\left(-b^2\,\text{Tan}[c+dx]^2+a^2\left(1+\text{Tan}[c+dx]^2\right)\right)\right)-\left(a^3\,(7+n)\,\text{Tan}[c+dx]^6\right.$$

$$\left(-\frac{1}{7+n}(-1+n)(5+n)\,\text{AppellF1}\left[1+\frac{5+n}{2},1+\frac{1}{2}(-1+n),1,1+\frac{7+n}{2},-\text{Tan}[c+d x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d x]^2}{a^2}\right]\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+\frac{1}{a^2(7+n)}2(-a^2+b^2)(5+n)\,\text{AppellF1}\left[1+\frac{5+n}{2},\frac{1}{2}(-1+n),2,1+\frac{7+n}{2},-\text{Tan}[c+d x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d x]^2}{a^2}\right]\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^{-1+n}\Bigg/$$

$$\left((5+n)\left(-a^2(7+n)\,\text{AppellF1}\left[\frac{5+n}{2},\frac{1}{2}(-1+n),1,\frac{7+n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\left(2(a^2-b^2)\,\text{AppellF1}\left[\frac{7+n}{2},\frac{1}{2}(-1+n),2,\frac{9+n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+a^2(-1+n)\,\text{AppellF1}\left[\frac{7+n}{2},\frac{1+n}{2},1,\frac{9+n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\right)+$$

$$\left(6 a^2 b(8+n)\,\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d x]^2}{a^2}\right]\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]^5\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^n\right)\Bigg/$$

$$\left((6+n)\left(-a^2(8+n)\,\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\left(2(a^2-b^2)\,\text{AppellF1}\left[\frac{8+n}{2},\frac{n}{2},2,5+\frac{n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+a^2 n\,\text{AppellF1}\left[\frac{8+n}{2},\frac{2+n}{2},1,5+\frac{n}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\right)+$$

$$\left(a^2 b(8+n)\,\text{Tan}[c+d x]^6\left(-\frac{1}{8+n}n(6+n)\,\text{AppellF1}\left[1+\frac{6+n}{2},1+\frac{n}{2},1,1+\frac{8+n}{2},-\text{Tan}[c+d x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d x]^2}{a^2}\right]\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+\frac{1}{a^2(8+n)}2(-a^2+b^2)(6+n)\,\text{AppellF1}\left[1+\frac{6+n}{2},\frac{n}{2},2,1+\frac{8+n}{2},-\text{Tan}[c+d x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d x]^2}{a^2}\right]\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^n\right)\Bigg/$$

$$\Bigg((6+n)\left(-a^2\,(8+n)\,\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left(2\,(a^2-b^2)\,\text{AppellF1}\left[\frac{8+n}{2},\frac{n}{2},2,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left.a^2\,n\,\text{AppellF1}\left[\frac{8+n}{2},\frac{2+n}{2},1,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Bigg)-$$

$$\Bigg(a^3\,(-1+n)\,(3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}(-1+n),1,\frac{3+n}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Tan}[c+d\,x]^2\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-2+n}$$

$$\left(-\frac{\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\Bigg)\Bigg/$$

$$\Bigg((1+n)\left(-a^2\,(3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\frac{1}{2}(-1+n),1,\frac{3+n}{2},-\text{Tan}[c+d\,x]^2,\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\left(2\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3+n}{2},\frac{1}{2}(-1+n),\right.\right.$$

$$\left.2,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2\,(-1+n)$$

$$\left.\text{AppellF1}\left[\frac{3+n}{2},\frac{1+n}{2},1,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a^2\,b\,n\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\right]$$

$$\text{Tan}[c+d\,x]^2\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}$$

$$\left(-\frac{\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\Bigg)\Bigg/$$

$$\Bigg((2+n)\left(-a^2\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\frac{n}{2},1,\frac{4+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left(2\,(a^2-b^2)\,\text{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},2,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left.a^2\,n\,\text{AppellF1}\left[\frac{4+n}{2},\frac{2+n}{2},1,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)-$$

$$\left(2\,a^3\,(-1+n)\,(5+n)\,\text{AppellF1}\left[\frac{3+n}{2},\,\frac{1}{2}\,(-1+n),\,1,\,\frac{5+n}{2},\,-\text{Tan}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{\left(-a^2+b^2\right)\,\text{Tan}[c+d\,x]^2}{a^2}\right]\,\text{Tan}[c+d\,x]^4\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-2+n}$$

$$\left.\left(-\frac{\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\right)\Big/$$

$$\left((3+n)\left(-a^2\,(5+n)\,\text{AppellF1}\left[\frac{3+n}{2},\,\frac{1}{2}\,(-1+n),\,1,\,\frac{5+n}{2},\,-\text{Tan}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5+n}{2},\,\frac{1}{2}\,(-1+n),\right.\right.$$

$$\left.2,\,\frac{7+n}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2\,(-1+n)$$

$$\left.\text{AppellF1}\left[\frac{5+n}{2},\,\frac{1+n}{2},\,1,\,\frac{7+n}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)+$$

$$\left(2\,a^2\,b\,n\,(6+n)\,\text{AppellF1}\left[\frac{4+n}{2},\,\frac{n}{2},\,1,\,\frac{6+n}{2},\,-\text{Tan}[c+d\,x]^2,\,\frac{\left(-a^2+b^2\right)\,\text{Tan}[c+d\,x]^2}{a^2}\right]\right.$$

$$\text{Tan}[c+d\,x]^4\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}$$

$$\left.\left(-\frac{\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\right)\Big/$$

$$\left((4+n)\left(-a^2\,(6+n)\,\text{AppellF1}\left[\frac{4+n}{2},\,\frac{n}{2},\,1,\,\frac{6+n}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{6+n}{2},\,\frac{n}{2},\,2,\,\frac{8+n}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left.a^2\,n\,\text{AppellF1}\left[\frac{6+n}{2},\,\frac{2+n}{2},\,1,\,\frac{8+n}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)-$$

$$\left(a^3\,(-1+n)\,(7+n)\,\text{AppellF1}\left[\frac{5+n}{2},\,\frac{1}{2}\,(-1+n),\,1,\,\frac{7+n}{2},\,-\text{Tan}[c+d\,x]^2,\right.\right.$$

$$\frac{\left(-a^2+b^2\right)\,\text{Tan}[c+d\,x]^2}{a^2}\Big]\;\text{Tan}[c+d\,x]^6\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-2+n}$$

$$\left(-\frac{\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\Bigg)\Bigg/$$

$$\Bigg((5+n)\left(-a^2\,(7+n)\,\text{AppellF1}\Big[\frac{5+n}{2},\frac{1}{2}\,(-1+n),1,\frac{7+n}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\Bigg(2\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{7+n}{2},\frac{1}{2}\,(-1+n),$$

$$2,\frac{9+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\,(-1+n)$$

$$\text{AppellF1}\Big[\frac{7+n}{2},\frac{1+n}{2},1,\frac{9+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)$$

$$\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a^2\,b\,n\,(8+n)\,\text{AppellF1}\Big[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\,\text{Tan}[c+d\,x]^2}{a^2}\Big]$$

$$\text{Tan}[c+d\,x]^6\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}$$

$$\left(-\frac{\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\Bigg)\Bigg/$$

$$\Bigg((6+n)\left(-a^2\,(8+n)\,\text{AppellF1}\Big[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\right.$$

$$\Bigg(2\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{8+n}{2},\frac{n}{2},2,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\,n\,\text{AppellF1}\Big[\frac{8+n}{2},\frac{2+n}{2},1,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)$$

$$\left.\text{Tan}[c+d\,x]^2\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a^3\,(3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\frac{1}{2}\,(-1+n),1,\frac{3+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\,\text{Tan}[c+d\,x]^2}{a^2}\Big]$$

$$\text{Tan}[c+d\,x]^2\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}$$

$$\Bigg(2\,\Bigg(2\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3+n}{2},\frac{1}{2}\,(-1+n),2,\frac{5+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)$$

$$\text{Tan}[c+d\,x]^2\Big]+a^2\,(-1+n)\,\text{AppellF1}\Big[\frac{3+n}{2},\frac{1+n}{2},1,\frac{5+n}{2},$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\Bigg)\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-$$

$$a^2\,(3+n)\left(-\frac{1}{3+n}(-1+n)\,(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},\ 1+\frac{1}{2}(-1+n),\ 1,\right.$$

$$1+\frac{3+n}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+$$

$$\frac{1}{3+n}2\left(-1+\frac{b^2}{a^2}\right)(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},\ \frac{1}{2}(-1+n),\ 2,\ 1+\frac{3+n}{2},$$

$$\left.-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)+$$

$$\text{Tan}[c+d x]^2\left(2\left(a^2-b^2\right)\left(-\frac{1}{5+n}(-1+n)\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\ 1+\frac{1}{2}(-1+n),\ 2,\right.\right.$$

$$1+\frac{5+n}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+$$

$$\frac{1}{5+n}4\left(-1+\frac{b^2}{a^2}\right)(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\ \frac{1}{2}(-1+n),\ 3,\ 1+\frac{5+n}{2},$$

$$\left.-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)+$$

$$a^2\,(-1+n)\left(\frac{1}{5+n}2\left(-1+\frac{b^2}{a^2}\right)(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\ \frac{1+n}{2},\ 2,\ 1+\frac{5+n}{2},\right.$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-$$

$$\frac{1}{5+n}(1+n)\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\ 1+\frac{1+n}{2},\ 1,\ 1+\frac{5+n}{2},$$

$$\left.\left.\left.-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\right)\right)\Bigg)\Bigg/$$

$$\Bigg((1+n)\left(-a^2\,(3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\ \frac{1}{2}(-1+n),\ 1,\ \frac{3+n}{2},\ -\text{Tan}[c+d x]^2,\right.$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3+n}{2},\ \frac{1}{2}(-1+n),\ 2,\ \frac{5+n}{2},$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+a^2\,(-1+n)\,\text{AppellF1}\Big[\frac{3+n}{2},$$

$$\left.\frac{1+n}{2},\ 1,\ \frac{5+n}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\Bigg)\,\text{Tan}[c+d x]^2\right)^2$$

$$\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\Bigg)-\Bigg(a^2\,b\,(4+n)\,\text{AppellF1}\Big[\frac{2+n}{2},\ \frac{n}{2},$$

$$1,\ \frac{4+n}{2},\ -\text{Tan}[c+d x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\Big]\,\text{Tan}[c+d x]^2\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^n$$

$$\Bigg(2\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{4+n}{2},\ \frac{n}{2},\ 2,\ \frac{6+n}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+$$

$$a^2\,n\,\text{AppellF1}\left[\frac{4+n}{2},\ \frac{2+n}{2},\ 1,\ \frac{6+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\Bigg)$$

$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-a^2\,(4+n)\,\left(-\frac{1}{4+n}n\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},\ 1+\frac{n}{2},\right.\right.$$

$$\left.1,\ 1+\frac{4+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+$$

$$\frac{1}{4+n}2\,\left(-1+\frac{b^2}{a^2}\right)\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},\ \frac{n}{2},\ 2,\ 1+\frac{4+n}{2},\ -\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+\text{Tan}[c+d\,x]^2$$

$$\Bigg(2\,\left(a^2-b^2\right)\,\left(-\frac{1}{6+n}n\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},\ 1+\frac{n}{2},\ 2,\ 1+\frac{6+n}{2},\ -\text{Tan}[c+d\,x]^2,\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+\frac{1}{6+n}4\,\left(-1+\frac{b^2}{a^2}\right)\,(4+n)$$

$$\text{AppellF1}\left[1+\frac{4+n}{2},\ \frac{n}{2},\ 3,\ 1+\frac{6+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$

$$\left.\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+a^2\,n\,\left(\frac{1}{6+n}2\,\left(-1+\frac{b^2}{a^2}\right)\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},\right.\right.$$

$$\left.\frac{2+n}{2},\ 2,\ 1+\frac{6+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2$$

$$\text{Tan}[c+d\,x]-\frac{1}{6+n}(2+n)\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},\ 1+\frac{2+n}{2},\ 1,\ 1+\frac{6+n}{2},\right.$$

$$\left.\left.\left.\left.-\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\right)\Bigg)\Bigg/$$

$$\Bigg(\left((2+n)\,\left(-a^2\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},\ \frac{n}{2},\ 1,\ \frac{4+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\Bigg(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{4+n}{2},\ \frac{n}{2},\ 2,\ \frac{6+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+$$

$$a^2\,n\,\text{AppellF1}\left[\frac{4+n}{2},\ \frac{2+n}{2},\ 1,\ \frac{6+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\Bigg)$$

$$\left.\left.\text{Tan}[c+d\,x]^2\right)^2\,\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\,\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)+$$

$$\Bigg(2\,a^3\,(5+n)\,\text{AppellF1}\left[\frac{3+n}{2},\ \frac{1}{2}\,(-1+n),\ 1,\ \frac{5+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \frac{\left(-a^2+b^2\right)\,\text{Tan}[c+d\,x]^2}{a^2}\right]$$

$$\text{Tan}[c+d\,x]^4\,\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}$$

$$\left(2\,\left(2\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5+n}{2},\ \frac{1}{2}\,(-1+n),\ 2,\ \frac{7+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\right.\right.\right.$$

$$\text{Tan}[c+d\,x]^2\Big]+a^2\,(-1+n)\,\text{AppellF1}\left[\frac{5+n}{2},\ \frac{1+n}{2},\ 1,\ \frac{7+n}{2},\right.$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\Big)\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-$$

$$a^2\,(5+n)\left(-\frac{1}{5+n}(-1+n)\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\ 1+\frac{1}{2}(-1+n),\ 1,\right.$$

$$1+\frac{5+n}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+$$

$$\frac{1}{5+n}2\left(-1+\frac{b^2}{a^2}\right)(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\ \frac{1}{2}(-1+n),\ 2,\ 1+\frac{5+n}{2},$$

$$\left.-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)+$$

$$\text{Tan}[c+d x]^2\left(2\left(a^2-b^2\right)\left(-\frac{1}{7+n}(-1+n)\,(5+n)\,\text{AppellF1}\Big[1+\frac{5+n}{2},\ 1+\frac{1}{2}(-1+n),\ 2,\right.\right.$$

$$1+\frac{7+n}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+$$

$$\frac{1}{7+n}4\left(-1+\frac{b^2}{a^2}\right)(5+n)\,\text{AppellF1}\Big[1+\frac{5+n}{2},\ \frac{1}{2}(-1+n),\ 3,\ 1+\frac{7+n}{2},$$

$$\left.-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)+$$

$$a^2\,(-1+n)\left(\frac{1}{7+n}2\left(-1+\frac{b^2}{a^2}\right)(5+n)\,\text{AppellF1}\Big[1+\frac{5+n}{2},\ \frac{1+n}{2},\ 2,\ 1+\frac{7+n}{2},\right.$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-$$

$$\frac{1}{7+n}(1+n)\,(5+n)\,\text{AppellF1}\Big[1+\frac{5+n}{2},\ 1+\frac{1+n}{2},\ 1,\ 1+\frac{7+n}{2},$$

$$\left.\left.\left.\left.-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\right)\right)\right)\Big/$$

$$\left((3+n)\left(-a^2\,(5+n)\,\text{AppellF1}\Big[\frac{3+n}{2},\ \frac{1}{2}(-1+n),\ 1,\ \frac{5+n}{2},\ -\text{Tan}[c+d x]^2,\right.\right.$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+\left(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{5+n}{2},\ \frac{1}{2}(-1+n),\ 2,\ \frac{7+n}{2},\right.$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+a^2\,(-1+n)\,\text{AppellF1}\Big[\frac{5+n}{2},$$

$$\left.\left.\frac{1+n}{2},\ 1,\ \frac{7+n}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\right)\text{Tan}[c+d x]^2\right)^2$$

$$\left.\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\right)-\left(2\,a^2\,b\,(6+n)\,\text{AppellF1}\Big[\frac{4+n}{2},\right.$$

$$\frac{n}{2},\ 1,\ \frac{6+n}{2},\ -\text{Tan}[c+d x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\Big]$$

$$\text{Tan}[c+d x]^4\left(\frac{\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)^n$$

$$\left(2\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},2,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\left.a^2\,n\,\text{AppellF1}\left[\frac{6+n}{2},\frac{2+n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-a^2\,(6+n)\left(-\frac{1}{6+n}n\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},1+\frac{n}{2},\right.\right.$$

$$\left.1,1+\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+$$

$$\frac{1}{6+n}2\left(-1+\frac{b^2}{a^2}\right)(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},\frac{n}{2},2,1+\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+\text{Tan}[c+d\,x]^2$$

$$\left(2\left(a^2-b^2\right)\left(-\frac{1}{8+n}n\,(6+n)\,\text{AppellF1}\left[1+\frac{6+n}{2},1+\frac{n}{2},2,1+\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+\frac{1}{8+n}4\left(-1+\frac{b^2}{a^2}\right)(6+n)$$

$$\text{AppellF1}\left[1+\frac{6+n}{2},\frac{n}{2},3,1+\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$

