Mathematica 11.3 Integration Test Results

on the problems in "4 Trig functions\4.7 Miscellaneous"

Test results for the 254 problems in "4.7.1 (c trig)^m (d trig)^n.m"

Problem 8: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[2a+2bx]\,\mathrm{Sin}[a+bx]\,dx$$

Optimal (type 3, 14 leaves, 2 steps):

$$\frac{\mathrm{ArcTanh}[\mathrm{Sin}[a+bx]]}{2b}$$

Result (type 3, 72 leaves):

$$\frac{1}{2}\left(-\frac{\mathrm{Log}\left[\mathrm{Cos}\left[\frac{a}{2}+\frac{bx}{2}\right]-\mathrm{Sin}\left[\frac{a}{2}+\frac{bx}{2}\right]\right]}{b}+\frac{\mathrm{Log}\left[\mathrm{Cos}\left[\frac{a}{2}+\frac{bx}{2}\right]+\mathrm{Sin}\left[\frac{a}{2}+\frac{bx}{2}\right]\right]}{b}\right)$$

Problem 10: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[2a+2bx]^3\,\mathrm{Sin}[a+bx]\,dx$$

Optimal (type 3, 49 leaves, 5 steps):

$$\frac{3\,\mathrm{ArcTanh}[\mathrm{Sin}[a+bx]]}{16b}-\frac{3\,\mathrm{Csc}[a+bx]}{16b}+\frac{\mathrm{Csc}[a+bx]\,\mathrm{Sec}[a+bx]^2}{16b}$$

Result (type 3, 132 leaves):

$$-\frac{1}{32\,b}\left(2\,\mathrm{Cot}\left[\frac{1}{2}(a+b\,x)\right]+6\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]-6\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]-\frac{1}{\left(\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^2}+\frac{1}{\left(\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^2}+2\,\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)$$

Problem 11: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[2\,a+2\,b\,x]^4\,\mathrm{Sin}[a+b\,x]\,dx$$

Optimal (type 3, 66 leaves, 6 steps):

$$-\frac{5\,\mathrm{ArcTanh}[\mathrm{Cos}[a+b\,x]]}{32\,b}+\frac{5\,\mathrm{Sec}[a+b\,x]}{32\,b}+\frac{5\,\mathrm{Sec}[a+b\,x]^3}{96\,b}-\frac{\mathrm{Csc}[a+b\,x]^2\,\mathrm{Sec}[a+b\,x]^3}{32\,b}$$

Result (type 3, 205 leaves):

$$\frac{1}{24\,b\left(\mathrm{Csc}\left[\frac{1}{2}(a+b\,x)\right]^2-\mathrm{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^3}\mathrm{Csc}[a+b\,x]^8\left(22-40\,\mathrm{Cos}[2\,(a+b\,x)]+13\,\mathrm{Cos}[3\,(a+b\,x)]-30\,\mathrm{Cos}[4\,(a+b\,x)]+13\,\mathrm{Cos}[5\,(a+b\,x)]+15\,\mathrm{Cos}[3\,(a+b\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]\right]+15\,\mathrm{Cos}[5\,(a+b\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]\right]-15\,\mathrm{Cos}[3\,(a+b\,x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]-15\,\mathrm{Cos}[5\,(a+b\,x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]+\mathrm{Cos}[a+b\,x]\left(-26-30\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]\right]+30\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]\right)\right)$$

Problem 12: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[2\,a+2\,b\,x]^5\,\mathrm{Sin}[a+b\,x]\,dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$\frac{35\,\mathrm{ArcTanh}[\mathrm{Sin}[a+b\,x]]}{256\,b}-\frac{35\,\mathrm{Csc}[a+b\,x]}{256\,b}-\frac{35\,\mathrm{Csc}[a+b\,x]^3}{768\,b}+\frac{7\,\mathrm{Csc}[a+b\,x]^3\,\mathrm{Sec}[a+b\,x]^2}{256\,b}+\frac{\mathrm{Csc}[a+b\,x]^3\,\mathrm{Sec}[a+b\,x]^4}{128\,b}$$

Result (type 3, 277 leaves):

$$-\frac{19\,\mathrm{Cot}\left[\frac{1}{2}(a+b\,x)\right]}{384\,b}-\frac{\mathrm{Cot}\left[\frac{1}{2}(a+b\,x)\right]\mathrm{Csc}\left[\frac{1}{2}(a+b\,x)\right]^2}{768\,b}-\frac{35\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{256\,b}+$$

$$\frac{35\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{256\,b}+\frac{1}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^4}+$$

$$\frac{11}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^2}-\frac{1}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^4}-$$

$$\frac{11}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^2}-\frac{19\,\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]}{384\,b}-\frac{\mathrm{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]}{768\,b}$$

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

$$\int \mathrm{Csc}[2\,a+2\,b\,x]\,\mathrm{Sin}[a+b\,x]^3\,dx$$

Optimal (type 3, 28 leaves, 4 steps):

$$\frac{\mathrm{ArcTanh}[\mathrm{Sin}[a+b\,x]]}{2\,b}-\frac{\mathrm{Sin}[a+b\,x]}{2\,b}$$

Result (type 3, 71 leaves):

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

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

$$\int \mathrm{Csc}[2\,a+2\,b\,x]^3\,\mathrm{Sin}[a+b\,x]^3\,dx$$

Optimal (type 3, 34 leaves, 3 steps):

$$\frac{\mathrm{ArcTanh}[\mathrm{Sin}[a+b\,x]]}{16\,b}+\frac{\mathrm{Sec}[a+b\,x]\,\mathrm{Tan}[a+b\,x]}{16\,b}$$

Result (type 3, 69 leaves):

$$\frac{1}{16\,b}\left(-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]+\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]+\mathrm{Sec}[a+b\,x]\,\mathrm{Tan}[a+b\,x]\right)$$

Problem 32: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[2a+2bx]^5\,\mathrm{Sin}[a+bx]^3\,dx$$

Optimal (type 3, 70 leaves, 6 steps):

$$\frac{15\,\mathrm{ArcTanh}[\mathrm{Sin}[a+bx]]}{256\,b}-\frac{15\,\mathrm{Csc}[a+bx]}{256\,b}+\frac{5\,\mathrm{Csc}[a+bx]\,\mathrm{Sec}[a+bx]^2}{256\,b}+\frac{\mathrm{Csc}[a+bx]\,\mathrm{Sec}[a+bx]^4}{128\,b}$$

Result (type 3, 219 leaves):

$$-\frac{\mathrm{Cot}\left[\frac{1}{2}(a+bx)\right]}{64\,b}-\frac{15\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+bx)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+bx)\right]\right]}{256\,b}+\frac{15\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+bx)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+bx)\right]\right]}{256\,b}+$$
$$\frac{1}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+bx)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+bx)\right]\right)^4}+\frac{7}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+bx)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+bx)\right]\right)^2}-$$
$$\frac{1}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+bx)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+bx)\right]\right)^4}-\frac{7}{512\,b\left(\mathrm{Cos}\left[\frac{1}{2}(a+bx)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+bx)\right]\right)^2}-\frac{\mathrm{Tan}\left[\frac{1}{2}(a+bx)\right]}{64\,b}$$

Problem 40: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[a+bx]\,\mathrm{Sin}[2a+2bx]\,dx$$

Optimal (type 3, 11 leaves, 2 steps):

$$\frac{2\,\mathrm{Sin}[a+bx]}{b}$$

Result (type 3, 23 leaves):

$$2\left(\frac{\mathrm{Cos}[bx]\,\mathrm{Sin}[a]}{b}+\frac{\mathrm{Cos}[a]\,\mathrm{Sin}[bx]}{b}\right)$$

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

$$\int \mathrm{Csc}[a+bx]\,\mathrm{Csc}[2a+2bx]\,dx$$

Optimal (type 3, 28 leaves, 4 steps):

$$\frac{\mathrm{ArcTanh}[\mathrm{Sin}[a+bx]]}{2\,b}-\frac{\mathrm{Csc}[a+bx]}{2\,b}$$

Result (type 3, 95 leaves):

$$-\frac{\text{Cot}\left[\frac{1}{2}(a+b x)\right]}{4 b}-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{2 b}+\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{2 b}-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{4 b}$$

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

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

Optimal (type 3, 49 leaves, 5 steps):

$$-\frac{3\,\text{ArcTanh}[\text{Cos}[a+b x]]}{8 b}+\frac{3\,\text{Sec}[a+b x]}{8 b}-\frac{\text{Csc}[a+b x]^2\,\text{Sec}[a+b x]}{8 b}$$

Result (type 3, 143 leaves):

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

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

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

Optimal (type 3, 66 leaves, 6 steps):

$$\frac{5\,\text{ArcTanh}[\text{Sin}[a+b x]]}{16 b}-\frac{5\,\text{Csc}[a+b x]}{16 b}-\frac{5\,\text{Csc}[a+b x]^3}{48 b}+\frac{\text{Csc}[a+b x]^3\,\text{Sec}[a+b x]^2}{16 b}$$

Result (type 3, 215 leaves):

$$-\frac{13\,\text{Cot}\left[\frac{1}{2}(a+b x)\right]}{96 b}-\frac{\text{Cot}\left[\frac{1}{2}(a+b x)\right]\text{Csc}\left[\frac{1}{2}(a+b x)\right]^2}{192 b}-\frac{5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{16 b}+\frac{5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{16 b}+\frac{1}{32 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}-\frac{1}{32 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}-\frac{13\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{96 b}-\frac{\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{192 b}$$

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

$$\int \mathrm{Csc}[a+b x]\,\mathrm{Csc}[2 a+2 b x]^4\,dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$-\frac{35\,\mathrm{ArcTanh}[\mathrm{Cos}[a+b x]]}{128 b}+\frac{35\,\mathrm{Sec}[a+b x]}{128 b}+\frac{35\,\mathrm{Sec}[a+b x]^3}{384 b}-\frac{7\,\mathrm{Csc}[a+b x]^2\,\mathrm{Sec}[a+b x]^3}{128 b}-\frac{\mathrm{Csc}[a+b x]^4\,\mathrm{Sec}[a+b x]^3}{64 b}$$

Result (type 3, 268 leaves):

$$-\frac{1}{384 b\left(\mathrm{Csc}\left[\frac{1}{2}(a+b x)\right]^2-\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right)^3}\mathrm{Csc}[a+b x]^{10}\Big(-204+658\,\mathrm{Cos}[2(a+b x)]-228\,\mathrm{Cos}[3(a+b x)]+140\,\mathrm{Cos}[4(a+b x)]-76\,\mathrm{Cos}[5(a+b x)]-210\,\mathrm{Cos}[6(a+b x)]+$$
$$76\,\mathrm{Cos}[7(a+b x)]-315\,\mathrm{Cos}[3(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-105\,\mathrm{Cos}[5(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]+$$
$$105\,\mathrm{Cos}[7(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]+3\,\mathrm{Cos}[a+b x]\left(76+105\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-105\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]\right)+$$
$$315\,\mathrm{Cos}[3(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]+105\,\mathrm{Cos}[5(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]-105\,\mathrm{Cos}[7(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]\Big)$$

Problem 46: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[a+b x]^2\,\mathrm{Sin}[2 a+2 b x]^7\,dx$$

Optimal (type 3, 44 leaves, 5 steps):

$$-\frac{16\,\mathrm{Cos}[a+b x]^8}{b}+\frac{128\,\mathrm{Cos}[a+b x]^{10}}{5 b}-\frac{32\,\mathrm{Cos}[a+b x]^{12}}{3 b}$$

Result (type 3, 91 leaves):

$$-\frac{5\,\mathrm{Cos}[2(a+b x)]}{8 b}-\frac{5\,\mathrm{Cos}[4(a+b x)]}{64 b}+\frac{5\,\mathrm{Cos}[6(a+b x)]}{48 b}+\frac{\mathrm{Cos}[8(a+b x)]}{32 b}-\frac{\mathrm{Cos}[10(a+b x)]}{80 b}-\frac{\mathrm{Cos}[12(a+b x)]}{192 b}$$

Problem 61: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[a+b x]^3\,\mathrm{Sin}[2 a+2 b x]^8\,dx$$

Optimal (type 3, 46 leaves, 4 steps):

$$-\frac{256\,\text{Cos}[a+b\,x]^9}{9\,b}+\frac{512\,\text{Cos}[a+b\,x]^{11}}{11\,b}-\frac{256\,\text{Cos}[a+b\,x]^{13}}{13\,b}$$

Result (type 3, 104 leaves):

$$-\frac{5\,\text{Cos}[a+b\,x]}{4\,b}-\frac{25\,\text{Cos}[3\,(a+b\,x)]}{48\,b}+\frac{\text{Cos}[5\,(a+b\,x)]}{16\,b}+\frac{\text{Cos}[7\,(a+b\,x)]}{8\,b}+\frac{\text{Cos}[9\,(a+b\,x)]}{72\,b}-\frac{3\,\text{Cos}[11\,(a+b\,x)]}{176\,b}-\frac{\text{Cos}[13\,(a+b\,x)]}{208\,b}$$

Problem 69: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 43 leaves, 5 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[a+b\,x]]}{2\,b}-\frac{\text{Csc}[a+b\,x]}{2\,b}-\frac{\text{Csc}[a+b\,x]^3}{6\,b}$$

Result (type 3, 153 leaves):

$$-\frac{7\,\text{Cot}[\frac{1}{2}\,(a+b\,x)]}{24\,b}-\frac{\text{Cot}[\frac{1}{2}\,(a+b\,x)]\,\text{Csc}[\frac{1}{2}\,(a+b\,x)]^2}{48\,b}-\frac{\text{Log}[\text{Cos}[\frac{1}{2}\,(a+b\,x)]-\text{Sin}[\frac{1}{2}\,(a+b\,x)]]}{2\,b}+$$
$$\frac{\text{Log}[\text{Cos}[\frac{1}{2}\,(a+b\,x)]+\text{Sin}[\frac{1}{2}\,(a+b\,x)]]}{2\,b}-\frac{7\,\text{Tan}[\frac{1}{2}\,(a+b\,x)]}{24\,b}-\frac{\text{Sec}[\frac{1}{2}\,(a+b\,x)]^2\,\text{Tan}[\frac{1}{2}\,(a+b\,x)]}{48\,b}$$

Problem 70: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 70 leaves, 6 steps):

$$-\frac{15\,\text{ArcTanh}[\text{Cos}[a+b\,x]]}{32\,b}+\frac{15\,\text{Sec}[a+b\,x]}{32\,b}-\frac{5\,\text{Csc}[a+b\,x]^2\,\text{Sec}[a+b\,x]}{32\,b}-\frac{\text{Csc}[a+b\,x]^4\,\text{Sec}[a+b\,x]}{16\,b}$$

Result (type 3, 195 leaves):

$$-\frac{7\,\text{Csc}[\frac{1}{2}\,(a+b\,x)]^2}{128\,b}-\frac{\text{Csc}[\frac{1}{2}\,(a+b\,x)]^4}{256\,b}-\frac{15\,\text{Log}[\text{Cos}[\frac{1}{2}\,(a+b\,x)]]}{32\,b}+\frac{15\,\text{Log}[\text{Sin}[\frac{1}{2}\,(a+b\,x)]]}{32\,b}+$$
$$\frac{7\,\text{Sec}[\frac{1}{2}\,(a+b\,x)]^2}{128\,b}+\frac{\text{Sec}[\frac{1}{2}\,(a+b\,x)]^4}{256\,b}+\frac{\text{Sin}[\frac{1}{2}\,(a+b\,x)]}{4\,b\,\left(\text{Cos}[\frac{1}{2}\,(a+b\,x)]-\text{Sin}[\frac{1}{2}\,(a+b\,x)]\right)}-\frac{\text{Sin}[\frac{1}{2}\,(a+b\,x)]}{4\,b\,\left(\text{Cos}[\frac{1}{2}\,(a+b\,x)]+\text{Sin}[\frac{1}{2}\,(a+b\,x)]\right)}$$

Problem 71: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 81 leaves, 6 steps):

$$\frac{7 \, \text{ArcTanh}[\text{Sin}[a+b x]]}{16 \, b}-\frac{7 \, \text{Csc}[a+b x]}{16 \, b}-\frac{7 \, \text{Csc}[a+b x]^3}{48 \, b}-\frac{7 \, \text{Csc}[a+b x]^5}{80 \, b}+\frac{\text{Csc}[a+b x]^5 \, \text{Sec}[a+b x]^2}{16 \, b}$$

Result (type 3, 222 leaves):

$$-\frac{1}{3840 \, b}\left(818 \, \text{Cot}\left[\frac{1}{2}(a+b x)\right]+1680 \, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]-1680 \, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]-\frac{120}{\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}+392 \, \text{Csc}[a+b x]^3 \, \text{Sin}\left[\frac{1}{2}(a+b x)\right]^4+96 \, \text{Csc}[a+b x]^5 \, \text{Sin}\left[\frac{1}{2}(a+b x)\right]^6+\frac{120}{\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}+\frac{49}{2} \, \text{Csc}\left[\frac{1}{2}(a+b x)\right]^4 \, \text{Sin}[a+b x]+\frac{3}{2} \, \text{Csc}\left[\frac{1}{2}(a+b x)\right]^6 \, \text{Sin}[a+b x]+818 \, \text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)$$

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

$$\int \text{Csc}[a+b x]^3 \, \text{Csc}[2 a+2 b x]^4 \, dx$$

Optimal (type 3, 112 leaves, 8 steps):

$$-\frac{105 \, \text{ArcTanh}[\text{Cos}[a+b x]]}{256 \, b}+\frac{105 \, \text{Sec}[a+b x]}{256 \, b}+\frac{35 \, \text{Sec}[a+b x]^3}{256 \, b}-\frac{21 \, \text{Csc}[a+b x]^2 \, \text{Sec}[a+b x]^3}{256 \, b}-\frac{3 \, \text{Csc}[a+b x]^4 \, \text{Sec}[a+b x]^3}{128 \, b}-\frac{\text{Csc}[a+b x]^6 \, \text{Sec}[a+b x]^3}{96 \, b}$$

Result (type 3, 278 leaves):

$$\frac{1}{3072\, b \left(\mathrm{Csc}\left[\frac{1}{2}(a+b x)\right]^2-\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right)^3}$$
$$\mathrm{Csc}[a+b x]^{12}\Big(1150-4752\,\mathrm{Cos}[2(a+b x)]+1600\,\mathrm{Cos}[3(a+b x)]+504\,\mathrm{Cos}[4(a+b x)]+1680\,\mathrm{Cos}[6(a+b x)]-600\,\mathrm{Cos}[7(a+b x)]-$$
$$630\,\mathrm{Cos}[8(a+b x)]+200\,\mathrm{Cos}[9(a+b x)]+2520\,\mathrm{Cos}[3(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-945\,\mathrm{Cos}[7(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]+$$
$$315\,\mathrm{Cos}[9(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-30\,\mathrm{Cos}[a+b x]\left(40+63\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-63\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]\right)-$$
$$2520\,\mathrm{Cos}[3(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]+945\,\mathrm{Cos}[7(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]-315\,\mathrm{Cos}[9(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]\Big)$$

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

$$\int \mathrm{Sin}[a+b x]^3\,\mathrm{Sin}[2 a+2 b x]^m\,dx$$

Optimal (type 5, 84 leaves, 2 steps):

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

Result (type 6, 5212 leaves):

$$\left(2^{4+m}(4+m)\,\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]^6\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Sin}[a+b x]^3\left(\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\left(-\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]+\mathrm{Sin}\left[\frac{3}{2}(a+b x)\right]\right)\right)^m\right.$$
$$\mathrm{Sin}[2(a+b x)]^m\left(\left(\mathrm{AppellF1}\left[\frac{2+m}{2},-m,3+2m,\frac{4+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right)\Big/\right.$$
$$\left((4+m)\,\mathrm{AppellF1}\left[\frac{2+m}{2},-m,3+2m,\frac{4+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-\right.$$
$$2\left(m\,\mathrm{AppellF1}\left[\frac{4+m}{2},1-m,3+2m,\frac{6+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+\right.$$
$$\left.\left.(3+2m)\,\mathrm{AppellF1}\left[\frac{4+m}{2},-m,2(2+m),\frac{6+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)-$$
$$\mathrm{AppellF1}\left[\frac{2+m}{2},-m,2(2+m),\frac{4+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big/\left((4+m)\,\mathrm{AppellF1}\left[\frac{2+m}{2},-m,2(2+m),\frac{4+m}{2},\right.\right.$$
$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-2\left(m\,\mathrm{AppellF1}\left[\frac{4+m}{2},1-m,2(2+m),\frac{6+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+\right.$$
$$\left.\left.\left.\left.2(2+m)\,\mathrm{AppellF1}\left[\frac{4+m}{2},-m,5+2m,\frac{6+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\right)\right)\Big/$$
$$\left(b(2+m)\left(\frac{1}{2+m}2^{4+m}(4+m)\,\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]^7\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\left(\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\left(-\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]+\mathrm{Sin}\left[\frac{3}{2}(a+b x)\right]\right)\right)^m\right.\right.$$

$$\Bigg(\Bigg(\text{AppellF1}\Big[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) \Big/$$

$$\Bigg((4+m) \text{AppellF1}\Big[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] -$$

$$2 \Bigg(m \text{AppellF1}\Big[\frac{4+m}{2}, 1-m, 3+2m, \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + (3+2m)$$

$$\text{AppellF1}\Big[\frac{4+m}{2}, -m, 2(2+m), \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg) \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) -$$

$$\text{AppellF1}\Big[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] \Big/ \Bigg((4+m) \text{AppellF1}\Big[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - 2 \Bigg(m \text{AppellF1}\Big[\frac{4+m}{2}, 1-m, 2(2+m), \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + 2$$

$$(2+m) \text{AppellF1}\Big[\frac{4+m}{2}, -m, 5+2m, \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg) \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg)\Bigg) -$$

$$\frac{1}{2+m} 3 \times 2^{4+m} (4+m) \text{Cos}\Big[\frac{1}{2}(a+b x)\Big]^5 \text{Sin}\Big[\frac{1}{2}(a+b x)\Big]^3 \Bigg(\text{Cos}\Big[\frac{1}{2}(a+b x)\Big] \Big(-\text{Sin}\Big[\frac{1}{2}(a+b x)\Big] + \text{Sin}\Big[\frac{3}{2}(a+b x)\Big]\Big)\Bigg)^m$$

$$\Bigg(\Bigg(\text{AppellF1}\Big[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) \Big/$$

$$\Bigg((4+m) \text{AppellF1}\Big[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] -$$

$$2 \Bigg(m \text{AppellF1}\Big[\frac{4+m}{2}, 1-m, 3+2m, \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + (3+2m)$$

$$\text{AppellF1}\Big[\frac{4+m}{2}, -m, 2(2+m), \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg) \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) -$$

$$\text{AppellF1}\Big[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] \Big/ \Bigg((4+m) \text{AppellF1}\Big[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - 2 \Bigg(m \text{AppellF1}\Big[\frac{4+m}{2}, 1-m, 2(2+m), \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + 2$$

$$(2+m) \text{AppellF1}\Big[\frac{4+m}{2}, -m, 5+2m, \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg) \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg)\Bigg) +$$

$$\frac{1}{2+m} 2^{4+m} m (4+m) \text{Cos}\Big[\frac{1}{2}(a+b x)\Big]^6 \text{Sin}\Big[\frac{1}{2}(a+b x)\Big]^2 \Bigg(\text{Cos}\Big[\frac{1}{2}(a+b x)\Big] \Big(-\text{Sin}\Big[\frac{1}{2}(a+b x)\Big] + \text{Sin}\Big[\frac{3}{2}(a+b x)\Big]\Big)\Bigg)^{-1+m}$$

$$\Bigg(\text{Cos}\Big[\frac{1}{2}(a+b x)\Big] \Big(-\frac{1}{2} \text{Cos}\Big[\frac{1}{2}(a+b x)\Big] + \frac{3}{2} \text{Cos}\Big[\frac{3}{2}(a+b x)\Big]\Big) - \frac{1}{2} \text{Sin}\Big[\frac{1}{2}(a+b x)\Big] \Big(-\text{Sin}\Big[\frac{1}{2}(a+b x)\Big] + \text{Sin}\Big[\frac{3}{2}(a+b x)\Big]\Big)\Bigg)$$

$$\Bigg(\Bigg(\text{AppellF1}\Big[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) \Big/$$

$$\Bigg((4+m) \text{AppellF1}\Big[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] -$$

$$2 \Bigg(m \text{AppellF1}\Big[\frac{4+m}{2}, 1-m, 3+2m, \frac{6+m}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + (3+2m)$$

$$\text{AppellF1}[\frac{4+m}{2}, -m, 2(2+m), \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2]) \text{Tan}[\frac{1}{2}(a+b x)]^2) -$$

$$\text{AppellF1}[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] \Big/ ((4+m) \text{AppellF1}[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2},$$

$$\text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] - 2 (m \text{AppellF1}[\frac{4+m}{2}, 1-m, 2(2+m), \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] + 2$$

$$(2+m) \text{AppellF1}[\frac{4+m}{2}, -m, 5+2m, \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2]) \text{Tan}[\frac{1}{2}(a+b x)]^2)) +$$

$$\frac{1}{2+m} 2^{4+m} (4+m) \text{Cos}[\frac{1}{2}(a+b x)]^6 \text{Sin}[\frac{1}{2}(a+b x)]^2 (\text{Cos}[\frac{1}{2}(a+b x)] (-\text{Sin}[\frac{1}{2}(a+b x)] + \text{Sin}[\frac{3}{2}(a+b x)]))^m$$

$$((\text{AppellF1}[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] \text{Sec}[\frac{1}{2}(a+b x)]^2 \text{Tan}[\frac{1}{2}(a+b x)]) \Big/$$

$$((4+m) \text{AppellF1}[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] -$$

$$2 (m \text{AppellF1}[\frac{4+m}{2}, 1-m, 3+2m, \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] + (3+2m)$$

$$\text{AppellF1}[\frac{4+m}{2}, -m, 2(2+m), \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2]) \text{Tan}[\frac{1}{2}(a+b x)]^2) +$$

$$(\text{Sec}[\frac{1}{2}(a+b x)]^2 (-\frac{1}{4+m} m (2+m) \text{AppellF1}[1+\frac{2+m}{2}, 1-m, 3+2m, 1+\frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2]$$

$$\text{Sec}[\frac{1}{2}(a+b x)]^2 \text{Tan}[\frac{1}{2}(a+b x)] - \frac{1}{4+m} (2+m) (3+2m) \text{AppellF1}[1+\frac{2+m}{2}, -m, 4+2m, 1+\frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\frac{1}{2}(a+b x)]^2] \text{Sec}[\frac{1}{2}(a+b x)]^2 \text{Tan}[\frac{1}{2}(a+b x)])) \Big/ ((4+m) \text{AppellF1}[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\frac{1}{2}(a+b x)]^2] - 2 (m \text{AppellF1}[\frac{4+m}{2}, 1-m, 3+2m, \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] + (3+2m)$$

$$\text{AppellF1}[\frac{4+m}{2}, -m, 2(2+m), \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2]) \text{Tan}[\frac{1}{2}(a+b x)]^2) -$$

$$(-\frac{1}{4+m} m (2+m) \text{AppellF1}[1+\frac{2+m}{2}, 1-m, 2(2+m), 1+\frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] \text{Sec}[\frac{1}{2}(a+b x)]^2$$

$$\text{Tan}[\frac{1}{2}(a+b x)] - \frac{1}{4+m} 2 (2+m)^2 \text{AppellF1}[1+\frac{2+m}{2}, -m, 1+2(2+m), 1+\frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2]$$

$$\text{Sec}[\frac{1}{2}(a+b x)]^2 \text{Tan}[\frac{1}{2}(a+b x)]) \Big/ ((4+m) \text{AppellF1}[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] -$$

$$2 (m \text{AppellF1}[\frac{4+m}{2}, 1-m, 2(2+m), \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] + 2 (2+m)$$

$$\text{AppellF1}[\frac{4+m}{2}, -m, 5+2m, \frac{6+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2]) \text{Tan}[\frac{1}{2}(a+b x)]^2) +$$

$$(\text{AppellF1}[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2}, \text{Tan}[\frac{1}{2}(a+b x)]^2, -\text{Tan}[\frac{1}{2}(a+b x)]^2] (-2 (m \text{AppellF1}[\frac{4+m}{2}, 1-m, 2(2+m),$$

$$\frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] + 2(2+m)\,\text{AppellF1}[\frac{4+m}{2}, -m, 5+2m, \frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] + (4+m)\,(-\frac{1}{4+m}m\,(2+m)\,\text{AppellF1}[1+\frac{2+m}{2}, 1-m, 2(2+m),$$

$$1+\frac{4+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] - \frac{1}{4+m}2\,(2+m)^2\,\text{AppellF1}[1+\frac{2+m}{2},$$

$$-m, 1+2(2+m), 1+\frac{4+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]) - 2\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2$$

$$(m\,(-\frac{1}{6+m}2\,(2+m)\,(4+m)\,\text{AppellF1}[1+\frac{4+m}{2}, 1-m, 1+2(2+m), 1+\frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] + \frac{1}{6+m}(1-m)\,(4+m)\,\text{AppellF1}[1+\frac{4+m}{2}, 2-m, 2(2+m), 1+\frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]) + 2\,(2+m)\,(-\frac{1}{6+m}m\,(4+m)\,\text{AppellF1}[1+\frac{4+m}{2}, 1-m, 5+2m,$$

$$1+\frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] - \frac{1}{6+m}(4+m)\,(5+2m)\,\text{AppellF1}[$$

$$1+\frac{4+m}{2}, -m, 6+2m, 1+\frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]))))\Big/$$

$$((4+m)\,\text{AppellF1}[\frac{2+m}{2}, -m, 2(2+m), \frac{4+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - 2\,(m\,\text{AppellF1}[\frac{4+m}{2},$$

$$1-m, 2(2+m), \frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] +$$

$$2\,(2+m)\,\text{AppellF1}[\frac{4+m}{2}, -m, 5+2m, \frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2)^2 -$$

$$(\text{AppellF1}[\frac{2+m}{2}, -m, 3+2m, \frac{4+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2$$

$$(-2\,(m\,\text{AppellF1}[\frac{4+m}{2}, 1-m, 3+2m, \frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] + (3+2m)\,\text{AppellF1}[\frac{4+m}{2}, -m, 2(2+m), \frac{6+m}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] + (4+m)\,(-\frac{1}{4+m}m\,(2+m)\,\text{AppellF1}[1+\frac{2+m}{2},$$

$$1-m, 3+2m, 1+\frac{4+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] - \frac{1}{4+m}(2+m)\,(3+2m)$$

$$\text{AppellF1}[1+\frac{2+m}{2}, -m, 4+2m, 1+\frac{4+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]) -$$

$$2\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2\,(m\,(-\frac{1}{6+m}(4+m)\,(3+2m)\,\text{AppellF1}[1+\frac{4+m}{2}, 1-m, 4+2m, 1+\frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] + \frac{1}{6+m}(1-m)\,(4+m)\,\text{AppellF1}[1+\frac{4+m}{2}, 2-m, 3+2m, 1+\frac{6+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]) + (3+2m)\,(-\frac{1}{6+m}m\,(4+m)\,\text{AppellF1}[1+\frac{4+m}{2}, 1-m, 2(2+m),$$

$$1+\frac{6+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\ \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]-\frac{1}{6+m}2\,(2+m)\,(4+m)\ \text{AppellF1}\Big[$$
$$1+\frac{4+m}{2},\ -m,\ 1+2\,(2+m),\ 1+\frac{6+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\ \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)\Big)\Big)\Big)\Big/$$
$$\Big((4+m)\ \text{AppellF1}\Big[\frac{2+m}{2},\ -m,\ 3+2m,\ \frac{4+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-2\,\Big(m\ \text{AppellF1}\Big[\frac{4+m}{2},$$
$$1-m,\ 3+2m,\ \frac{6+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+$$
$$(3+2m)\ \text{AppellF1}\Big[\frac{4+m}{2},\ -m,\ 2\,(2+m),\ \frac{6+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)^2\Big)\Big)$$

Problem 124: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sin}[a+b x]^2\ \text{Sin}[2a+2b x]^m\, dx$$

Optimal (type 5, 84 leaves, 2 steps):

$$\frac{1}{b\,(3+m)}\left(\text{Cos}[a+b x]^2\right)^{\frac{1-m}{2}}\ \text{Hypergeometric2F1}\Big[\frac{1-m}{2},\ \frac{3+m}{2},\ \frac{5+m}{2},\ \text{Sin}[a+b x]^2\Big]\ \text{Sin}[a+b x]^2\ \text{Sin}[2a+2b x]^m\ \text{Tan}[a+b x]$$

Result (type 6, 5195 leaves):

$$\Big(2^{3+m}\,(3+m)\ \text{Cos}\left[\frac{1}{2}(a+b x)\right]^5\ \text{Sin}\left[\frac{1}{2}(a+b x)\right]\ \text{Sin}[a+b x]^2\ \left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]\left(-\text{Sin}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{3}{2}(a+b x)\right]\right)\right)^m\ \text{Sin}[2\,(a+b x)]^m$$
$$\Big(-\Big(\text{AppellF1}\Big[\frac{1+m}{2},\ -m,\ 3+2m,\ \frac{3+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big/\Big((3+m)\ \text{AppellF1}\Big[\frac{1+m}{2},\ -m,\ 3+2m,\ \frac{3+m}{2},$$
$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-2\,\Big(m\ \text{AppellF1}\Big[\frac{3+m}{2},\ 1-m,\ 3+2m,\ \frac{5+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+$$
$$(3+2m)\ \text{AppellF1}\Big[\frac{3+m}{2},\ -m,\ 2\,(2+m),\ \frac{5+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big)+$$
$$\Big(\text{AppellF1}\Big[\frac{1+m}{2},\ -m,\ 2\,(1+m),\ \frac{3+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\ \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big/$$
$$\Big(\Big((3+m)\ \text{AppellF1}\Big[\frac{1+m}{2},\ -m,\ 2\,(1+m),\ \frac{3+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-$$
$$2\,\Big(m\ \text{AppellF1}\Big[\frac{3+m}{2},\ 1-m,\ 2\,(1+m),\ \frac{5+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+$$
$$2\,(1+m)\ \text{AppellF1}\Big[\frac{3+m}{2},\ -m,\ 3+2m,\ \frac{5+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big)\Big)\Big/$$
$$\Big(b\,(1+m)\ \Big(\frac{1}{1+m}2^{2+m}\,(3+m)\ \text{Cos}\left[\frac{1}{2}(a+b x)\right]^6\ \left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]\left(-\text{Sin}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{3}{2}(a+b x)\right]\right)\right)^m$$

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

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

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

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

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

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

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

$$\frac{1}{1+m}5\times 2^{2+m}(3+m)\,\text{Cos}\left[\frac{1}{2}(a+bx)\right]^4\text{Sin}\left[\frac{1}{2}(a+bx)\right]^2\left(\text{Cos}\left[\frac{1}{2}(a+bx)\right]\left(-\text{Sin}\left[\frac{1}{2}(a+bx)\right]+\text{Sin}\left[\frac{3}{2}(a+bx)\right]\right)\right)^m$$

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

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

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

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

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

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

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

$$\frac{1}{1+m}2^{3+m}m(3+m)\,\text{Cos}\left[\frac{1}{2}(a+bx)\right]^5\text{Sin}\left[\frac{1}{2}(a+bx)\right]\left(\text{Cos}\left[\frac{1}{2}(a+bx)\right]\left(-\text{Sin}\left[\frac{1}{2}(a+bx)\right]+\text{Sin}\left[\frac{3}{2}(a+bx)\right]\right)\right)^{-1+m}$$

$$\left(\text{Cos}\left[\frac{1}{2}(a+bx)\right]\left(-\frac{1}{2}\text{Cos}\left[\frac{1}{2}(a+bx)\right]+\frac{3}{2}\text{Cos}\left[\frac{3}{2}(a+bx)\right]\right)-\frac{1}{2}\text{Sin}\left[\frac{1}{2}(a+bx)\right]\left(-\text{Sin}\left[\frac{1}{2}(a+bx)\right]+\text{Sin}\left[\frac{3}{2}(a+bx)\right]\right)\right)$$

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

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

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

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

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

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

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

$$\frac{1}{1+m}2^{3+m}(3+m)\,\text{Cos}\left[\frac{1}{2}(a+bx)\right]^5\text{Sin}\left[\frac{1}{2}(a+bx)\right]\left(\text{Cos}\left[\frac{1}{2}(a+bx)\right]\left(-\text{Sin}\left[\frac{1}{2}(a+bx)\right]+\text{Sin}\left[\frac{3}{2}(a+bx)\right]\right)\right)^m$$

$$\left(-\left(\left(-\frac{1}{3+m}m(1+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1-m,3+2m,1+\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\frac{1}{3+m}(1+m)(3+2m)\,\text{AppellF1}\left[1+\frac{1+m}{2},-m,4+2m,1+\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]$$

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

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

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

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

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

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

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

$$\left(\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\left(-\frac{1}{3+m}m(1+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1-m,2(1+m),1+\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\frac{1}{3+m}2(1+m)^2\,\text{AppellF1}\left[1+\frac{1+m}{2},-m,1+2(1+m),1+\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,\right.$$

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

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

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

$$\left(\text{AppellF1}\left[\frac{1+m}{2},-m,2(1+m),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\right.$$

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

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

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

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

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

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

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

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

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

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

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

$$\left.1-m,2(1+m),\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+$$

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

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

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

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

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

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

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

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

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

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

$$1+\frac{3+m}{2}, -m, 1+2 (2+m), 1+\frac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b x)]]\Big)\Big)\Big)\Big)\Big/$$

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

$$1-m, 3+2 m, \frac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]+$$

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

Problem 125: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sin}[a+b x]\ \text{Sin}[2 a+2 b x]^m\, dx$$

Optimal (type 5, 82 leaves, 2 steps):

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

Result (type 5, 170 leaves):

$$\frac{1}{b\left(-1+4 m^2\right)} 2^{-1-m} e^{-i (a+b x)}\left(1-e^{4 i (a+b x)}\right)^{-m}\left(-i e^{-2 i (a+b x)}\left(-1+e^{4 i (a+b x)}\right)\right)^m$$

$$\Big((1-2 m)\ \text{Hypergeometric2F1}\left[\frac{1}{4}(-1-2 m), -m, \frac{1}{4}(3-2 m), e^{4 i (a+b x)}\right]+$$

$$e^{2 i (a+b x)}(1+2 m)\ \text{Hypergeometric2F1}\left[\frac{1}{4}(1-2 m), -m, \frac{1}{4}(5-2 m), e^{4 i (a+b x)}\right]\Big)$$

Problem 126: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[a+b x]\ \text{Sin}[2 a+2 b x]^m\, dx$$

Optimal (type 5, 72 leaves, 2 steps):

$$\frac{\left(\text{Cos}[a+b x]^2\right)^{\frac{1-m}{2}} \text{Hypergeometric2F1}\left[\frac{1-m}{2}, \frac{m}{2}, \frac{2+m}{2}, \text{Sin}[a+b x]^2\right] \text{Sec}[a+b x]\ \text{Sin}[2 a+2 b x]^m}{b m}$$

Result (type 6, 1737 leaves) :

$$\left((2+m)\ \text{AppellF1}\left[\frac{m}{2},-m,2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Csc}[a+b x]\ \text{Sin}[2(a+b x)]^{2m}\right)\Big/$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+2\ \Bigg(-\frac{1}{4+m}m\ (2+m)\ \text{AppellF1}\left[1+\frac{2+m}{2},1-m,1+2m,\right.$$

$$1+\frac{4+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]-\frac{1}{4+m}(2+m)\,(1+2\,m)$$

$$\mathrm{AppellF1}\left[1+\frac{2+m}{2},\ -m,\ 2+2\,m,\ 1+\frac{4+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(m\,\Bigg((2+m)\,\mathrm{AppellF1}\left[\frac{m}{2},\ -m,\ 2\,m,\ \frac{2+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-2\,m\,\Bigg(\mathrm{AppellF1}\left[\frac{2+m}{2},\ 1-m,\ 2\,m,\ \frac{4+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\,\mathrm{AppellF1}\left[\frac{2+m}{2},\ -m,\ 1+2\,m,\ \frac{4+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Bigg)\Bigg)\Bigg)$$

Problem 127: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[a+b\,x]^2\,\mathrm{Sin}[2\,a+2\,b\,x]^m\,dx$$

Optimal (type 5, 85 leaves, 2 steps):

$$-\frac{1}{b\,(1-m)}\left(\mathrm{Cos}[a+b\,x]^2\right)^{\frac{1-m}{2}}\mathrm{Csc}[a+b\,x]\,\mathrm{Hypergeometric2F1}\left[\frac{1-m}{2},\ \frac{1}{2}(-1+m),\ \frac{1+m}{2},\ \mathrm{Sin}[a+b\,x]^2\right]\mathrm{Sec}[a+b\,x]\,\mathrm{Sin}[2\,a+2\,b\,x]^m$$

Result (type 6, 4498 leaves):

$$\Bigg(2^{-1+m}\,\mathrm{Cot}\left[\frac{1}{2}(a+b\,x)\right]\mathrm{Csc}[a+b\,x]^2\left(\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]\left(-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{3}{2}(a+b\,x)\right]\right)\right)^m$$

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

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

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

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

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

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

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\,\mathrm{AppellF1}\left[\frac{3+m}{2},\ -m,\ 1+2\,m,\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Bigg)\Bigg)\Bigg)\Bigg/$$

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

$$\Bigg(\Bigg((1+m)^2\,\mathrm{AppellF1}\left[\frac{1}{2}(-1+m),\ -m,\ 2\,m,\ \frac{1+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Bigg)\Bigg/\Bigg((-1+m)\,\Bigg((1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(-1+m),\right.$$

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

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

$$\Big(\big(3+m\big)\,\text{AppellF1}\Big[\frac{1+m}{2},\ -m,\ 2\,m,\ \frac{3+m}{2},\ \text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big)\Big/\Big(\big(3+m\big)\,\text{AppellF1}\Big[$$

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

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

$$\frac{1}{1+m}\,2^{-1+m}\,m\,\text{Cot}\left[\frac{1}{2}\,(a+b\,x)\right]\,\Big(\text{Cos}\left[\frac{1}{2}\,(a+b\,x)\right]\,\Big(-\text{Sin}\left[\frac{1}{2}\,(a+b\,x)\right] + \text{Sin}\left[\frac{3}{2}\,(a+b\,x)\right]\Big)\Big)^{-1+m}$$

$$\Big(\text{Cos}\left[\frac{1}{2}\,(a+b\,x)\right]\,\Big(-\frac{1}{2}\,\text{Cos}\left[\frac{1}{2}\,(a+b\,x)\right] + \frac{3}{2}\,\text{Cos}\left[\frac{3}{2}\,(a+b\,x)\right]\Big) - \frac{1}{2}\,\text{Sin}\left[\frac{1}{2}\,(a+b\,x)\right]\,\Big(-\text{Sin}\left[\frac{1}{2}\,(a+b\,x)\right] + \text{Sin}\left[\frac{3}{2}\,(a+b\,x)\right]\Big)\Big)$$

$$\Big(\Big(\big(1+m\big)^2\,\text{AppellF1}\Big[\frac{1}{2}\,\big(-1+m\big),\ -m,\ 2\,m,\ \frac{1+m}{2},\ \text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\Big)\Big/\Big(\big(-1+m\big)\,\Big(\big(1+m\big)\,\text{AppellF1}\Big[\frac{1}{2}\,\big(-1+m\big),$$

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

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

$$\Big(\big(3+m\big)\,\text{AppellF1}\Big[\frac{1+m}{2},\ -m,\ 2\,m,\ \frac{3+m}{2},\ \text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big)\Big/\Big(\big(3+m\big)$$

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

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

$$\frac{1}{1+m}\,2^{-1+m}\,\text{Cot}\left[\frac{1}{2}\,(a+b\,x)\right]\,\Big(\text{Cos}\left[\frac{1}{2}\,(a+b\,x)\right]\,\Big(-\text{Sin}\left[\frac{1}{2}\,(a+b\,x)\right] + \text{Sin}\left[\frac{3}{2}\,(a+b\,x)\right]\Big)\Big)^{m}$$

$$\Big(\Big(\big(1+m\big)^2\,\Big(-\frac{1}{1+m}\big(-1+m\big)\,m\,\text{AppellF1}\Big[1+\frac{1}{2}\,\big(-1+m\big),\ 1-m,\ 2\,m,\ 1+\frac{1+m}{2},\ \text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right] - \frac{1}{1+m}2\,\big(-1+m\big)\,m\,\text{AppellF1}\Big[1+\frac{1}{2}\,\big(-1+m\big),\ -m,\ 1+2\,m,\ 1+\frac{1+m}{2},\ \text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\Big)\Big)\Big/\Big(\big(-1+m\big)\,\Big(\big(1+m\big)\,\text{AppellF1}\Big[\frac{1}{2}\,\big(-1+m\big),\ -m,\ 2\,m,\ \frac{1+m}{2},$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.-m,2+2m,1+\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

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

$$\left.2m,\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+$$

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

Problem 128: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[a+b x]^3\,\text{Sin}[2a+2b x]^m\,dx$$

Optimal (type 5, 85 leaves, 2 steps):

$$-\frac{1}{b(2-m)}\left(\text{Cos}[a+b x]^2\right)^{\frac{1-m}{2}}\text{Csc}[a+b x]^2\,\text{Hypergeometric2F1}\left[\frac{1-m}{2},\frac{1}{2}(-2+m),\frac{m}{2},\text{Sin}[a+b x]^2\right]\text{Sec}[a+b x]\,\text{Sin}[2a+2b x]^m$$

Result (type 6, 5872 leaves):

$$\left(4^{-1+m}\,\text{Csc}[a+b\,x]^3\,\text{Sin}[2\,(a+b\,x)]^m\left(\frac{\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)^2}\right)^m\right.$$

$$\left(-\left(\left(\text{AppellF1}\left[\frac{1}{2}\,(-2+m),\,-m,\,2\,m,\,\frac{m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\text{Cot}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)\Big/\left((-2+m)\right.\right.\right.$$

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

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

$$\left(2\,(2+m)\,\text{AppellF1}\left[\frac{m}{2},\,-m,\,2\,m,\,\frac{2+m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\Big/$$

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

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

$$\left((4+m)\,\text{AppellF1}\left[\frac{2+m}{2},\,-m,\,2\,m,\,\frac{4+m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)\Big/$$

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

$$2\,m\left(\text{AppellF1}\left[\frac{4+m}{2},\,1-m,\,2\,m,\,\frac{6+m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.\left.\left.2\,\text{AppellF1}\left[\frac{4+m}{2},\,-m,\,1+2\,m,\,\frac{6+m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)\right)\right)\right)\Big/$$

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

$$\text{Cot}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big)\Big/\left((-2+m)\left(-\text{AppellF1}\left[\frac{1}{2}\,(-2+m),\,-m,\,2\,m,\,\frac{m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+2\right.\right.$$

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

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

$$\left(2\,(2+m)\,\text{AppellF1}\left[\frac{m}{2},\,-m,\,2\,m,\,\frac{2+m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\Big/\left(m\left((2+m)\,\text{AppellF1}\left[\frac{m}{2},\,-m,\,2\,m,\right.\right.\right.$$

$$\frac{2+m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]-2\,m\left(\text{AppellF1}\left[\frac{2+m}{2},\,1-m,\,2\,m,\,\frac{4+m}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+\right.$$

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

$$\left((4+m)\,\text{AppellF1}\left[\frac{2+m}{2},-m,2m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)\Big/$$

$$\left((2+m)\left((4+m)\,\text{AppellF1}\left[\frac{2+m}{2},-m,2m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]-\right.\right.$$

$$2m\left(\text{AppellF1}\left[\frac{4+m}{2},1-m,2m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+\right.$$

$$\left.\left.\left.2\,\text{AppellF1}\left[\frac{4+m}{2},-m,1+2m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)\right)$$

$$\left(\frac{\frac{1}{2}\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2-\frac{3}{2}\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^2}-\frac{2\,\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]\left(\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^3\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^3}\right)+$$

$$4^{-1+m}\left(\frac{\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^2}\right)^m$$

$$\left(\left(\text{AppellF1}\left[\frac{1}{2}(-2+m),-m,2m,\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(a+bx)\right]\text{Csc}\left[\frac{1}{2}(a+bx)\right]^2\right)\Big/\left((-2+m)\right.\right.$$

$$\left(-\text{AppellF1}\left[\frac{1}{2}(-2+m),-m,2m,\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+2\left(\text{AppellF1}\left[\frac{m}{2},1-m,2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+2\,\text{AppellF1}\left[\frac{m}{2},-m,1+2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)\right)-$$

$$\left(\text{Cot}\left[\frac{1}{2}(a+bx)\right]^2\left(-(-2+m)\,\text{AppellF1}\left[1+\frac{1}{2}(-2+m),1-m,2m,1+\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]-2(-2+m)\,\text{AppellF1}\left[1+\frac{1}{2}(-2+m),-m,1+2m,1+\right.$$

$$\left.\left.\left.\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]\right)\right)\Big/\left((-2+m)\right.$$

$$\left(-\text{AppellF1}\left[\frac{1}{2}(-2+m),-m,2m,\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+2\left(\text{AppellF1}\left[\frac{m}{2},1-m,2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+2\,\text{AppellF1}\left[\frac{m}{2},-m,1+2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)\right)+$$

$$\left(2(2+m)\left(-\frac{1}{2+m}m^2\,\text{AppellF1}\left[1+\frac{m}{2},1-m,2m,1+\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\right.\right.$$

$$\left.\left.\frac{1}{2+m}2\,m^2\,\text{AppellF1}\left[1+\frac{m}{2},-m,1+2m,1+\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]\right)\right)\Big/$$

$$\left(m\left((2+m)\,\text{AppellF1}\left[\frac{m}{2},-m,2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]-\right.\right.$$

$$2m\left(\text{AppellF1}\left[\frac{2+m}{2},1-m,2m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+\right.$$

$$2\,\text{AppellF1}\left[\frac{2+m}{2},-m,1+2m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\Big)\Big)+$$

$$\Big((4+m)\,\text{AppellF1}\left[\frac{2+m}{2},-m,2m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]\Big)\Big/$$

$$\Big((2+m)\Big((4+m)\,\text{AppellF1}\left[\frac{2+m}{2},-m,2m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]-$$

$$2m\Big(\text{AppellF1}\left[\frac{4+m}{2},1-m,2m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+$$

$$2\,\text{AppellF1}\left[\frac{4+m}{2},-m,1+2m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\Big)\Big)+$$

$$\Big((4+m)\,\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\Big(-\frac{1}{4+m}m(2+m)\,\text{AppellF1}\left[1+\frac{2+m}{2},1-m,2m,1+\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\frac{1}{4+m}$$

$$2m(2+m)\,\text{AppellF1}\left[1+\frac{2+m}{2},-m,1+2m,1+\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]\Big)\Big)\Big/$$

$$\Big((2+m)\Big((4+m)\,\text{AppellF1}\left[\frac{2+m}{2},-m,2m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]-$$

$$2m\Big(\text{AppellF1}\left[\frac{4+m}{2},1-m,2m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+$$

$$2\,\text{AppellF1}\left[\frac{4+m}{2},-m,1+2m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\Big)\Big)+$$

$$\Big(\text{AppellF1}\left[\frac{1}{2}(-2+m),-m,2m,\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(a+bx)\right]^2$$

$$\Big((-2+m)\,\text{AppellF1}\left[1+\frac{1}{2}(-2+m),1-m,2m,1+\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]+$$

$$2(-2+m)\,\text{AppellF1}\left[1+\frac{1}{2}(-2+m),-m,1+2m,1+\frac{m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]+$$

$$2\Big(\text{AppellF1}\left[\frac{m}{2},1-m,2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]+2\,\text{AppellF1}\left[\frac{m}{2},-m,1+2m,\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\Big)\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]+2\,\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\Big(-\frac{1}{2+m}2m^2\,\text{AppellF1}\left[1+\frac{m}{2},1-m,1+2m,\right.$$

$$\left.1+\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]+\frac{1}{2+m}(1-m)m\,\text{AppellF1}\left[1+\frac{m}{2},2-m,\right.$$

$$\left.2m,1+\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]+2\Big(-\frac{1}{2+m}m^2\,\text{AppellF1}\left[1+\frac{m}{2},\right.$$

$$\left.1-m,1+2m,1+\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\frac{1}{2+m}m(1+2m)$$

$$\text{AppellF1}\left[1+\frac{m}{2},-m,2+2m,1+\frac{2+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]\Big)\Big)\Big)\Big)\Big/$$