$$\left.\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+a^2\,n\left(\frac{1}{8+n}2\left(-1+\frac{b^2}{a^2}\right)(6+n)\,\text{AppellF1}\left[1+\frac{6+n}{2},\right.\right.$$

$$\left.\frac{2+n}{2},2,1+\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2$$

$$\text{Tan}[c+d\,x]-\frac{1}{8+n}(2+n)\,(6+n)\,\text{AppellF1}\left[1+\frac{6+n}{2},1+\frac{2+n}{2},1,1+\frac{8+n}{2},\right.$$

$$\left.\left.\left.\left.\left.-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\right)\right)\Bigg/$$

$$\left((4+n)\left(-a^2\,(6+n)\,\text{AppellF1}\left[\frac{4+n}{2},\frac{n}{2},1,\frac{6+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},2,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left.a^2\,n\,\text{AppellF1}\left[\frac{6+n}{2},\frac{2+n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d\,x]^2\right)^2\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a^3\,(7+n)\,\text{AppellF1}\left[\frac{5+n}{2},\frac{1}{2}(-1+n),1,\frac{7+n}{2},-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\right.$$

$$\text{Tan}[c+d\,x]^6\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{-1+n}$$

$$\left(2\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7+n}{2},\frac{1}{2}(-1+n),2,\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+a^2(-1+n)\text{AppellF1}\left[\frac{7+n}{2},\frac{1+n}{2},1,\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\right)\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]-\right.$$

$$a^2(7+n)\left(-\frac{1}{7+n}(-1+n)(5+n)\text{AppellF1}\left[1+\frac{5+n}{2},1+\frac{1}{2}(-1+n),1,1+\frac{7+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]+\right.$$

$$\left.\frac{1}{7+n}2\left(-1+\frac{b^2}{a^2}\right)(5+n)\text{AppellF1}\left[1+\frac{5+n}{2},\frac{1}{2}(-1+n),2,1+\frac{7+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]\right)+$$

$$\text{Tan}[c+dx]^2\left(2\left(a^2-b^2\right)\left(-\frac{1}{9+n}(-1+n)(7+n)\text{AppellF1}\left[1+\frac{7+n}{2},1+\frac{1}{2}(-1+n),2,1+\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]+\right.\right.$$

$$\left.\frac{1}{9+n}4\left(-1+\frac{b^2}{a^2}\right)(7+n)\text{AppellF1}\left[1+\frac{7+n}{2},\frac{1}{2}(-1+n),3,1+\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]\right)+$$

$$a^2(-1+n)\left(\frac{1}{9+n}2\left(-1+\frac{b^2}{a^2}\right)(7+n)\text{AppellF1}\left[1+\frac{7+n}{2},\frac{1+n}{2},2,1+\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]-\right.$$

$$\left.\left.\left.\left.\frac{1}{9+n}(1+n)(7+n)\text{AppellF1}\left[1+\frac{7+n}{2},1+\frac{1+n}{2},1,1+\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\text{Sec}[c+dx]^2\,\text{Tan}[c+dx]\right)\right)\right)\right)\Big/$$

$$\left((5+n)\left(-a^2(7+n)\text{AppellF1}\left[\frac{5+n}{2},\frac{1}{2}(-1+n),1,\frac{7+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7+n}{2},\frac{1}{2}(-1+n),2,\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]+a^2(-1+n)\text{AppellF1}\left[\frac{7+n}{2},\frac{1+n}{2},1,\frac{9+n}{2},-\text{Tan}[c+dx]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+dx]^2\right]\right)\text{Tan}[c+dx]^2\right)^2\right.$$

$$\left.\left(-b^2\,\text{Tan}[c+dx]^2+a^2\left(1+\text{Tan}[c+dx]^2\right)\right)\right)-\left(a^2\,b\,(8+n)\,\text{AppellF1}\left[\frac{6+n}{2},\right.\right.$$

$$\frac{n}{2},\ 1,\ \frac{8+n}{2},\ -\text{Tan}[c+d\,x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]$$

$$\text{Tan}[c+d\,x]^6\left(\frac{\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^n$$

$$\Bigg(2\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{8+n}{2},\frac{n}{2},2,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$
$$\left.a^2\,n\,\text{AppellF1}\left[\frac{8+n}{2},\frac{2+n}{2},1,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$
$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-a^2\left(8+n\right)\left(-\frac{1}{8+n}n\,(6+n)\,\text{AppellF1}\left[1+\frac{6+n}{2},1+\frac{n}{2},\right.\right.$$
$$1,1+\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+$$
$$\frac{1}{8+n}2\left(-1+\frac{b^2}{a^2}\right)(6+n)\,\text{AppellF1}\left[1+\frac{6+n}{2},\frac{n}{2},2,1+\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\right.$$
$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+\text{Tan}[c+d\,x]^2$$
$$\left(2\left(a^2-b^2\right)\left(-\frac{1}{2\left(5+\frac{n}{2}\right)}n\left(8+n\right)\text{AppellF1}\left[1+\frac{8+n}{2},1+\frac{n}{2},2,6+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\right.\right.\right.$$
$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+\frac{1}{5+\frac{n}{2}}2\left(-1+\frac{b^2}{a^2}\right)\left(8+n\right)$$
$$\text{AppellF1}\left[1+\frac{8+n}{2},\frac{n}{2},3,6+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$
$$\left.\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+a^2\,n\left(\frac{1}{5+\frac{n}{2}}\left(-1+\frac{b^2}{a^2}\right)\left(8+n\right)\text{AppellF1}\left[1+\frac{8+n}{2},\right.\right.$$
$$\frac{2+n}{2},2,6+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2$$
$$\text{Tan}[c+d\,x]-\frac{1}{2\left(5+\frac{n}{2}\right)}\left(2+n\right)\left(8+n\right)\text{AppellF1}\left[1+\frac{8+n}{2},1+\frac{2+n}{2},1,6+\frac{n}{2},\right.$$
$$\left.\left.\left.\left.-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\right)\Bigg)\Bigg/$$

$$\Bigg(\left(6+n\right)\left(-a^2\left(8+n\right)\text{AppellF1}\left[\frac{6+n}{2},\frac{n}{2},1,\frac{8+n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$
$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{8+n}{2},\frac{n}{2},2,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$
$$\left.a^2\,n\,\text{AppellF1}\left[\frac{8+n}{2},\frac{2+n}{2},1,5+\frac{n}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\left.\left.\left.\text{Tan}[c+d\,x]^2\right)^2\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\right)\right)\right)$$

Problem 1514: Unable to integrate problem.

$$\int \text{Sec}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,dx$$

Optimal (type 6, 487 leaves, 17 steps):

$$\frac{1}{16\,d\,(1+n)}3\,\text{AppellF1}\left[1+n,\,-p,\,1,\,2+n,\,-\frac{b\,\text{Sin}[c+d\,x]}{a},\,-\text{Sin}[c+d\,x]\right]$$
$$\text{Sin}[c+d\,x]^{1+n}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,\left(1+\frac{b\,\text{Sin}[c+d\,x]}{a}\right)^{-p}+$$
$$\frac{1}{16\,d\,(1+n)}3\,\text{AppellF1}\left[1+n,\,-p,\,1,\,2+n,\,-\frac{b\,\text{Sin}[c+d\,x]}{a},\,\text{Sin}[c+d\,x]\right]$$
$$\text{Sin}[c+d\,x]^{1+n}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,\left(1+\frac{b\,\text{Sin}[c+d\,x]}{a}\right)^{-p}+$$
$$\frac{1}{16\,d\,(1+n)}3\,\text{AppellF1}\left[1+n,\,-p,\,2,\,2+n,\,-\frac{b\,\text{Sin}[c+d\,x]}{a},\,-\text{Sin}[c+d\,x]\right]$$
$$\text{Sin}[c+d\,x]^{1+n}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,\left(1+\frac{b\,\text{Sin}[c+d\,x]}{a}\right)^{-p}+$$
$$\frac{1}{16\,d\,(1+n)}3\,\text{AppellF1}\left[1+n,\,-p,\,2,\,2+n,\,-\frac{b\,\text{Sin}[c+d\,x]}{a},\,\text{Sin}[c+d\,x]\right]$$
$$\text{Sin}[c+d\,x]^{1+n}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,\left(1+\frac{b\,\text{Sin}[c+d\,x]}{a}\right)^{-p}+$$
$$\frac{1}{8\,d\,(1+n)}\text{AppellF1}\left[1+n,\,-p,\,3,\,2+n,\,-\frac{b\,\text{Sin}[c+d\,x]}{a},\,-\text{Sin}[c+d\,x]\right]$$
$$\text{Sin}[c+d\,x]^{1+n}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,\left(1+\frac{b\,\text{Sin}[c+d\,x]}{a}\right)^{-p}+$$
$$\frac{1}{8\,d\,(1+n)}\text{AppellF1}\left[1+n,\,-p,\,3,\,2+n,\,-\frac{b\,\text{Sin}[c+d\,x]}{a},\,\text{Sin}[c+d\,x]\right]$$
$$\text{Sin}[c+d\,x]^{1+n}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,\left(1+\frac{b\,\text{Sin}[c+d\,x]}{a}\right)^{-p}$$

Result (type 8, 31 leaves):

$$\int \text{Sec}[c+d\,x]^5\,\text{Sin}[c+d\,x]^n\,\left(a+b\,\text{Sin}[c+d\,x]\right)^p\,dx$$

Problem 1515: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[e+f\,x]^6\,\left(a+b\,\text{Sin}[e+f\,x]\right)^{9/2}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 4, 502 leaves, ? steps):

$$-\frac{3\,a\,b\,\left(-2\,a^2+b^2\right)\,\mathrm{Cos}[e+f\,x]\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{5\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}+\frac{\mathrm{Sec}[e+f\,x]^5\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)^{9/2}}{5\,d\,f}-\frac{1}{20\,d\,f}$$

$$3\,a\,\mathrm{Sec}[e+f\,x]^3\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\,\left(-a\,\left(7\,a^2+b^2\right)+2\,b\,\left(-7\,a^2+b^2\right)\,\mathrm{Sin}[e+f\,x]+5\,a\,\left(a^2-b^2\right)\,\mathrm{Sin}[e+f\,x]^2+\left(8\,a^2\,b-4\,b^3\right)\,\mathrm{Sin}[e+f\,x]^3\right)-$$

$$\frac{1}{20\,\sqrt{d}\,f}3\,a\,(a+b)^{3/2}\,\left(5\,a^2+3\,a\,b-4\,b^2\right)\,\sqrt{-\frac{a\,\left(-1+\mathrm{Csc}[e+f\,x]\right)}{a+b}}\,\sqrt{\frac{a\,\left(1+\mathrm{Csc}[e+f\,x]\right)}{a-b}}$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}\right],-\frac{a+b}{a-b}\right]\,\mathrm{Tan}[e+f\,x]-$$

$$\left(3\,b\,\left(2\,a^4-3\,a^2\,b^2+b^4\right)\,\sqrt{-\frac{a\,\left(-1+\mathrm{Csc}[e+f\,x]\right)}{a+b}}\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\sqrt{-\frac{b+a\,\mathrm{Csc}[e+f\,x]}{a-b}}\right],\right.\right.$$

$$\left.1-\frac{2\,a}{a+b}\right]\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\sqrt{-\frac{a\,\mathrm{Csc}[e+f\,x]^2\,\left(1+\mathrm{Sin}[e+f\,x]\right)\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)}{(a-b)^2}}$$

$$\left.\mathrm{Tan}[e+f\,x]\right)\Big/\left(5\,d\,f\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\right)$$

Result (type 4, 1600 leaves):

$$\left(\mathrm{Sin}[e+f\,x]\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\right.$$

$$\left(\frac{1}{20}\,\mathrm{Sec}[e+f\,x]\,\left(15\,a^4-15\,a^2\,b^2+4\,b^4+24\,a^3\,b\,\mathrm{Sin}[e+f\,x]-12\,a\,b^3\,\mathrm{Sin}[e+f\,x]\right)+\right.$$

$$\frac{1}{10}\,\mathrm{Sec}[e+f\,x]^3\,\left(3\,a^4-3\,a^2\,b^2-4\,b^4+9\,a^3\,b\,\mathrm{Sin}[e+f\,x]-5\,a\,b^3\,\mathrm{Sin}[e+f\,x]\right)+$$

$$\left.\left.\frac{1}{5}\,\mathrm{Sec}[e+f\,x]^5\,\left(a^4+6\,a^2\,b^2+b^4+4\,a^3\,b\,\mathrm{Sin}[e+f\,x]+4\,a\,b^3\,\mathrm{Sin}[e+f\,x]\right)\right)\right)\Big/$$

$$\left(f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\right)+\frac{1}{40\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}3\,a\,\sqrt{\mathrm{Sin}[e+f\,x]}$$

$$\left(\left(4\,a\,\left(5\,a^4-9\,a^2\,b^2+4\,b^4\right)\,\sqrt{\frac{(a+b)\,\mathrm{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{-a+b}}\right.\right.$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{\mathrm{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,(a+b\,\mathrm{Sin}[e+f\,x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\right]\,\mathrm{Sec}[e+f\,x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}\right)\Big/$$

$$\left((a+b)\sqrt{\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)+$$

$$4\,a\left(-8\,a^3\,b+4\,a\,b^3\right)\left(\left(\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{-a+b}}\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\right]\text{Sec}[e+f\,x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}\right)\Big/$$

$$\left((a+b)\sqrt{\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)-\left(\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{-a+b}}\right.$$

$$\text{EllipticPi}\left[-\frac{a}{b},\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\right]\text{Sec}[e+f\,x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2(a+b\,\text{Sin}[e+f\,x])}{a}}\right)\Big/$$

$$\left.\left(b\sqrt{\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)\right)+2\left(8\,a^2\,b^2-4\,b^4\right)$$

$$\left(\frac{\text{Cos}[e+f\,x]\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{b\,\sqrt{\text{Sin}[e+f\,x]}}+\left(\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]\,\text{Csc}[e+f\,x]\right.\right.$$

$$\left.\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]}{\sqrt{\text{Sin}[e+f\,x]}}\right],-\frac{2\,a}{-a-b}\right]\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)\Big/$$

$$\left(b\,\sqrt{\text{Cos}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Csc}[e+f\,x]}\,\sqrt{\frac{\text{Csc}[e+f\,x]\,\left(a+b\,\text{Sin}[e+f\,x]\right)}{a+b}}\right)+$$

$$\frac{1}{b}\,2\,a\left(\left(a\,\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{-a+b}}\,\text{EllipticF}\right[\right.\right.$$

$$\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,(a+b\,\text{Sin}[e+f\,x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\Bigg]\,\text{Sec}[e+f\,x]$$

$$\text{Sin}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^4\sqrt{-\frac{(a+b)\,\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\text{Sin}[e+f\,x]}{a}}$$

$$\left.\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,\left(a+b\,\text{Sin}[e+f\,x]\right)}{a}}\right)\Big/$$

$$\left(\left(a+b\right)\sqrt{\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)-\left(a\,\sqrt{\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2}{-a+b}}\right.$$

$$\text{EllipticPi}\left[-\frac{a}{b},\text{ArcSin}\left[\frac{\sqrt{\frac{\text{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f\,x\right)\right]^2\,(a+b\,\text{Sin}[e+f\,x])}{a}}}{\sqrt{2}}\right],-\frac{2\,a}{-a+b}\right]\,\text{Sec}[$$

$$e + f x] \operatorname{Sin}\left[\frac{1}{2}\left(-e + \frac{\pi}{2} - f x\right)\right]^4 \sqrt{-\frac{(a+b)\operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 \operatorname{Sin}[e+f x]}{a}}$$

$$\left.\sqrt{\frac{\operatorname{Csc}\left[\frac{1}{2}\left(-e+\frac{\pi}{2}-f x\right)\right]^2 (a+b\operatorname{Sin}[e+f x])}{a}}\right) \Big/$$

$$\left.\left.\left.\left(b\sqrt{\operatorname{Sin}[e+f x]}\sqrt{a+b\operatorname{Sin}[e+f x]}\right)\right)\right)\right)$$

Problem 1516: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cos}[e+f x]^2 (a+b\operatorname{Sin}[e+f x])^2 (c+d\operatorname{Sin}[e+f x])^{4/3}\, dx$$