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

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

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

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

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

$$(2+m)\ \left(-\frac{1}{2+m}m^2\,\text{AppellF1}\left[1+\frac{m}{2},\ 1-m,\ 2m,\ 1+\frac{2+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]-\right.$$

$$\left.\frac{1}{2+m}2\,m^2\,\text{AppellF1}\left[1+\frac{m}{2},\ -m,\ 1+2m,\ 1+\frac{2+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)-$$

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

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

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

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

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

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

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

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

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

$$(-2m\ (\text{AppellF1}\left[\frac{4+m}{2},\ 1-m,\ 2m,\ \frac{6+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\,\text{AppellF1}\left[\frac{4+m}{2},\ -m,\ 1+2m,\right.$$

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

$$\text{AppellF1}\left[1+\frac{2+m}{2},\ 1-m,\ 2m,\ 1+\frac{4+m}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]-\frac{1}{4+m}2m$$

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

$$2\,m\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\left(-\frac{1}{6+m}2\,m\,(4+m)\,\text{AppellF1}\left[1+\frac{4+m}{2},1-m,1+2\,m,1+\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right.$$
$$\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]+\frac{1}{6+m}(1-m)\,(4+m)\,\text{AppellF1}\left[1+\frac{4+m}{2},2-m,2\,m,1+\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]+2\left(-\frac{1}{6+m}m\,(4+m)\,\text{AppellF1}\left[1+\frac{4+m}{2},1-m,1+2\,m,1+\frac{6+m}{2},\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]-\frac{1}{6+m}(4+m)\,(1+2\,m)\,\text{AppellF1}\left[1+\frac{4+m}{2},\right.$$
$$\left.\left.\left.\left.-m,2+2\,m,1+\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right)\right)\right)\Big/$$
$$\left((2+m)\left((4+m)\,\text{AppellF1}\left[\frac{2+m}{2},-m,2\,m,\frac{4+m}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-2\,m\right.\right.$$
$$\left(\text{AppellF1}\left[\frac{4+m}{2},1-m,2\,m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+\right.$$
$$\left.\left.\left.2\,\text{AppellF1}\left[\frac{4+m}{2},-m,1+2\,m,\frac{6+m}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2\right)\right)$$

Problem 136: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b\,x]\,\text{Csc}[2\,a+2\,b\,x]\,dx$$

Optimal (type 3, 14 leaves, 2 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[a+b\,x]]}{2\,b}$$

Result (type 3, 42 leaves):

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

Problem 137: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b\,x]\,\text{Csc}[2\,a+2\,b\,x]^2\,dx$$

Optimal (type 3, 28 leaves, 4 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[a+b\,x]]}{4\,b}-\frac{\text{Csc}[a+b\,x]}{4\,b}$$

Result (type 3, 94 leaves):

$$\frac{1}{4}\left(-\frac{\text{Cot}\left[\frac{1}{2}(a+b x)\right]}{2 b}-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{b}+\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{b}-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{2 b}\right)$$

Problem 138: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\, \text{Csc}[2 a+2 b x]^3\, dx$$

Optimal (type 3, 49 leaves, 5 steps):

$$-\frac{3\, \text{ArcTanh}[\text{Cos}[a+b x]]}{16 b}+\frac{3\, \text{Sec}[a+b x]}{16 b}-\frac{\text{Csc}[a+b x]^2\, \text{Sec}[a+b x]}{16 b}$$

Result (type 3, 143 leaves):

$$\left(\text{Csc}[a+b x]^4 \left(2-6\, \text{Cos}[2 (a+b x)]+2\, \text{Cos}[3 (a+b x)]+3\, \text{Cos}[3 (a+b x)]\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-3\, \text{Cos}[3 (a+b x)]\, \text{Log}\left[\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]+\text{Cos}[a+b x] \left(-2-3\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]\right]+3\, \text{Log}\left[\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]\right)\right)\right) \Big/ \left(16 b \left(\text{Csc}\left[\frac{1}{2}(a+b x)\right]^2-\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right)\right)$$

Problem 139: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\, \text{Csc}[2 a+2 b x]^4\, dx$$

Optimal (type 3, 66 leaves, 6 steps):

$$\frac{5\, \text{ArcTanh}[\text{Sin}[a+b x]]}{32 b}-\frac{5\, \text{Csc}[a+b x]}{32 b}-\frac{5\, \text{Csc}[a+b x]^3}{96 b}+\frac{\text{Csc}[a+b x]^3\, \text{Sec}[a+b x]^2}{32 b}$$

Result (type 3, 215 leaves):

$$-\frac{13\, \text{Cot}\left[\frac{1}{2}(a+b x)\right]}{192 b}-\frac{\text{Cot}\left[\frac{1}{2}(a+b x)\right] \text{Csc}\left[\frac{1}{2}(a+b x)\right]^2}{384 b}-\frac{5\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{32 b}+\frac{5\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{32 b}+\frac{1}{64 b \left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}-\frac{1}{64 b \left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}-\frac{13\, \text{Tan}\left[\frac{1}{2}(a+b x)\right]}{192 b}-\frac{\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2 \text{Tan}\left[\frac{1}{2}(a+b x)\right]}{384 b}$$

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

$$\int \mathrm{Cos}[a+b x]\, \mathrm{Csc}[2 a+2 b x]^5 \, dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$-\frac{35\,\mathrm{ArcTanh}[\mathrm{Cos}[a+b x]]}{256\,b}+\frac{35\,\mathrm{Sec}[a+b x]}{256\,b}+\frac{35\,\mathrm{Sec}[a+b x]^3}{768\,b}-\frac{7\,\mathrm{Csc}[a+b x]^2\,\mathrm{Sec}[a+b x]^3}{256\,b}-\frac{\mathrm{Csc}[a+b x]^4\,\mathrm{Sec}[a+b x]^3}{128\,b}$$

Result (type 3, 268 leaves):

$$-\frac{1}{768\,b\,\left(\mathrm{Csc}\left[\frac{1}{2}(a+b x)\right]^2-\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right)^3}$$
$$\mathrm{Csc}[a+b x]^{10}\left(-204+658\,\mathrm{Cos}[2(a+b x)]-228\,\mathrm{Cos}[3(a+b x)]+140\,\mathrm{Cos}[4(a+b x)]-76\,\mathrm{Cos}[5(a+b x)]-210\,\mathrm{Cos}[6(a+b x)]+\right.$$
$$76\,\mathrm{Cos}[7(a+b x)]-315\,\mathrm{Cos}[3(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-105\,\mathrm{Cos}[5(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]+$$
$$105\,\mathrm{Cos}[7(a+b x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]+3\,\mathrm{Cos}[a+b x]\left(76+105\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]\right]-105\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]\right)+$$
$$\left.315\,\mathrm{Cos}[3(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]+105\,\mathrm{Cos}[5(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]-105\,\mathrm{Cos}[7(a+b x)]\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b x)\right]\right]\right)$$

Problem 158: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[a+b x]^3\, \mathrm{Csc}[2 a+2 b x]^3 \, dx$$

Optimal (type 3, 34 leaves, 3 steps):

$$-\frac{\mathrm{ArcTanh}[\mathrm{Cos}[a+b x]]}{16\,b}-\frac{\mathrm{Cot}[a+b x]\,\mathrm{Csc}[a+b x]}{16\,b}$$

Result (type 3, 79 leaves):

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

Problem 159: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[a+b x]^3\, \mathrm{Csc}[2 a+2 b x]^4 \, dx$$

Optimal (type 3, 43 leaves, 5 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[a+b x]]}{16 b}-\frac{\text{Csc}[a+b x]}{16 b}-\frac{\text{Csc}[a+b x]^3}{48 b}$$

Result (type 3, 152 leaves):

$$\frac{1}{16}\left(-\frac{7 \text{Cot}\left[\frac{1}{2}(a+b x)\right]}{12 b}-\frac{\text{Cot}\left[\frac{1}{2}(a+b x)\right] \text{Csc}\left[\frac{1}{2}(a+b x)\right]^2}{24 b}-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{b}+\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{b}-\frac{7 \text{Tan}\left[\frac{1}{2}(a+b x)\right]}{12 b}-\frac{\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2 \text{Tan}\left[\frac{1}{2}(a+b x)\right]}{24 b}\right)$$

Problem 160: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]^3 \text{Csc}[2 a+2 b x]^5 \, dx$$

Optimal (type 3, 70 leaves, 6 steps):

$$-\frac{15 \text{ArcTanh}[\text{Cos}[a+b x]]}{256 b}+\frac{15 \text{Sec}[a+b x]}{256 b}-\frac{5 \text{Csc}[a+b x]^2 \text{Sec}[a+b x]}{256 b}-\frac{\text{Csc}[a+b x]^4 \text{Sec}[a+b x]}{128 b}$$

Result (type 3, 195 leaves):

$$-\frac{7 \text{Csc}\left[\frac{1}{2}(a+b x)\right]^2}{1024 b}-\frac{\text{Csc}\left[\frac{1}{2}(a+b x)\right]^4}{2048 b}-\frac{15 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]\right]}{256 b}+\frac{15 \text{Log}\left[\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{256 b}+\frac{7 \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2}{1024 b}+\frac{\text{Sec}\left[\frac{1}{2}(a+b x)\right]^4}{2048 b}+\frac{\text{Sin}\left[\frac{1}{2}(a+b x)\right]}{32 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)}-\frac{\text{Sin}\left[\frac{1}{2}(a+b x)\right]}{32 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)}$$

Problem 187: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]^3 \text{Sin}[2 a+2 b x]^m \, dx$$

Optimal (type 5, 85 leaves, 2 steps):

$$-\frac{1}{b(4+m)} \text{Cos}[a+b x]^3 \text{Cot}[a+b x] \text{Hypergeometric2F1}\left[\frac{1-m}{2}, \frac{4+m}{2}, \frac{6+m}{2}, \text{Cos}[a+b x]^2\right] \left(\text{Sin}[a+b x]^2\right)^{\frac{1-m}{2}} \text{Sin}[2 a+2 b x]^m$$

Result (type 6, 10 498 leaves):

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

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

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

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

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

$$\Bigg(12\,\mathrm{AppellF1}\left[\frac{1+m}{2},-m,3+2m,\frac{3+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\Bigg)\Big/$$

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

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

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

$$\Bigg(6\,\mathrm{AppellF1}\left[\frac{1+m}{2},-m,2(1+m),\frac{3+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\Bigg)\Big/$$

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

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

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

$$\Bigg(8\,\mathrm{AppellF1}\left[\frac{1+m}{2},-m,2(2+m),\frac{3+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\Big/$$

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

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

$$2(2+m)\,\mathrm{AppellF1}\left[\frac{3+m}{2},-m,5+2m,\frac{5+m}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(b(1+m)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^4\Bigg(\frac{1}{(1+m)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^5}2^{3+2m}(3+m)\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2$$

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

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

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

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

$$\Bigg(12\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,3+2\,m,\,\frac{3+m}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)\Bigg)\Big/$$

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

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

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

$$\Bigg(6\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,2\,(1+m),\,\frac{3+m}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)^2\Bigg)\Big/$$

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

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

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

$$\Bigg(8\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,2\,(2+m),\,\frac{3+m}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Bigg)\Big/\Bigg(\Big(3+m\Big)\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,2\,(2+m),\,\frac{3+m}{2},$$

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

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

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

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

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

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

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

$$\left(12\,\text{AppellF1}\left[\frac{1+m}{2},-m,3+2m,\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)\right)\Big/$$

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

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

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

$$\left(6\,\text{AppellF1}\left[\frac{1+m}{2},-m,2(1+m),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^2\right)\Big/$$

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

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

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

$$\left(8\,\text{AppellF1}\left[\frac{1+m}{2},-m,2(2+m),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\right)\Big/\left((3+m)\,\text{AppellF1}\left[\frac{1+m}{2},-m,2(2+m),\frac{3+m}{2},\right.\right.$$

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

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

$$\frac{1}{(1+m)\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^4}\,2^{1+2m}\,m\,(3+m)\,\text{Tan}\left[\frac{1}{2}(a+bx)\right]\left(\frac{\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^2}\right)^{-1+m}$$

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

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

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

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

$$\left(12\,\text{AppellF1}\left[\frac{1+m}{2},-m,3+2m,\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)\right)\Big/$$

$$\left(\left(3+m\right)\text{AppellF1}\left[\frac{1+m}{2},-m,3+2m,\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]-\right.$$
$$2\left(m\,\text{AppellF1}\left[\frac{3+m}{2},1-m,3+2m,\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]+\right.$$
$$\left.\left.\left(3+2m\right)\text{AppellF1}\left[\frac{3+m}{2},-m,2\left(2+m\right),\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)-$$
$$\left(6\,\text{AppellF1}\left[\frac{1+m}{2},-m,2\left(1+m\right),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)^2\right)\Big/$$
$$\left(\left(3+m\right)\text{AppellF1}\left[\frac{1+m}{2},-m,2\left(1+m\right),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]-\right.$$
$$2\left(m\,\text{AppellF1}\left[\frac{3+m}{2},1-m,2\left(1+m\right),\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]+\right.$$
$$\left.\left.2\left(1+m\right)\text{AppellF1}\left[\frac{3+m}{2},-m,3+2m,\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)-$$
$$\left(8\,\text{AppellF1}\left[\frac{1+m}{2},-m,2\left(2+m\right),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]\right)\Big/$$
$$\left(\left(3+m\right)\text{AppellF1}\left[\frac{1+m}{2},-m,2\left(2+m\right),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]-\right.$$
$$2\left(m\,\text{AppellF1}\left[\frac{3+m}{2},1-m,2\left(2+m\right),\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]+2\left(2+m\right)\text{AppellF1}\left[\frac{3+m}{2},-m,5+2m,\frac{5+m}{2},\right.\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)\right)\left(\frac{\frac{1}{2}\text{Sec}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2-\frac{3}{2}\text{Sec}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)^2}-\right.$$
$$\left.\frac{2\,\text{Sec}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]\left(\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^3\right)}{\left(1+\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)^3}\right)-\frac{1}{\left(1+m\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)^4}$$
$$2^{1+2m}\left(3+m\right)\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]\left(\frac{\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)^2}\right)^m$$
$$\left(\left(3\,\text{AppellF1}\left[\frac{1+m}{2},-m,1+2m,\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)^2\right)\Big/\left(\left(3+m\right)\text{AppellF1}\left[\frac{1+m}{2},-m,1+2m,\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]-\right.$$
$$2\left(m\,\text{AppellF1}\left[\frac{3+m}{2},1-m,1+2m,\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]+\right.$$
$$\left.\left.\left(1+2m\right)\text{AppellF1}\left[\frac{3+m}{2},-m,2\left(1+m\right),\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\left(a+b\,x\right)\right]^2\right)+$$

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

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

$$\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]\bigg)\,\Big(1+\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big)^3\Bigg)\Bigg/\Bigg(\,(3+m)\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,1+2\,m,\,\frac{3+m}{2},$$

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

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

$$\Bigg(12\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,3+2\,m,\,\frac{3+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]\Bigg)\Bigg/$$

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

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

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

$$\Bigg(12\,\bigg(-\frac{1}{3+m}m\,(1+m)\,\text{AppellF1}\Big[1+\frac{1+m}{2},\,1-m,\,3+2\,m,\,1+\frac{3+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2$$

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

$$\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]\bigg)\,\Big(1+\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big)\Bigg)\Bigg/\Bigg(\,(3+m)\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,3+2\,m,\,\frac{3+m}{2},$$

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

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

$$\Bigg(12\,\text{AppellF1}\Big[\frac{1+m}{2},\,-m,\,2\,(1+m),\,\frac{3+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]$$

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

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

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

$$\Bigg(6\,\bigg(-\frac{1}{3+m}m\,(1+m)\,\text{AppellF1}\Big[1+\frac{1+m}{2},\,1-m,\,2\,(1+m),\,1+\frac{3+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2$$

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

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

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

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

$$\Big(8\Big(-\frac{1}{3+m}m(1+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1-m,2(2+m),1+\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\frac{1}{3+m}2(1+m)(2+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},-m,1+2(2+m),1+\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,\right.$$

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

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

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

$$\Big(6\,\text{AppellF1}\left[\frac{1+m}{2},-m,2(1+m),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^2$$

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

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

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

$$\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\frac{1}{3+m}2(1+m)^2\,\text{AppellF1}\left[1+\frac{1+m}{2},-m,1+2(1+m),1+\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]$$

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

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

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

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

$$\text{Sec}\left[\frac{1}{2}(a+bx)\right]^2\text{Tan}\left[\frac{1}{2}(a+bx)\right]-\frac{1}{5+m}(3+m)(3+2m)\,\text{AppellF1}\left[1+\frac{3+m}{2},-m,4+2m,\right.$$

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

$$\Big(\Big((3+m)\,\text{AppellF1}\left[\frac{1+m}{2},-m,2(1+m),\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]-2\Big(m\,\text{AppellF1}\Big[\frac{3+m}{2},$$

$$1-m,\ 2\ (1+m),\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]+$$

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

$$\Bigg(8\ \mathrm{AppellF1}\left[\frac{1+m}{2},\ -m,\ 2\ (2+m),\ \frac{3+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\right]\ \Bigg(-2\ \Bigg(m\ \mathrm{AppellF1}\Big[\frac{3+m}{2},\ 1-m,$$

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

$$-\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]\Bigg)\ \mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]+(3+m)\ \Bigg(-\frac{1}{3+m}m\ (1+m)\ \mathrm{AppellF1}\Big[1+\frac{1+m}{2},\ 1-m,\ 2\ (2+m),$$

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

$$1+\frac{1+m}{2},\ -m,\ 1+2\ (2+m),\ 1+\frac{3+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]\Bigg)-$$

$$2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \Bigg(m\ \Bigg(-\frac{1}{5+m}2\ (2+m)\ (3+m)\ \mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ 1-m,\ 1+2\ (2+m),\ 1+\frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]+\frac{1}{5+m}(1-m)\ (3+m)\ \mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ 2-m,$$

$$2\ (2+m),\ 1+\frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]\Bigg)+$$

$$2\ (2+m)\ \Bigg(-\frac{1}{5+m}m\ (3+m)\ \mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ 1-m,\ 5+2\ m,\ 1+\frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]-\frac{1}{5+m}(3+m)\ (5+2\ m)\ \mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ -m,\ 6+2\ m,$$

$$1+\frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

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

$$1-m,\ 2\ (2+m),\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]+$$

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

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

$$\Bigg(-2\ \Bigg(m\ \mathrm{AppellF1}\Big[\frac{3+m}{2},\ 1-m,\ 1+2\ m,\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]+$$

$$(1+2\ m)\ \mathrm{AppellF1}\left[\frac{3+m}{2},\ -m,\ 2\ (1+m),\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\right]\Bigg)\ \mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]+$$

$$(3+m)\ \Bigg(-\frac{1}{3+m}m\ (1+m)\ \mathrm{AppellF1}\Big[1+\frac{1+m}{2},\ 1-m,\ 1+2\ m,\ 1+\frac{3+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (a+b\ x)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{2}\ (a+b\ x)\right]^2$$

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

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

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

$$1+\frac{3+m}{2},2-m,1+2 m,1+\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)+$$

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

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

$$1+\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

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

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

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

$$\Bigg(12\,\text{AppellF1}\left[\frac{1+m}{2},-m,3+2 m,\frac{3+m}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)$$

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

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

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

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

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

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

$$1+\frac{3+m}{2},2-m,3+2 m,1+\frac{5+m}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)+$$

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

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

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

Problem 188: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[a+b\,x]^2\ \mathrm{Sin}[2a+2b\,x]^m\,dx$$

Optimal (type 5, 85 leaves, 2 steps):

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

Result (type 6, 7926 leaves):

$$\left(2^{1+2m}\ (3+m)\ \mathrm{Cos}[a+b\,x]^2\ \mathrm{Sin}[2(a+b\,x)]^m\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\ \left(\frac{\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^3}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2}\right)^m\right.$$
$$\Big(\Big(\mathrm{AppellF1}\left[\frac{1+m}{2},\ -m,\ 1+2m,\ \frac{3+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\ \left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2\Big)\Big/$$
$$\Big(\Big((3+m)\ \mathrm{AppellF1}\left[\frac{1+m}{2},\ -m,\ 1+2m,\ \frac{3+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-$$
$$2\Big(m\ \mathrm{AppellF1}\left[\frac{3+m}{2},\ 1-m,\ 1+2m,\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+$$
$$(1+2m)\ \mathrm{AppellF1}\left[\frac{3+m}{2},\ -m,\ 2(1+m),\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Big)\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big)+$$
$$\Big(4\ \mathrm{AppellF1}\left[\frac{1+m}{2},\ -m,\ 3+2m,\ \frac{3+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Big)\Big/\Big(\Big((3+m)\ \mathrm{AppellF1}\Big[\frac{1+m}{2},\ -m,\ 3+2m,\ \frac{3+m}{2},$$
$$\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big]-2\Big(m\ \mathrm{AppellF1}\left[\frac{3+m}{2},\ 1-m,\ 3+2m,\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+$$
$$(3+2m)\ \mathrm{AppellF1}\left[\frac{3+m}{2},\ -m,\ 2(2+m),\ \frac{5+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Big)\ \mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big)-$$

$$\Big(4\,\text{AppellF1}[\tfrac{1+m}{2},-m,2(1+m),\tfrac{3+m}{2},\text{Tan}[\tfrac{1}{2}(a+b x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,(1+\text{Tan}[\tfrac{1}{2}(a+b x)]^2)\Big)\Big/$$

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

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

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

$$\Big(b\,(1+m)\,(1+\text{Tan}[\tfrac{1}{2}(a+b x)]^2)^3\,\Big(-\frac{1}{(1+m)\,(1+\text{Tan}[\frac{1}{2}(a+b x)]^2)^4}\,3\times 2^{1+2m}\,(3+m)\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2$$

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

$$(1+\text{Tan}[\tfrac{1}{2}(a+b x)]^2)^2\Big)\Big/\Big((3+m)\,\text{AppellF1}[\tfrac{1+m}{2},-m,1+2m,\tfrac{3+m}{2},\text{Tan}[\tfrac{1}{2}(a+b x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b x)]^2]-$$

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

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

$$\Big(4\,\text{AppellF1}[\tfrac{1+m}{2},-m,3+2m,\tfrac{3+m}{2},\text{Tan}[\tfrac{1}{2}(a+b x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\Big)\Big/\Big((3+m)\,\text{AppellF1}[\tfrac{1+m}{2},-m,3+2m,\tfrac{3+m}{2},$$

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

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

$$\Big(4\,\text{AppellF1}[\tfrac{1+m}{2},-m,2(1+m),\tfrac{3+m}{2},\text{Tan}[\tfrac{1}{2}(a+b x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,(1+\text{Tan}[\tfrac{1}{2}(a+b x)]^2)\Big)\Big/$$

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

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

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

$$\frac{1}{(1+m)\,(1+\text{Tan}[\frac{1}{2}(a+b x)]^2)^3}\,2^{2m}\,(3+m)\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\left(\frac{\text{Tan}[\frac{1}{2}(a+b x)]-\text{Tan}[\frac{1}{2}(a+b x)]^3}{(1+\text{Tan}[\frac{1}{2}(a+b x)]^2)^2}\right)^m$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 189: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\,\text{Sin}[2 a+2 b x]^m\,dx$$

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

$$-\frac{1}{b(2+m)}\text{Cos}[a+b x]\,\text{Cot}[a+b x]\,\text{Hypergeometric2F1}\Big[\frac{1-m}{2}, \frac{2+m}{2}, \frac{4+m}{2}, \text{Cos}[a+b x]^2\Big]\left(\text{Sin}[a+b x]^2\right)^{\frac{1-m}{2}}\text{Sin}[2 a+2 b x]^m$$

Result (type 5, 173 leaves):

$$\frac{1}{b\left(-1+4m^2\right)} i\, 2^{-1-m} e^{-i(a+bx)} \left(1-e^{4i(a+bx)}\right)^{-m} \left(-i\, e^{-2i(a+bx)} \left(-1+e^{4i(a+bx)}\right)\right)^m \left(\left(-1+2m\right) \text{Hypergeometric2F1}\left[\frac{1}{4}\left(-1-2m\right), -m, \frac{1}{4}\left(3-2m\right), e^{4i(a+bx)}\right] + e^{2i(a+bx)} \left(1+2m\right) \text{Hypergeometric2F1}\left[\frac{1}{4}\left(1-2m\right), -m, \frac{1}{4}\left(5-2m\right), e^{4i(a+bx)}\right]\right)$$

Problem 196: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+bx]^2 \,\text{Sin}[a+bx]\, dx$$

Optimal (type 3, 36 leaves, 4 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+bx]]\,\text{Cos}[a-c]}{b} - \frac{\text{Csc}[c+bx]\,\text{Sin}[a-c]}{b}$$

Result (type 3, 90 leaves):

$$-\frac{2\, i\, \text{ArcTan}\left[\frac{(\text{Cos}[c]-i\,\text{Sin}[c])\left(\text{Cos}[c]\,\text{Cos}\left[\frac{bx}{2}\right]-\text{Sin}[c]\,\text{Sin}\left[\frac{bx}{2}\right]\right)}{i\,\text{Cos}[c]\,\text{Cos}\left[\frac{bx}{2}\right]+\text{Cos}\left[\frac{bx}{2}\right]\,\text{Sin}[c]}\right]\text{Cos}[a-c]}{b} - \frac{\text{Csc}[c+bx]\,\text{Sin}[a-c]}{b}$$

Problem 201: Unable to integrate problem.

$$\int \text{Sin}[a+bx]^2\, \text{Sin}[c+dx]^n\, dx$$

Optimal (type 5, 410 leaves, 15 steps):

$$-\frac{1}{2b+dn} i\, 2^{-2-n} e^{-i(2a+cn)-i(2b+dn)x+in(c+dx)} \left(1-e^{2ic+2idx}\right)^{-n} \left(i\, e^{-i(c+dx)} - i\, e^{i(c+dx)}\right)^n \text{Hypergeometric2F1}\left[\frac{1}{2}\left(-\frac{2b}{d}-n\right), -n, \frac{1}{2}\left(2-\frac{2b}{d}-n\right), e^{2i(c+dx)}\right] + \frac{1}{2b-dn} i\, 2^{-2-n} e^{i(2a-cn)+i(2b-dn)x+in(c+dx)} \left(1-e^{2ic+2idx}\right)^{-n} \left(i\, e^{-i(c+dx)} - i\, e^{i(c+dx)}\right)^n \text{Hypergeometric2F1}\left[\frac{1}{2}\left(\frac{2b}{d}-n\right), -n, \frac{1}{2}\left(2+\frac{2b}{d}-n\right), e^{2i(c+dx)}\right] + \frac{i\, 2^{-1-n} \left(i\, e^{-i(c+dx)} - i\, e^{i(c+dx)}\right)^n \left(1-e^{2i(c+dx)}\right)^{-n} \text{Hypergeometric2F1}\left[-n, -\frac{n}{2}, 1-\frac{n}{2}, e^{2i(c+dx)}\right]}{dn}$$

Result (type 8, 19 leaves):

$$\int \text{Sin}[a+bx]^2\, \text{Sin}[c+dx]^n\, dx$$

Problem 205: Unable to integrate problem.