Optimal (type 6, 458 leaves, 11 steps):

$$-\frac{1}{2080 d^3 f} 9\left(64 a b c d - 26 a^2 d^2 - b^2\left(18 c^2 - 13 d^2\right)\right) \operatorname{Cos}[e+f x] (c+d\operatorname{Sin}[e+f x])^{7/3} -$$
$$\frac{9 b (3 b c - 2 a d) \operatorname{Cos}[e+f x] \operatorname{Sin}[e+f x] (c+d\operatorname{Sin}[e+f x])^{7/3}}{208 d^2 f} +$$
$$\frac{3 \operatorname{Cos}[e+f x] (a+b\operatorname{Sin}[e+f x])^2 (c+d\operatorname{Sin}[e+f x])^{7/3}}{16 d f} -$$
$$\left(3 (c+d)^2 \left(208 a^2 c d^2 - 64 a b d \left(3 c^2 - 5 d^2\right) + b^2 c \left(54 c^2 + d^2\right)\right) \operatorname{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -\frac{7}{3}, \frac{3}{2},\right.\right.$$
$$\left.\left.\frac{1}{2}(1-\operatorname{Sin}[e+f x]), \frac{d(1-\operatorname{Sin}[e+f x])}{c+d}\right] \operatorname{Cos}[e+f x] (c+d\operatorname{Sin}[e+f x])^{1/3}\right) \Big/$$
$$\left(1040\sqrt{2}\, d^4 f \sqrt{1+\operatorname{Sin}[e+f x]} \left(\frac{c+d\operatorname{Sin}[e+f x]}{c+d}\right)^{1/3}\right) -$$
$$\left(3 (c-d) (c+d)^2 \left(192 a b c d - 208 a^2 d^2 - b^2\left(54 c^2 + 91 d^2\right)\right) \operatorname{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -\frac{4}{3}, \frac{3}{2},\right.\right.$$
$$\left.\left.\frac{1}{2}(1-\operatorname{Sin}[e+f x]), \frac{d(1-\operatorname{Sin}[e+f x])}{c+d}\right] \operatorname{Cos}[e+f x] (c+d\operatorname{Sin}[e+f x])^{1/3}\right) \Big/$$
$$\left(1040\sqrt{2}\, d^4 f \sqrt{1+\operatorname{Sin}[e+f x]} \left(\frac{c+d\operatorname{Sin}[e+f x]}{c+d}\right)^{1/3}\right)$$

Result (type 6, 3522 leaves):

$$\frac{1}{455 f} 513 a b c \operatorname{AppellF1}\left[\frac{1}{3}, \frac{1}{2}, \frac{1}{2}, \frac{4}{3}, -\frac{c+d\operatorname{Sin}[e+f x]}{\left(1-\frac{c}{d}\right) d}, -\frac{c+d\operatorname{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right) d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{7280\,d^3\,f}81\,b^2\,c^4\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}-$$

$$\frac{1}{455\,d^2\,f}18\,a\,b\,c^3\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{35\,d\,f}54\,a^2\,c^2\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{14\,560\,d\,f}5211\,b^2\,c^2\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{40\,f}9\,a^2\,d\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{640\,f}63\,b^2\,d\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+\frac{1}{65\,f}$$

$$9\,a\,b\,c^2\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{4\,d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f\,x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{7280\,d^3\,f}$$

$$81\,b^2\,c^5\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$

$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$

$$\frac{1}{4\,d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f\,x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)-\frac{1}{455\,d^2\,f}$$

$$18\,a\,b\,c^4\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$

$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$

$$\frac{1}{4\,d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f\,x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{70\,d\,f}$$

$$3\,a^2\,c^3\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$

$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$

$$\frac{1}{4\,d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f\,x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)-\frac{1}{1040\,d\,f}$$

$$21\,b^2\,c^3\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\Big[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\Big]\right.$$

$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$

$$\frac{1}{4\,d^2}3\,\text{AppellF1}\Big[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\Big]\,\text{Sec}[e+f\,x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{280\,f}$$

$$153\,a^2\,c\,d\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\Big[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\Big]\right.$$

$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$

$$\frac{1}{4\,d^2}3\,\text{AppellF1}\Big[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\Big]\,\text{Sec}[e+f\,x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{58\,240\,f}$$

$$9603\,b^2\,c\,d\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\Big[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\Big]\right.$$

$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$

$$\frac{1}{4\,d^2}3\,\text{AppellF1}\Big[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\Big]\,\text{Sec}[e+f\,x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{91\,f}$$

$$24\,a\,b\,d^2\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\Big[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\Big]\right.$$

$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$

$$\frac{1}{4 d^2} 3 \,\text{AppellF1}\left[\frac{4}{3}, \frac{1}{2}, \frac{1}{2}, \frac{7}{3}, -\frac{c + d \,\text{Sin}[e + f x]}{\left(1 - \frac{c}{d}\right) d}, -\frac{c + d \,\text{Sin}[e + f x]}{\left(-1 - \frac{c}{d}\right) d}\right] \text{Sec}[e + f x]$$

$$\left.\sqrt{\frac{-d - d \,\text{Sin}[e + f x]}{c - d}} \sqrt{\frac{d - d \,\text{Sin}[e + f x]}{c + d}} \left(c + d \,\text{Sin}[e + f x]\right)^{4/3}\right) +$$

$$\frac{1}{f} \left(c + d \,\text{Sin}[e + f x]\right)^{1/3} \left(-\frac{1}{58\,240 d^3} 3 \left(-216 b^2 c^4 + 768 a b c^3 d - 832 a^2 c^2 d^2 + \right.\right.$$

$$\left. 332 b^2 c^2 d^2 + 7232 a b c d^3 + 2912 a^2 d^4 + 1729 b^2 d^4\right) \text{Cos}[e + f x] -$$

$$\frac{3 \left(8 b^2 c^2 + 896 a b c d + 416 a^2 d^2 + 117 b^2 d^2\right) \text{Cos}[3 (e + f x)]}{16\,640 d} + \frac{3}{256} b^2 d \,\text{Cos}[5 (e + f x)] +$$

$$\frac{1}{14\,560 d^2} 3 \left(-18 b^2 c^3 + 64 a b c^2 d + 1144 a^2 c d^2 + 23 b^2 c d^2 + 80 a b d^3\right) \text{Sin}[2 (e + f x)] -$$

$$\left.\frac{3 b (17 b c + 32 a d) \,\text{Sin}[4 (e + f x)]}{1664}\right)$$

Problem 1517: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[e + f x]^2 (a + b \,\text{Sin}[e + f x]) (c + d \,\text{Sin}[e + f x])^{4/3} \, dx$$

Optimal (type 6, 341 leaves, 10 steps):

$$-\frac{3 (6 b c - 13 a d) \,\text{Cos}[e + f x] (c + d \,\text{Sin}[e + f x])^{7/3}}{130 d^2 f} +$$

$$\frac{3 b \,\text{Cos}[e + f x] \,\text{Sin}[e + f x] (c + d \,\text{Sin}[e + f x])^{7/3}}{13 d f} +$$

$$\left(3 (c + d)^2 \left(6 b c^2 - 13 a c d - 10 b d^2\right) \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -\frac{7}{3}, \frac{3}{2},\right.\right.$$

$$\left.\left.\frac{1}{2} (1 - \text{Sin}[e + f x]), \frac{d (1 - \text{Sin}[e + f x])}{c + d}\right] \text{Cos}[e + f x] (c + d \,\text{Sin}[e + f x])^{1/3}\right) \Big/$$

$$\left(65 \sqrt{2} d^3 f \sqrt{1 + \text{Sin}[e + f x]} \left(\frac{c + d \,\text{Sin}[e + f x]}{c + d}\right)^{1/3}\right) -$$

$$\left(3 (c - d) (c + d)^2 (6 b c - 13 a d) \,\text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -\frac{4}{3}, \frac{3}{2}, \frac{1}{2} (1 - \text{Sin}[e + f x]),\right.\right.$$

$$\left.\left.\frac{d (1 - \text{Sin}[e + f x])}{c + d}\right] \text{Cos}[e + f x] (c + d \,\text{Sin}[e + f x])^{1/3}\right) \Big/$$

$$\left(65 \sqrt{2} d^3 f \sqrt{1 + \text{Sin}[e + f x]} \left(\frac{c + d \,\text{Sin}[e + f x]}{c + d}\right)^{1/3}\right)$$

Result (type 6, 2110 leaves):

$$\frac{1}{910 f} 513 b c \,\text{AppellF1}\left[\frac{1}{3}, \frac{1}{2}, \frac{1}{2}, \frac{4}{3}, -\frac{c + d \,\text{Sin}[e + f x]}{\left(1 - \frac{c}{d}\right) d}, -\frac{c + d \,\text{Sin}[e + f x]}{\left(-1 - \frac{c}{d}\right) d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}-$$

$$\frac{1}{455 d^2 f}9 b c^3\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{35 d f}54 a c^2\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+\frac{1}{40 f}$$

$$9 a d\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f x]$$

$$\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+\frac{1}{130 f}$$

$$9 b c^2\left(-\frac{1}{d^2}3 c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{4 d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{4/3}\right)-\frac{1}{455 d^2 f}$$

$$9 b c^4\left(-\frac{1}{d^2}3 c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$

$$\text{Sec}[e+f x]\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{1/3}+$$

$$\frac{1}{4 d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f x]$$

$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f x]}{c+d}}\left(c+d\,\text{Sin}[e+f x]\right)^{4/3}\right)+\frac{1}{70 d f}$$

$$3\,a\,c^3\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$
$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$
$$\frac{1}{4\,d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f\,x]$$
$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{280\,f}$$
$$153\,a\,c\,d\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$
$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$
$$\frac{1}{4\,d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f\,x]$$
$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{91\,f}$$
$$12\,b\,d^2\left(-\frac{1}{d^2}3\,c\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\right.$$
$$\text{Sec}[e+f\,x]\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}+$$
$$\frac{1}{4\,d^2}3\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(1-\frac{c}{d}\right)d},-\frac{c+d\,\text{Sin}[e+f\,x]}{\left(-1-\frac{c}{d}\right)d}\right]\text{Sec}[e+f\,x]$$
$$\left.\sqrt{\frac{-d-d\,\text{Sin}[e+f\,x]}{c-d}}\sqrt{\frac{d-d\,\text{Sin}[e+f\,x]}{c+d}}\left(c+d\,\text{Sin}[e+f\,x]\right)^{4/3}\right)+\frac{1}{f}\left(c+d\,\text{Sin}[e+f\,x]\right)^{1/3}$$
$$\left(-\frac{3\left(12\,b\,c^3-26\,a\,c^2\,d+113\,b\,c\,d^2+91\,a\,d^3\right)\text{Cos}[e+f\,x]}{1820\,d^2}-\frac{3}{520}\left(14\,b\,c+13\,a\,d\right)\text{Cos}\left[3\left(e+f\,x\right)\right]+\right.$$
$$\left.\frac{3\left(4\,b\,c^2+143\,a\,c\,d+5\,b\,d^2\right)\text{Sin}\left[2\left(e+f\,x\right)\right]}{1820\,d}-\frac{3}{104}\,b\,d\,\text{Sin}\left[4\left(e+f\,x\right)\right]\right)$$

Problem 1518: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f\,x]^2\,(c+d\,\text{Sin}[e+f\,x])^{4/3}\,dx$$

Optimal (type 6, 125 leaves, 2 steps):

$$\left(3\,\text{AppellF1}\left[\frac{7}{3},-\frac{1}{2},-\frac{1}{2},\frac{10}{3},\frac{c+d\,\text{Sin}[e+f\,x]}{c-d},\frac{c+d\,\text{Sin}[e+f\,x]}{c+d}\right]\text{Cos}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^{7/3}\right)\Big/\left(7\,d\,f\,\sqrt{1-\frac{c+d\,\text{Sin}[e+f\,x]}{c-d}}\,\sqrt{1-\frac{c+d\,\text{Sin}[e+f\,x]}{c+d}}\right)$$

Result (type 6, 301 leaves):

$$-\frac{1}{1120\,d^3\,f}3\,\text{Sec}[e+f\,x]\,(c+d\,\text{Sin}[e+f\,x])^{1/3}\left(12\,(4\,c^4+3\,c^2\,d^2-7\,d^4)\,\text{AppellF1}\left[\frac{1}{3},\frac{1}{2},\frac{1}{2},\frac{4}{3},\frac{c+d\,\text{Sin}[e+f\,x]}{c-d},\frac{c+d\,\text{Sin}[e+f\,x]}{c+d}\right]\sqrt{-\frac{d\,(-1+\text{Sin}[e+f\,x])}{c+d}}\,\sqrt{-\frac{d\,(1+\text{Sin}[e+f\,x])}{c-d}}-3\,c\,(4\,c^2+51\,d^2)\,\text{AppellF1}\left[\frac{4}{3},\frac{1}{2},\frac{1}{2},\frac{7}{3},\frac{c+d\,\text{Sin}[e+f\,x]}{c-d},\frac{c+d\,\text{Sin}[e+f\,x]}{c+d}\right]\sqrt{-\frac{d\,(-1+\text{Sin}[e+f\,x])}{c+d}}\,\sqrt{-\frac{d\,(1+\text{Sin}[e+f\,x])}{c-d}}\,(c+d\,\text{Sin}[e+f\,x])+4\,d^2\,\text{Cos}[e+f\,x]^2\,(-4\,c^2+7\,d^2+14\,d^2\,\text{Cos}[2\,(e+f\,x)]-44\,c\,d\,\text{Sin}[e+f\,x])\right)$$

Problem 1523: Unable to integrate problem.

$$\int \text{Cos}[e+f\,x]^2\,(a+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Sin}[e+f\,x])^n\,dx$$

Optimal (type 6, 552 leaves, 11 steps):

$$\left(\left(2 a^2 d^2 (3+n) - 4 a b c d (4+n) + b^2 \left(6 c^2 - d^2 (3+n)\right)\right) \text{Cos}[e+f x] (c+d \text{Sin}[e+f x])^{1+n}\right) \Big/ \left(d^3 f (2+n) (3+n) (4+n)\right) - \frac{b (3 b c - 2 a d) \text{Cos}[e+f x] \text{Sin}[e+f x] (c+d \text{Sin}[e+f x])^{1+n}}{d^2 f (3+n) (4+n)} + \frac{\text{Cos}[e+f x] (a+b \text{Sin}[e+f x])^2 (c+d \text{Sin}[e+f x])^{1+n}}{d f (4+n)} - \left(\sqrt{2} (c+d) \left(a^2 c d^2 \left(12+7 n+n^2\right) - 2 a b d (4+n) \left(2 c^2 - d^2 (2+n)\right) + b^2 c \left(6 c^2 - d^2 \left(3-n-n^2\right)\right)\right) \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -1-n, \frac{3}{2}, \frac{1}{2} (1-\text{Sin}[e+f x]), \frac{d (1-\text{Sin}[e+f x])}{c+d}\right] \text{Cos}[e+f x] (c+d \text{Sin}[e+f x])^n \left(\frac{c+d \text{Sin}[e+f x]}{c+d}\right)^{-n}\right) \Big/ \left(d^4 f (2+n) (3+n) (4+n) \sqrt{1+\text{Sin}[e+f x]}\right) - \left(\sqrt{2} \left(c^2-d^2\right) \left(4 a b c d (4+n) - a^2 d^2 \left(12+7 n+n^2\right) - b^2 \left(6 c^2 + d^2 \left(3+4 n+n^2\right)\right)\right) \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -n, \frac{3}{2}, \frac{1}{2} (1-\text{Sin}[e+f x]), \frac{d (1-\text{Sin}[e+f x])}{c+d}\right] \text{Cos}[e+f x] (c+d \text{Sin}[e+f x])^n \left(\frac{c+d \text{Sin}[e+f x]}{c+d}\right)^{-n}\right) \Big/ \left(d^4 f (2+n) (3+n) (4+n) \sqrt{1+\text{Sin}[e+f x]}\right)$$

Result (type 8, 35 leaves):

$$\int \text{Cos}[e+f x]^2 (a+b \text{Sin}[e+f x])^2 (c+d \text{Sin}[e+f x])^n \, dx$$

Problem 1524: Unable to integrate problem.

$$\int \text{Cos}[e+f x]^2 (a+b \text{Sin}[e+f x]) (c+d \text{Sin}[e+f x])^n \, dx$$

Optimal (type 6, 375 leaves, 10 steps):

$$-\frac{(2 b c - a d (3+n)) \text{Cos}[e+f x] (c+d \text{Sin}[e+f x])^{1+n}}{d^2 f (2+n) (3+n)} + \frac{b \text{Cos}[e+f x] \text{Sin}[e+f x] (c+d \text{Sin}[e+f x])^{1+n}}{d f (3+n)} - \left(\sqrt{2} (c+d) \left(a c d (3+n) - b \left(2 c^2 - d^2 (2+n)\right)\right) \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -1-n, \frac{3}{2}, \frac{1}{2} (1-\text{Sin}[e+f x]), \frac{d (1-\text{Sin}[e+f x])}{c+d}\right] \text{Cos}[e+f x] (c+d \text{Sin}[e+f x])^n \left(\frac{c+d \text{Sin}[e+f x]}{c+d}\right)^{-n}\right) \Big/ \left(d^3 f (2+n) (3+n) \sqrt{1+\text{Sin}[e+f x]}\right) - \left(\sqrt{2} \left(c^2-d^2\right) (2 b c - a d (3+n)) \text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, -n, \frac{3}{2}, \frac{1}{2} (1-\text{Sin}[e+f x]), \frac{d (1-\text{Sin}[e+f x])}{c+d}\right] \text{Cos}[e+f x] (c+d \text{Sin}[e+f x])^n \left(\frac{c+d \text{Sin}[e+f x]}{c+d}\right)^{-n}\right) \Big/ \left(d^3 f (2+n) (3+n) \sqrt{1+\text{Sin}[e+f x]}\right)$$