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

Optimal (type 5, 600 leaves, 18 steps):

$$\frac{1}{3 b-d n} 2^{-3-n} e^{i (3 a-c n)+i (3 b-d n) x+i n (c+d x)} \left(1-e^{2 i c+2 i d x}\right)^{-n} \left(i e^{-i (c+d x)}-i e^{i (c+d x)}\right)^n \text{Hypergeometric2F1}\left[\frac{1}{2}\left(\frac{3 b}{d}-n\right),-n,\frac{1}{2}\left(2+\frac{3 b}{d}-n\right),e^{2 i (c+d x)}\right]-\frac{1}{b-d n} 3\times 2^{-3-n} e^{i (a-c n)+i (b-d n) x+i n (c+d x)} \left(1-e^{2 i c+2 i d x}\right)^{-n} \left(i e^{-i (c+d x)}-i e^{i (c+d x)}\right)^n \text{Hypergeometric2F1}\left[-n,\frac{b-d n}{2 d},\frac{1}{2}\left(2+\frac{b}{d}-n\right),e^{2 i (c+d x)}\right]-\frac{1}{b+d n} 3\times 2^{-3-n} e^{-i (a+c n)-i (b+d n) x+i n (c+d x)} \left(1-e^{2 i c+2 i d x}\right)^{-n} \left(i e^{-i (c+d x)}-i e^{i (c+d x)}\right)^n \text{Hypergeometric2F1}\left[-n,-\frac{b+d n}{2 d},1-\frac{b+d n}{2 d},e^{2 i (c+d x)}\right]+\frac{1}{3 b+d n} 2^{-3-n} e^{-i (3 a+c n)-i (3 b+d n) x+i n (c+d x)} \left(1-e^{2 i c+2 i d x}\right)^{-n} \left(i e^{-i (c+d x)}-i e^{i (c+d x)}\right)^n \text{Hypergeometric2F1}\left[-n,-\frac{3 b+d n}{2 d},\frac{1}{2}\left(2-\frac{3 b}{d}-n\right),e^{2 i (c+d x)}\right]$$

Result (type 8, 19 leaves):

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

Problem 214: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+b x]^2\, \text{Sin}[a+b x] \,dx$$

Optimal (type 3, 34 leaves, 4 steps):

$$\frac{\text{Cos}[a-c]\, \text{Sec}[c+b x]}{b}+\frac{\text{ArcTanh}[\text{Sin}[c+b x]]\, \text{Sin}[a-c]}{b}$$

Result (type 3, 88 leaves):

$$\frac{\text{Cos}[a-c]\, \text{Sec}[c+b x]}{b}-\frac{2 i\, \text{ArcTan}\left[\frac{(i \text{Cos}[c]+\text{Sin}[c]) \left(\text{Cos}\left[\frac{b x}{2}\right] \text{Sin}[c]+\text{Cos}[c] \text{Sin}\left[\frac{b x}{2}\right]\right)}{\text{Cos}[c] \text{Cos}\left[\frac{b x}{2}\right]-i \text{Cos}\left[\frac{b x}{2}\right] \text{Sin}[c]}\right] \text{Sin}[a-c]}{b}$$

Problem 227: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\, \text{Csc}[c+b x] \,dx$$

Optimal (type 3, 27 leaves, 3 steps):

$$\frac{\text{Cos}[a-c]\,\text{Log}[\text{Sin}[c+b\,x]]}{b}-x\,\text{Sin}[a-c]$$

Result (type 3, 58 leaves):

$$\frac{-2\,i\,\text{ArcTan}[\text{Tan}[c+b\,x]]\,\text{Cos}[a-c]+\text{Cos}[a-c]\,\left(2\,i\,b\,x+\text{Log}\left[\text{Sin}[c+b\,x]^2\right]\right)-2\,b\,x\,\text{Sin}[a-c]}{2\,b}$$

Problem 228: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b\,x]\,\text{Csc}[c+b\,x]^2\,dx$$

Optimal (type 3, 35 leaves, 4 steps):

$$-\frac{\text{Cos}[a-c]\,\text{Csc}[c+b\,x]}{b}+\frac{\text{ArcTanh}[\text{Cos}[c+b\,x]]\,\text{Sin}[a-c]}{b}$$

Result (type 3, 90 leaves):

$$-\frac{\text{Cos}[a-c]\,\text{Csc}[c+b\,x]}{b}+\frac{2\,i\,\text{ArcTan}\left[\frac{(\text{Cos}[c]-i\,\text{Sin}[c])\,\left(\text{Cos}[c]\,\text{Cos}\left[\frac{b\,x}{2}\right]-\text{Sin}[c]\,\text{Sin}\left[\frac{b\,x}{2}\right]\right)}{i\,\text{Cos}[c]\,\text{Cos}\left[\frac{b\,x}{2}\right]+\text{Cos}\left[\frac{b\,x}{2}\right]\,\text{Sin}[c]}\right]\,\text{Sin}[a-c]}{b}$$

Problem 231: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 44 leaves, 6 steps):

$$\frac{\text{Cos}[a+b\,x]}{b}+\frac{\text{Cos}[a-c]\,\text{Sec}[c+b\,x]}{b}+\frac{\text{ArcTanh}[\text{Sin}[c+b\,x]]\,\text{Sin}[a-c]}{b}$$

Result (type 3, 109 leaves):

$$\frac{\text{Cos}[a]\,\text{Cos}[b\,x]}{b}+\frac{\text{Cos}[a-c]\,\text{Sec}[c+b\,x]}{b}-\frac{2\,i\,\text{ArcTan}\left[\frac{(i\,\text{Cos}[c]+\text{Sin}[c])\,\left(\text{Cos}\left[\frac{b\,x}{2}\right]\,\text{Sin}[c]+\text{Cos}[c]\,\text{Sin}\left[\frac{b\,x}{2}\right]\right)}{\text{Cos}[c]\,\text{Cos}\left[\frac{b\,x}{2}\right]-i\,\text{Cos}\left[\frac{b\,x}{2}\right]\,\text{Sin}[c]}\right]\,\text{Sin}[a-c]}{b}-\frac{\text{Sin}[a]\,\text{Sin}[b\,x]}{b}$$

Problem 232: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 29 leaves, 3 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[c+b x]]\,\text{Cos}[a-c]}{b}-\frac{\text{Sin}[a+b x]}{b}$$

Result (type 3, 94 leaves):

$$-\frac{2\,i\,\text{ArcTan}\left[\frac{(i\,\text{Cos}[c]+\text{Sin}[c])\left(\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]+\text{Cos}[c]\,\text{Sin}\left[\frac{b x}{2}\right]\right)}{\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]-i\,\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]}\right]\text{Cos}[a-c]}{b}-\frac{\text{Cos}[b x]\,\text{Sin}[a]}{b}-\frac{\text{Cos}[a]\,\text{Sin}[b x]}{b}$$

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

$$\int \text{Cot}[c+b x]\,\text{Sin}[a+b x]\,dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+b x]]\,\text{Sin}[a-c]}{b}+\frac{\text{Sin}[a+b x]}{b}$$

Result (type 3, 93 leaves):

$$\frac{\text{Cos}[b x]\,\text{Sin}[a]}{b}-\frac{2\,i\,\text{ArcTan}\left[\frac{(\text{Cos}[c]-i\,\text{Sin}[c])\left(\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]-\text{Sin}[c]\,\text{Sin}\left[\frac{b x}{2}\right]\right)}{i\,\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]+\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]}\right]\text{Sin}[a-c]}{b}+\frac{\text{Cos}[a]\,\text{Sin}[b x]}{b}$$

Problem 234: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+b x]^2\,\text{Sin}[a+b x]\,dx$$

Optimal (type 3, 46 leaves, 6 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+b x]]\,\text{Cos}[a-c]}{b}+\frac{\text{Cos}[a+b x]}{b}-\frac{\text{Csc}[c+b x]\,\text{Sin}[a-c]}{b}$$

Result (type 3, 111 leaves):

$$-\frac{2\,i\,\text{ArcTan}\left[\frac{(\text{Cos}[c]-i\,\text{Sin}[c])\left(\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]-\text{Sin}[c]\,\text{Sin}\left[\frac{b x}{2}\right]\right)}{i\,\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]+\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]}\right]\text{Cos}[a-c]}{b}+\frac{\text{Cos}[a]\,\text{Cos}[b x]}{b}-\frac{\text{Csc}[c+b x]\,\text{Sin}[a-c]}{b}-\frac{\text{Sin}[a]\,\text{Sin}[b x]}{b}$$

Problem 242: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\,\text{Sec}[c+b x]^2\,dx$$

Optimal (type 3, 35 leaves, 4 steps):

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

Result (type 3, 89 leaves):

$$-\frac{2\,i\,\text{ArcTan}\left[\frac{(i\,\text{Cos}[c]+\text{Sin}[c])\left(\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]+\text{Cos}[c]\,\text{Sin}\left[\frac{b x}{2}\right]\right)}{\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]-i\,\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]}\right]\text{Cos}[a-c]}{b}-\frac{\text{Sec}[c+b x]\ \text{Sin}[a-c]}{b}$$

Problem 248: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\ \text{Tan}[c+b x]^2\,dx$$

Optimal (type 3, 46 leaves, 6 steps):

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

Result (type 3, 111 leaves):

$$-\frac{2\,i\,\text{ArcTan}\left[\frac{(i\,\text{Cos}[c]+\text{Sin}[c])\left(\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]+\text{Cos}[c]\,\text{Sin}\left[\frac{b x}{2}\right]\right)}{\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]-i\,\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]}\right]\text{Cos}[a-c]}{b}-\frac{\text{Cos}[b x]\ \text{Sin}[a]}{b}-\frac{\text{Sec}[c+b x]\ \text{Sin}[a-c]}{b}-\frac{\text{Cos}[a]\ \text{Sin}[b x]}{b}$$

Problem 249: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\ \text{Tan}[c+b x]\,dx$$

Optimal (type 3, 30 leaves, 3 steps):

$$-\frac{\text{Cos}[a+b x]}{b}-\frac{\text{ArcTanh}[\text{Sin}[c+b x]]\ \text{Sin}[a-c]}{b}$$

Result (type 3, 93 leaves):

$$-\frac{\text{Cos}[a]\ \text{Cos}[b x]}{b}+\frac{2\,i\,\text{ArcTan}\left[\frac{(i\,\text{Cos}[c]+\text{Sin}[c])\left(\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]+\text{Cos}[c]\,\text{Sin}\left[\frac{b x}{2}\right]\right)}{\text{Cos}[c]\,\text{Cos}\left[\frac{b x}{2}\right]-i\,\text{Cos}\left[\frac{b x}{2}\right]\text{Sin}[c]}\right]\text{Sin}[a-c]}{b}+\frac{\text{Sin}[a]\ \text{Sin}[b x]}{b}$$

Problem 250: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\, \text{Cot}[c+b x]\, dx$$

Optimal (type 3, 29 leaves, 3 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[c+b x]]\, \text{Cos}[a-c]}{b}+\frac{\text{Cos}[a+b x]}{b}$$

Result (type 3, 94 leaves):

$$-\frac{2\, i\, \text{ArcTan}\left[\frac{(\text{Cos}[c]-i\, \text{Sin}[c])\left(\text{Cos}[c]\, \text{Cos}\left[\frac{b x}{2}\right]-\text{Sin}[c]\, \text{Sin}\left[\frac{b x}{2}\right]\right)}{i\, \text{Cos}[c]\, \text{Cos}\left[\frac{b x}{2}\right]+\text{Cos}\left[\frac{b x}{2}\right]\, \text{Sin}[c]}\right] \text{Cos}[a-c]}{b}+\frac{\text{Cos}[a]\, \text{Cos}[b x]}{b}-\frac{\text{Sin}[a]\, \text{Sin}[b x]}{b}$$

Problem 251: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x]\, \text{Cot}[c+b x]^2\, dx$$

Optimal (type 3, 46 leaves, 6 steps):

$$-\frac{\text{Cos}[a-c]\, \text{Csc}[c+b x]}{b}+\frac{\text{ArcTanh}[\text{Cos}[c+b x]]\, \text{Sin}[a-c]}{b}-\frac{\text{Sin}[a+b x]}{b}$$

Result (type 3, 112 leaves):

$$-\frac{\text{Cos}[a-c]\, \text{Csc}[c+b x]}{b}-\frac{\text{Cos}[b x]\, \text{Sin}[a]}{b}+\frac{2\, i\, \text{ArcTan}\left[\frac{(\text{Cos}[c]-i\, \text{Sin}[c])\left(\text{Cos}[c]\, \text{Cos}\left[\frac{b x}{2}\right]-\text{Sin}[c]\, \text{Sin}\left[\frac{b x}{2}\right]\right)}{i\, \text{Cos}[c]\, \text{Cos}\left[\frac{b x}{2}\right]+\text{Cos}\left[\frac{b x}{2}\right]\, \text{Sin}[c]}\right] \text{Sin}[a-c]}{b}-\frac{\text{Cos}[a]\, \text{Sin}[b x]}{b}$$

Test results for the 294 problems in "4.7.2 trig^m (a trig+b trig)^n.m"

Problem 6: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[x]^2\, (a\, \text{Cos}[x]+b\, \text{Sin}[x])\, dx$$

Optimal (type 3, 12 leaves, 5 steps):

$$-b\, \text{ArcTanh}[\text{Cos}[x]]-a\, \text{Csc}[x]$$

Result (type 3, 25 leaves):

$$-a\,\mathrm{Csc}[x]-b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{2}\right]\right]+b\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 8: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Sin}[x]^3}{a\,\mathrm{Cos}[x]+b\,\mathrm{Sin}[x]}\,dx$$

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

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

Result (type 3, 94 leaves):

$$\frac{1}{4\left(a^2+b^2\right)^2}\left(-4\,i\,a^3\,x+6\,a^2\,b\,x+2\,b^3\,x+4\,i\,a^3\,\mathrm{ArcTan}[\mathrm{Tan}[x]]+a\left(a^2+b^2\right)\mathrm{Cos}[2\,x]-2\,a^3\,\mathrm{Log}\left[\left(a\,\mathrm{Cos}[x]+b\,\mathrm{Sin}[x]\right)^2\right]-a^2\,b\,\mathrm{Sin}[2\,x]-b^3\,\mathrm{Sin}[2\,x]\right)$$

Problem 10: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 35 leaves, 2 steps):

$$\frac{b\,x}{a^2+b^2}-\frac{a\,\mathrm{Log}[a\,\mathrm{Cos}[x]+b\,\mathrm{Sin}[x]]}{a^2+b^2}$$

Result (type 3, 47 leaves):

$$\frac{2\left(-i\,a+b\right)x+2\,i\,a\,\mathrm{ArcTan}[\mathrm{Tan}[x]]-a\,\mathrm{Log}\left[\left(a\,\mathrm{Cos}[x]+b\,\mathrm{Sin}[x]\right)^2\right]}{2\left(a^2+b^2\right)}$$

Problem 16: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\mathrm{Sin}[x]^2}{\left(a\,\mathrm{Cos}[x]+b\,\mathrm{Sin}[x]\right)^2}\,dx$$

Optimal (type 3, 64 leaves, 4 steps):

$$-\frac{\left(a^2-b^2\right)x}{\left(a^2+b^2\right)^2}+\frac{a}{\left(a^2+b^2\right)\left(b+a\,\mathrm{Cot}[x]\right)}-\frac{2\,a\,b\,\mathrm{Log}[a\,\mathrm{Cos}[x]+b\,\mathrm{Sin}[x]]}{\left(a^2+b^2\right)^2}$$

Result (type 3, 121 leaves):

$$\left(-a\,\text{Cos}[x]\left(\left(a+\mathrm{i}\,b\right)^2 x+a\,b\,\text{Log}\left[\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)^2\right]\right)+\left(a^3+a\,b^2\left(1-2\,\mathrm{i}\,x\right)-a^2\,b\,x+b^3\,x-a\,b^2\,\text{Log}\left[\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)^2\right]\right)\text{Sin}[x]+2\,\mathrm{i}\,a\,b\,\text{ArcTan}[\text{Tan}[x]]\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)\right)\Big/\left(\left(a^2+b^2\right)^2\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)\right)$$

Problem 21: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[x]^3}{\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)^2}\,dx$$

Optimal (type 3, 118 leaves, 11 steps):

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

Result (type 3, 270 leaves):

$$\frac{1}{8\,a^4\left(b+a\,\text{Cot}[x]\right)}\left(-48\,b\,\sqrt{a^2+b^2}\,\text{ArcTanh}\left[\frac{-b+a\,\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{a^2+b^2}}\right]\left(b+a\,\text{Cot}[x]\right)+8\,a^3\,\text{Csc}[x]+8\,a\,b^2\,\text{Csc}[x]-12\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]-24\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]-12\,a^3\,\text{Cot}[x]\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]-24\,a\,b^2\,\text{Cot}[x]\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+12\,a^2\,b\,\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]+24\,b^3\,\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]+12\,a^3\,\text{Cot}[x]\,\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]+24\,a\,b^2\,\text{Cot}[x]\,\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]+a^2\,b\,\text{Sec}\left[\frac{x}{2}\right]^2+a^3\,\text{Cot}[x]\,\text{Sec}\left[\frac{x}{2}\right]^2-a\,\text{Csc}\left[\frac{x}{2}\right]^2\left(-4\,a\,b\,\text{Cos}[x]+a^2\,\text{Cot}[x]+b\left(a-4\,b\,\text{Sin}[x]\right)\right)+8\,a\,b^2\,\text{Tan}\left[\frac{x}{2}\right]+8\,a^2\,b\,\text{Cot}[x]\,\text{Tan}\left[\frac{x}{2}\right]\right)$$

Problem 22: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sin}[x]^3}{\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)^3}\,dx$$

Optimal (type 3, 98 leaves, 5 steps):

$$-\frac{b\left(3\,a^2-b^2\right)x}{\left(a^2+b^2\right)^3}+\frac{a}{2\left(a^2+b^2\right)\left(b+a\,\text{Cot}[x]\right)^2}+\frac{2\,a\,b}{\left(a^2+b^2\right)^2\left(b+a\,\text{Cot}[x]\right)}+\frac{a\left(a^2-3\,b^2\right)\text{Log}[a\,\text{Cos}[x]+b\,\text{Sin}[x]]}{\left(a^2+b^2\right)^3}$$

Result (type 3, 114 leaves):

$$\frac{b\left(-3a^2+b^2\right)x}{\left(a^2+b^2\right)^3}+\frac{a\left(a^2-3b^2\right)\text{Log}[a\,\text{Cos}[x]+b\,\text{Sin}[x]]}{\left(a^2+b^2\right)^3}+\frac{a^3}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[x]+b\,\text{Sin}[x])^2}+\frac{3\,a\,b\,\text{Sin}[x]}{\left(a^2+b^2\right)^2\,(a\,\text{Cos}[x]+b\,\text{Sin}[x])}$$

Problem 24: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{1}{2\,a\,(b+a\,\text{Cot}[x])^2}$$

Result (type 3, 47 leaves):

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

Problem 25: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{(a\,\text{Cos}[x]+b\,\text{Sin}[x])^3}\,dx$$

Optimal (type 3, 73 leaves, 3 steps):

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

Result (type 3, 101 leaves):

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

Problem 29: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\text{Sin}[c+d\,x]^{-n}\,(a\,\text{Cos}[c+d\,x]+\mathrm{i}\,a\,\text{Sin}[c+d\,x])^n\,dx$$

Optimal (type 5, 66 leaves, 1 step):

$$-\frac{1}{2\,d\,n}\,i\,\text{Hypergeometric2F1}\left[1,\,n,\,1+n,\,-\frac{1}{2}\,i\,\left(i+\text{Cot}[c+d\,x]\right)\right]\,\text{Sin}[c+d\,x]^{-n}\,\left(a\,\text{Cos}[c+d\,x]+i\,a\,\text{Sin}[c+d\,x]\right)^{n}$$

Result (type 6, 2971 leaves):

$$\left(e^{-i\,n\,(c+d\,x)+n\,\text{Log}[\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x]]}\,\left(\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x]\right)^{\frac{i\,n\,(c+d\,x)}{\text{Log}[\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x]]}}\,\left(a\,\left(\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x]\right)\right)^{n}\right.$$

$$\text{Sin}[c+d\,x]^{-2\,n}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(-\text{Hypergeometric2F1}\left[1-2\,n,\,1-n,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(1+i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{-2\,n}+\right.$$

$$\left(\left(-2+n\right)\,\text{AppellF1}\left[1-n,\,-2\,n,\,1,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\Big/$$

$$\left(\left(i+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(i\,\left(-2+n\right)\,\text{AppellF1}\left[1-n,\,-2\,n,\,1,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.\right.$$

$$\left(2\,n\,\text{AppellF1}\left[2-n,\,1-2\,n,\,1,\,3-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$

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

$$\left(d\,\left(-1+n\right)\,\left(\frac{1}{2\,\left(-1+n\right)}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^{2}\,\left(\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x]\right)^{n}\,\text{Sin}[c+d\,x]^{-n}\right.\right.$$

$$\left(-\text{Hypergeometric2F1}\left[1-2\,n,\,1-n,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(1+i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{-2\,n}+\right.$$

$$\left(\left(-2+n\right)\,\text{AppellF1}\left[1-n,\,-2\,n,\,1,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\Big/\left(\left(i+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(i\,\left(-2+n\right)\,\text{AppellF1}\left[\right.\right.\right.$$

$$1-n,\,-2\,n,\,1,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\Big]+\left(2\,n\,\text{AppellF1}\left[2-n,\,1-2\,n,\,1,\,3-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\right.\right.$$

$$\left.\left.\left.\left.i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{AppellF1}\left[2-n,\,-2\,n,\,2,\,3-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\right)-$$

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

$$\left(-\text{Hypergeometric2F1}\left[1-2\,n,\,1-n,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(1+i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{-2\,n}+\right.$$

$$\left(\left(-2+n\right)\,\text{AppellF1}\left[1-n,\,-2\,n,\,1,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\Big/\left(\left(i+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(i\,\left(-2+n\right)\,\text{AppellF1}\left[\right.\right.\right.$$

$$1-n,\,-2\,n,\,1,\,2-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\Big]+\left(2\,n\,\text{AppellF1}\left[2-n,\,1-2\,n,\,1,\,3-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\right.\right.$$

$$\left.\left.\left.\left.i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{AppellF1}\left[2-n,\,-2\,n,\,2,\,3-n,\,-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right],\,i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\right)+$$

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

$$\left(-\text{Hypergeometric2F1}\left[1-2n,1-n,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\left(1+i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)^{-2n}+\right.$$
$$\left((-2+n)\,\text{AppellF1}\left[1-n,-2n,1,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\right)\Big/$$
$$\left(\left(i+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\left(i(-2+n)\,\text{AppellF1}\left[1-n,-2n,1,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\right.\right.$$
$$\left(2n\,\text{AppellF1}\left[2-n,1-2n,1,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\right.$$
$$\left.\left.\left.\left.\text{AppellF1}\left[2-n,-2n,2,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\right)\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\right)\right)+$$
$$\frac{1}{-1+n}\left(\text{Cos}[c+dx]+i\,\text{Sin}[c+dx]\right)^n\text{Sin}[c+dx]^{-n}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\left(i\,n\,\text{Hypergeometric2F1}\left[1-2n,1-n,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\right.$$
$$\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2\left(1+i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)^{-1-2n}-\frac{1}{2}(1-n)\,\text{Csc}\left[\frac{1}{2}(c+dx)\right]\text{Sec}\left[\frac{1}{2}(c+dx)\right]$$
$$\left(-\text{Hypergeometric2F1}\left[1-2n,1-n,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\left(1+i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)^{-1+2n}\right)\left(1+i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)^{-2n}-$$
$$\left((-2+n)\,\text{AppellF1}\left[1-n,-2n,1,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2\right)\Big/$$
$$\left(2\left(i+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)^2\left(i(-2+n)\,\text{AppellF1}\left[1-n,-2n,1,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\right.\right.$$
$$\left(2n\,\text{AppellF1}\left[2-n,1-2n,1,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\right.$$
$$\left.\left.\left.\text{AppellF1}\left[2-n,-2n,2,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\right)\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\right)+$$
$$\left((-2+n)\left(\frac{1}{2-n}i(1-n)\,n\,\text{AppellF1}\left[2-n,1-2n,1,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2+\right.\right.$$
$$\left.\left.\frac{1}{2(2-n)}i(1-n)\,\text{AppellF1}\left[2-n,-2n,2,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2\right)\right)\Big/$$
$$\left(\left(i+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\left(i(-2+n)\,\text{AppellF1}\left[1-n,-2n,1,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\right.\right.$$
$$\left(2n\,\text{AppellF1}\left[2-n,1-2n,1,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\text{AppellF1}\left[2-n,-2n,2,3-n,\right.\right.$$
$$\left.\left.\left.\left.-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\right)\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\right)-\left((-2+n)\,\text{AppellF1}\left[1-n,-2n,1,2-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],\right.\right.$$
$$\left.i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\left(\frac{1}{2}\left(2n\,\text{AppellF1}\left[2-n,1-2n,1,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]+\right.\right.$$
$$\left.\text{AppellF1}\left[2-n,-2n,2,3-n,-i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right],i\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right]\right)\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2+$$

$$i\,(-2+n)\left(\frac{1}{2-n}\,i\,(1-n)\,n\,\mathrm{AppellF1}\left[2-n,\,1-2n,\,1,\,3-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+\right.$$

$$\left.\frac{1}{2\,(2-n)}\,i\,(1-n)\,\mathrm{AppellF1}\left[2-n,\,-2n,\,2,\,3-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)+$$

$$\left(\frac{1}{3-n}\,i\,(2-n)\,n\,\mathrm{AppellF1}\left[3-n,\,1-2n,\,2,\,4-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+\frac{1}{3-n}\right.$$

$$i\,(2-n)\,\mathrm{AppellF1}\left[3-n,\,-2n,\,3,\,4-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+2n\left(\frac{1}{2\,(3-n)}\,i\,(2-n)\right.$$

$$\mathrm{AppellF1}\left[3-n,\,1-2n,\,2,\,4-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-\frac{1}{2\,(3-n)}\,i\,(1-2n)\,(2-n)$$

$$\left.\left.\left.\mathrm{AppellF1}\left[3-n,\,2-2n,\,1,\,4-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left(\left(i+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(i\,(-2+n)\,\mathrm{AppellF1}\left[1-n,\,-2n,\,1,\,2-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]+\right.\right.$$

$$\left(2n\,\mathrm{AppellF1}\left[2-n,\,1-2n,\,1,\,3-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]+\right.$$

$$\left.\left.\left.\left.\mathrm{AppellF1}\left[2-n,\,-2n,\,2,\,3-n,\,-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right],\,i\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\right)\right)\right)$$

Problem 37: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 24 leaves, 5 steps):

$$\frac{a\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{d}+\frac{b\,\mathrm{Sec}[c+d\,x]}{d}$$

Result (type 3, 81 leaves):

$$-\frac{a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{b\,\mathrm{Sec}[c+d\,x]}{d}$$

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

$$\int \mathrm{Sec}[c+d\,x]^6\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 3, 74 leaves, 7 steps):

$$\frac{3\,a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{b\,\text{Sec}[c+d\,x]^5}{5\,d}+\frac{3\,a\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{8\,d}+\frac{a\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{4\,d}$$

Result (type 3, 207 leaves):

$$-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{8\,d}+\frac{b\,\text{Sec}[c+d\,x]^5}{5\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}+\frac{3\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{3\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}$$

Problem 51: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 67 leaves, 7 steps):

$$\frac{a^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{b^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}+\frac{2\,a\,b\,\text{Sec}[c+d\,x]}{d}+\frac{b^2\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,d}$$

Result (type 3, 181 leaves):

$$\frac{1}{4\,d}\left(8\,a\,b+\left(-4\,a^2+2\,b^2\right)\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+4\,a^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-2\,b^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+\frac{b^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+16\,a\,b\,\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]^2-\frac{b^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)$$

Problem 53: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^5\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 120 leaves, 9 steps):

$$\frac{a^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{b^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{2\,a\,b\,\text{Sec}[c+d\,x]^3}{3\,d}+$$
$$\frac{a^2\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,d}-\frac{b^2\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{8\,d}+\frac{b^2\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{4\,d}$$

Result (type 3, 851 leaves):

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{\left(-4\,a^2+b^2\right)\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(4\,a^2-b^2\right)\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{b^2\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(12\,a^2+8\,a\,b-3\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$
$$\frac{b^2\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$
$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(-12\,a^2+8\,a\,b+3\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$
$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}$$

Problem 55: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d x]^7 \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2 \, dx$$

Optimal (type 3, 168 leaves, 11 steps):

$$\frac{3 a^2 \mathrm{ArcTanh}[\mathrm{Sin}[c+d x]]}{8 d}-\frac{b^2 \mathrm{ArcTanh}[\mathrm{Sin}[c+d x]]}{16 d}+\frac{2 a b \,\mathrm{Sec}[c+d x]^5}{5 d}+\frac{3 a^2 \mathrm{Sec}[c+d x] \mathrm{Tan}[c+d x]}{8 d}-\frac{b^2 \mathrm{Sec}[c+d x] \mathrm{Tan}[c+d x]}{16 d}+\frac{a^2 \mathrm{Sec}[c+d x]^3 \mathrm{Tan}[c+d x]}{4 d}-\frac{b^2 \mathrm{Sec}[c+d x]^3 \mathrm{Tan}[c+d x]}{24 d}+\frac{b^2 \mathrm{Sec}[c+d x]^5 \mathrm{Tan}[c+d x]}{6 d}$$

Result (type 3, 1175 leaves):

$$\frac{3 a b \,\mathrm{Cos}[c+d x]^2 \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{20 d \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+\frac{\left(-6 a^2+b^2\right) \mathrm{Cos}[c+d x]^2 \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{16 d \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+$$

$$\frac{\left(6 a^2-b^2\right) \mathrm{Cos}[c+d x]^2 \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right] \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{16 d \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+$$

$$\frac{b^2 \mathrm{Cos}[c+d x]^2 \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{48 d \left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6 \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+$$

$$\frac{\left(5 a^2+4 a b\right) \mathrm{Cos}[c+d x]^2 \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{80 d \left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4 \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+$$

$$\frac{\left(30 a^2+12 a b-5 b^2\right) \mathrm{Cos}[c+d x]^2 \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{160 d \left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2 \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+$$

$$\frac{a b \,\mathrm{Cos}[c+d x]^2 \mathrm{Sin}\left[\frac{1}{2}(c+d x)\right] \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{10 d \left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5 \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+$$

$$\frac{3 a b \,\mathrm{Cos}[c+d x]^2 \mathrm{Sin}\left[\frac{1}{2}(c+d x)\right] \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{20 d \left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3 \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}+$$

$$\frac{3 a b \,\mathrm{Cos}[c+d x]^2 \mathrm{Sin}\left[\frac{1}{2}(c+d x)\right] \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{20 d \left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right) \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}-$$

$$\frac{b^2 \mathrm{Cos}[c+d x]^2 \left(a+b \,\mathrm{Tan}[c+d x]\right)^2}{48 d \left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6 \left(a \,\mathrm{Cos}[c+d x]+b \,\mathrm{Sin}[c+d x]\right)^2}-$$

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{10\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{\left(-5\,a^2+4\,a\,b\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{80\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$

$$\frac{3\,a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{20\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{\left(-30\,a^2+12\,a\,b+5\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{160\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$

$$\frac{3\,a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{20\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}$$

Problem 66: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 103 leaves, 9 steps):

$$\frac{a^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{3\,a\,b^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}+\frac{3\,a^2\,b\,\text{Sec}[c+d\,x]}{d}-\frac{b^3\,\text{Sec}[c+d\,x]}{d}+\frac{b^3\,\text{Sec}[c+d\,x]^3}{3\,d}+\frac{3\,a\,b^2\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,d}$$

Result (type 3, 293 leaves):

$$\frac{1}{12\,d}\left(36\,a^2\,b-10\,b^3-6\,a\,\left(2\,a^2-3\,b^2\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+12\,a^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\right.$$

$$18\,a\,b^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\frac{9\,a\,b^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{b^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+$$

$$2\,b\,\left(18\,a^2-b^2+2\,b^2\,\text{Cos}[c+d\,x]+\left(18\,a^2-5\,b^2\right)\,\text{Cos}[2\,(c+d\,x)]\right)\,\text{Sec}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^2-$$

$$\left.\frac{9\,a\,b^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{b^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 67: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d x]^5 \left(a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]\right)^3 \, dx$$

Optimal (type 3, 30 leaves, 2 steps):

$$\frac{\left(b+a \mathrm{Cot}[c+d x]\right)^4 \mathrm{Tan}[c+d x]^4}{4 b d}$$

Result (type 3, 79 leaves):

$$\frac{1}{8 d}\mathrm{Sec}[c+d x]^4 \left(\left(6 a^2 b-2 b^3\right) \mathrm{Cos}\left[2 \left(c+d x\right)\right]+a \left(6 a b+2 \left(a^2+b^2\right) \mathrm{Sin}\left[2 \left(c+d x\right)\right]+\left(a^2-b^2\right) \mathrm{Sin}\left[4 \left(c+d x\right)\right]\right)\right)$$

Problem 68: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d x]^6 \left(a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]\right)^3 \, dx$$

Optimal (type 3, 158 leaves, 12 steps):

$$\frac{a^3 \mathrm{ArcTanh}[\mathrm{Sin}[c+d x]]}{2 d}-\frac{3 a b^2 \mathrm{ArcTanh}[\mathrm{Sin}[c+d x]]}{8 d}+\frac{a^2 b \mathrm{Sec}[c+d x]^3}{d}-\frac{b^3 \mathrm{Sec}[c+d x]^3}{3 d}+$$
$$\frac{b^3 \mathrm{Sec}[c+d x]^5}{5 d}+\frac{a^3 \mathrm{Sec}[c+d x] \mathrm{Tan}[c+d x]}{2 d}-\frac{3 a b^2 \mathrm{Sec}[c+d x] \mathrm{Tan}[c+d x]}{8 d}+\frac{3 a b^2 \mathrm{Sec}[c+d x]^3 \mathrm{Tan}[c+d x]}{4 d}$$

Result (type 3, 464 leaves):

$$\frac{1}{1920 d} \mathrm{Sec}[c+d x]^5 \Bigg(960 a^2 b+64 b^3+320 \left(3 a^2 b-b^3\right) \mathrm{Cos}\left[2 \left(c+d x\right)\right]-$$
$$300 a^3 \mathrm{Cos}\left[3 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]-\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]+225 a b^2 \mathrm{Cos}\left[3 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]-\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]-$$
$$60 a^3 \mathrm{Cos}\left[5 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]-\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]+45 a b^2 \mathrm{Cos}\left[5 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]-\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]-$$
$$150 a \left(4 a^2-3 b^2\right) \mathrm{Cos}[c+d x] \left(\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]-\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]+\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]\right)+$$
$$300 a^3 \mathrm{Cos}\left[3 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]+\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]-225 a b^2 \mathrm{Cos}\left[3 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]+\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]+$$
$$60 a^3 \mathrm{Cos}\left[5 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]+\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]-45 a b^2 \mathrm{Cos}\left[5 \left(c+d x\right)\right] \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} \left(c+d x\right)\right]+\mathrm{Sin}\left[\frac{1}{2} \left(c+d x\right)\right]\right]+$$
$$240 a^3 \mathrm{Sin}\left[2 \left(c+d x\right)\right]+540 a b^2 \mathrm{Sin}\left[2 \left(c+d x\right)\right]+120 a^3 \mathrm{Sin}\left[4 \left(c+d x\right)\right]-90 a b^2 \mathrm{Sin}\left[4 \left(c+d x\right)\right]\Bigg)$$

Problem 70: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^8 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \, dx$$

Optimal (type 3, 210 leaves, 14 steps):

$$\frac{3 a^3 \text{ArcTanh}[\text{Sin}[c+d x]]}{8 d}-\frac{3 a b^2 \text{ArcTanh}[\text{Sin}[c+d x]]}{16 d}+\frac{3 a^2 b \text{Sec}[c+d x]^5}{5 d}-\frac{b^3 \text{Sec}[c+d x]^5}{5 d}+\frac{b^3 \text{Sec}[c+d x]^7}{7 d}+\frac{3 a^3 \text{Sec}[c+d x] \text{Tan}[c+d x]}{8 d}-\frac{3 a b^2 \text{Sec}[c+d x] \text{Tan}[c+d x]}{16 d}+\frac{a^3 \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{4 d}-\frac{a b^2 \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{8 d}+\frac{a b^2 \text{Sec}[c+d x]^5 \text{Tan}[c+d x]}{2 d}$$

Result (type 3, 637 leaves):

$$\frac{1}{35840 d} \text{Sec}[c+d x]^7 \Big(10752 a^2 b+1536 b^3+3584 \left(3 a^2 b-b^3\right) \text{Cos}[2 (c+d x)]-$$
$$4410 a^3 \text{Cos}[3 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+2205 a b^2 \text{Cos}[3 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-$$
$$1470 a^3 \text{Cos}[5 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+735 a b^2 \text{Cos}[5 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-$$
$$210 a^3 \text{Cos}[7 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+105 a b^2 \text{Cos}[7 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-$$
$$3675 a \left(2 a^2-b^2\right) \text{Cos}[c+d x] \left(\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)+$$
$$4410 a^3 \text{Cos}[3 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-$$
$$2205 a b^2 \text{Cos}[3 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+1470 a^3 \text{Cos}[5 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-$$
$$735 a b^2 \text{Cos}[5 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+210 a^3 \text{Cos}[7 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-$$
$$105 a b^2 \text{Cos}[7 (c+d x)] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+4340 a^3 \text{Sin}[2 (c+d x)]+6790 a b^2 \text{Sin}[2 (c+d x)]+$$
$$2800 a^3 \text{Sin}[4 (c+d x)]-1400 a b^2 \text{Sin}[4 (c+d x)]+420 a^3 \text{Sin}[6 (c+d x)]-210 a b^2 \text{Sin}[6 (c+d x)]\Big)$$

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

$$\int \text{Sec}[c+d x]^{10} \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \, dx$$

Optimal (type 3, 259 leaves, 16 steps):

$$\frac{5\,a^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{16\,d}-\frac{15\,a\,b^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{128\,d}+\frac{3\,a^2\,b\,\text{Sec}[c+d\,x]^7}{7\,d}-\frac{b^3\,\text{Sec}[c+d\,x]^7}{7\,d}+\frac{b^3\,\text{Sec}[c+d\,x]^9}{9\,d}+\frac{5\,a^3\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{16\,d}-\frac{15\,a\,b^2\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{128\,d}+\frac{5\,a^3\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{24\,d}-\frac{5\,a\,b^2\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{64\,d}+\frac{a^3\,\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]}{6\,d}-\frac{a\,b^2\,\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]}{16\,d}+\frac{3\,a\,b^2\,\text{Sec}[c+d\,x]^7\,\text{Tan}[c+d\,x]}{8\,d}$$

Result (type 3, 1924 leaves):

$$-\frac{5\,b\,(-216\,a^2+23\,b^2)\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{8064\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{5\,(8\,a^3-3\,a\,b^2)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{128\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{5\,(8\,a^3-3\,a\,b^2)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{128\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{(27\,a\,b^2+4\,b^3)\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{1152\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{(84\,a^3+108\,a^2\,b+63\,a\,b^2-b^3)\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{4032\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{(336\,a^3+288\,a^2\,b-63\,a\,b^2-26\,b^3)\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{5376\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{5\,(504\,a^3+216\,a^2\,b-189\,a\,b^2-23\,b^3)\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{16128\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{144\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^9\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{144\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^9\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{(-27\,a\,b^2+4\,b^3)\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{1152\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{\left(-84 a^3+108 a^2 b-63 a b^2-b^3\right) \text{Cos}[c+d x]^3 (a+b \text{Tan}[c+d x])^3}{4032 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^6 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}+$$

$$\frac{\left(-336 a^3+288 a^2 b+63 a b^2-26 b^3\right) \text{Cos}[c+d x]^3 (a+b \text{Tan}[c+d x])^3}{5376 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}-$$

$$\frac{5 \left(504 a^3-216 a^2 b-189 a b^2+23 b^3\right) \text{Cos}[c+d x]^3 (a+b \text{Tan}[c+d x])^3}{16128 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}+$$

$$\frac{\text{Cos}[c+d x]^3 \left(144 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]-13 b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{1344 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}+$$

$$\frac{\text{Cos}[c+d x]^3 \left(108 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]-b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{2016 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^7 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}+$$

$$\frac{\text{Cos}[c+d x]^3 \left(-108 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]+b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{2016 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^7 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}+$$

$$\frac{\text{Cos}[c+d x]^3 \left(-144 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]+13 b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{1344 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}-$$

$$\frac{5 \text{Cos}[c+d x]^3 \left(-216 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]+23 b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{8064 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}-$$

$$\frac{5 \text{Cos}[c+d x]^3 \left(-216 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]+23 b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{8064 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}+$$

$$\frac{5 \text{Cos}[c+d x]^3 \left(-216 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]+23 b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{8064 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}+$$

$$\frac{5 \text{Cos}[c+d x]^3 \left(-216 a^2 b \text{Sin}\left[\frac{1}{2} (c+d x)\right]+23 b^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^3}{8064 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}$$

Problem 77: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^4\,dx$$

Optimal (type 3, 301 leaves, 19 steps):

$$\frac{5 a^4 x}{16}+\frac{3}{8} a^2 b^2 x+\frac{b^4 x}{16}-\frac{2 a^3 b\,\text{Cos}[c+d x]^6}{3 d}+\frac{5 a^4\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]}{16 d}+\frac{3 a^2 b^2\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]}{8 d}+\frac{b^4\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]}{16 d}+\frac{5 a^4\,\text{Cos}[c+d x]^3\,\text{Sin}[c+d x]}{24 d}+\frac{a^2 b^2\,\text{Cos}[c+d x]^3\,\text{Sin}[c+d x]}{4 d}-\frac{b^4\,\text{Cos}[c+d x]^3\,\text{Sin}[c+d x]}{8 d}+\frac{a^4\,\text{Cos}[c+d x]^5\,\text{Sin}[c+d x]}{6 d}-\frac{a^2 b^2\,\text{Cos}[c+d x]^5\,\text{Sin}[c+d x]}{d}-\frac{b^4\,\text{Cos}[c+d x]^3\,\text{Sin}[c+d x]^3}{6 d}+\frac{a b^3\,\text{Sin}[c+d x]^4}{d}-\frac{2 a b^3\,\text{Sin}[c+d x]^6}{3 d}$$

Result (type 3, 178 leaves):

$$\frac{1}{192 d}\Big(12 (a-i b) (a+i b) (5 a^2+b^2) (c+d x)-12 a b (5 a^2+3 b^2)\,\text{Cos}[2 (c+d x)]-24 a^3 b\,\text{Cos}[4 (c+d x)]-4 a b (a^2-b^2)\,\text{Cos}[6 (c+d x)]+3 (15 a^4+6 a^2 b^2-b^4)\,\text{Sin}[2 (c+d x)]+3 (3 a^4-6 a^2 b^2-b^4)\,\text{Sin}[4 (c+d x)]+(a^4-6 a^2 b^2+b^4)\,\text{Sin}[6 (c+d x)]\Big)$$

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

$$\int \text{Sec}[c+d x]^5\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^4\,dx$$

Optimal (type 3, 168 leaves, 12 steps):

$$\frac{a^4\,\text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{3 a^2 b^2\,\text{ArcTanh}[\text{Sin}[c+d x]]}{d}+\frac{3 b^4\,\text{ArcTanh}[\text{Sin}[c+d x]]}{8 d}+\frac{4 a^3 b\,\text{Sec}[c+d x]}{d}-\frac{4 a b^3\,\text{Sec}[c+d x]}{d}+\frac{4 a b^3\,\text{Sec}[c+d x]^3}{3 d}+\frac{3 a^2 b^2\,\text{Sec}[c+d x]\,\text{Tan}[c+d x]}{d}-\frac{3 b^4\,\text{Sec}[c+d x]\,\text{Tan}[c+d x]}{8 d}+\frac{b^4\,\text{Sec}[c+d x]\,\text{Tan}[c+d x]^3}{4 d}$$

Result (type 3, 936 leaves):

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

$$\frac{\left(-8\,a^4+24\,a^2\,b^2-3\,b^4\right)\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{8\,d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}+$$

$$\frac{\left(8\,a^4-24\,a^2\,b^2+3\,b^4\right)\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{8\,d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}+$$

$$\frac{b^4\,\text{Cos}[c+d\,x]^4\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}+$$

$$\frac{\left(72\,a^2\,b^2+16\,a\,b^3-15\,b^4\right)\,\text{Cos}[c+d\,x]^4\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}+$$

$$\frac{2\,a\,b^3\,\text{Cos}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}-$$

$$\frac{b^4\,\text{Cos}[c+d\,x]^4\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}-$$

$$\frac{2\,a\,b^3\,\text{Cos}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}+$$

$$\frac{\left(-72\,a^2\,b^2+16\,a\,b^3+15\,b^4\right)\,\text{Cos}[c+d\,x]^4\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}+$$

$$\frac{2\,\text{Cos}[c+d\,x]^4\,\left(6\,a^3\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-5\,a\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}-$$

$$\frac{2\,\text{Cos}[c+d\,x]^4\,\left(6\,a^3\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-5\,a\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^4}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4}$$

Problem 85: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^6\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^4\,dx$$

Optimal (type 3, 30 leaves, 2 steps):

$$\frac{(b + a\,\mathrm{Cot}[c + d\,x])^5\,\mathrm{Tan}[c + d\,x]^5}{5\,b\,d}$$

Result (type 3, 131 leaves):

$$\Big((a + b\,\mathrm{Tan}[c + d\,x])^4\,\Big(10\,a\,b\,(a^2 - b^2)\,\mathrm{Cos}[c + d\,x]^2 + (5\,a^4 - 10\,a^2\,b^2 + b^4)\,\mathrm{Cos}[c + d\,x]^3\,\mathrm{Sin}[c + d\,x] + b^2\,\big((5\,a^2 - b^2)\,\mathrm{Sin}[2\,(c + d\,x)] + b\,(5\,a + b\,\mathrm{Tan}[c + d\,x])\big)\Big)\Big) \Big/ \Big(5\,d\,(a\,\mathrm{Cos}[c + d\,x] + b\,\mathrm{Sin}[c + d\,x])^4\Big)$$

Problem 86: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c + d\,x]^7\,(a\,\mathrm{Cos}[c + d\,x] + b\,\mathrm{Sin}[c + d\,x])^4\,dx$$

Optimal (type 3, 258 leaves, 16 steps):

$$\frac{a^4\,\mathrm{ArcTanh}[\mathrm{Sin}[c + d\,x]]}{2\,d} - \frac{3\,a^2\,b^2\,\mathrm{ArcTanh}[\mathrm{Sin}[c + d\,x]]}{4\,d} + \frac{b^4\,\mathrm{ArcTanh}[\mathrm{Sin}[c + d\,x]]}{16\,d} + \frac{4\,a^3\,b\,\mathrm{Sec}[c + d\,x]^3}{3\,d} - \frac{4\,a\,b^3\,\mathrm{Sec}[c + d\,x]^3}{3\,d} + \frac{4\,a\,b^3\,\mathrm{Sec}[c + d\,x]^5}{5\,d} + \frac{a^4\,\mathrm{Sec}[c + d\,x]\,\mathrm{Tan}[c + d\,x]}{2\,d} - \frac{3\,a^2\,b^2\,\mathrm{Sec}[c + d\,x]\,\mathrm{Tan}[c + d\,x]}{4\,d} + \frac{b^4\,\mathrm{Sec}[c + d\,x]\,\mathrm{Tan}[c + d\,x]}{16\,d} + \frac{3\,a^2\,b^2\,\mathrm{Sec}[c + d\,x]^3\,\mathrm{Tan}[c + d\,x]}{2\,d} - \frac{b^4\,\mathrm{Sec}[c + d\,x]^3\,\mathrm{Tan}[c + d\,x]}{8\,d} + \frac{b^4\,\mathrm{Sec}[c + d\,x]^3\,\mathrm{Tan}[c + d\,x]^3}{6\,d}$$