Result (type 8, 33 leaves):

$$\int \text{Cos}[e+f x]^2 \,(a+b\,\text{Sin}[e+f x])\,(c+d\,\text{Sin}[e+f x])^n\,dx$$

Problem 1525: Unable to integrate problem.

$$\int \text{Cos}[e+f x]^2 \,(c+d\,\text{Sin}[e+f x])^n\,dx$$

Optimal (type 6, 127 leaves, 2 steps):

$$\left(\text{AppellF1}\left[1+n,-\frac{1}{2},-\frac{1}{2},2+n,\frac{c+d\,\text{Sin}[e+f x]}{c-d},\frac{c+d\,\text{Sin}[e+f x]}{c+d}\right]\text{Cos}[e+f x]\,(c+d\,\text{Sin}[e+f x])^{1+n}\right)\Bigg/\left(d\,f\,(1+n)\sqrt{1-\frac{c+d\,\text{Sin}[e+f x]}{c-d}}\sqrt{1-\frac{c+d\,\text{Sin}[e+f x]}{c+d}}\right)$$

Result (type 8, 23 leaves):

$$\int \text{Cos}[e+f x]^2 \,(c+d\,\text{Sin}[e+f x])^n\,dx$$

Problem 1532: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]\,(a+b\,\text{Sin}[c+d x])\,(A+B\,\text{Sin}[c+d x])\,dx$$

Optimal (type 3, 64 leaves, 5 steps):

$$-\frac{(a+b)\,(A+B)\,\text{Log}[1-\text{Sin}[c+d x]]}{2\,d}+\frac{(a-b)\,(A-B)\,\text{Log}[1+\text{Sin}[c+d x]]}{2\,d}-\frac{b\,B\,\text{Sin}[c+d x]}{d}$$

Result (type 3, 172 leaves):

$$-\frac{A\,b\,\text{Log}[\text{Cos}[c+d x]]}{d}-\frac{a\,B\,\text{Log}[\text{Cos}[c+d x]]}{d}-\frac{a\,A\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}+\frac{a\,A\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}-\frac{b\,B\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}+\frac{b\,B\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}-\frac{b\,B\,\text{Sin}[c+d x]}{d}$$

Problem 1533: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^3\,(a+b\,\text{Sin}[c+d x])\,(A+B\,\text{Sin}[c+d x])\,dx$$

Optimal (type 3, 59 leaves, 3 steps):

$$\frac{(a\,A-b\,B)\,\text{ArcTanh}[\text{Sin}[c+d x]]}{2\,d}+\frac{\text{Sec}[c+d x]^2\,(A\,b+a\,B+(a\,A+b\,B)\,\text{Sin}[c+d x])}{2\,d}$$

Result (type 3, 141 leaves):

$$\frac{1}{4 d}\left(2 (-a A+b B) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+2 (a A-b B) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\frac{(a+b) (A+B)}{\left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{(a-b) (A-B)}{\left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)$$

Problem 1534: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^5 (a+b \operatorname{Sin}[c+d x]) (A+B \operatorname{Sin}[c+d x]) \, dx$$

Optimal (type 3, 88 leaves, 4 steps):

$$\frac{(3 a A-b B) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{8 d}+\frac{\operatorname{Sec}[c+d x]^4 (A b+a B+(a A+b B) \operatorname{Sin}[c+d x])}{4 d}+\frac{(3 a A-b B) \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{8 d}$$

Result (type 3, 220 leaves):

$$\frac{1}{16 d}\left(2 (-3 a A+b B) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+2 (3 a A-b B) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\frac{(a+b) (A+B)}{\left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{b (A-B)+a (3 A+B)}{\left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{(a-b) (A-B)}{\left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{a (-3 A+B)+b (A+B)}{\left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)$$

Problem 1535: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^7 (a+b \operatorname{Sin}[c+d x]) (A+B \operatorname{Sin}[c+d x]) \, dx$$

Optimal (type 3, 118 leaves, 5 steps):

$$\frac{(5 a A-b B) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{16 d}+\frac{\operatorname{Sec}[c+d x]^6 (A b+a B+(a A+b B) \operatorname{Sin}[c+d x])}{6 d}+\frac{(5 a A-b B) \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{16 d}+\frac{(5 a A-b B) \operatorname{Sec}[c+d x]^3 \operatorname{Tan}[c+d x]}{24 d}$$

Result (type 3, 297 leaves):

$$\frac{1}{96\,d}\left(6\,(-5\,a\,A+b\,B)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$
$$6\,(5\,a\,A-b\,B)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$\frac{2\,(a+b)\,(A+B)}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{3\,(A\,b+a\,(2\,A+B))}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+$$
$$\frac{3\,(b\,(A-B)+a\,(5\,A+B))}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{2\,(a-b)\,(A-B)}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+$$
$$\left.\frac{3\,(A\,b+a\,(-2\,A+B))}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{3\,(a\,(-5\,A+B)+b\,(A+B))}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 1542: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^5\,(a+b\,\mathrm{Sin}[c+d\,x])^2\,(A+B\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 122 leaves, 4 steps):

$$\frac{(3\,a^2\,A-A\,b^2-2\,a\,b\,B)\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,d}+$$
$$\frac{\mathrm{Sec}[c+d\,x]^4\,(B+A\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Sin}[c+d\,x])^2}{4\,d}+$$
$$\frac{\mathrm{Sec}[c+d\,x]^2\,(2\,b\,(2\,a\,A-b\,B)+(3\,a^2\,A+A\,b^2-2\,a\,b\,B)\,\mathrm{Sin}[c+d\,x])}{8\,d}$$

Result (type 3, 255 leaves):

$$\frac{1}{16\,d}\left(2\,(-3\,a^2\,A+A\,b^2+2\,a\,b\,B)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$
$$2\,(3\,a^2\,A-A\,b^2-2\,a\,b\,B)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$
$$\frac{(a+b)^2\,(A+B)}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{(a+b)\,(a\,(3\,A+B)-b\,(A+3\,B))}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-$$
$$\left.\frac{(a-b)^2\,(A-B)}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{(a-b)\,(3\,a\,A+A\,b-a\,B-3\,b\,B)}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 1543: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^7\,(a+b\,\mathrm{Sin}[c+d\,x])^2\,(A+B\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 160 leaves, 5 steps):

$$\frac{\left(5 a^2 A-A b^2-2 a b B\right) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{16 d}+\frac{\operatorname{Sec}[c+d x]^6 (B+A \operatorname{Sin}[c+d x]) (a+b \operatorname{Sin}[c+d x])^2}{6 d}+\frac{\operatorname{Sec}[c+d x]^4 \left(2 b (4 a A-b B)+\left(5 a^2 A+3 A b^2-2 a b B\right) \operatorname{Sin}[c+d x]\right)}{24 d}+\frac{\left(5 a^2 A-A b^2-2 a b B\right) \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{16 d}$$

Result (type 3, 459 leaves):

$$\frac{\left(-5 a^2 A+A b^2+2 a b B\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{16 d}+\frac{\left(5 a^2 A-A b^2-2 a b B\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{16 d}+\frac{a^2 A+2 a A b+A b^2+a^2 B+2 a b B+b^2 B}{48 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{2 a^2 A+2 a A b+a^2 B-b^2 B}{32 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{5 a^2 A+2 a A b-A b^2+a^2 B-2 a b B-b^2 B}{32 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}+\frac{-a^2 A+2 a A b-A b^2+a^2 B-2 a b B+b^2 B}{48 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{-2 a^2 A+2 a A b+a^2 B-b^2 B}{32 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{-5 a^2 A+2 a A b+A b^2+a^2 B+2 a b B-b^2 B}{32 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}$$

Problem 1557: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Sec}[c+d x]^3 (A+B \operatorname{Sin}[c+d x])}{(a+b \operatorname{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 228 leaves, 4 steps):

$$-\frac{(a A+3 A b+2 b B) \operatorname{Log}[1-\operatorname{Sin}[c+d x]]}{4 (a+b)^3 d}+\frac{(a A-3 A b+2 b B) \operatorname{Log}[1+\operatorname{Sin}[c+d x]]}{4 (a-b)^3 d}+\frac{b^2 \left(4 a A b-3 a^2 B-b^2 B\right) \operatorname{Log}[a+b \operatorname{Sin}[c+d x]]}{\left(a^2-b^2\right)^3 d}-\frac{b \left(a^2 A+3 A b^2-4 a b B\right)}{2 \left(a^2-b^2\right)^2 d (a+b \operatorname{Sin}[c+d x])}-\frac{\operatorname{Sec}[c+d x]^2 (A b-a B-(a A-b B) \operatorname{Sin}[c+d x])}{2 \left(a^2-b^2\right) d (a+b \operatorname{Sin}[c+d x])}$$

Result (type 3, 347 leaves):

$$\frac{1}{4d}\left(\frac{8\,i\,b^2\left(-4\,a\,A\,b+3\,a^2\,B+b^2\,B\right)\left(c+d\,x\right)}{\left(a-b\right)^3\left(a+b\right)^3}+\right.$$

$$\frac{2\,i\left(a\,A-3\,A\,b+2\,b\,B\right)\,\text{ArcTan}[\text{Cot}[c+d\,x]]}{\left(a-b\right)^3}-\frac{2\,i\left(a\,A+3\,A\,b+2\,b\,B\right)\,\text{ArcTan}[\text{Cot}[c+d\,x]]}{\left(a+b\right)^3}-$$

$$\frac{\left(a\,A+3\,A\,b+2\,b\,B\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2\right]}{\left(a+b\right)^3}+$$

$$\frac{\left(a\,A-3\,A\,b+2\,b\,B\right)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2\right]}{\left(a-b\right)^3}+$$

$$\frac{4\,b^2\left(-4\,a\,A\,b+3\,a^2\,B+b^2\,B\right)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{\left(-a^2+b^2\right)^3}+$$

$$\frac{A+B}{\left(a+b\right)^2\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2}+$$

$$\left.\frac{-A+B}{\left(a-b\right)^2\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2}+\frac{4\,b^2\left(-A\,b+a\,B\right)}{\left(a-b\right)^2\left(a+b\right)^2\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)$$

Problem 1558: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sec}[c+d\,x]^5\left(A+B\,\text{Sin}[c+d\,x]\right)}{\left(a+b\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 372 leaves, 5 steps):

$$-\frac{\left(3\,a^2\,A+2\,a\,b\,\left(6\,A+B\right)+b^2\left(15\,A+8\,B\right)\right)\,\text{Log}[1-\text{Sin}[c+d\,x]]}{16\left(a+b\right)^4d}+$$

$$\frac{\left(3\,a^2\,A+b^2\left(15\,A-8\,B\right)-2\,a\,b\,\left(6\,A-B\right)\right)\,\text{Log}[1+\text{Sin}[c+d\,x]]}{16\left(a-b\right)^4d}-$$

$$\frac{b^4\left(6\,a\,A\,b-5\,a^2\,B-b^2\,B\right)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{\left(a^2-b^2\right)^4d}-\frac{b\left(3\,a^4\,A-12\,a^2\,A\,b^2-15\,A\,b^4+2\,a^3\,b\,B+22\,a\,b^3\,B\right)}{8\left(a^2-b^2\right)^3d\left(a+b\,\text{Sin}[c+d\,x]\right)}-$$

$$\frac{\text{Sec}[c+d\,x]^4\left(A\,b-a\,B-\left(a\,A-b\,B\right)\,\text{Sin}[c+d\,x]\right)}{4\left(a^2-b^2\right)d\left(a+b\,\text{Sin}[c+d\,x]\right)}+$$

$$\left(\text{Sec}[c+d\,x]^2\left(b\left(a^2\,A+5\,A\,b^2-6\,a\,b\,B\right)+\left(3\,a^3\,A-9\,a\,A\,b^2+2\,a^2\,b\,B+4\,b^3\,B\right)\,\text{Sin}[c+d\,x]\right)\right)\Big/\left(8\left(a^2-b^2\right)^2d\left(a+b\,\text{Sin}[c+d\,x]\right)\right)$$

Result (type 3, 642 leaves):

$$\frac{1}{64\, d}\left(-\frac{128\, i\, b^4\, \left(-6\, a\, A\, b+5\, a^2\, B+b^2\, B\right)\, (c+d\, x)}{(a-b)^4\, (a+b)^4}+\frac{8\, i\, \left(3\, a^2\, A+b^2\, (15\, A-8\, B)+2\, a\, b\, (-6\, A+B)\right)\, \text{ArcTan}[\text{Cot}[c+d\, x]]}{(a-b)^4}-\frac{8\, i\, \left(3\, a^2\, A+2\, a\, b\, (6\, A+B)+b^2\, (15\, A+8\, B)\right)\, \text{ArcTan}[\text{Cot}[c+d\, x]]}{(a+b)^4}-\frac{1}{(a+b)^4}4\, \left(3\, a^2\, A+2\, a\, b\, (6\, A+B)+b^2\, (15\, A+8\, B)\right)\, \text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]-\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^2\right]+\frac{1}{(a-b)^4}4\, \left(3\, a^2\, A+b^2\, (15\, A-8\, B)+2\, a\, b\, (-6\, A+B)\right)\, \text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\, (c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (c+d\, x)\right]\right)^2\right]+\frac{64\, b^4\, \left(-6\, a\, A\, b+5\, a^2\, B+b^2\, B\right)\, \text{Log}[a+b\, \text{Sin}[c+d\, x]]}{\left(a^2-b^2\right)^4}+\frac{1}{\left(a^2-b^2\right)^3\, (a+b\, \text{Sin}[c+d\, x])}\text{Sec}[c+d\, x]^4\, \left(-21\, a^4\, A\, b+84\, a^2\, A\, b^3+9\, A\, b^5+16\, a^5\, B-62\, a^3\, b^2\, B-26\, a\, b^4\, B-8\, b\, \left(a^4\, A-8\, a^2\, A\, b^2-5\, A\, b^4+4\, a^3\, b\, B+8\, a\, b^3\, B\right)\, \text{Cos}[2\, (c+d\, x)]+b\, \left(-3\, a^4\, A+12\, a^2\, A\, b^2+15\, A\, b^4-2\, a^3\, b\, B-22\, a\, b^3\, B\right)\, \text{Cos}[4\, (c+d\, x)]+22\, a^5\, A\, \text{Sin}[c+d\, x]-56\, a^3\, A\, b^2\, \text{Sin}[c+d\, x]+34\, a\, A\, b^4\, \text{Sin}[c+d\, x]-12\, a^4\, b\, B\, \text{Sin}[c+d\, x]+36\, a^2\, b^3\, B\, \text{Sin}[c+d\, x]-24\, b^5\, B\, \text{Sin}[c+d\, x]+6\, a^5\, A\, \text{Sin}[3\, (c+d\, x)]-24\, a^3\, A\, b^2\, \text{Sin}[3\, (c+d\, x)]+18\, a\, A\, b^4\, \text{Sin}[3\, (c+d\, x)]+4\, a^4\, b\, B\, \text{Sin}[3\, (c+d\, x)]+4\, a^2\, b^3\, B\, \text{Sin}[3\, (c+d\, x)]-8\, b^5\, B\, \text{Sin}[3\, (c+d\, x)]\right)\right)$$

Problem 1559: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d\, x]^7\, (A+B\, \text{Sin}[c+d\, x])}{(a+b\, \text{Sin}[c+d\, x])^2}\, dx$$

Optimal (type 3, 550 leaves, 6 steps):

$$-\frac{1}{32\,(a+b)^5\,d}\left(5\,a^3\,A+a^2\,b\,(25\,A+2\,B)+a\,b^2\,(47\,A+10\,B)+b^3\,(35\,A+16\,B)\right)\,\text{Log}[1-\text{Sin}[c+d\,x]]+\frac{1}{32\,(a-b)^5\,d}\left(5\,a^3\,A-b^3\,(35\,A-16\,B)+a\,b^2\,(47\,A-10\,B)-a^2\,(25\,A\,b-2\,b\,B)\right)\,\text{Log}[1+\text{Sin}[c+d\,x]]+\frac{b^6\,(8\,a\,A\,b-7\,a^2\,B-b^2\,B)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{(a^2-b^2)^5\,d}-\left(b\,(5\,a^6\,A-23\,a^4\,A\,b^2+47\,a^2\,A\,b^4+35\,A\,b^6+2\,a^5\,b\,B-12\,a^3\,b^3\,B-54\,a\,b^5\,B)\right)\Big/\left(16\,(a^2-b^2)^4\,d\,(a+b\,\text{Sin}[c+d\,x])\right)-\frac{\text{Sec}[c+d\,x]^6\,\left(A\,b-a\,B-(a\,A-b\,B)\,\text{Sin}[c+d\,x]\right)}{6\,(a^2-b^2)\,d\,(a+b\,\text{Sin}[c+d\,x])}+\left(\text{Sec}[c+d\,x]^4\,\left(b\,(a^2\,A+7\,A\,b^2-8\,a\,b\,B)+(5\,a^3\,A-13\,a\,A\,b^2+2\,a^2\,b\,B+6\,b^3\,B)\,\text{Sin}[c+d\,x]\right)\right)\Big/\left(24\,(a^2-b^2)^2\,d\,(a+b\,\text{Sin}[c+d\,x])\right)+\left(\text{Sec}[c+d\,x]^2\,\left(b\,(5\,a^4\,A-18\,a^2\,A\,b^2-35\,A\,b^4+2\,a^3\,b\,B+46\,a\,b^3\,B)+3\,(5\,a^5\,A-18\,a^3\,A\,b^2+29\,a\,A\,b^4+2\,a^4\,b\,B-10\,a^2\,b^3\,B-8\,b^5\,B)\,\text{Sin}[c+d\,x]\right)\right)\Big/\left(48\,(a^2-b^2)^3\,d\,(a+b\,\text{Sin}[c+d\,x])\right)$$

Result (type 3, 1293 leaves) :

$$\frac{2\,i\,\left(-8\,a\,A\,b^7+7\,a^2\,b^6\,B+b^8\,B\right)\,(c+d\,x)}{(a-b)^5\,(a+b)^5\,d}+\frac{1}{16\,(a+b)^5\,d}$$
$$i\,\left(-5\,a^3\,A-25\,a^2\,A\,b-47\,a\,A\,b^2-35\,A\,b^3-2\,a^2\,b\,B-10\,a\,b^2\,B-16\,b^3\,B\right)\,\text{ArcTan}\Big[$$
$$\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big]+$$
$$\frac{1}{16\,(a-b)^5\,d}\,i\,\left(5\,a^3\,A-25\,a^2\,A\,b+47\,a\,A\,b^2-35\,A\,b^3+2\,a^2\,b\,B-10\,a\,b^2\,B+16\,b^3\,B\right)\,\text{ArcTan}\Big[$$
$$\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big]+$$
$$\frac{1}{32\,(a+b)^5\,d}\left(-5\,a^3\,A-25\,a^2\,A\,b-47\,a\,A\,b^2-35\,A\,b^3-2\,a^2\,b\,B-10\,a\,b^2\,B-16\,b^3\,B\right)$$
$$\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]+\frac{1}{32\,(a-b)^5\,d}$$
$$\left(5\,a^3\,A-25\,a^2\,A\,b+47\,a\,A\,b^2-35\,A\,b^3+2\,a^2\,b\,B-10\,a\,b^2\,B+16\,b^3\,B\right)$$
$$\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]+$$
$$\frac{\left(8\,a\,A\,b^7-7\,a^2\,b^6\,B-b^8\,B\right)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{\left(a^2-b^2\right)^5\,d}+\frac{1}{1536\,\left(a^2-b^2\right)^4\,d\,(a+b\,\text{Sin}[c+d\,x])}$$
$$\text{Sec}[c+d\,x]^6\,\Big(-314\,a^6\,A\,b+1342\,a^4\,A\,b^3-2798\,a^2\,A\,b^5-150\,A\,b^7+256\,a^7\,B-1060\,a^5\,b^2\,B+$$
$$2168\,a^3\,b^4\,B+556\,a\,b^6\,B-113\,a^6\,A\,b\,\text{Cos}[2\,(c+d\,x)]+827\,a^4\,A\,b^3\,\text{Cos}[2\,(c+d\,x)]-$$
$$2803\,a^2\,A\,b^5\,\text{Cos}[2\,(c+d\,x)]-791\,A\,b^7\,\text{Cos}[2\,(c+d\,x)]-314\,a^5\,b^2\,B\,\text{Cos}[2\,(c+d\,x)]+$$
$$1756\,a^3\,b^4\,B\,\text{Cos}[2\,(c+d\,x)]+1438\,a\,b^6\,B\,\text{Cos}[2\,(c+d\,x)]-70\,a^6\,A\,b\,\text{Cos}[4\,(c+d\,x)]+$$
$$322\,a^4\,A\,b^3\,\text{Cos}[4\,(c+d\,x)]-914\,a^2\,A\,b^5\,\text{Cos}[4\,(c+d\,x)]-490\,A\,b^7\,\text{Cos}[4\,(c+d\,x)]-$$
$$28\,a^5\,b^2\,B\,\text{Cos}[4\,(c+d\,x)]+392\,a^3\,b^4\,B\,\text{Cos}[4\,(c+d\,x)]+788\,a\,b^6\,B\,\text{Cos}[4\,(c+d\,x)]-$$
$$15\,a^6\,A\,b\,\text{Cos}[6\,(c+d\,x)]+69\,a^4\,A\,b^3\,\text{Cos}[6\,(c+d\,x)]-141\,a^2\,A\,b^5\,\text{Cos}[6\,(c+d\,x)]-$$
$$105\,A\,b^7\,\text{Cos}[6\,(c+d\,x)]-6\,a^5\,b^2\,B\,\text{Cos}[6\,(c+d\,x)]+36\,a^3\,b^4\,B\,\text{Cos}[6\,(c+d\,x)]+$$
$$162\,a\,b^6\,B\,\text{Cos}[6\,(c+d\,x)]+396\,a^7\,A\,\text{Sin}[c+d\,x]-1412\,a^5\,A\,b^2\,\text{Sin}[c+d\,x]+$$
$$1828\,a^3\,A\,b^4\,\text{Sin}[c+d\,x]-812\,a\,A\,b^6\,\text{Sin}[c+d\,x]-200\,a^6\,b\,B\,\text{Sin}[c+d\,x]+656\,a^4\,b^3\,B$$
$$\text{Sin}[c+d\,x]-904\,a^2\,b^5\,B\,\text{Sin}[c+d\,x]+448\,b^7\,B\,\text{Sin}[c+d\,x]+170\,a^7\,A\,\text{Sin}[3\,(c+d\,x)]-$$
$$782\,a^5\,A\,b^2\,\text{Sin}[3\,(c+d\,x)]+1342\,a^3\,A\,b^4\,\text{Sin}[3\,(c+d\,x)]-730\,a\,A\,b^6\,\text{Sin}[3\,(c+d\,x)]+$$
$$68\,a^6\,b\,B\,\text{Sin}[3\,(c+d\,x)]-184\,a^4\,b^3\,B\,\text{Sin}[3\,(c+d\,x)]-124\,a^2\,b^5\,B\,\text{Sin}[3\,(c+d\,x)]+$$
$$240\,b^7\,B\,\text{Sin}[3\,(c+d\,x)]+30\,a^7\,A\,\text{Sin}[5\,(c+d\,x)]-138\,a^5\,A\,b^2\,\text{Sin}[5\,(c+d\,x)]+$$
$$282\,a^3\,A\,b^4\,\text{Sin}[5\,(c+d\,x)]-174\,a\,A\,b^6\,\text{Sin}[5\,(c+d\,x)]+12\,a^6\,b\,B\,\text{Sin}[5\,(c+d\,x)]-$$
$$72\,a^4\,b^3\,B\,\text{Sin}[5\,(c+d\,x)]+12\,a^2\,b^5\,B\,\text{Sin}[5\,(c+d\,x)]+48\,b^7\,B\,\text{Sin}[5\,(c+d\,x)]\Big)$$

Problem 1561: Result more than twice size of optimal antiderivative.

$$\int\frac{(g\,\text{Cos}[e+f\,x])^p}{(a+b\,\text{Sin}[e+f\,x])\,(c+d\,\text{Sin}[e+f\,x])}\,dx$$

Optimal (type 6, 330 leaves, 4 steps):

$$-\left(\left(g\,\text{AppellF1}\left[1-p,\frac{1-p}{2},\frac{1-p}{2},2-p,\frac{a+b}{a+b\,\text{Sin}[e+f\,x]},\frac{a-b}{a+b\,\text{Sin}[e+f\,x]}\right]\,(g\,\text{Cos}[e+f\,x])^{-1+p}\right.\right.$$
$$\left.\left.\left(-\frac{b\,(1-\text{Sin}[e+f\,x])}{a+b\,\text{Sin}[e+f\,x]}\right)^{\frac{1-p}{2}}\left(\frac{b\,(1+\text{Sin}[e+f\,x])}{a+b\,\text{Sin}[e+f\,x]}\right)^{\frac{1-p}{2}}\right)\Big/\left((b\,c-a\,d)\,f\,(1-p)\right)\right)+$$
$$\left(g\,\text{AppellF1}\left[1-p,\frac{1-p}{2},\frac{1-p}{2},2-p,\frac{c+d}{c+d\,\text{Sin}[e+f\,x]},\frac{c-d}{c+d\,\text{Sin}[e+f\,x]}\right]\right.$$
$$\left.(g\,\text{Cos}[e+f\,x])^{-1+p}\left(-\frac{d\,(1-\text{Sin}[e+f\,x])}{c+d\,\text{Sin}[e+f\,x]}\right)^{\frac{1-p}{2}}\left(\frac{d\,(1+\text{Sin}[e+f\,x])}{c+d\,\text{Sin}[e+f\,x]}\right)^{\frac{1-p}{2}}\right)\Big/\left((b\,c-a\,d)\,f\,(1-p)\right)$$

Result (type 6, 9347 leaves):

$$-\left(\left(a^2\,b^2\,(g\,\text{Cos}[e+f\,x])^p\,\text{Tan}[e+f\,x]\,\left(1+\text{Tan}[e+f\,x]^2\right)^{-p/2}\right.\right.$$
$$\left(-\left(\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\Big/\right.\right.$$
$$\left(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left(2\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$
$$\left(2\,b\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[e+f\,x]^2}{a^2}\right]\text{Tan}[e+f\,x]\right)\Big/$$
$$\left(\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left(2\,(a^2-b^2)\,\text{AppellF1}\left[2,\frac{1+p}{2},2,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$a^2\,(1+p)\,\text{AppellF1}\left[2,\frac{3+p}{2},1,3,-\text{Tan}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)\right)\right)\Big/$$
$$\left((b\,c-a\,d)\,(-b\,c+a\,d)\,f\,(a+b\,\text{Sin}[e+f\,x])\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right.$$
$$\left(-\frac{1}{(b\,c-a\,d)\,\left(-b^2\,\text{Tan}[e+f\,x]^2+a^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)^2}\,a^2\,b\,\text{Tan}[e+f\,x]\right.$$
$$\left(2\,a^2\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-2\,b^2\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\,\left(1+\text{Tan}[e+f\,x]^2\right)^{-p/2}$$

$$\left(-\left(\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)\Big/\left(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)+\left(2\,b\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\text{Tan}[e+f x]\right)\Big/\left(\sqrt{1+\text{Tan}[e+f x]^2}\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1+p}{2},2,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\left(1+p\right)\text{AppellF1}\left[2,\frac{3+p}{2},1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\frac{1}{\left(b\,c-a\,d\right)\left(-b^2\,\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)}a^2\,b\,p\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^2\left(1+\text{Tan}[e+f x]^2\right)^{-1-\frac{p}{2}}$$

$$\left(-\left(\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)\Big/\left(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)+\left(2\,b\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\right]\text{Tan}[e+f x]\right)\Big/\left(\sqrt{1+\text{Tan}[e+f x]^2}\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1+p}{2},2,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\right]+a^2\left(1+p\right)\text{AppellF1}\left[2,\frac{3+p}{2},1,3,-\text{Tan}[e+f x]^2,\right.\right.\right.\right.$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Big)\text{Tan}[e+f x]^2\Big)\Big)\Big)\Big)+$$

$$\frac{1}{(b c-a d)\left(-b^2\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)}a^2 b\,\text{Sec}[e+f x]^2$$

$$\left(1+\text{Tan}[e+f x]^2\right)^{-p/2}$$

$$\Bigg(-\Bigg(\Bigg(3 a\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)\Bigg/$$

$$\Bigg(-3 a^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2 p\,\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\Bigg)+\Bigg(2 b\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,$$

$$\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\Big]\text{Tan}[e+f x]\Bigg)\Bigg/\Bigg(\sqrt{1+\text{Tan}[e+f x]^2}$$

$$\Bigg(-4 a^2\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2(1+p)\,\text{AppellF1}\Big[2,\frac{3+p}{2},1,3,-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)\text{Tan}[e+f x]^2\Bigg)\Bigg)\Bigg)+$$

$$\frac{1}{(b c-a d)\left(-b^2\text{Tan}[e+f x]^2+a^2\left(1+\text{Tan}[e+f x]^2\right)\right)}a^2 b\,\text{Tan}[e+f x]$$

$$\left(1+\text{Tan}[e+f x]^2\right)^{-p/2}$$

$$\Bigg(-\Bigg(\Bigg(3 a\left(-\frac{1}{3}p\,\text{AppellF1}\Big[\frac{3}{2},1+\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\right.$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+\frac{2}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},$$

$$\left.-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\Bigg)\Bigg/$$

$$\Bigg(-3 a^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$a^2 p\,\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Tan}[e+f x]^2\Bigg)\Bigg)-\Bigg(2 b\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,$$

$$\frac{\left(-a^2+b^2\right)\,\mathrm{Tan}[e+f x]^2}{a^2}\Big]\,\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]^2\Bigg)\Bigg/$$

$$\Bigg(\left(1+\mathrm{Tan}[e+f x]^2\right)^{3/2}\Bigg(-4\,a^2\,\mathrm{AppellF1}\Big[1,\,\frac{1+p}{2},\,1,\,2,\,-\mathrm{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]+\Bigg(2\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[2,\,\frac{1+p}{2},\,2,\,3,$$

$$-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]+a^2\,(1+p)\,\mathrm{AppellF1}\Big[2,$$

$$\frac{3+p}{2},\,1,\,3,\,-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]\Bigg)\,\mathrm{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,b\,\mathrm{AppellF1}\Big[1,\,\frac{1+p}{2},\,1,\,2,\,-\mathrm{Tan}[e+f x]^2,\,\frac{\left(-a^2+b^2\right)\,\mathrm{Tan}[e+f x]^2}{a^2}\Big]$$

$$\mathrm{Sec}[e+f x]^2\Bigg)\Bigg/\Bigg(\sqrt{1+\mathrm{Tan}[e+f x]^2}\,\Bigg(-4\,a^2\,\mathrm{AppellF1}\Big[1,\,\frac{1+p}{2},\,1,\,2,$$

$$-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]+\Bigg(2\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[2,\,\frac{1+p}{2},$$

$$2,\,3,\,-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]+a^2\,(1+p)\,\mathrm{AppellF1}\Big[2,$$

$$\frac{3+p}{2},\,1,\,3,\,-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]\Bigg)\,\mathrm{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,b\,\mathrm{Tan}[e+f x]\,\Bigg(\frac{1}{a^2}\left(-a^2+b^2\right)\,\mathrm{AppellF1}\Big[2,\,\frac{1+p}{2},\,2,\,3,\,-\mathrm{Tan}[e+f x]^2,$$

$$\frac{\left(-a^2+b^2\right)\,\mathrm{Tan}[e+f x]^2}{a^2}\Big]\,\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]-$$

$$\frac{1}{2}\,(1+p)\,\mathrm{AppellF1}\Big[2,\,1+\frac{1+p}{2},\,1,\,3,\,-\mathrm{Tan}[e+f x]^2,$$

$$\frac{\left(-a^2+b^2\right)\,\mathrm{Tan}[e+f x]^2}{a^2}\Big]\,\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{1+\mathrm{Tan}[e+f x]^2}\,\Bigg(-4\,a^2\,\mathrm{AppellF1}\Big[1,\,\frac{1+p}{2},\,1,\,2,\,-\mathrm{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]+\Bigg(2\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[2,\,\frac{1+p}{2},\,2,\,3,$$

$$-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]+a^2\,(1+p)\,\mathrm{AppellF1}\Big[2,$$

$$\frac{3+p}{2},\,1,\,3,\,-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]\Bigg)\,\mathrm{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,a\,\mathrm{AppellF1}\Big[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]$$

$$\Bigg(2\,\Bigg(2\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{3}{2},\,\frac{p}{2},\,2,\,\frac{5}{2},\,-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]+$$

$$a^2\,p\,\mathrm{AppellF1}\Big[\frac{3}{2},\,\frac{2+p}{2},\,1,\,\frac{5}{2},\,-\mathrm{Tan}[e+f x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Sec}[e+f x]^2 \text{Tan}[e+f x] - 3 a^2 \left(-\frac{1}{3} p \,\text{AppellF1}\left[\frac{3}{2}, 1+\frac{p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] + \frac{2}{3} \left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\left[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) + \text{Tan}[e+f x]^2 \left(2 \left(a^2-b^2\right) \left(-\frac{3}{5} p \,\text{AppellF1}\left[\frac{5}{2}, 1+\frac{p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] + \frac{12}{5} \left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\left[\frac{5}{2}, \frac{p}{2}, 3, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) + a^2 p \left(\frac{6}{5} \left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\left[\frac{5}{2}, \frac{2+p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{3}{5} (2+p) \,\text{AppellF1}\left[\frac{5}{2}, 1+\frac{2+p}{2}, 1, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)\right)\Bigg)\Bigg) \Bigg/ \left(-3 a^2 \,\text{AppellF1}\left[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] + \left(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] + a^2 p \,\text{AppellF1}\left[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)^2 -$$

$$\Bigg(2 b \,\text{AppellF1}\left[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[e+f x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[e+f x]^2}{a^2}\right] \text{Tan}[e+f x] \left(2 \left(2 \left(a^2-b^2\right) \text{AppellF1}\left[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] + a^2 (1+p) \,\text{AppellF1}\left[2, \frac{3+p}{2}, 1, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - 4 a^2 \left(\left(\left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\left[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{1}{2} (1+p) \,\text{AppellF1}\left[2, 1+\frac{1+p}{2}, 1, 3,\right.\right.\right.\right.$$

$$-\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\Bigg) +$$

$$\text{Tan}[e+f x]^2 \Bigg(2 \left(a^2-b^2\right) \left(\frac{8}{3} \left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\Big[3, \frac{1+p}{2}, 3, 4, -\text{Tan}[e+f x]^2,\right.$$