Result (type 3, 1342 leaves):

$$\frac{a\,b\,(20\,a^2 - 11\,b^2)\,\mathrm{Cos}[c + d\,x]^4\,(a + b\,\mathrm{Tan}[c + d\,x])^4}{30\,d\,(a\,\mathrm{Cos}[c + d\,x] + b\,\mathrm{Sin}[c + d\,x])^4} +$$
$$\frac{(-8\,a^4 + 12\,a^2\,b^2 - b^4)\,\mathrm{Cos}[c + d\,x]^4\,\mathrm{Log}\big[\mathrm{Cos}[\frac{1}{2}\,(c + d\,x)] - \mathrm{Sin}[\frac{1}{2}\,(c + d\,x)]\big]\,(a + b\,\mathrm{Tan}[c + d\,x])^4}{16\,d\,(a\,\mathrm{Cos}[c + d\,x] + b\,\mathrm{Sin}[c + d\,x])^4} +$$
$$\frac{(8\,a^4 - 12\,a^2\,b^2 + b^4)\,\mathrm{Cos}[c + d\,x]^4\,\mathrm{Log}\big[\mathrm{Cos}[\frac{1}{2}\,(c + d\,x)] + \mathrm{Sin}[\frac{1}{2}\,(c + d\,x)]\big]\,(a + b\,\mathrm{Tan}[c + d\,x])^4}{16\,d\,(a\,\mathrm{Cos}[c + d\,x] + b\,\mathrm{Sin}[c + d\,x])^4} +$$
$$\frac{b^4\,\mathrm{Cos}[c + d\,x]^4\,(a + b\,\mathrm{Tan}[c + d\,x])^4}{48\,d\,\big(\mathrm{Cos}[\frac{1}{2}\,(c + d\,x)] - \mathrm{Sin}[\frac{1}{2}\,(c + d\,x)]\big)^6\,(a\,\mathrm{Cos}[c + d\,x] + b\,\mathrm{Sin}[c + d\,x])^4} +$$
$$\frac{(30\,a^2\,b^2 + 8\,a\,b^3 - 5\,b^4)\,\mathrm{Cos}[c + d\,x]^4\,(a + b\,\mathrm{Tan}[c + d\,x])^4}{80\,d\,\big(\mathrm{Cos}[\frac{1}{2}\,(c + d\,x)] - \mathrm{Sin}[\frac{1}{2}\,(c + d\,x)]\big)^4\,(a\,\mathrm{Cos}[c + d\,x] + b\,\mathrm{Sin}[c + d\,x])^4} +$$

$$\frac{\left(120 a^4+160 a^3 b-180 a^2 b^2-88 a b^3+15 b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{480 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{a b^3 \text{Cos}[c+d x]^4 \text{Sin}\left[\frac{1}{2}(c+d x)\right] (a+b \text{Tan}[c+d x])^4}{5 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-$$

$$\frac{b^4 \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{48 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-$$

$$\frac{a b^3 \text{Cos}[c+d x]^4 \text{Sin}\left[\frac{1}{2}(c+d x)\right] (a+b \text{Tan}[c+d x])^4}{5 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\left(-30 a^2 b^2+8 a b^3+5 b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{80 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\left(-120 a^4+160 a^3 b+180 a^2 b^2-88 a b^3-15 b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{480 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\text{Cos}[c+d x]^4 \left(20 a^3 b \text{Sin}\left[\frac{1}{2}(c+d x)\right]-11 a b^3 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right) (a+b \text{Tan}[c+d x])^4}{30 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\text{Cos}[c+d x]^4 \left(20 a^3 b \text{Sin}\left[\frac{1}{2}(c+d x)\right]-11 a b^3 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right) (a+b \text{Tan}[c+d x])^4}{30 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\text{Cos}[c+d x]^4 \left(-20 a^3 b \text{Sin}\left[\frac{1}{2}(c+d x)\right]+11 a b^3 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right) (a+b \text{Tan}[c+d x])^4}{30 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\text{Cos}[c+d x]^4 \left(-20 a^3 b \text{Sin}\left[\frac{1}{2}(c+d x)\right]+11 a b^3 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\right) (a+b \text{Tan}[c+d x])^4}{30 d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}$$

Problem 88: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^9 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 \, dx$$

Optimal (type 3, 330 leaves, 19 steps):

$$\frac{3 a^4 \text{ArcTanh}[\text{Sin}[c+d x]]}{8 d}-\frac{3 a^2 b^2 \text{ArcTanh}[\text{Sin}[c+d x]]}{8 d}+\frac{3 b^4 \text{ArcTanh}[\text{Sin}[c+d x]]}{128 d}+\frac{4 a^3 b \text{Sec}[c+d x]^5}{5 d}-\frac{4 a b^3 \text{Sec}[c+d x]^5}{5 d}+\frac{4 a b^3 \text{Sec}[c+d x]^7}{7 d}+\frac{3 a^4 \text{Sec}[c+d x] \text{Tan}[c+d x]}{8 d}-\frac{3 a^2 b^2 \text{Sec}[c+d x] \text{Tan}[c+d x]}{8 d}+\frac{3 b^4 \text{Sec}[c+d x] \text{Tan}[c+d x]}{128 d}+\frac{a^4 \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{4 d}-\frac{a^2 b^2 \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{4 d}+\frac{b^4 \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{64 d}+\frac{a^2 b^2 \text{Sec}[c+d x]^5 \text{Tan}[c+d x]}{d}-\frac{b^4 \text{Sec}[c+d x]^5 \text{Tan}[c+d x]}{16 d}+\frac{b^4 \text{Sec}[c+d x]^5 \text{Tan}[c+d x]^3}{8 d}$$

Result (type 3, 1732 leaves) :

$$\frac{a b \left(42 a^2-17 b^2\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{140 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-\frac{3 \left(16 a^4-16 a^2 b^2+b^4\right) \text{Cos}[c+d x]^4 \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+b \text{Tan}[c+d x])^4}{128 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+\frac{3 \left(16 a^4-16 a^2 b^2+b^4\right) \text{Cos}[c+d x]^4 \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+b \text{Tan}[c+d x])^4}{128 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+\frac{b^4 \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{128 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 \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+\frac{\left(56 a^2 b^2+16 a b^3-7 b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{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 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+\frac{\left(560 a^4+896 a^3 b-256 a b^3-35 b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{8960 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 \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+\frac{\left(1680 a^4+1344 a^3 b-1680 a^2 b^2-544 a b^3+105 b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{8960 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 \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+\frac{a b^3 \text{Cos}[c+d x]^4 \text{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^4}{14 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^7 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-\frac{b^4 \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{128 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 \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-$$

$$\frac{a\,b^3\,\text{Cos}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right](a+b\,\text{Tan}[c+d\,x])^4}{14\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\left(-56\,a^2\,b^2+16\,a\,b^3+7\,b^4\right)\text{Cos}[c+d\,x]^4(a+b\,\text{Tan}[c+d\,x])^4}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\left(-560\,a^4+896\,a^3\,b-256\,a\,b^3+35\,b^4\right)\text{Cos}[c+d\,x]^4(a+b\,\text{Tan}[c+d\,x])^4}{8960\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\left(-1680\,a^4+1344\,a^3\,b+1680\,a^2\,b^2-544\,a\,b^3-105\,b^4\right)\text{Cos}[c+d\,x]^4(a+b\,\text{Tan}[c+d\,x])^4}{8960\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(42\,a^3\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-17\,a\,b^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{140\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(42\,a^3\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-17\,a\,b^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{140\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(7\,a^3\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-2\,a\,b^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{35\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(-7\,a^3\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+2\,a\,b^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{35\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(-42\,a^3\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+17\,a\,b^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{140\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(-42\,a^3\,b\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+17\,a\,b^3\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{140\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}$$

Problem 94: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Cos}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5\,dx$$

Optimal (type 3, 426 leaves, 25 steps) :

$$\frac{35 a^5 x}{128}+\frac{25}{64} a^3 b^2 x+\frac{15}{128} a b^4 x-\frac{5 a^2 b^3 \operatorname{Cos}[c+d x]^6}{3 d}-\frac{5 a^4 b \operatorname{Cos}[c+d x]^8}{8 d}+\frac{5 a^2 b^3 \operatorname{Cos}[c+d x]^8}{4 d}+\frac{35 a^5 \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]}{128 d}+\frac{25 a^3 b^2 \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]}{64 d}+\frac{15 a b^4 \operatorname{Cos}[c+d x] \operatorname{Sin}[c+d x]}{128 d}+\frac{35 a^5 \operatorname{Cos}[c+d x]^3 \operatorname{Sin}[c+d x]}{192 d}+\frac{25 a^3 b^2 \operatorname{Cos}[c+d x]^3 \operatorname{Sin}[c+d x]}{96 d}+\frac{5 a b^4 \operatorname{Cos}[c+d x]^3 \operatorname{Sin}[c+d x]}{64 d}+\frac{7 a^5 \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[c+d x]}{48 d}+\frac{5 a^3 b^2 \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[c+d x]}{24 d}-\frac{5 a b^4 \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[c+d x]}{16 d}+\frac{a^5 \operatorname{Cos}[c+d x]^7 \operatorname{Sin}[c+d x]}{8 d}-\frac{5 a^3 b^2 \operatorname{Cos}[c+d x]^7 \operatorname{Sin}[c+d x]}{4 d}-\frac{5 a b^4 \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[c+d x]^3}{8 d}+\frac{b^5 \operatorname{Sin}[c+d x]^6}{6 d}-\frac{b^5 \operatorname{Sin}[c+d x]^8}{8 d}$$

Result (type 3, 259 leaves):

$$\frac{1}{3072 d}\left(120 a (a-i b)(a+i b)\left(7 a^2+3 b^2\right)(c+d x)-24 b\left(35 a^4+30 a^2 b^2+3 b^4\right) \operatorname{Cos}[2(c+d x)]+12 b\left(-35 a^4-10 a^2 b^2+b^4\right) \operatorname{Cos}[4(c+d x)]+8 b\left(-15 a^4+10 a^2 b^2+b^4\right) \operatorname{Cos}[6(c+d x)]-3 b\left(5 a^4-10 a^2 b^2+b^4\right) \operatorname{Cos}[8(c+d x)]+96 a^3\left(7 a^2+5 b^2\right) \operatorname{Sin}[2(c+d x)]+24 a\left(7 a^4-10 a^2 b^2-5 b^4\right) \operatorname{Sin}[4(c+d x)]+32 a^3\left(a^2-5 b^2\right) \operatorname{Sin}[6(c+d x)]+3 a\left(a^4-10 a^2 b^2+5 b^4\right) \operatorname{Sin}[8(c+d x)]\right)$$

Problem 98: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5 \, dx$$

Optimal (type 3, 170 leaves, 8 steps):

$$\frac{1}{8} a\left(3 a^4+10 a^2 b^2+15 b^4\right) x-\frac{b^5 \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}+\frac{b^5 \operatorname{Log}[\operatorname{Tan}[c+d x]]}{d}+\frac{\left(4 b\left(5 a^4-b^4\right)+5 a\left(a^2-3 b^2\right)\left(a^2+b^2\right) \operatorname{Cot}[c+d x]\right) \operatorname{Sin}[c+d x]^2}{8 d}-\frac{\left(b\left(5 a^4-10 a^2 b^2+b^4\right)+a\left(a^4-10 a^2 b^2+5 b^4\right) \operatorname{Cot}[c+d x]\right) \operatorname{Sin}[c+d x]^4}{4 d}$$

Result (type 3, 408 leaves):

$$\frac{a\left(3 a^4+10 a^2 b^2+15 b^4\right)(c+d x) \operatorname{Cos}[c+d x]^5(a+b \operatorname{Tan}[c+d x])^5}{8 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-\frac{b\left(5 a^4+10 a^2 b^2-3 b^4\right) \operatorname{Cos}[c+d x]^5 \operatorname{Cos}[2(c+d x)](a+b \operatorname{Tan}[c+d x])^5}{8 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-\frac{b\left(5 a^4-10 a^2 b^2+b^4\right) \operatorname{Cos}[c+d x]^5 \operatorname{Cos}[4(c+d x)](a+b \operatorname{Tan}[c+d x])^5}{32 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-\frac{b^5 \operatorname{Cos}[c+d x]^5 \operatorname{Log}[\operatorname{Cos}[c+d x]](a+b \operatorname{Tan}[c+d x])^5}{d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+\frac{a\left(a^4-5 b^4\right) \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[2(c+d x)](a+b \operatorname{Tan}[c+d x])^5}{4 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+\frac{a\left(a^4-10 a^2 b^2+5 b^4\right) \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[4(c+d x)](a+b \operatorname{Tan}[c+d x])^5}{32 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}$$

Problem 99: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5 \, dx$$

Optimal (type 3, 205 leaves, 17 steps):

$$\frac{5\,a\,b^4\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{10\,a^2\,b^3\,\text{Cos}[c+d\,x]}{d}+\frac{2\,b^5\,\text{Cos}[c+d\,x]}{d}-\frac{5\,a^4\,b\,\text{Cos}[c+d\,x]^3}{3\,d}+\frac{10\,a^2\,b^3\,\text{Cos}[c+d\,x]^3}{3\,d}-\frac{b^5\,\text{Cos}[c+d\,x]^3}{3\,d}+\frac{b^5\,\text{Sec}[c+d\,x]}{d}+\frac{a^5\,\text{Sin}[c+d\,x]}{d}-\frac{5\,a\,b^4\,\text{Sin}[c+d\,x]}{d}-\frac{a^5\,\text{Sin}[c+d\,x]^3}{3\,d}+\frac{10\,a^3\,b^2\,\text{Sin}[c+d\,x]^3}{3\,d}-\frac{5\,a\,b^4\,\text{Sin}[c+d\,x]^3}{3\,d}$$

Result (type 3, 632 leaves):

$$\frac{b^5\,\text{Cos}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^5}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}-\frac{b\,(5\,a^4+30\,a^2\,b^2-7\,b^4)\,\text{Cos}[c+d\,x]^6\,(a+b\,\text{Tan}[c+d\,x])^5}{4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}-$$
$$\frac{b\,(5\,a^4-10\,a^2\,b^2+b^4)\,\text{Cos}[c+d\,x]^5\,\text{Cos}[3\,(c+d\,x)]\,(a+b\,\text{Tan}[c+d\,x])^5}{12\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}-$$
$$\frac{5\,a\,b^4\,\text{Cos}[c+d\,x]^5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^5}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}+$$
$$\frac{5\,a\,b^4\,\text{Cos}[c+d\,x]^5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^5}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}+$$
$$\frac{b^5\,\text{Cos}[c+d\,x]^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^5}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}-$$
$$\frac{b^5\,\text{Cos}[c+d\,x]^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^5}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}+$$
$$\frac{a\,(3\,a^4+10\,a^2\,b^2-25\,b^4)\,\text{Cos}[c+d\,x]^5\,\text{Sin}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^5}{4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}+\frac{a\,(a^4-10\,a^2\,b^2+5\,b^4)\,\text{Cos}[c+d\,x]^5\,\text{Sin}[3\,(c+d\,x)]\,(a+b\,\text{Tan}[c+d\,x])^5}{12\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5}$$

Problem 100: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^5\,dx$$

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

$$\frac{1}{2}\,a\,(a^4+10\,a^2\,b^2-15\,b^4)\,x-\frac{2\,b^3\,(5\,a^2-b^2)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{2\,b^3\,(5\,a^2-b^2)\,\text{Log}[\text{Tan}[c+d\,x]]}{d}+$$
$$\frac{\left(b\,(5\,a^4-10\,a^2\,b^2+b^4)+a\,(a^4-10\,a^2\,b^2+5\,b^4)\,\text{Cot}[c+d\,x]\right)\,\text{Sin}[c+d\,x]^2}{2\,d}+\frac{5\,a\,b^4\,\text{Tan}[c+d\,x]}{d}+\frac{b^5\,\text{Tan}[c+d\,x]^2}{2\,d}$$

Result (type 3, 382 leaves):

$$\frac{b^5 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^5}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+\frac{a (a^4+10 a^2 b^2-15 b^4) (c+d x) \operatorname{Cos}[c+d x]^5 (a+b \operatorname{Tan}[c+d x])^5}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-$$
$$\frac{b (5 a^4-10 a^2 b^2+b^4) \operatorname{Cos}[c+d x]^5 \operatorname{Cos}[2 (c+d x)] (a+b \operatorname{Tan}[c+d x])^5}{4 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-\frac{2 (5 a^2 b^3-b^5) \operatorname{Cos}[c+d x]^5 \operatorname{Log}[\operatorname{Cos}[c+d x]] (a+b \operatorname{Tan}[c+d x])^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$
$$\frac{5 a b^4 \operatorname{Cos}[c+d x]^4 \operatorname{Sin}[c+d x] (a+b \operatorname{Tan}[c+d x])^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+\frac{a (a^4-10 a^2 b^2+5 b^4) \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[2 (c+d x)] (a+b \operatorname{Tan}[c+d x])^5}{4 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}$$

Problem 101: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5 \, dx$$

Optimal (type 3, 204 leaves, 17 steps):

$$\frac{10 a^3 b^2 \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{d}-\frac{15 a b^4 \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{2 d}-\frac{5 a^4 b \operatorname{Cos}[c+d x]}{d}+\frac{10 a^2 b^3 \operatorname{Cos}[c+d x]}{d}-\frac{b^5 \operatorname{Cos}[c+d x]}{d}+\frac{10 a^2 b^3 \operatorname{Sec}[c+d x]}{d}-$$
$$\frac{2 b^5 \operatorname{Sec}[c+d x]}{d}+\frac{b^5 \operatorname{Sec}[c+d x]^3}{3 d}+\frac{a^5 \operatorname{Sin}[c+d x]}{d}-\frac{10 a^3 b^2 \operatorname{Sin}[c+d x]}{d}+\frac{15 a b^4 \operatorname{Sin}[c+d x]}{2 d}+\frac{5 a b^4 \operatorname{Sin}[c+d x] \operatorname{Tan}[c+d x]^2}{2 d}$$

Result (type 3, 892 leaves):

$$-\frac{b^3 \left(-60 a^2+11 b^2\right) \operatorname{Cos}[c+d x]^5 (a+b \operatorname{Tan}[c+d x])^5}{6 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-\frac{b \left(5 a^4-10 a^2 b^2+b^4\right) \operatorname{Cos}[c+d x]^6 (a+b \operatorname{Tan}[c+d x])^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-$$

$$\frac{5 \left(4 a^3 b^2-3 a b^4\right) \operatorname{Cos}[c+d x]^5 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \operatorname{Tan}[c+d x])^5}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$

$$\frac{5 \left(4 a^3 b^2-3 a b^4\right) \operatorname{Cos}[c+d x]^5 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \operatorname{Tan}[c+d x])^5}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$

$$\frac{\left(15 a b^4+b^5\right) \operatorname{Cos}[c+d x]^5 (a+b \operatorname{Tan}[c+d x])^5}{12 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$

$$\frac{b^5 \operatorname{Cos}[c+d x]^5 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \operatorname{Tan}[c+d x])^5}{6 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}-$$

$$\frac{b^5 \operatorname{Cos}[c+d x]^5 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \operatorname{Tan}[c+d x])^5}{6 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$

$$\frac{\left(-15 a b^4+b^5\right) \operatorname{Cos}[c+d x]^5 (a+b \operatorname{Tan}[c+d x])^5}{12 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$

$$\frac{\operatorname{Cos}[c+d x]^5 \left(60 a^2 b^3 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]-11 b^5 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \operatorname{Tan}[c+d x])^5}{6 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$

$$\frac{\operatorname{Cos}[c+d x]^5 \left(-60 a^2 b^3 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]+11 b^5 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \operatorname{Tan}[c+d x])^5}{6 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}+$$

$$\frac{a \left(a^4-10 a^2 b^2+5 b^4\right) \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[c+d x] (a+b \operatorname{Tan}[c+d x])^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5}$$

Problem 102: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^5 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^5 \, dx$$

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

$$a\left(a^4-10a^2b^2+5b^4\right)x-\frac{b\left(5a^4-10a^2b^2+b^4\right)\text{Log}[\text{Cos}[c+dx]]}{d}+\frac{4ab^2\left(a^2-b^2\right)\text{Tan}[c+dx]}{d}+\frac{b\left(3a^2-b^2\right)\left(a+b\,\text{Tan}[c+dx]\right)^2}{2d}+\frac{2ab\left(a+b\,\text{Tan}[c+dx]\right)^3}{3d}+\frac{b\left(a+b\,\text{Tan}[c+dx]\right)^4}{4d}$$

Result (type 3, 369 leaves):

$$\frac{b^5\,\text{Cos}[c+dx]\left(a+b\,\text{Tan}[c+dx]\right)^5}{4d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}-\frac{b^3\left(-5a^2+b^2\right)\text{Cos}[c+dx]^3\left(a+b\,\text{Tan}[c+dx]\right)^5}{d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}+\frac{a\left(a^4-10a^2b^2+5b^4\right)(c+dx)\,\text{Cos}[c+dx]^5\left(a+b\,\text{Tan}[c+dx]\right)^5}{d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}+\frac{\left(-5a^4b+10a^2b^3-b^5\right)\text{Cos}[c+dx]^5\,\text{Log}[\text{Cos}[c+dx]]\left(a+b\,\text{Tan}[c+dx]\right)^5}{d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}+\frac{5ab^4\,\text{Cos}[c+dx]^2\,\text{Sin}[c+dx]\left(a+b\,\text{Tan}[c+dx]\right)^5}{3d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}+\frac{10\,\text{Cos}[c+dx]^4\left(3a^3b^2\,\text{Sin}[c+dx]-2ab^4\,\text{Sin}[c+dx]\right)\left(a+b\,\text{Tan}[c+dx]\right)^5}{3d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}$$

Problem 103: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+dx]^6\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5\,dx$$

Optimal (type 3, 224 leaves, 15 steps):

$$\frac{a^5\,\text{ArcTanh}[\text{Sin}[c+dx]]}{d}-\frac{5a^3b^2\,\text{ArcTanh}[\text{Sin}[c+dx]]}{d}+\frac{15ab^4\,\text{ArcTanh}[\text{Sin}[c+dx]]}{8d}+\frac{5a^4b\,\text{Sec}[c+dx]}{d}-\frac{10a^2b^3\,\text{Sec}[c+dx]}{d}+\frac{b^5\,\text{Sec}[c+dx]}{d}+\frac{10a^2b^3\,\text{Sec}[c+dx]^3}{3d}-\frac{2b^5\,\text{Sec}[c+dx]^3}{3d}+\frac{b^5\,\text{Sec}[c+dx]^5}{5d}+\frac{5a^3b^2\,\text{Sec}[c+dx]\,\text{Tan}[c+dx]}{d}-\frac{15ab^4\,\text{Sec}[c+dx]\,\text{Tan}[c+dx]}{8d}+\frac{5ab^4\,\text{Sec}[c+dx]\,\text{Tan}[c+dx]^3}{4d}$$

Result (type 3, 1219 leaves):

$$\frac{b\left(600a^4-1000a^2b^2+89b^4\right)\text{Cos}[c+dx]^5\left(a+b\,\text{Tan}[c+dx]\right)^5}{120d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}+\frac{\left(-8a^5+40a^3b^2-15ab^4\right)\text{Cos}[c+dx]^5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right]\left(a+b\,\text{Tan}[c+dx]\right)^5}{8d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}+\frac{\left(8a^5-40a^3b^2+15ab^4\right)\text{Cos}[c+dx]^5\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right]\left(a+b\,\text{Tan}[c+dx]\right)^5}{8d\left(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]\right)^5}+$$

$$\frac{\left(25\,a\,b^4+2\,b^5\right)\,\text{Cos}[c+d\,x]^5\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{80\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\left(600\,a^3\,b^2+200\,a^2\,b^3-375\,a\,b^4-31\,b^5\right)\,\text{Cos}[c+d\,x]^5\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{240\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{b^5\,\text{Cos}[c+d\,x]^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{20\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}-$$

$$\frac{b^5\,\text{Cos}[c+d\,x]^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{20\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\left(-25\,a\,b^4+2\,b^5\right)\,\text{Cos}[c+d\,x]^5\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{80\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\left(-600\,a^3\,b^2+200\,a^2\,b^3+375\,a\,b^4-31\,b^5\right)\,\text{Cos}[c+d\,x]^5\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{240\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\left(\text{Cos}[c+d\,x]^5\,\left(-600\,a^4\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+1000\,a^2\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-89\,b^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5\right)\Big/$$
$$\left(120\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5\right)+$$

$$\frac{\text{Cos}[c+d\,x]^5\,\left(200\,a^2\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-31\,b^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{120\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\text{Cos}[c+d\,x]^5\,\left(-200\,a^2\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+31\,b^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5}{120\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\left(\text{Cos}[c+d\,x]^5\,\left(600\,a^4\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-1000\,a^2\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+89\,b^5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^5\right)\Big/$$
$$\left(120\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5\right)$$

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

$$\int \text{Sec}[c+d\,x]^7\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5\,dx$$

Optimal (type 3, 30 leaves, 2 steps):

$$\frac{(b + a \,\text{Cot}[c + d x])^6 \,\text{Tan}[c + d x]^6}{6 b d}$$

Result (type 3, 370 leaves):

$$-\frac{b^3 (-5 a^2 + b^2) \,\text{Cos}[c + d x] \,(a + b \,\text{Tan}[c + d x])^5}{2 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} + \frac{b (5 a^4 - 10 a^2 b^2 + b^4) \,\text{Cos}[c + d x]^3 \,(a + b \,\text{Tan}[c + d x])^5}{2 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} + \frac{b^5 \,\text{Sec}[c + d x] \,(a + b \,\text{Tan}[c + d x])^5}{6 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} +$$
$$\frac{a b^4 \,\text{Sin}[c + d x] \,(a + b \,\text{Tan}[c + d x])^5}{d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} + \frac{2 \,\text{Cos}[c + d x]^2 \,(5 a^3 b^2 \,\text{Sin}[c + d x] - 3 a b^4 \,\text{Sin}[c + d x]) \,(a + b \,\text{Tan}[c + d x])^5}{3 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} +$$
$$\frac{\text{Cos}[c + d x]^4 \,(3 a^5 \,\text{Sin}[c + d x] - 10 a^3 b^2 \,\text{Sin}[c + d x] + 3 a b^4 \,\text{Sin}[c + d x]) \,(a + b \,\text{Tan}[c + d x])^5}{3 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5}$$

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

$$\int \text{Sec}[c + d x]^8 \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5 \,dx$$