$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{2}{3} (1+p)$$

$$\text{AppellF1}\Big[3, 1+\frac{1+p}{2}, 2, 4, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big]$$

$$\left.\text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) + a^2 (1+p) \left(\frac{4}{3} \left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\Big[3,\right.$$

$$\frac{3+p}{2}, 2, 4, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] \text{Sec}[e+f x]^2$$

$$\text{Tan}[e+f x] - \frac{2}{3} (3+p) \text{AppellF1}\Big[3, 1+\frac{3+p}{2}, 1, 4, -\text{Tan}[e+f x]^2,$$

$$\left.\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)\Bigg)\Bigg)\Bigg) \Bigg/$$

$$\Bigg(\sqrt{1+\text{Tan}[e+f x]^2} \Bigg(-4 a^2 \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\Big[2, \frac{1+p}{2}, 2, 3,$$

$$-\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big] + a^2 (1+p) \text{AppellF1}\Big[2, \frac{3+p}{2},$$

$$1, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[e+f x]^2\Big]\Bigg) \text{Tan}[e+f x]^2\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)\Bigg) -$$

$$\Bigg(c^2 d^2 (g \text{Cos}[e+f x])^p \text{Tan}[e+f x] \left(1+\text{Tan}[e+f x]^2\right)^{-p/2}$$

$$\Bigg(-\Bigg(\Bigg(3 c$$

$$\text{AppellF1}\Big[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\Big]\Bigg) \Bigg/$$

$$\Bigg(-3 c^2 \text{AppellF1}\Big[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\Big] +$$

$$\Bigg(2 \left(c^2-d^2\right) \text{AppellF1}\Big[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\Big] +$$

$$c^2 p \text{AppellF1}\Big[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\Big]\Bigg) \text{Tan}[e+f x]^2\Bigg)\Bigg) +$$

$$\Bigg(2 d \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[e+f x]^2, \frac{\left(-c^2+d^2\right) \text{Tan}[e+f x]^2}{c^2}\Big]$$

$$\text{Tan}[$$

$$e + f x]\Big) \Big/ \Big(\sqrt{1 + \text{Tan}[e + f x]^2}$$

$$\Big(-4 c^2 \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[e + f x]^2, \Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big] +$$

$$\Big(2 \left(c^2 - d^2\right) \text{AppellF1}\Big[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[e + f x]^2, \Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big] +$$

$$c^2 (1 + p) \text{AppellF1}\Big[2, \frac{3+p}{2}, 1, 3, -\text{Tan}[e + f x]^2,$$

$$\Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big]\Big) \text{Tan}[e + f x]^2\Big)\Big)\Big)\Big) \Big/$$

$$\Big((b c - a d) (-b c + a d) f (c + d \text{Sin}[e + f x]) \Big(-d^2 \text{Tan}[e + f x]^2 +$$

$$c^2$$

$$(1 +$$

$$\text{Tan}[e + f x]^2)\Big)$$

$$\Big(-\frac{1}{(-b c + a d) \left(-d^2 \text{Tan}[e + f x]^2 + c^2 \left(1 + \text{Tan}[e + f x]^2\right)\right)^2}$$

$$c^2$$

$$d$$

$$\text{Tan}[e + f x]$$

$$\left(2 c^2 \text{Sec}[e + f x]^2 \text{Tan}[e + f x] - 2 d^2 \text{Sec}[e + f x]^2 \text{Tan}[e + f x]\right)$$

$$\left(1 + \text{Tan}[e + f x]^2\right)^{-p/2}$$

$$\Big(-\Big(\Big(3 c \text{AppellF1}\Big[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[e + f x]^2, \Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big]\Big) \Big/$$

$$\Big(-3 c^2 \text{AppellF1}\Big[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[e + f x]^2, \Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big] +$$

$$\Big(2 \left(c^2 - d^2\right) \text{AppellF1}\Big[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[e + f x]^2, \Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big] +$$

$$c^2 p \text{AppellF1}\Big[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\text{Tan}[e + f x]^2,$$

$$\Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big]\Big) \text{Tan}[e + f x]^2\Big)\Big) +$$

$$\Big(2 d \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[e + f x]^2, \frac{\left(-c^2 + d^2\right) \text{Tan}[e + f x]^2}{c^2}\Big] \text{Tan}[e + f x]\Big) \Big/$$

$$\Big(\sqrt{1 + \text{Tan}[e + f x]^2} \Big(-4 c^2 \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[e + f x]^2,$$

$$\Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big] + \Big(2 \left(c^2 - d^2\right) \text{AppellF1}\Big[2, \frac{1+p}{2}, 2, 3,$$

$$-\text{Tan}[e + f x]^2, \Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big] + c^2 (1 + p) \text{AppellF1}\Big[2, \frac{3+p}{2},$$

$$1, 3, -\text{Tan}[e + f x]^2, \Big(-1 + \frac{d^2}{c^2}\Big) \text{Tan}[e + f x]^2\Big]\Big) \text{Tan}[e + f x]^2\Big)\Big) -$$

$$\frac{1}{\left(-b\,c+a\,d\right)\,\left(-d^2\,\text{Tan}[e+f\,x]^2+c^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)}$$

$$c^2$$

$$d$$

$$p$$

$$\text{Sec}[e+f\,x]^2$$

$$\text{Tan}[e+f\,x]^2$$

$$\left(1+\text{Tan}[e+f\,x]^2\right)^{-1-\frac{p}{2}}$$

$$\Bigg(-\Bigg(\Bigg(3\,c\,\text{AppellF1}\left[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\Bigg)\Bigg/$$

$$\Bigg(-3\,c^2\,\text{AppellF1}\left[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+$$

$$\Bigg(2\,\left(c^2-d^2\right)\,\text{AppellF1}\left[\frac{3}{2},\,\frac{p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+$$

$$c^2\,p\,\text{AppellF1}\left[\frac{3}{2},\,\frac{2+p}{2},\,1,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\right.$$

$$\left.\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,d\,\text{AppellF1}\left[1,\,\frac{1+p}{2},\,1,\,2,\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-c^2+d^2\right)\,\text{Tan}[e+f\,x]^2}{c^2}\right]\,\text{Tan}[e+f\,x]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{1+\text{Tan}[e+f\,x]^2}\,\Bigg(-4\,c^2\,\text{AppellF1}\left[1,\,\frac{1+p}{2},\,1,\,2,\,-\text{Tan}[e+f\,x]^2,\right.$$

$$\left.\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\Bigg(2\,\left(c^2-d^2\right)\,\text{AppellF1}\left[2,\,\frac{1+p}{2},\,2,\,3,\right.$$

$$\left.-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+c^2\,\left(1+p\right)\,\text{AppellF1}\left[2,\,\frac{3+p}{2},\right.$$

$$\left.1,\,3,\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)\Bigg)\Bigg)+$$

$$\frac{1}{\left(-b\,c+a\,d\right)\,\left(-d^2\,\text{Tan}[e+f\,x]^2+c^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)}$$

$$c^2$$

$$d$$

$$\text{Sec}[e+f\,x]^2$$

$$\left(1+\text{Tan}[e+f\,x]^2\right)^{-p/2}$$

$$\Bigg(-\Bigg(\Bigg(3\,c\,\text{AppellF1}\left[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\Bigg)\Bigg/$$

$$\Bigg(-3\,c^2\,\text{AppellF1}\left[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+$$

$$\Bigg(2\,\left(c^2-d^2\right)\,\text{AppellF1}\left[\frac{3}{2},\,\frac{p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+$$

$$c^2\,p\,\text{AppellF1}\left[\frac{3}{2},\,\frac{2+p}{2},\,1,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\right.$$

$$\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\Big)\text{Tan}[e+f x]^2\Big)\Big)+$$

$$\left(2\,d\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-c^2+d^2\right)\text{Tan}[e+f x]^2}{c^2}\Big]\text{Tan}[e+f x]\right)\Big/$$

$$\Big(\sqrt{1+\text{Tan}[e+f x]^2}\,\Big(-4\,c^2\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+\Big(2\left(c^2-d^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,$$

$$-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+c^2\,(1+p)\,\text{AppellF1}\Big[2,\frac{3+p}{2},$$

$$1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\Big)\text{Tan}[e+f x]^2\Big)\Big)\Big)+$$

$$\frac{1}{(-b\,c+a\,d)\left(-d^2\,\text{Tan}[e+f x]^2+c^2\left(1+\text{Tan}[e+f x]^2\right)\right)}$$

$$c^2$$

$$d$$

$$\text{Tan}[$$

$$e+f x]\left(1+\text{Tan}[e+f x]^2\right)^{-p/2}$$

$$\Big(-\Big(\Big(3\,c\left(-\frac{1}{3}\,p\,\text{AppellF1}\Big[\frac{3}{2},1+\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\right.$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+\frac{2}{3}\left(-1+\frac{d^2}{c^2}\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},$$

$$\left.-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\Big)\Big/$$

$$\Big(-3\,c^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$\Big(2\left(c^2-d^2\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$c^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\Big)\text{Tan}[e+f x]^2\Big)\Big)-$$

$$\Big(2\,d\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-c^2+d^2\right)\text{Tan}[e+f x]^2}{c^2}\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^2\Big)\Big/$$

$$\Big(\left(1+\text{Tan}[e+f x]^2\right)^{3/2}\Big(-4\,c^2\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+\Big(2\left(c^2-d^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,$$

$$-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+c^2\,(1+p)\,\text{AppellF1}\Big[2,$$

$$\frac{3+p}{2},1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\Big)\text{Tan}[e+f x]^2\Big)\Big)+$$

$$\left(2\,d\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-c^2+d^2\right)\text{Tan}[e+f x]^2}{c^2}\right]\text{Sec}[e+f x]^2\right)\Big/$$

$$\Bigg(\sqrt{1+\text{Tan}[e+f x]^2}\,\Bigg(-4\,c^2\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+\Big(2\left(c^2-d^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,$$

$$-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+c^2\,(1+p)\,\text{AppellF1}\Big[2,$$

$$\frac{3+p}{2},1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\Big)\text{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,d\,\text{Tan}[e+f x]\,\Bigg(\frac{1}{c^2}\left(-c^2+d^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,-\text{Tan}[e+f x]^2,$$

$$\frac{\left(-c^2+d^2\right)\text{Tan}[e+f x]^2}{c^2}\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{1}{2}$$

$$(1+p)\,\text{AppellF1}\Big[2,1+\frac{1+p}{2},1,3,-\text{Tan}[e+f x]^2,$$

$$\frac{\left(-c^2+d^2\right)\text{Tan}[e+f x]^2}{c^2}\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{1+\text{Tan}[e+f x]^2}\,\Bigg(-4\,c^2\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+\Big(2\left(c^2-d^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,$$

$$-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+c^2\,(1+p)\,\text{AppellF1}\Big[2,$$

$$\frac{3+p}{2},1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\Big)\text{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,c\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]$$

$$\Bigg(2\,\Bigg(2\left(c^2-d^2\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$c^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-3\,c^2\,\Bigg(-\frac{1}{3}\,p\,\text{AppellF1}\Big[\frac{3}{2},1+\frac{p}{2},1,\frac{5}{2},$$

$$-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+$$

$$\frac{2}{3}\left(-1+\frac{d^2}{c^2}\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+\text{Tan}[e+f x]^2\,\Bigg(2\left(c^2-d^2\right)\Bigg(-\frac{3}{5}\,p\,\text{AppellF1}\Big[\frac{5}{2},$$

$$1+\frac{p}{2},\ 2,\ \frac{7}{2},\ -\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\ \mathrm{Sec}[e+f\,x]^2$$

$$\mathrm{Tan}[e+f\,x]+\frac{12}{5}\left(-1+\frac{d^2}{c^2}\right)\mathrm{AppellF1}\Big[\frac{5}{2},\ \frac{p}{2},\ 3,\ \frac{7}{2},\ -\mathrm{Tan}[e+f\,x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\ \mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]\Bigg)+c^2\,p\left(\frac{6}{5}\left(-1+\frac{d^2}{c^2}\right)\right.$$

$$\mathrm{AppellF1}\Big[\frac{5}{2},\ \frac{2+p}{2},\ 2,\ \frac{7}{2},\ -\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]$$

$$\mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]-\frac{3}{5}\,(2+p)\ \mathrm{AppellF1}\Big[\frac{5}{2},\ 1+\frac{2+p}{2},\ 1,\ \frac{7}{2},$$

$$\left.-\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\ \mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(-3\,c^2\,\mathrm{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\ -\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]+$$

$$\Bigg(2\,(c^2-d^2)\ \mathrm{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 2,\ \frac{5}{2},\ -\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]+$$

$$c^2\,p\,\mathrm{AppellF1}\Big[\frac{3}{2},\ \frac{2+p}{2},\ 1,\ \frac{5}{2},\ -\mathrm{Tan}[e+f\,x]^2,$$

$$\left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\Bigg)\ \mathrm{Tan}[e+f\,x]^2\Bigg)^2-$$

$$\Bigg(2\,d\,\mathrm{AppellF1}\Big[1,\ \frac{1+p}{2},\ 1,\ 2,\ -\mathrm{Tan}[e+f\,x]^2,\ \frac{(-c^2+d^2)\ \mathrm{Tan}[e+f\,x]^2}{c^2}\Big]\ \mathrm{Tan}[e+f\,x]$$

$$\Bigg(2\,\Bigg(2\,(c^2-d^2)\ \mathrm{AppellF1}\Big[2,\ \frac{1+p}{2},\ 2,\ 3,\ -\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]+$$

$$c^2\,(1+p)\ \mathrm{AppellF1}\Big[2,\ \frac{3+p}{2},\ 1,\ 3,\ -\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\Bigg)$$

$$\mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]-4\,c^2\left(\left(-1+\frac{d^2}{c^2}\right)\mathrm{AppellF1}\Big[2,\ \frac{1+p}{2},\ 2,\ 3,\right.\right.$$

$$-\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\ \mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]-$$

$$\frac{1}{2}\,(1+p)\ \mathrm{AppellF1}\Big[2,\ 1+\frac{1+p}{2},\ 1,\ 3,\ -\mathrm{Tan}[e+f\,x]^2,$$

$$\left.\left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\ \mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]\right)+\mathrm{Tan}[e+f\,x]^2$$

$$\Bigg(2\,(c^2-d^2)\left(\frac{8}{3}\left(-1+\frac{d^2}{c^2}\right)\mathrm{AppellF1}\Big[3,\ \frac{1+p}{2},\ 3,\ 4,\ -\mathrm{Tan}[e+f\,x]^2,\right.$$

$$\left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\ \mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]-\frac{2}{3}\,(1+p)$$

$$\mathrm{AppellF1}\Big[3,\ 1+\frac{1+p}{2},\ 2,\ 4,\ -\mathrm{Tan}[e+f\,x]^2,\ \left(-1+\frac{d^2}{c^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]$$

$$\left.\mathrm{Sec}[e+f\,x]^2\ \mathrm{Tan}[e+f\,x]\right)+c^2\,(1+p)\left(\frac{4}{3}\left(-1+\frac{d^2}{c^2}\right)\right.$$

$$\text{AppellF1}\left[3,\frac{3+p}{2},2,4,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]$$
$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{2}{3}(3+p)\,\text{AppellF1}\left[3,1+\frac{3+p}{2},1,4,\right.$$
$$\left.\left.\left.\left.\left.-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\right)\right)\Big/$$
$$\left(\sqrt{1+\text{Tan}[e+f x]^2}\,\left(-4c^2\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[e+f x]^2,\right.\right.\right.$$
$$\left.\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+\left(2\left(c^2-d^2\right)\text{AppellF1}\left[2,\frac{1+p}{2},2,3,\right.\right.$$
$$\left.-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+c^2(1+p)\,\text{AppellF1}\left[2,\frac{3+p}{2},\right.$$
$$\left.\left.\left.\left.\left.1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^2\right)^2\right)\right)\right)$$

Problem 1562: Result more than twice size of optimal antiderivative.

$$\int\frac{(g\,\text{Cos}[e+f x])^p}{(a+b\,\text{Sin}[e+f x])\,(c+d\,\text{Sin}[e+f x])^2}\,dx$$

Optimal (type 6, 508 leaves, 5 steps):

$$-\left(\left(b\,g\,\text{AppellF1}\left[1-p,\frac{1-p}{2},\frac{1-p}{2},2-p,\frac{a+b}{a+b\,\text{Sin}[e+f x]},\frac{a-b}{a+b\,\text{Sin}[e+f x]}\right]\right.\right.$$
$$(g\,\text{Cos}[e+f x])^{-1+p}\left(-\frac{b\,(1-\text{Sin}[e+f x])}{a+b\,\text{Sin}[e+f x]}\right)^{\frac{1-p}{2}}$$
$$\left.\left(\frac{b\,(1+\text{Sin}[e+f x])}{a+b\,\text{Sin}[e+f x]}\right)^{\frac{1-p}{2}}\right)\Big/\left(\left(b\,c-a\,d\right)^2 f\,(1-p)\right)\right)+$$
$$\left(b\,g\,\text{AppellF1}\left[1-p,\frac{1-p}{2},\frac{1-p}{2},2-p,\frac{c+d}{c+d\,\text{Sin}[e+f x]},\frac{c-d}{c+d\,\text{Sin}[e+f x]}\right](g\,\text{Cos}[e+f x])^{-1+p}\right.$$
$$\left.\left(-\frac{d\,(1-\text{Sin}[e+f x])}{c+d\,\text{Sin}[e+f x]}\right)^{\frac{1-p}{2}}\left(\frac{d\,(1+\text{Sin}[e+f x])}{c+d\,\text{Sin}[e+f x]}\right)^{\frac{1-p}{2}}\right)\Big/\left(\left(b\,c-a\,d\right)^2 f\,(1-p)\right)+$$
$$\left(g\,\text{AppellF1}\left[2-p,\frac{1-p}{2},\frac{1-p}{2},3-p,\frac{c+d}{c+d\,\text{Sin}[e+f x]},\frac{c-d}{c+d\,\text{Sin}[e+f x]}\right](g\,\text{Cos}[e+f x])^{-1+p}\right.$$
$$\left.\left(-\frac{d\,(1-\text{Sin}[e+f x])}{c+d\,\text{Sin}[e+f x]}\right)^{\frac{1-p}{2}}\left(\frac{d\,(1+\text{Sin}[e+f x])}{c+d\,\text{Sin}[e+f x]}\right)^{\frac{1-p}{2}}\right)\Big/\left(\left(b\,c-a\,d\right) f\,(2-p)\,\left(c+d\,\text{Sin}[e+f x]\right)\right)$$

Result (type 6, 23 548 leaves): Display of huge result suppressed!

Problem 1563: Result more than twice size of optimal antiderivative.

$$\int \frac{(g\,\mathrm{Sec}[e+f\,x])^p}{(a+b\,\mathrm{Sin}[e+f\,x])\,(c+d\,\mathrm{Sin}[e+f\,x])}\,dx$$

Optimal (type 6, 308 leaves, 5 steps):

$$-\left(\left(\mathrm{AppellF1}\left[1+p,\frac{1+p}{2},\frac{1+p}{2},2+p,\frac{a+b}{a+b\,\mathrm{Sin}[e+f\,x]},\frac{a-b}{a+b\,\mathrm{Sin}[e+f\,x]}\right]\mathrm{Sec}[e+f\,x]\,(g\,\mathrm{Sec}[e+f\,x])^p\left(-\frac{b\,(1-\mathrm{Sin}[e+f\,x])}{a+b\,\mathrm{Sin}[e+f\,x]}\right)^{\frac{1+p}{2}}\left(\frac{b\,(1+\mathrm{Sin}[e+f\,x])}{a+b\,\mathrm{Sin}[e+f\,x]}\right)^{\frac{1+p}{2}}\right)\Big/\left((b\,c-a\,d)\,f\,(1+p)\right)\right)+\left(\mathrm{AppellF1}\left[1+p,\frac{1+p}{2},\frac{1+p}{2},2+p,\frac{c+d}{c+d\,\mathrm{Sin}[e+f\,x]},\frac{c-d}{c+d\,\mathrm{Sin}[e+f\,x]}\right]\mathrm{Sec}[e+f\,x]\,(g\,\mathrm{Sec}[e+f\,x])^p\left(-\frac{d\,(1-\mathrm{Sin}[e+f\,x])}{c+d\,\mathrm{Sin}[e+f\,x]}\right)^{\frac{1+p}{2}}\left(\frac{d\,(1+\mathrm{Sin}[e+f\,x])}{c+d\,\mathrm{Sin}[e+f\,x]}\right)^{\frac{1+p}{2}}\right)\Big/\left((b\,c-a\,d)\,f\,(1+p)\right)$$

Result (type 6, 9549 leaves):

$$-\Bigg(\Bigg(a^2\,b^2\,(g\,\mathrm{Sec}[e+f\,x])^p\,\mathrm{Tan}[e+f\,x]\,\left(1+\mathrm{Tan}[e+f\,x]^2\right)^{p/2}$$

$$\Bigg(\left(3\,a\,\mathrm{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\right]\right)\Big/$$

$$\Bigg(3\,a^2\,\mathrm{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\right]+$$

$$\Bigg(a^2\,p\,\mathrm{AppellF1}\left[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\mathrm{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\right]+$$

$$2\,(-a^2+b^2)\,\mathrm{AppellF1}\left[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\mathrm{Tan}[e+f\,x]^2,\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\right]\Bigg)\mathrm{Tan}[e+f\,x]^2\Bigg)+$$

$$\left(2\,b\,\mathrm{AppellF1}\left[1,\frac{1-p}{2},1,2,-\mathrm{Tan}[e+f\,x]^2,\frac{(-a^2+b^2)\,\mathrm{Tan}[e+f\,x]^2}{a^2}\right]\mathrm{Tan}[e+f\,x]\right)\Big/$$

$$\Bigg(\sqrt{1+\mathrm{Tan}[e+f\,x]^2}\,\Bigg(-4\,a^2\,\mathrm{AppellF1}\left[1,\frac{1-p}{2},1,2,-\mathrm{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\right.$$

$$\left.\mathrm{Tan}[e+f\,x]^2\right]+\Bigg(2\,(a^2-b^2)\,\mathrm{AppellF1}\left[2,\frac{1-p}{2},2,3,-\mathrm{Tan}[e+f\,x]^2,\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\right]-a^2\,(-1+p)\,\mathrm{AppellF1}\left[2,\frac{3-p}{2},1,3,\right.$$

$$-\mathrm{Tan}[e+f x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]\Big) \mathrm{Tan}[e+f x]^2\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\left(b c-a d\right) \left(-b c+a d\right) f \left(a+b \mathrm{Sin}[e+f x]\right) \left(-b^2 \mathrm{Tan}[e+f x]^2+a^2 \left(1+\mathrm{Tan}[e+f x]^2\right)\right)$$

$$\Big(-\frac{1}{\left(b c-a d\right) \left(-b^2 \mathrm{Tan}[e+f x]^2+a^2 \left(1+\mathrm{Tan}[e+f x]^2\right)\right)^2} a^2 b \mathrm{Tan}[e+f x]$$

$$\left(2 a^2 \mathrm{Sec}[e+f x]^2 \mathrm{Tan}[e+f x]-2 b^2 \mathrm{Sec}[e+f x]^2 \mathrm{Tan}[e+f x]\right) \left(1+\mathrm{Tan}[e+f x]^2\right)^{p/2}$$

$$\Big(\Big(3 a \mathrm{AppellF1}\Big[\frac{1}{2}, -\frac{p}{2}, 1, \frac{3}{2}, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]\Big)\Big/$$

$$\Big(3 a^2 \mathrm{AppellF1}\Big[\frac{1}{2}, -\frac{p}{2}, 1, \frac{3}{2}, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]+$$

$$\Big(a^2 p \mathrm{AppellF1}\Big[\frac{3}{2}, 1-\frac{p}{2}, 1, \frac{5}{2}, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]+$$

$$2 \left(-a^2+b^2\right) \mathrm{AppellF1}\Big[\frac{3}{2}, -\frac{p}{2}, 2, \frac{5}{2}, -\mathrm{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]\Big) \mathrm{Tan}[e+f x]^2\Big)+$$

$$\Big(2 b \mathrm{AppellF1}\Big[1, \frac{1-p}{2}, 1, 2, -\mathrm{Tan}[e+f x]^2, \frac{\left(-a^2+b^2\right) \mathrm{Tan}[e+f x]^2}{a^2}\Big]$$

$$\mathrm{Tan}[e+f x]\Big)\Big/\Big(\sqrt{1+\mathrm{Tan}[e+f x]^2} \Big(-4 a^2 \mathrm{AppellF1}\Big[1, \frac{1-p}{2}, 1, 2,$$

$$-\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]+\Big(2 \left(a^2-b^2\right) \mathrm{AppellF1}\Big[2, \frac{1-p}{2},$$

$$2, 3, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]-a^2 \left(-1+p\right) \mathrm{AppellF1}\Big[2,$$

$$\frac{3-p}{2}, 1, 3, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]\Big) \mathrm{Tan}[e+f x]^2\Big)\Big)\Big)+$$

$$\frac{1}{\left(b c-a d\right) \left(-b^2 \mathrm{Tan}[e+f x]^2+a^2 \left(1+\mathrm{Tan}[e+f x]^2\right)\right)} a^2 b p \mathrm{Sec}[e+f x]^2$$

$$\mathrm{Tan}[e+f x]^2 \left(1+\mathrm{Tan}[e+f x]^2\right)^{-1+\frac{p}{2}}$$

$$\Big(\Big(3 a \mathrm{AppellF1}\Big[\frac{1}{2}, -\frac{p}{2}, 1, \frac{3}{2}, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]\Big)\Big/$$

$$\Big(3 a^2 \mathrm{AppellF1}\Big[\frac{1}{2}, -\frac{p}{2}, 1, \frac{3}{2}, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]+$$

$$\Big(a^2 p \mathrm{AppellF1}\Big[\frac{3}{2}, 1-\frac{p}{2}, 1, \frac{5}{2}, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]+2$$

$$\left(-a^2+b^2\right) \mathrm{AppellF1}\Big[\frac{3}{2}, -\frac{p}{2}, 2, \frac{5}{2}, -\mathrm{Tan}[e+f x]^2, \left(-1+\frac{b^2}{a^2}\right) \mathrm{Tan}[e+f x]^2\Big]\Big)$$

$$\mathrm{Tan}[e+f x]^2\Big)+\Big(2 b \mathrm{AppellF1}\Big[1, \frac{1-p}{2}, 1, 2, -\mathrm{Tan}[e+f x]^2,$$

$$\frac{\left(-a^2+b^2\right)\,\mathrm{Tan}[e+f\,x]^2}{a^2}\Big]\;\mathrm{Tan}[e+f\,x]\Bigg)\Bigg/\left(\sqrt{1+\mathrm{Tan}[e+f\,x]^2}\right.$$

$$\left(-4\,a^2\,\mathrm{AppellF1}\Big[1,\,\frac{1-p}{2},\,1,\,2,\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]+\right.$$

$$\left(2\,\left(a^2-b^2\right)\mathrm{AppellF1}\Big[2,\,\frac{1-p}{2},\,2,\,3,\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]-\right.$$

$$a^2\,\left(-1+p\right)\mathrm{AppellF1}\Big[2,\,\frac{3-p}{2},\,1,\,3,\,-\mathrm{Tan}[e+f\,x]^2,$$

$$\left.\left.\left.\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\right)\mathrm{Tan}[e+f\,x]^2\right)\right)\right)+$$

$$\frac{1}{\left(b\,c-a\,d\right)\,\left(-b^2\,\mathrm{Tan}[e+f\,x]^2+a^2\,\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)}\,a^2\,b\,\mathrm{Sec}[e+f\,x]^2$$

$$\left(1+\mathrm{Tan}[e+f\,x]^2\right)^{p/2}$$

$$\left(\left(3\,a\,\mathrm{AppellF1}\Big[\frac{1}{2},\,-\frac{p}{2},\,1,\,\frac{3}{2},\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\right)\Bigg/\right.$$

$$\left(3\,a^2\,\mathrm{AppellF1}\Big[\frac{1}{2},\,-\frac{p}{2},\,1,\,\frac{3}{2},\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]+\right.$$

$$\left(a^2\,p\,\mathrm{AppellF1}\Big[\frac{3}{2},\,1-\frac{p}{2},\,1,\,\frac{5}{2},\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]+2\right.$$

$$\left(-a^2+b^2\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-\frac{p}{2},\,2,\,\frac{5}{2},\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\Bigg)$$

$$\left.\mathrm{Tan}[e+f\,x]^2\right)+\left(2\,b\,\mathrm{AppellF1}\Big[1,\,\frac{1-p}{2},\,1,\,2,\,-\mathrm{Tan}[e+f\,x]^2,\right.$$

$$\frac{\left(-a^2+b^2\right)\,\mathrm{Tan}[e+f\,x]^2}{a^2}\Big]\;\mathrm{Tan}[e+f\,x]\Bigg)\Bigg/\left(\sqrt{1+\mathrm{Tan}[e+f\,x]^2}\right.$$

$$\left(-4\,a^2\,\mathrm{AppellF1}\Big[1,\,\frac{1-p}{2},\,1,\,2,\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]+\right.$$

$$\left(2\,\left(a^2-b^2\right)\mathrm{AppellF1}\Big[2,\,\frac{1-p}{2},\,2,\,3,\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]-\right.$$

$$a^2\,\left(-1+p\right)\mathrm{AppellF1}\Big[2,\,\frac{3-p}{2},\,1,\,3,\,-\mathrm{Tan}[e+f\,x]^2,$$

$$\left.\left.\left.\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\right)\mathrm{Tan}[e+f\,x]^2\right)\right)\right)+$$

$$\frac{1}{\left(b\,c-a\,d\right)\,\left(-b^2\,\mathrm{Tan}[e+f\,x]^2+a^2\,\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)}\,a^2\,b\,\mathrm{Tan}[e+f\,x]$$

$$\left(1+\mathrm{Tan}[e+f\,x]^2\right)^{p/2}$$

$$\left(\left(3\,a\,\left(\frac{1}{3}\,p\,\mathrm{AppellF1}\Big[\frac{3}{2},\,1-\frac{p}{2},\,1,\,\frac{5}{2},\,-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\right.\right.\right.$$

$$\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]+\frac{2}{3}\left(-1+\frac{b^2}{a^2}\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-\frac{p}{2},\,2,\,\frac{5}{2},$$

$$\left.\left.-\mathrm{Tan}[e+f\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[e+f\,x]^2\Big]\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)\right)\Bigg/$$

$$\left(3\,a^2\,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left(a^2\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+2\right.$$

$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\text{Tan}[e+f\,x]^2\right)-\left(2\,b\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f\,x]^2,\right.\right.$$

$$\left.\left.\frac{\left(-a^2+b^2\right)\text{Tan}[e+f\,x]^2}{a^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\right)\Big/$$

$$\left(\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1-p}{2},2,3,\right.\right.$$

$$\left.-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]-a^2\left(-1+p\right)\text{AppellF1}\left[2,\right.$$

$$\left.\left.\left.\left.\frac{3-p}{2},1,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\left(2\,b\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f\,x]^2}{a^2}\right]\right.$$

$$\left.\text{Sec}[e+f\,x]^2\right)\Big/\left(\sqrt{1+\text{Tan}[e+f\,x]^2}\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,\right.\right.\right.$$

$$\left.-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1-p}{2},\right.\right.$$

$$\left.2,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]-a^2\left(-1+p\right)\text{AppellF1}\left[2,\right.$$

$$\left.\left.\left.\left.\frac{3-p}{2},1,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\left(2\,b\,\text{Tan}[e+f\,x]\left(-\frac{1}{2}\left(1-p\right)\text{AppellF1}\left[2,1+\frac{1-p}{2},1,3,-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{\left(-a^2+b^2\right)\text{Tan}[e+f\,x]^2}{a^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$\frac{1}{a^2}\left(-a^2+b^2\right)\text{AppellF1}\left[2,\frac{1-p}{2},2,3,-\text{Tan}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\frac{\left(-a^2+b^2\right)\text{Tan}[e+f\,x]^2}{a^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(\sqrt{1+\text{Tan}[e+f\,x]^2}\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\left(2\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1-p}{2},2,3,\right.\right.$$

$$\left.-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]-a^2\left(-1+p\right)\text{AppellF1}\left[2,\right.$$

$$\frac{3-p}{2},1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Tan}[e+f x]^2\Big)\Big)-$$

$$\Bigg(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]$$

$$\Bigg(2\,\Bigg(a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$2\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+$$

$$3\,a^2\,\Bigg(\frac{1}{3}\,p\,\text{AppellF1}\Big[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+\frac{2}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},$$

$$-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$

$$\text{Tan}[e+f x]^2\,\Bigg(a^2\,p\,\Bigg(\frac{6}{5}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[\frac{5}{2},1-\frac{p}{2},2,\frac{7}{2},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{6}{5}\left(1-\frac{p}{2}\right)$$

$$\text{AppellF1}\Big[\frac{5}{2},2-\frac{p}{2},1,\frac{7}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+2\left(-a^2+b^2\right)\Bigg(\frac{3}{5}\,p\,\text{AppellF1}\Big[\frac{5}{2},1-\frac{p}{2},$$