Optimal (type 3, 318 leaves, 19 steps):

$$\frac{a^5 \,\text{ArcTanh}[\text{Sin}[c + d x]]}{2 d} - \frac{5 a^3 b^2 \,\text{ArcTanh}[\text{Sin}[c + d x]]}{4 d} + \frac{5 a b^4 \,\text{ArcTanh}[\text{Sin}[c + d x]]}{16 d} + \frac{5 a^4 b \,\text{Sec}[c + d x]^3}{3 d} - \frac{10 a^2 b^3 \,\text{Sec}[c + d x]^3}{3 d} +$$
$$\frac{b^5 \,\text{Sec}[c + d x]^3}{3 d} + \frac{2 a^2 b^3 \,\text{Sec}[c + d x]^5}{d} - \frac{2 b^5 \,\text{Sec}[c + d x]^5}{5 d} + \frac{b^5 \,\text{Sec}[c + d x]^7}{7 d} + \frac{a^5 \,\text{Sec}[c + d x] \,\text{Tan}[c + d x]}{2 d} - \frac{5 a^3 b^2 \,\text{Sec}[c + d x] \,\text{Tan}[c + d x]}{4 d} +$$
$$\frac{5 a b^4 \,\text{Sec}[c + d x] \,\text{Tan}[c + d x]}{16 d} + \frac{5 a^3 b^2 \,\text{Sec}[c + d x]^3 \,\text{Tan}[c + d x]}{2 d} - \frac{5 a b^4 \,\text{Sec}[c + d x]^3 \,\text{Tan}[c + d x]}{8 d} + \frac{5 a b^4 \,\text{Sec}[c + d x]^3 \,\text{Tan}[c + d x]^3}{6 d}$$

Result (type 3, 1677 leaves):

$$\frac{b (1400 a^4 - 1540 a^2 b^2 + 103 b^4) \,\text{Cos}[c + d x]^5 \,(a + b \,\text{Tan}[c + d x])^5}{1680 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} +$$
$$\frac{(-8 a^5 + 20 a^3 b^2 - 5 a b^4) \,\text{Cos}[c + d x]^5 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c + d x)\right] - \text{Sin}\left[\frac{1}{2} (c + d x)\right]\right] (a + b \,\text{Tan}[c + d x])^5}{16 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} +$$
$$\frac{(8 a^5 - 20 a^3 b^2 + 5 a b^4) \,\text{Cos}[c + d x]^5 \,\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c + d x)\right] + \text{Sin}\left[\frac{1}{2} (c + d x)\right]\right] (a + b \,\text{Tan}[c + d x])^5}{16 d \,(a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} +$$
$$\frac{(35 a b^4 + 3 b^5) \,\text{Cos}[c + d x]^5 \,(a + b \,\text{Tan}[c + d x])^5}{336 d \left(\text{Cos}\left[\frac{1}{2} (c + d x)\right] - \text{Sin}\left[\frac{1}{2} (c + d x)\right]\right)^6 (a \,\text{Cos}[c + d x] + b \,\text{Sin}[c + d x])^5} +$$

$$\frac{\left(350\, a^3 b^2+140\, a^2 b^3-175\, a\, b^4-18\, b^5\right) \text{Cos}[c+d\,x]^5 \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{560\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\left(840\, a^5+1400\, a^4 b-2100\, a^3 b^2-1540\, a^2 b^3+525\, a\, b^4+103\, b^5\right) \text{Cos}[c+d\,x]^5 \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{3360\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{b^5\, \text{Cos}[c+d\,x]^5\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right] \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{56\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}-$$

$$\frac{b^5\, \text{Cos}[c+d\,x]^5\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right] \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{56\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\left(-35\, a\, b^4+3\, b^5\right) \text{Cos}[c+d\,x]^5 \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{336\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\left(-350\, a^3 b^2+140\, a^2 b^3+175\, a\, b^4-18\, b^5\right) \text{Cos}[c+d\,x]^5 \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{560\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\left(-840\, a^5+1400\, a^4 b+2100\, a^3 b^2-1540\, a^2 b^3-525\, a\, b^4+103\, b^5\right) \text{Cos}[c+d\,x]^5 \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{3360\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\left(\text{Cos}[c+d\,x]^5 \left(-1400\, a^4 b\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+1540\, a^2 b^3\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-103\, b^5\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right) \left(a+b\,\text{Tan}[c+d\,x]\right)^5\right) \Big/$$
$$\left(1680\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5\right)+$$

$$\left(\text{Cos}[c+d\,x]^5 \left(-1400\, a^4 b\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+1540\, a^2 b^3\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-103\, b^5\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right) \left(a+b\,\text{Tan}[c+d\,x]\right)^5\right) \Big/$$
$$\left(1680\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right) \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5\right)+$$

$$\frac{\text{Cos}[c+d\,x]^5 \left(70\, a^2 b^3\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-9\, b^5\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right) \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{140\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\frac{\text{Cos}[c+d\,x]^5 \left(-70\, a^2 b^3\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+9\, b^5\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right) \left(a+b\,\text{Tan}[c+d\,x]\right)^5}{140\, d \left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5 \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^5}+$$

$$\left(\text{Cos}[c+d\,x]^5 \left(1400\, a^4 b\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-1540\, a^2 b^3\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+103\, b^5\, \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right) \left(a+b\,\text{Tan}[c+d\,x]\right)^5\right) \Big/$$

$$\left(1680\, d \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3 (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^5\right)+$$
$$\left(\text{Cos}[c+d x]^5\left(1400\, a^4 b\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]-1540\, a^2 b^3\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+103\, b^5\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b\,\text{Tan}[c+d x])^5\right)\Big/$$
$$\left(1680\, d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^5\right)$$

Problem 112: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 119 leaves, 5 steps):

$$\frac{a b^2 x}{(a^2+b^2)^2}+\frac{a x}{2(a^2+b^2)}+\frac{b\,\text{Cos}[c+d x]^2}{2(a^2+b^2)\,d}+\frac{b^3\,\text{Log}[a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]]}{(a^2+b^2)^2\,d}+\frac{a\,\text{Cos}[c+d x]\,\text{Sin}[c+d x]}{2(a^2+b^2)\,d}$$

Result (type 3, 143 leaves):

$$\frac{1}{4(a^2+b^2)^2 d}\Big(2 a^3 c+6 a b^2 c+4 i b^3 c+2 a^3 d x+6 a b^2 d x+4 i b^3 d x-4 i b^3\,\text{ArcTan}[\text{Tan}[c+d x]]+$$
$$b(a^2+b^2)\,\text{Cos}[2(c+d x)]+2 b^3\,\text{Log}\left[(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right]+a^3\,\text{Sin}[2(c+d x)]+a b^2\,\text{Sin}[2(c+d x)]\Big)$$

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

$$\int \frac{\text{Sec}[c+d x]^4}{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 153 leaves, 7 steps):

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

Result (type 3, 321 leaves):

$$\frac{1}{24\,b^4\,d}\left(48\,(a^2+b^2)^{3/2}\,\text{ArcTanh}\left[\frac{-b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$
$$\text{Sec}[c+d\,x]^3\left(12\,a^2\,b+20\,b^3+12\,b\,(a^2+b^2)\,\text{Cos}[2\,(c+d\,x)]+6\,a^3\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$
$$9\,a\,b^2\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+9\,a\,(2\,a^2+3\,b^2)\,\text{Cos}[c+d\,x]$$
$$\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)-6\,a^3\,\text{Cos}[3\,(c+d\,x)]$$
$$\left.\left.\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-9\,a\,b^2\,\text{Cos}[3\,(c+d\,x)]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-6\,a\,b^2\,\text{Sin}[2\,(c+d\,x)]\right)\right)$$

Problem 121: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sec}[c+d\,x]^6}{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 262 leaves, 11 steps):

$$-\frac{3\,a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,b^2\,d}-\frac{a\,(a^2+b^2)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,b^4\,d}-\frac{a\,(a^2+b^2)^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{b^6\,d}-$$
$$\frac{(a^2+b^2)^{5/2}\,\text{ArcTanh}\left[\frac{b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}\right]}{b^6\,d}+\frac{(a^2+b^2)^2\,\text{Sec}[c+d\,x]}{b^5\,d}+\frac{(a^2+b^2)\,\text{Sec}[c+d\,x]^3}{3\,b^3\,d}+\frac{\text{Sec}[c+d\,x]^5}{5\,b\,d}-$$
$$\frac{3\,a\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{8\,b^2\,d}-\frac{a\,(a^2+b^2)\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,b^4\,d}-\frac{a\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{4\,b^2\,d}$$

Result (type 3, 1313 leaves):

$$\frac{\left(120 a^4+260 a^2 b^2+149 b^4\right) \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{120 b^5 d \left(a+b \operatorname{Tan}[c+d x]\right)}+\frac{1}{b^6 d \left(a+b \operatorname{Tan}[c+d x]\right)}$$
$$2 (a-\mathrm{i}\, b)^2 (a+\mathrm{i}\, b)^2 \sqrt{a^2+b^2} \operatorname{ArcTanh}\left[\frac{\sqrt{a^2+b^2} \left(-b \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+a \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}{a^2 \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+b^2 \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]}\right] \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)+$$
$$\frac{1}{8 b^6 d \left(a+b \operatorname{Tan}[c+d x]\right)}\left(8 a^5+20 a^3 b^2+15 a b^4\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)+$$
$$\frac{1}{8 b^6 d \left(a+b \operatorname{Tan}[c+d x]\right)}\left(-8 a^5-20 a^3 b^2-15 a b^4\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)+$$
$$\frac{(-5 a+2 b) \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{80 b^2 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4 \left(a+b \operatorname{Tan}[c+d x]\right)}+\frac{\left(-60 a^3+20 a^2 b-105 a b^2+29 b^3\right) \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{240 b^4 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 \left(a+b \operatorname{Tan}[c+d x]\right)}+$$
$$\frac{\operatorname{Sec}[c+d x] \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{20 b d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5 \left(a+b \operatorname{Tan}[c+d x]\right)}-\frac{\operatorname{Sec}[c+d x] \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{20 b d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5 \left(a+b \operatorname{Tan}[c+d x]\right)}+$$
$$\frac{(5 a+2 b) \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{80 b^2 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4 \left(a+b \operatorname{Tan}[c+d x]\right)}+\frac{\left(60 a^3+20 a^2 b+105 a b^2+29 b^3\right) \operatorname{Sec}[c+d x] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{240 b^4 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 \left(a+b \operatorname{Tan}[c+d x]\right)}+$$
$$\frac{\operatorname{Sec}[c+d x] \left(-20 a^2 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]-29 b^2 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{120 b^3 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 \left(a+b \operatorname{Tan}[c+d x]\right)}+$$
$$\frac{\operatorname{Sec}[c+d x] \left(20 a^2 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]+29 b^2 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)}{120 b^3 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 \left(a+b \operatorname{Tan}[c+d x]\right)}+$$
$$\left(\operatorname{Sec}[c+d x] \left(-120 a^4 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]-260 a^2 b^2 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]-149 b^4 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)\right)\Big/$$
$$\left(120 b^5 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(a+b \operatorname{Tan}[c+d x]\right)\right)+$$
$$\left(\operatorname{Sec}[c+d x] \left(120 a^4 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]+260 a^2 b^2 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]+149 b^4 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)\right)\Big/$$
$$\left(120 b^5 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) \left(a+b \operatorname{Tan}[c+d x]\right)\right)$$

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

$$\int \frac{\operatorname{Cos}[c+d x]^2}{\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2} \, dx$$

Optimal (type 3, 82 leaves, 4 steps):

$$\frac{\left(a^2-b^2\right) x}{\left(a^2+b^2\right)^2}+\frac{2 a b \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}-\frac{b}{\left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 192 leaves):

$$\Big(a^2 \operatorname{Cos}[c+d x] \left((a+i b)^2 (c+d x)+a b \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]\right)+ b \left((a+i b) \left(-i b^2+a b (1+i c+i d x)+a^2 (c+d x)\right)+a^2 b \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]\right) \operatorname{Sin}[c+d x]- 2 i a^2 b \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])\Big) \Big/ \left(a \left(a^2+b^2\right)^2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])\right)$$

Problem 129: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[c+d x]^3}{(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 179 leaves, 11 steps):

$$\frac{2 a^2 \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{b^4 d}+\frac{\operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{2 b^2 d}+\frac{\left(a^2+b^2\right) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{b^4 d}+ \frac{3 a \sqrt{a^2+b^2} \operatorname{ArcTanh}\left[\frac{b \operatorname{Cos}[c+d x]-a \operatorname{Sin}[c+d x]}{\sqrt{a^2+b^2}}\right]}{b^4 d}-\frac{2 a \operatorname{Sec}[c+d x]}{b^3 d}-\frac{a^2+b^2}{b^3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}+\frac{\operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{2 b^2 d}$$

Result (type 3, 709 leaves):

$$-\frac{(a-i\,b)\,(a+i\,b)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{b^3\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-\frac{2\,a\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{b^3\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-$$

$$\frac{6\,a\,\sqrt{a^2+b^2}\,\text{ArcTanh}\left[\frac{\sqrt{a^2+b^2}\,\left(-b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{a^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+b^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}\right]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{b^4\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-$$

$$\frac{3\,(2\,a^2+b^2)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{2\,b^4\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{3\,(2\,a^2+b^2)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{2\,b^4\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+$$

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

$$\frac{\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{4\,b^2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+b\,\text{Tan}[c+d\,x])^2}+\frac{2\,a\,\text{Sec}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{b^3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+b\,\text{Tan}[c+d\,x])^2}$$

Problem 131: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d\,x]^4}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 216 leaves, ? steps):

$$-\frac{3\,b^2\,(4\,a^2-b^2)\,\text{ArcTanh}\left[\frac{b-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}\right]}{(a^2+b^2)^{7/2}\,d}+\frac{b\,(3\,a^2-b^2)\,\text{Cos}[c+d\,x]}{(a^2+b^2)^3\,d}+\frac{a\,(a^2-3\,b^2)\,\text{Sin}[c+d\,x]}{(a^2+b^2)^3\,d}+$$

$$\frac{b^4\,\text{Sin}[c+d\,x]}{2\,a\,(a^2+b^2)^2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-\frac{b^3\,(8\,a^2+b^2)}{2\,a\,(a^2+b^2)^3\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}$$

Result (type 3, 211 leaves) :

$$\frac{1}{2d}\left(-\frac{6 b^2 \left(-4 a^2+b^2\right) \text{ArcTanh}\left[\frac{-b+a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{7/2}}-\frac{2 b \left(-3 a^2+b^2\right) \text{Cos}[c+d x]}{\left(a^2+b^2\right)^3}+\frac{2 a \left(a^2-3 b^2\right) \text{Sin}[c+d x]}{\left(a^2+b^2\right)^3}+\frac{b^4 \text{Sin}[c+d x]}{a (a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-\frac{b^3 \left(8 a^2+b^2\right)}{a \left(a^2+b^2\right)^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)$$

Problem 132: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 122 leaves, 5 steps):

$$\frac{a \left(a^2-3 b^2\right) x}{\left(a^2+b^2\right)^3}+\frac{b \left(3 a^2-b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^3 d}-\frac{b}{2 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}-\frac{2 a b}{\left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 154 leaves):

$$\frac{1}{2d}\left(\frac{2 a \left(a^2-3 b^2\right) (c+d x)}{\left(a^2+b^2\right)^3}-\frac{2 b \left(-3 a^2+b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^3}-\frac{b^3}{(a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{6 b^2 \text{Sin}[c+d x]}{\left(a^2+b^2\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)$$

Problem 134: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 22 leaves, 2 steps):

$$-\frac{1}{2 b d (a+b \text{Tan}[c+d x])^2}$$

Result (type 3, 57 leaves):

$$\frac{-b \text{Cos}[2 (c+d x)]+a \text{Sin}[2 (c+d x)]}{2 \left(a^2+b^2\right) d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}$$

Problem 135: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 103 leaves, 3 steps):

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

Result (type 3, 132 leaves):

$$\left((a^2+b^2)\,(-b\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x])+2\,\sqrt{a^2+b^2}\,\text{ArcTanh}\left[\frac{-b+a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}\right]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)\Big/ \left(2\,(a-i\,b)^2\,(a+i\,b)^2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

Problem 139: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sec}[c+d\,x]^4}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 383 leaves, 31 steps):

$$-\frac{4\,a^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{b^6\,d}-\frac{3\,a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,b^4\,d}-\frac{6\,a\,(a^2+b^2)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{b^6\,d}-\frac{8\,a^2\,\sqrt{a^2+b^2}\,\text{ArcTanh}\left[\frac{b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}\right]}{b^6\,d}-$$
$$\frac{\sqrt{a^2+b^2}\,\text{ArcTanh}\left[\frac{b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}\right]}{2\,b^4\,d}-\frac{2\,(a^2+b^2)^{3/2}\,\text{ArcTanh}\left[\frac{b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}\right]}{b^6\,d}+\frac{4\,a^2\,\text{Sec}[c+d\,x]}{b^5\,d}+\frac{2\,(a^2+b^2)\,\text{Sec}[c+d\,x]}{b^5\,d}+$$
$$\frac{\text{Sec}[c+d\,x]^3}{3\,b^3\,d}-\frac{(a^2+b^2)\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{2\,b^4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{4\,a\,(a^2+b^2)}{b^5\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}-\frac{3\,a\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,b^4\,d}$$

Result (type 3, 688 leaves):

$$\frac{1}{12 b^6 d (a + b \mathrm{Tan}[c + d x])^3} \mathrm{Sec}[c + d x]^3 (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x]) \left(\frac{6 b^2 (a^2 + b^2)^2 \mathrm{Sin}[c + d x]}{a} + \frac{6 (a - i b) (a + i b) b (8 a^2 - b^2) (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])}{a} + \right.$$

$$2 b (36 a^2 + 13 b^2) (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2 + 60 \sqrt{a^2 + b^2} (4 a^2 + b^2) \mathrm{ArcTanh}\left[\frac{-b + a \mathrm{Tan}\left[\frac{1}{2} (c + d x)\right]}{\sqrt{a^2 + b^2}}\right] (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2 +$$

$$30 a (4 a^2 + 3 b^2) \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] - \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]\right] (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2 -$$

$$30 a (4 a^2 + 3 b^2) \mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] + \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]\right] (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2 +$$

$$\frac{b^2 (-9 a + b) (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] - \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]\right)^2} + \frac{2 b^3 \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right] (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] - \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]\right)^3} +$$

$$\frac{2 b (36 a^2 + 13 b^2) \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right] (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2}{\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] - \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]} - \frac{2 b^3 \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right] (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] + \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]\right)^3} +$$

$$\left.\frac{b^2 (9 a + b) (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] + \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]\right)^2} - \frac{2 b (36 a^2 + 13 b^2) \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right] (a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^2}{\mathrm{Cos}\left[\frac{1}{2} (c + d x)\right] + \mathrm{Sin}\left[\frac{1}{2} (c + d x)\right]}\right)$$

Problem 140: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sec}[c + d x]^5}{(a \mathrm{Cos}[c + d x] + b \mathrm{Sin}[c + d x])^3} \, dx$$

Optimal (type 3, 232 leaves, 3 steps):

$$-\frac{(a^2 + b^2)^3}{2 a^2 b^5 d (b + a \mathrm{Cot}[c + d x])^2} - \frac{(5 a^2 - b^2) (a^2 + b^2)^2}{a^2 b^6 d (b + a \mathrm{Cot}[c + d x])} + \frac{3 (a^2 + b^2) (5 a^2 + b^2) \mathrm{Log}[b + a \mathrm{Cot}[c + d x]]}{b^7 d} +$$

$$\frac{3 (a^2 + b^2) (5 a^2 + b^2) \mathrm{Log}[\mathrm{Tan}[c + d x]]}{b^7 d} - \frac{a (10 a^2 + 9 b^2) \mathrm{Tan}[c + d x]}{b^6 d} + \frac{3 (2 a^2 + b^2) \mathrm{Tan}[c + d x]^2}{2 b^5 d} - \frac{a \mathrm{Tan}[c + d x]^3}{b^4 d} + \frac{\mathrm{Tan}[c + d x]^4}{4 b^3 d}$$

Result (type 3, 530 leaves):

$$-\frac{(a-i b)^2 (a+i b)^2 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{2 b^5 d (a+b \operatorname{Tan}[c+d x])^3}-$$

$$\frac{3 (5 a^4+6 a^2 b^2+b^4) \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{b^7 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\frac{3 (5 a^4+6 a^2 b^2+b^4) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{b^7 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\frac{(3 a^2+b^2) \operatorname{Sec}[c+d x]^5 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{b^5 d (a+b \operatorname{Tan}[c+d x])^3}+\frac{\operatorname{Sec}[c+d x]^7 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{4 b^3 d (a+b \operatorname{Tan}[c+d x])^3}-$$

$$\frac{2 \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (5 a^3 \operatorname{Sin}[c+d x]+4 a b^2 \operatorname{Sin}[c+d x])}{b^6 d (a+b \operatorname{Tan}[c+d x])^3}-$$

$$\frac{5 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (a^4 \operatorname{Sin}[c+d x]+2 a^2 b^2 \operatorname{Sin}[c+d x]+b^4 \operatorname{Sin}[c+d x])}{b^6 d (a+b \operatorname{Tan}[c+d x])^3}-$$

$$\frac{a \operatorname{Sec}[c+d x]^5 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 \operatorname{Tan}[c+d x]}{b^4 d (a+b \operatorname{Tan}[c+d x])^3}$$

Problem 141: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[c+d x]^4}{(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4} \, dx$$

Optimal (type 3, 165 leaves, 6 steps):

$$\frac{(a^4-6 a^2 b^2+b^4) x}{(a^2+b^2)^4}+\frac{4 a b (a^2-b^2) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{(a^2+b^2)^4 d}-$$

$$\frac{b}{3 (a^2+b^2) d (a+b \operatorname{Tan}[c+d x])^3}-\frac{a b}{(a^2+b^2)^2 d (a+b \operatorname{Tan}[c+d x])^2}-\frac{b (3 a^2-b^2)}{(a^2+b^2)^3 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 419 leaves):

$$\frac{\left(a^2-2ab-b^2\right)\left(a^2+2ab-b^2\right)(c+dx)}{(a-\mathrm{i}\,b)^4(a+\mathrm{i}\,b)^4 d}+$$
$$\frac{4\left(\mathrm{i}\,a^{10}b+a^9b^2+2\,\mathrm{i}\,a^8b^3+2a^7b^4-2\,\mathrm{i}\,a^4b^7-2a^3b^8-\mathrm{i}\,a^2b^9-ab^{10}\right)(c+dx)}{(a-\mathrm{i}\,b)^8(a+\mathrm{i}\,b)^7 d}-\frac{4\,\mathrm{i}\left(a^3b-ab^3\right)\text{ArcTan}[\text{Tan}[c+dx]]}{\left(a^2+b^2\right)^4 d}+$$
$$\frac{2\left(a^3b-ab^3\right)\text{Log}\left[(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2\right]}{\left(a^2+b^2\right)^4 d}+\frac{b^4\,\text{Sin}[c+dx]}{3a(a-\mathrm{i}\,b)^2(a+\mathrm{i}\,b)^2 d\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3}-$$
$$\frac{b^3\left(6a^2+b^2\right)}{3a(a-\mathrm{i}\,b)^3(a+\mathrm{i}\,b)^3 d\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2}+\frac{2\left(9a^2b^2\,\text{Sin}[c+dx]-2b^4\,\text{Sin}[c+dx]\right)}{3a(a-\mathrm{i}\,b)^3(a+\mathrm{i}\,b)^3 d\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}$$

Problem 142: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[c+dx]^3}{(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^4}\,dx$$

Optimal (type 3, 157 leaves, ? steps):

$$\frac{a\left(2a^2-3b^2\right)\text{ArcTanh}\left[\frac{-b+a\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]}{\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{7/2}d}+\frac{-3\left(3a^4b-a^2b^3+b^5\right)\text{Cos}[2(c+dx)]+\frac{1}{2}b\left(-9a^2+b^2\right)\left(2\left(a^2+b^2\right)+3ab\,\text{Sin}[2(c+dx)]\right)}{6\left(a^2+b^2\right)^3 d\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3}$$

Result (type 3, 165 leaves):

$$\frac{\frac{6a\left(2a^2-3b^2\right)\text{ArcTanh}\left[\frac{-b+a\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]}{\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{7/2}}+\frac{-3\left(3a^4b-a^2b^3+b^5\right)\text{Cos}[2(c+dx)]+\frac{1}{2}b\left(-9a^2+b^2\right)\left(2\left(a^2+b^2\right)+3ab\,\text{Sin}[2(c+dx)]\right)}{(a-\mathrm{i}\,b)^3(a+\mathrm{i}\,b)^3(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3}}{6d}$$

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

$$\int\frac{\text{Cos}[c+dx]^2}{(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^4}\,dx$$

Optimal (type 3, 30 leaves, 2 steps):

$$-\frac{\text{Cot}[c+dx]^3}{3bd\,(b+a\,\text{Cot}[c+dx])^3}$$

Result (type 3, 124 leaves):

$$\left(-6\,a\,b\,(a^2+b^2)\,\text{Cos}[c+d\,x]+(-6\,a^3\,b+2\,a\,b^3)\,\text{Cos}[3\,(c+d\,x)]+2\,(a^2-b^2)\,(3\,a^2+b^2+(3\,a^2-b^2)\,\text{Cos}[2\,(c+d\,x)])\,\text{Sin}[c+d\,x]\right)\Big/\left(12\,a\,(a^2+b^2)^2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\right)$$

Problem 146: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d\,x]}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 3, 231 leaves, 8 steps):

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

Result (type 3, 478 leaves):

$$-\frac{\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{3\,b\,d\,(a+b\,\text{Tan}[c+d\,x])^4}+\frac{(-2\,a^2-b^2)\,\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}{2\,b^3\,(-i\,a+b)\,(i\,a+b)\,d\,(a+b\,\text{Tan}[c+d\,x])^4}-\left(a\,\sqrt{a^2+b^2}\,(2\,a^2+3\,b^2)\,\text{ArcTanh}\left[\frac{\sqrt{a^2+b^2}\,\left(-b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{a^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+b^2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}\right]\,\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4\right)\Big/\left((a^4\,b^4+2\,a^2\,b^6+b^8)\,d\,(a+b\,\text{Tan}[c+d\,x])^4\right)-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}{b^4\,d\,(a+b\,\text{Tan}[c+d\,x])^4}+\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}{b^4\,d\,(a+b\,\text{Tan}[c+d\,x])^4}-\frac{\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\text{Tan}[c+d\,x]}{2\,b^2\,d\,(a+b\,\text{Tan}[c+d\,x])^4}$$