$$2,\frac{7}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2$$

$$\text{Tan}[e+f x]+\frac{12}{5}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[\frac{5}{2},-\frac{p}{2},3,\frac{7}{2},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$\Bigg(a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]+$$

$$2\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]\Bigg)\text{Tan}[e+f x]^2\Bigg)^2-$$

$$\Bigg(2\,b\,\text{AppellF1}\Big[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[e+f x]^2}{a^2}\Big]\,\text{Tan}[e+f x]$$

$$\Bigg(2\,\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[2,\frac{1-p}{2},2,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f x]^2\Big]-$$

$$a^2\,(-1+p)\,\text{AppellF1}\left[2,\frac{3-p}{2},1,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-4\,a^2\left(-\frac{1}{2}\,(1-p)\,\text{AppellF1}\left[2,1+\frac{1-p}{2},1,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[2,\frac{1-p}{2},2,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+\text{Tan}[e+f\,x]^2\left(2\,(a^2-b^2)\left(-\frac{2}{3}\,(1-p)\,\text{AppellF1}\left[3,1+\frac{1-p}{2},2,4,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+\frac{8}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[3,\frac{1-p}{2},3,4,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-a^2\,(-1+p)\left(-\frac{2}{3}\,(3-p)\,\text{AppellF1}\left[3,1+\frac{3-p}{2},1,4,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+\frac{4}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[3,\frac{3-p}{2},2,4,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{1+\text{Tan}[e+f\,x]^2}\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]+\left(2\,(a^2-b^2)\,\text{AppellF1}\left[2,\frac{1-p}{2},2,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]-a^2\,(-1+p)\,\text{AppellF1}\left[2,\frac{3-p}{2},1,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)^2\right)\Bigg)\Bigg)\Bigg)-$$

$$\Bigg(c^2\,d^2\,(g\,\text{Sec}[e+f\,x])^p\,\text{Tan}[e+f\,x]\,\left(1+\text{Tan}[e+f\,x]^2\right)^{p/2}$$

$$\Bigg(\Bigg(3\,c\,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]\Bigg/$$

$$\left(3\,c^2\,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left(c^2\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\left(-c^2+d^2\right)\text{AppellF1}\left[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$
$$\left(2\,d\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f\,x]^2,\frac{\left(-c^2+d^2\right)\text{Tan}[e+f\,x]^2}{c^2}\right]\right.$$
$$\left.\text{Tan}[e+f\,x]\right)\Big/\left(\sqrt{1+\text{Tan}[e+f\,x]^2}\right.$$
$$\left(-4\,c^2\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left(2\left(c^2-d^2\right)\text{AppellF1}\left[2,\frac{1-p}{2},2,3,-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]-\right.$$
$$c^2\left(-1+p\right)\text{AppellF1}\left[2,\frac{3-p}{2},1,3,-\text{Tan}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left.\left.\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)\right)\right)\Big/$$
$$\left(\left(b\,c-a\,d\right)\left(-b\,c+a\,d\right)f\left(c+d\,\text{Sin}[e+f\,x]\right)\left(-d^2\,\text{Tan}[e+f\,x]^2+\right.\right.$$
$$c^2$$
$$\left(1+\right.$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\right)$$
$$\left(-\frac{1}{\left(-b\,c+a\,d\right)\left(-d^2\,\text{Tan}[e+f\,x]^2+c^2\left(1+\text{Tan}[e+f\,x]^2\right)\right)^2}\right.$$
$$c^2$$
$$d$$
$$\text{Tan}[e+f\,x]$$
$$\left(2\,c^2\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-2\,d^2\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)$$
$$\left(1+\text{Tan}[e+f\,x]^2\right)^{p/2}$$
$$\left(\left(3\,c\,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\Big/\right.$$
$$\left(3\,c^2\,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$\left(c^2\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]+\right.$$
$$2\left(-c^2+d^2\right)\text{AppellF1}\left[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.$$
$$\left.\left.\left.\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(2\,d\,\text{AppellF1}\left[1,\,\frac{1-p}{2},\,1,\,2,\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-c^2+d^2\right)\,\text{Tan}[e+f\,x]^2}{c^2}\right]\,\text{Tan}[e+f\,x]\right)\Big/$$

$$\left(\sqrt{1+\text{Tan}[e+f\,x]^2}\,\left(-4\,c^2\,\text{AppellF1}\left[1,\,\frac{1-p}{2},\,1,\,2,\,-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\left(2\,\left(c^2-d^2\right)\,\text{AppellF1}\left[2,\,\frac{1-p}{2},\,2,\,3,\right.\right.$$

$$\left.-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]-c^2\,(-1+p)\,\text{AppellF1}\left[2,\right.$$

$$\left.\left.\left.\left.\frac{3-p}{2},\,1,\,3,\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)\,\text{Tan}[e+f\,x]^2\right)\right)\right)+$$

$$\frac{1}{\left(-b\,c+a\,d\right)\,\left(-d^2\,\text{Tan}[e+f\,x]^2+c^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)}$$

c^2

d

p

$\text{Sec}[e+f\,x]^2$

$\text{Tan}[e+f\,x]^2$

$\left(1+\text{Tan}[e+f\,x]^2\right)^{-1+\frac{p}{2}}$

$$\left(\left(3\,c\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)\Big/\right.$$

$$\left(3\,c^2\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left(c^2\,p\,\text{AppellF1}\left[\frac{3}{2},\,1-\frac{p}{2},\,1,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\right.$$

$$2\,\left(-c^2+d^2\right)\,\text{AppellF1}\left[\frac{3}{2},\,-\frac{p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\right.$$

$$\left.\left.\left.\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)\,\text{Tan}[e+f\,x]^2\right)+$$

$$\left(2\,d\,\text{AppellF1}\left[1,\,\frac{1-p}{2},\,1,\,2,\,-\text{Tan}[e+f\,x]^2,\,\frac{\left(-c^2+d^2\right)\,\text{Tan}[e+f\,x]^2}{c^2}\right]\,\text{Tan}[e+f\,x]\right)\Big/$$

$$\left(\sqrt{1+\text{Tan}[e+f\,x]^2}\,\left(-4\,c^2\,\text{AppellF1}\left[1,\,\frac{1-p}{2},\,1,\,2,\,-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]+\left(2\,\left(c^2-d^2\right)\,\text{AppellF1}\left[2,\,\frac{1-p}{2},\,2,\,3,\right.\right.$$

$$\left.-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]-c^2\,(-1+p)\,\text{AppellF1}\left[2,\right.$$

$$\left.\left.\left.\left.\frac{3-p}{2},\,1,\,3,\,-\text{Tan}[e+f\,x]^2,\,\left(-1+\frac{d^2}{c^2}\right)\,\text{Tan}[e+f\,x]^2\right]\right)\,\text{Tan}[e+f\,x]^2\right)\right)\right)+$$

$$\frac{1}{\left(-b\,c+a\,d\right)\,\left(-d^2\,\text{Tan}[e+f\,x]^2+c^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)}$$

c^2

d

$\text{Sec}[e+f\,x]^2$

$$\left(1+\text{Tan}[e+f x]^2\right)^{p/2}$$
$$\left(\left(3 c \,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\right)\Big/\right.$$
$$\left(3 c^2 \,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$
$$\left(c^2 p \,\text{AppellF1}\left[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$
$$2\left(-c^2+d^2\right)\text{AppellF1}\left[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\right.$$
$$\left.\left.\left.\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)+$$
$$\left(2 d \,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-c^2+d^2\right)\text{Tan}[e+f x]^2}{c^2}\right]\text{Tan}[e+f x]\right)\Big/$$
$$\left(\sqrt{1+\text{Tan}[e+f x]^2}\left(-4 c^2 \,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f x]^2,\right.\right.\right.$$
$$\left.\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+\left(2\left(c^2-d^2\right)\text{AppellF1}\left[2,\frac{1-p}{2},2,3,\right.\right.$$
$$-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]-c^2(-1+p)\,\text{AppellF1}\left[2,\right.$$
$$\left.\left.\left.\left.\left.\frac{3-p}{2},1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)\right)+$$
$$\frac{1}{(-b c+a d)\left(-d^2 \text{Tan}[e+f x]^2+c^2\left(1+\text{Tan}[e+f x]^2\right)\right)}$$
$$c^2$$
$$d$$
$$\text{Tan}[$$
$$e+f x]\left(1+\text{Tan}[e+f x]^2\right)^{p/2}$$
$$\left(\left(3 c\left(\frac{1}{3} p \,\text{AppellF1}\left[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\right.\right.\right.$$
$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+\frac{2}{3}\left(-1+\frac{d^2}{c^2}\right)\text{AppellF1}\left[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},\right.$$
$$\left.\left.\left.-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\Big/$$
$$\left(3 c^2 \,\text{AppellF1}\left[\frac{1}{2},-\frac{p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$
$$\left(c^2 p \,\text{AppellF1}\left[\frac{3}{2},1-\frac{p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+\right.$$
$$2\left(-c^2+d^2\right)\text{AppellF1}\left[\frac{3}{2},-\frac{p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\right.$$
$$\left.\left.\left.\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)-$$
$$\left(2 d \,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f x]^2,\frac{\left(-c^2+d^2\right)\text{Tan}[e+f x]^2}{c^2}\right]\right.$$

$$\left.\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]^2\right)\Big/$$

$$\left(\left(1+\text{Tan}[e+f x]^2\right)^{3/2} \left(-4 c^2 \,\text{AppellF1}\left[1, \frac{1-p}{2}, 1, 2, -\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] + \left(2 \left(c^2-d^2\right) \text{AppellF1}\left[2, \frac{1-p}{2}, 2, 3,\right.\right.$$

$$\left.-\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] - c^2 \left(-1+p\right) \text{AppellF1}\left[2,\right.$$

$$\left.\left.\left.\left.\frac{3-p}{2}, 1, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)\right) +$$

$$\left(2 d \,\text{AppellF1}\left[1, \frac{1-p}{2}, 1, 2, -\text{Tan}[e+f x]^2, \frac{\left(-c^2+d^2\right) \text{Tan}[e+f x]^2}{c^2}\right] \text{Sec}[e+f x]^2\right)\Big/$$

$$\left(\sqrt{1+\text{Tan}[e+f x]^2} \left(-4 c^2 \,\text{AppellF1}\left[1, \frac{1-p}{2}, 1, 2, -\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] + \left(2 \left(c^2-d^2\right) \text{AppellF1}\left[2, \frac{1-p}{2}, 2, 3,\right.\right.$$

$$\left.-\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] - c^2 \left(-1+p\right) \text{AppellF1}\left[2,\right.$$

$$\left.\left.\left.\left.\frac{3-p}{2}, 1, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)\right) +$$

$$\left(2 d \,\text{Tan}[e+f x] \left(-\frac{1}{2} \left(1-p\right) \text{AppellF1}\left[2, 1+\frac{1-p}{2}, 1, 3, -\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\frac{\left(-c^2+d^2\right) \text{Tan}[e+f x]^2}{c^2}\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] + \frac{1}{c^2} \left(-c^2+d^2\right)$$

$$\text{AppellF1}\left[2, \frac{1-p}{2}, 2, 3, -\text{Tan}[e+f x]^2, \frac{\left(-c^2+d^2\right) \text{Tan}[e+f x]^2}{c^2}\right]$$

$$\left.\left.\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]\right)\right)\Big/$$

$$\left(\sqrt{1+\text{Tan}[e+f x]^2} \left(-4 c^2 \,\text{AppellF1}\left[1, \frac{1-p}{2}, 1, 2, -\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] + \left(2 \left(c^2-d^2\right) \text{AppellF1}\left[2, \frac{1-p}{2}, 2, 3,\right.\right.$$

$$\left.-\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] - c^2 \left(-1+p\right) \text{AppellF1}\left[2,\right.$$

$$\left.\left.\left.\left.\frac{3-p}{2}, 1, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)\right) -$$

$$\left(3 c \,\text{AppellF1}\left[\frac{1}{2}, -\frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right]\right.$$

$$\left(2 \left(c^2 p \,\text{AppellF1}\left[\frac{3}{2}, 1-\frac{p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] + 2\right.\right.$$

$$\left(-c^2+d^2\right) \text{AppellF1}\left[\frac{3}{2}, -\frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right]\right)$$

$$\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] + 3 c^2 \left(\frac{1}{3} p \,\text{AppellF1}\left[\frac{3}{2}, 1-\frac{p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] + \frac{2}{3} \left(-1+\frac{d^2}{c^2}\right) \text{AppellF1}\left[\frac{3}{2}, -\frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]\right) + \text{Tan}[e+f x]^2 \left(c^2 p \left(\frac{6}{5} \left(-1+\frac{d^2}{c^2}\right) \text{AppellF1}\left[\frac{5}{2}, 1-\frac{p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] - \frac{6}{5} \left(1-\frac{p}{2}\right) \text{AppellF1}\left[\frac{5}{2}, 2-\frac{p}{2}, 1, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]\right) + 2 \left(-c^2+d^2\right) \left(\frac{3}{5} p \,\text{AppellF1}\left[\frac{5}{2}, 1-\frac{p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] + \frac{12}{5} \left(-1+\frac{d^2}{c^2}\right) \text{AppellF1}\left[\frac{5}{2}, -\frac{p}{2}, 3, \frac{7}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]\right)\right)\right)\Bigg) \Bigg/$$

$$\left(3 c^2 \,\text{AppellF1}\left[\frac{1}{2}, -\frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] + \left(c^2 p \,\text{AppellF1}\left[\frac{3}{2}, 1-\frac{p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] + 2 \left(-c^2+d^2\right) \text{AppellF1}\left[\frac{3}{2}, -\frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2\right)^2 -$$

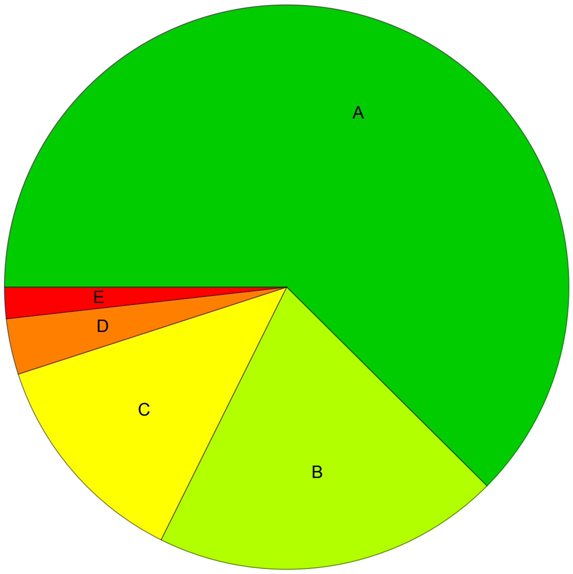
$$\Bigg(2 d \,\text{AppellF1}\left[1, \frac{1-p}{2}, 1, 2, -\text{Tan}[e+f x]^2, \frac{\left(-c^2+d^2\right) \text{Tan}[e+f x]^2}{c^2}\right] \text{Tan}[e+f x] \left(2 \left(2 \left(c^2-d^2\right) \text{AppellF1}\left[2, \frac{1-p}{2}, 2, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] - c^2 (-1+p) \,\text{AppellF1}\left[2, \frac{3-p}{2}, 1, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right]\right) \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] - 4 c^2 \left(-\frac{1}{2} (1-p) \,\text{AppellF1}\left[2, 1+\frac{1-p}{2}, 1, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] + \left(-1+\frac{d^2}{c^2}\right) \text{AppellF1}\left[2, \frac{1-p}{2}, 2, 3, -\text{Tan}[e+f x]^2, \left(-1+\frac{d^2}{c^2}\right) \text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]\right) + \text{Tan}[e+f x]^2$$

$$\left(2\left(c^2-d^2\right)\left(-\frac{2}{3}\left(1-p\right)\text{AppellF1}\left[3,1+\frac{1-p}{2},2,4,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+\frac{8}{3}\left(-1+\frac{d^2}{c^2}\right)\text{AppellF1}\left[3,\frac{1-p}{2},3,4,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)-c^2\left(-1+p\right)\left(-\frac{2}{3}\left(3-p\right)\text{AppellF1}\left[3,1+\frac{3-p}{2},1,4,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+\frac{4}{3}\left(-1+\frac{d^2}{c^2}\right)\text{AppellF1}\left[3,\frac{3-p}{2},2,4,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\right)\bigg/$$

$$\left(\sqrt{1+\text{Tan}[e+f x]^2}\left(-4c^2\,\text{AppellF1}\left[1,\frac{1-p}{2},1,2,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]+\left(2\left(c^2-d^2\right)\text{AppellF1}\left[2,\frac{1-p}{2},2,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]-c^2\left(-1+p\right)\text{AppellF1}\left[2,\frac{3-p}{2},1,3,-\text{Tan}[e+f x]^2,\left(-1+\frac{d^2}{c^2}\right)\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)^2\right)\right)\right)$$

Summary of Integration Test Results

1563 integration problems



A - 976 optimal antiderivatives

B - 311 more than twice size of optimal antiderivatives

C - 198 unnecessarily complex antiderivatives

D - 50 unable to integrate problems

E - 28 integration timeouts