Problem 169: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d\,x]}{(a\,\text{Cos}[c+d\,x]+i\,a\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 3, 46 leaves, 8 steps):

$$-\frac{\text{ArcTanh}[\text{Sin}[c+d x]]}{a^2 d}+\frac{2 i \text{Cos}[c+d x]}{a^2 d}+\frac{2 \text{Sin}[c+d x]}{a^2 d}$$

Result (type 3, 184 leaves):

$$-\frac{1}{a^2 d (-i+\text{Tan}[c+d x])^2}$$
$$\text{Sec}[c+d x]^2 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right] \left(2 i+\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)+\right.$$
$$\left.\left(2+i \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-i \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right) \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)$$
$$\left(\text{Cos}\left[\frac{3}{2} (c+d x)\right]+i \text{Sin}\left[\frac{3}{2} (c+d x)\right]\right)$$

Problem 171: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^3}{(a \text{Cos}[c+d x]+i a \text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 56 leaves, 8 steps):

$$\frac{3 \text{ArcTanh}[\text{Sin}[c+d x]]}{2 a^2 d}-\frac{2 i \text{Sec}[c+d x]}{a^2 d}-\frac{\text{Sec}[c+d x] \text{Tan}[c+d x]}{2 a^2 d}$$

Result (type 3, 146 leaves):

$$-\frac{1}{4 a^2 d}\text{Sec}[c+d x]^2 \left(8 i \text{Cos}[c+d x]+3 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\right.$$
$$3 \text{Cos}[2 (c+d x)] \left(\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)-$$
$$\left.3 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+2 \text{Sin}[c+d x]\right)$$

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

$$\int \frac{\text{Sec}[c+d x]^5}{(a \text{Cos}[c+d x]+i a \text{Sin}[c+d x])^2} \, dx$$

Optimal (type 3, 84 leaves, 10 steps):

$$\frac{5 \text{ArcTanh}[\text{Sin}[c+d x]]}{8 a^2 d}-\frac{2 i \text{Sec}[c+d x]^3}{3 a^2 d}+\frac{5 \text{Sec}[c+d x] \text{Tan}[c+d x]}{8 a^2 d}-\frac{\text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{4 a^2 d}$$

Result (type 3, 215 leaves):

$$-\frac{1}{192\,a^2\,d}\,\mathrm{Sec}[c+d\,x]^4\left(128\,i\,\mathrm{Cos}[c+d\,x]+45\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$
$$60\,\mathrm{Cos}[2\,(c+d\,x)]\left(\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+$$
$$15\,\mathrm{Cos}[4\,(c+d\,x)]\left(\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)-$$
$$\left.45\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+18\,\mathrm{Sin}[c+d\,x]-30\,\mathrm{Sin}[3\,(c+d\,x)]\right)$$

Problem 179: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cos}[c+d\,x]}{(a\,\mathrm{Cos}[c+d\,x]+i\,a\,\mathrm{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 32 leaves, 2 steps):

$$\frac{i\,\mathrm{Cot}[c+d\,x]^2}{2\,a^3\,d\,(i+\mathrm{Cot}[c+d\,x])^2}$$

Result (type 3, 77 leaves):

$$\frac{i\,\mathrm{Cos}[2\,(c+d\,x)]}{4\,a^3\,d}+\frac{i\,\mathrm{Cos}[4\,(c+d\,x)]}{8\,a^3\,d}+\frac{\mathrm{Sin}[2\,(c+d\,x)]}{4\,a^3\,d}+\frac{\mathrm{Sin}[4\,(c+d\,x)]}{8\,a^3\,d}$$

Problem 185: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Sec}[c+d\,x]^5}{(a\,\mathrm{Cos}[c+d\,x]+i\,a\,\mathrm{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 34 leaves, 3 steps):

$$\frac{i\,(i-\mathrm{Cot}[c+d\,x])^4\,\mathrm{Tan}[c+d\,x]^4}{4\,a^3\,d}$$

Result (type 3, 90 leaves):

$$-\frac{1}{4\,a^3\,d}i\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^4\,(3\,\mathrm{Cos}[c]+2\,\mathrm{Cos}[c+2\,d\,x]+2\,\mathrm{Cos}[3\,c+2\,d\,x]-3\,i\,\mathrm{Sin}[c]+2\,i\,\mathrm{Sin}[c+2\,d\,x]-2\,i\,\mathrm{Sin}[3\,c+2\,d\,x]+i\,\mathrm{Sin}[3\,c+4\,d\,x])$$

Problem 188: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\mathrm{Sec}[x]+\mathrm{Tan}[x]}\,dx$$

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

$$\text{Log}[1+\text{Sin}[x]]$$

Result (type 3, 16 leaves):

$$2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 191: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[x]}{\text{Sec}[x]+\text{Tan}[x]}\,dx$$

Optimal (type 3, 11 leaves, 3 steps):

$$x+\frac{\text{Cos}[x]}{1+\text{Sin}[x]}$$

Result (type 3, 25 leaves):

$$x-\frac{2\,\text{Sin}\left[\frac{x}{2}\right]}{\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]}$$

Problem 192: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[x]}{\text{Sec}[x]+\text{Tan}[x]}\,dx$$

Optimal (type 3, 9 leaves, 4 steps):

$$-x-\text{ArcTanh}[\text{Cos}[x]]$$

Result (type 3, 20 leaves):

$$-x-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 193: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[x]}{\text{Sec}[x]+\text{Tan}[x]}\,dx$$

Optimal (type 3, 10 leaves, 2 steps):

$$-\frac{\text{Cos}[x]}{1+\text{Sin}[x]}$$

Result (type 3, 23 leaves):

$$\frac{2\,\text{Sin}\left[\frac{x}{2}\right]}{\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]}$$

Problem 199: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[x]}{\text{Sec}[x]-\text{Tan}[x]}\,dx$$

Optimal (type 3, 7 leaves, 4 steps):

$$x-\text{ArcTanh}[\text{Cos}[x]]$$

Result (type 3, 18 leaves):

$$x-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 200: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[x]}{\text{Sec}[x]-\text{Tan}[x]}\,dx$$

Optimal (type 3, 11 leaves, 2 steps):

$$\frac{\text{Cos}[x]}{1-\text{Sin}[x]}$$

Result (type 3, 25 leaves):

$$\frac{2\,\text{Sin}\left[\frac{x}{2}\right]}{\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}$$

Problem 203: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[x]}{\text{Cot}[x]+\text{Csc}[x]}\,dx$$

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

$$x-\text{Sin}[x]$$

Result (type 3, 14 leaves):

$$2\left(\frac{x}{2}-\frac{\text{Sin}[x]}{2}\right)$$

Problem 205: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[x]}{\text{Cot}[x]+\text{Csc}[x]}\,dx$$

Optimal (type 3, 7 leaves, 4 steps):

$$-x+\text{ArcTanh}[\text{Sin}[x]]$$

Result (type 3, 36 leaves):

$$-x-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 209: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[x]}{-\text{Cot}[x]+\text{Csc}[x]}\,dx$$

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

$$x+\text{Sin}[x]$$

Result (type 3, 14 leaves):

$$2\left(\frac{x}{2}+\frac{\text{Sin}[x]}{2}\right)$$

Problem 211: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[x]}{-\text{Cot}[x]+\text{Csc}[x]}\,dx$$

Optimal (type 3, 5 leaves, 4 steps):

$$x+\text{ArcTanh}[\text{Sin}[x]]$$

Result (type 3, 46 leaves):

$$2\left(\frac{x}{2}-\frac{1}{2}\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\frac{1}{2}\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 215: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\text{Csc}[c+d x]+\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 23 leaves, 3 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\text{Cos}[c+d x]}{\sqrt{2}}\right]}{\sqrt{2}\,d}$$

Result (type 3, 61 leaves):

$$-\frac{\text{ArcTanh}\left[\frac{\text{Cos}[c]-(-i+\text{Sin}[c])\,\text{Tan}\left[\frac{d x}{2}\right]}{\sqrt{2}}\right]+\text{ArcTanh}\left[\frac{\text{Cos}[c]-(i+\text{Sin}[c])\,\text{Tan}\left[\frac{d x}{2}\right]}{\sqrt{2}}\right]}{\sqrt{2}\,d}$$

Problem 218: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]}{\text{Csc}[c+d x]+\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 29 leaves, 4 steps):

$$-\frac{\text{ArcTan}[\text{Sin}[c+d x]]}{2 d}+\frac{\text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}$$

Result (type 3, 63 leaves):

$$-\frac{1}{2 d}\left(\text{ArcTan}[\text{Sin}[c+d x]]+\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)$$

Problem 225: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]}{\text{Csc}[c+d x]-\text{Sin}[c+d x]}\,dx$$

Optimal (type 3, 34 leaves, 3 steps):

$$-\frac{\text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}+\frac{\text{Sec}[c+d x]\,\text{Tan}[c+d x]}{2 d}$$

Result (type 3, 69 leaves):

$$\frac{1}{2 d}\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\text{Sec}[c+d x]\,\text{Tan}[c+d x]\right)$$

Problem 226: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]}{\text{Csc}[c+d x]-\text{Sin}[c+d x]} \, dx$$

Optimal (type 3, 11 leaves, 2 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[c+d x]]}{d}$$

Result (type 3, 68 leaves):

$$-\frac{\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}+\frac{\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}$$

Problem 240: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x] \left(a \text{Sin}[c+d x]+b \text{Tan}[c+d x]\right)^2 \, dx$$

Optimal (type 3, 90 leaves, 7 steps):

$$-2 a b x+\frac{\left(2 a^2-b^2\right) \text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}-\frac{3 a^2 \text{Sin}[c+d x]}{2 d}+\frac{a b \text{Tan}[c+d x]}{d}+\frac{\left(b+a \text{Cos}[c+d x]\right)^2 \text{Sec}[c+d x] \text{Tan}[c+d x]}{2 d}$$

Result (type 3, 265 leaves):

$$-\frac{1}{4 d}\text{Sec}[c+d x]^2 \left(4 a b c+4 a b d x+2 a^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-b^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-\right.$$
$$2 a^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+b^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\text{Cos}[2 (c+d x)]$$
$$\left(4 a b (c+d x)+\left(2 a^2-b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\left(-2 a^2+b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)+$$
$$\left.\left(a^2-2 b^2\right) \text{Sin}[c+d x]-4 a b \text{Sin}[2 (c+d x)]+a^2 \text{Sin}[3 (c+d x)]\right)$$

Problem 241: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^2 \left(a \text{Sin}[c+d x]+b \text{Tan}[c+d x]\right)^2 \, dx$$

Optimal (type 3, 99 leaves, 7 steps):

$$-a^2 x-\frac{a b \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{d}+\frac{\left(2 a^2-b^2\right) \operatorname{Tan}[c+d x]}{3 d}+\frac{a b \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{3 d}+\frac{(b+a \operatorname{Cos}[c+d x])^2 \operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]}{3 d}$$

Result (type 3, 201 leaves):

$$\frac{1}{12 d} \operatorname{Sec}[c+d x]^3 \left(-9 a \operatorname{Cos}[c+d x] \left(a (c+d x)-b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)-3 a \operatorname{Cos}[3 (c+d x)] \left(a (c+d x)-b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+b \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)+2 \left(3 a^2+b^2+6 a b \operatorname{Cos}[c+d x]+\left(3 a^2-b^2\right) \operatorname{Cos}[2 (c+d x)]\right) \operatorname{Sin}[c+d x]\right)$$

Problem 242: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 125 leaves, 9 steps):

$$-\frac{\left(4 a^2+b^2\right) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{8 d}-\frac{2 a b \operatorname{Tan}[c+d x]}{3 d}+\frac{\left(2 a^2-b^2\right) \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{8 d}+\frac{a b \operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]}{6 d}+\frac{(b+a \operatorname{Cos}[c+d x])^2 \operatorname{Sec}[c+d x]^3 \operatorname{Tan}[c+d x]}{4 d}$$

Result (type 3, 336 leaves):

$$\frac{1}{192 d} \operatorname{Sec}[c+d x]^4 \left(36 a^2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+9 b^2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+12 \left(4 a^2+b^2\right) \operatorname{Cos}[2 (c+d x)] \left(\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)+3 \left(4 a^2+b^2\right) \operatorname{Cos}[4 (c+d x)] \left(\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right)-36 a^2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-9 b^2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+24 a^2 \operatorname{Sin}[c+d x]+42 b^2 \operatorname{Sin}[c+d x]+32 a b \operatorname{Sin}[2 (c+d x)]+24 a^2 \operatorname{Sin}[3 (c+d x)]-6 b^2 \operatorname{Sin}[3 (c+d x)]-16 a b \operatorname{Sin}[4 (c+d x)]\right)$$

Problem 264: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cos}[c+d x]^3}{(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3} \, dx$$

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

$$\frac{b^6}{2 a^3 (a^2-b^2)^2 d (b+a \operatorname{Cos}[c+d x])^2}-\frac{2 b^5 (3 a^2-b^2)}{a^3 (a^2-b^2)^3 d (b+a \operatorname{Cos}[c+d x])}-\frac{(a (a^2+3 b^2)-b (3 a^2+b^2) \operatorname{Cos}[c+d x]) \operatorname{Csc}[c+d x]^2}{2 (a^2-b^2)^3 d}-\frac{(2 a+5 b) \operatorname{Log}[1-\operatorname{Cos}[c+d x]]}{4 (a+b)^4 d}-\frac{(2 a-5 b) \operatorname{Log}[1+\operatorname{Cos}[c+d x]]}{4 (a-b)^4 d}-\frac{b^4 (15 a^4-4 a^2 b^2+b^4) \operatorname{Log}[b+a \operatorname{Cos}[c+d x]]}{a^3 (a^2-b^2)^4 d}$$

Result (type 3, 713 leaves):

$$\frac{b^6 (b+a \operatorname{Cos}[c+d x]) \operatorname{Tan}[c+d x]^3}{2 a^3 (-a+b)^2 (a+b)^2 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{2 b^5 (-3 a^2+b^2) (b+a \operatorname{Cos}[c+d x])^2 \operatorname{Tan}[c+d x]^3}{a^3 (-a+b)^3 (a+b)^3 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{2 i (a^5-4 a^3 b^2-9 a b^4) (c+d x) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Tan}[c+d x]^3}{(a-b)^4 (a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{i (-2 a-5 b) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Tan}[c+d x]^3}{2 (a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{i (-2 a+5 b) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Tan}[c+d x]^3}{2 (-a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{(b+a \operatorname{Cos}[c+d x])^3 \operatorname{Csc}[\frac{1}{2} (c+d x)]^2 \operatorname{Tan}[c+d x]^3}{8 (a+b)^3 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}+\frac{(-2 a+5 b) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Log}[\operatorname{Cos}[\frac{1}{2} (c+d x)]^2] \operatorname{Tan}[c+d x]^3}{4 (-a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}+\frac{(-15 a^4 b^4+4 a^2 b^6-b^8) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Log}[b+a \operatorname{Cos}[c+d x]] \operatorname{Tan}[c+d x]^3}{a^3 (-a^2+b^2)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}+\frac{(-2 a-5 b) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Log}[\operatorname{Sin}[\frac{1}{2} (c+d x)]^2] \operatorname{Tan}[c+d x]^3}{4 (a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}+\frac{(b+a \operatorname{Cos}[c+d x])^3 \operatorname{Sec}[\frac{1}{2} (c+d x)]^2 \operatorname{Tan}[c+d x]^3}{8 (-a+b)^3 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}$$

Problem 265: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 232 leaves, 6 steps):

$$-\frac{b^5}{2 a^2 (a^2-b^2)^2 d (b+a \operatorname{Cos}[c+d x])^2}+\frac{b^4 (5 a^2-b^2)}{a^2 (a^2-b^2)^3 d (b+a \operatorname{Cos}[c+d x])}+\frac{(b (3 a^2+b^2)-a (a^2+3 b^2) \operatorname{Cos}[c+d x]) \operatorname{Csc}[c+d x]^2}{2 (a^2-b^2)^3 d}-\frac{(a+4 b) \operatorname{Log}[1-\operatorname{Cos}[c+d x]]}{4 (a+b)^4 d}+\frac{(a-4 b) \operatorname{Log}[1+\operatorname{Cos}[c+d x]]}{4 (a-b)^4 d}+\frac{2 b^3 (5 a^2+b^2) \operatorname{Log}[b+a \operatorname{Cos}[c+d x]]}{(a^2-b^2)^4 d}$$

Result (type 3, 477 leaves):

$$-\frac{b^5 (b+a\,\mathrm{Cos}[c+d\,x])\,\mathrm{Tan}[c+d\,x]^3}{2\,a^2 (-a+b)^2 (a+b)^2 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{b^4 (-5\,a^2+b^2)(b+a\,\mathrm{Cos}[c+d\,x])^2\,\mathrm{Tan}[c+d\,x]^3}{a^2 (-a+b)^3 (a+b)^3 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}-\frac{(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Csc}[\frac{1}{2}(c+d\,x)]^2\,\mathrm{Tan}[c+d\,x]^3}{8\,(a+b)^3 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{(a-4\,b)(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Log}[\mathrm{Cos}[\frac{1}{2}(c+d\,x)]]\,\mathrm{Tan}[c+d\,x]^3}{2\,(-a+b)^4 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{2\,(5\,a^2 b^3+b^5)(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Log}[b+a\,\mathrm{Cos}[c+d\,x]]\,\mathrm{Tan}[c+d\,x]^3}{(-a^2+b^2)^4 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{(-a-4\,b)(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Log}[\mathrm{Sin}[\frac{1}{2}(c+d\,x)]]\,\mathrm{Tan}[c+d\,x]^3}{2\,(a+b)^4 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}-\frac{(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Sec}[\frac{1}{2}(c+d\,x)]^2\,\mathrm{Tan}[c+d\,x]^3}{8\,(-a+b)^3 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}$$

Problem 266: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 211 leaves, 6 steps):

$$\frac{b^4}{2\,a\,(a^2-b^2)^2 d\,(b+a\,\mathrm{Cos}[c+d\,x])^2}-\frac{4\,a\,b^3}{(a^2-b^2)^3 d\,(b+a\,\mathrm{Cos}[c+d\,x])}-\frac{(a\,(a^2+3\,b^2)-b\,(3\,a^2+b^2)\,\mathrm{Cos}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^2}{2\,(a^2-b^2)^3 d}-\frac{3\,b\,\mathrm{Log}[1-\mathrm{Cos}[c+d\,x]]}{4\,(a+b)^4 d}+\frac{3\,b\,\mathrm{Log}[1+\mathrm{Cos}[c+d\,x]]}{4\,(a-b)^4 d}-\frac{6\,a\,b^2 (a^2+b^2)\,\mathrm{Log}[b+a\,\mathrm{Cos}[c+d\,x]]}{(a^2-b^2)^4 d}$$

Result (type 3, 458 leaves):

$$\frac{b^4 (b+a\,\mathrm{Cos}[c+d\,x])\,\mathrm{Tan}[c+d\,x]^3}{2\,a\,(-a+b)^2 (a+b)^2 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{4\,a\,b^3 (b+a\,\mathrm{Cos}[c+d\,x])^2\,\mathrm{Tan}[c+d\,x]^3}{(-a+b)^3 (a+b)^3 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}-\frac{(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Csc}[\frac{1}{2}(c+d\,x)]^2\,\mathrm{Tan}[c+d\,x]^3}{8\,(a+b)^3 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{3\,b\,(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Log}[\mathrm{Cos}[\frac{1}{2}(c+d\,x)]]\,\mathrm{Tan}[c+d\,x]^3}{2\,(-a+b)^4 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}-\frac{6\,(a^3 b^2+a\,b^4)(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Log}[b+a\,\mathrm{Cos}[c+d\,x]]\,\mathrm{Tan}[c+d\,x]^3}{(-a^2+b^2)^4 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}-\frac{3\,b\,(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Log}[\mathrm{Sin}[\frac{1}{2}(c+d\,x)]]\,\mathrm{Tan}[c+d\,x]^3}{2\,(a+b)^4 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{(b+a\,\mathrm{Cos}[c+d\,x])^3\,\mathrm{Sec}[\frac{1}{2}(c+d\,x)]^2\,\mathrm{Tan}[c+d\,x]^3}{8\,(-a+b)^3 d\,(a\,\mathrm{Sin}[c+d\,x]+b\,\mathrm{Tan}[c+d\,x])^3}$$

Problem 267: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 229 leaves, 5 steps):

$$-\frac{b^3}{2 (a^2-b^2)^2 d (b+a \operatorname{Cos}[c+d x])^2}+\frac{b^2 (3 a^2+b^2)}{(a^2-b^2)^3 d (b+a \operatorname{Cos}[c+d x])}+\frac{(b (3 a^2+b^2)-a (a^2+3 b^2) \operatorname{Cos}[c+d x]) \operatorname{Csc}[c+d x]^2}{2 (a^2-b^2)^3 d}+\frac{(a-2 b) \operatorname{Log}[1-\operatorname{Cos}[c+d x]]}{4 (a+b)^4 d}-\frac{(a+2 b) \operatorname{Log}[1+\operatorname{Cos}[c+d x]]}{4 (a-b)^4 d}+\frac{b (3 a^4+8 a^2 b^2+b^4) \operatorname{Log}[b+a \operatorname{Cos}[c+d x]]}{(a^2-b^2)^4 d}$$

Result (type 3, 696 leaves):

$$-\frac{b^3 (b+a \operatorname{Cos}[c+d x]) \operatorname{Tan}[c+d x]^3}{2 (-a+b)^2 (a+b)^2 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{b^2 (3 a^2+b^2) (b+a \operatorname{Cos}[c+d x])^2 \operatorname{Tan}[c+d x]^3}{(-a+b)^3 (a+b)^3 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{2 i (3 a^4 b+8 a^2 b^3+b^5) (c+d x) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Tan}[c+d x]^3}{(a-b)^4 (a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{i (-a-2 b) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Tan}[c+d x]^3}{2 (-a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{i (a-2 b) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Tan}[c+d x]^3}{2 (a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{(b+a \operatorname{Cos}[c+d x])^3 \operatorname{Csc}[\frac{1}{2} (c+d x)]^2 \operatorname{Tan}[c+d x]^3}{8 (a+b)^3 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}+\frac{(-a-2 b) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Log}[\operatorname{Cos}[\frac{1}{2} (c+d x)]^2] \operatorname{Tan}[c+d x]^3}{4 (-a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}+\frac{(3 a^4 b+8 a^2 b^3+b^5) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Log}[b+a \operatorname{Cos}[c+d x]] \operatorname{Tan}[c+d x]^3}{(-a^2+b^2)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}+\frac{(a-2 b) (b+a \operatorname{Cos}[c+d x])^3 \operatorname{Log}[\operatorname{Sin}[\frac{1}{2} (c+d x)]^2] \operatorname{Tan}[c+d x]^3}{4 (a+b)^4 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}-\frac{(b+a \operatorname{Cos}[c+d x])^3 \operatorname{Sec}[\frac{1}{2} (c+d x)]^2 \operatorname{Tan}[c+d x]^3}{8 (-a+b)^3 d (a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3}$$

Problem 268: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[c+d x]}{(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 231 leaves, 6 steps):

$$\frac{a b^2}{2 \left(a^2-b^2\right)^2 d \left(b+a \operatorname{Cos}[c+d x]\right)^2}-\frac{2 a b \left(a^2+b^2\right)}{\left(a^2-b^2\right)^3 d \left(b+a \operatorname{Cos}[c+d x]\right)}-\frac{\left(a \left(a^2+3 b^2\right)-b \left(3 a^2+b^2\right) \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]^2}{2 \left(a^2-b^2\right)^3 d}+$$
$$\frac{(2 a-b) \operatorname{Log}[1-\operatorname{Cos}[c+d x]]}{4 (a+b)^4 d}+\frac{(2 a+b) \operatorname{Log}[1+\operatorname{Cos}[c+d x]]}{4 (a-b)^4 d}-\frac{a \left(a^4+8 a^2 b^2+3 b^4\right) \operatorname{Log}[b+a \operatorname{Cos}[c+d x]]}{\left(a^2-b^2\right)^4 d}$$

Result (type 3, 703 leaves):

$$\frac{a b^2 \left(b+a \operatorname{Cos}[c+d x]\right) \operatorname{Tan}[c+d x]^3}{2 (-a+b)^2 (a+b)^2 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}+$$
$$\frac{2 a b (-i a+b) (i a+b) \left(b+a \operatorname{Cos}[c+d x]\right)^2 \operatorname{Tan}[c+d x]^3}{(-a+b)^3 (a+b)^3 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}+\frac{2 i \left(a^5+8 a^3 b^2+3 a b^4\right) (c+d x) \left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Tan}[c+d x]^3}{(a-b)^4 (a+b)^4 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}-$$
$$\frac{i (2 a-b) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Tan}[c+d x]^3}{2 (a+b)^4 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}-\frac{i (2 a+b) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Tan}[c+d x]^3}{2 (-a+b)^4 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}-$$
$$\frac{\left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Csc}\left[\frac{1}{2} (c+d x)\right]^2 \operatorname{Tan}[c+d x]^3}{8 (a+b)^3 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}+\frac{(2 a+b) \left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]^2\right] \operatorname{Tan}[c+d x]^3}{4 (-a+b)^4 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}+$$
$$\frac{\left(-a^5-8 a^3 b^2-3 a b^4\right) \left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Log}[b+a \operatorname{Cos}[c+d x]] \operatorname{Tan}[c+d x]^3}{\left(-a^2+b^2\right)^4 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}+$$
$$\frac{(2 a-b) \left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]^2\right] \operatorname{Tan}[c+d x]^3}{4 (a+b)^4 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}+\frac{\left(b+a \operatorname{Cos}[c+d x]\right)^3 \operatorname{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \operatorname{Tan}[c+d x]^3}{8 (-a+b)^3 d \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^3}$$

Problem 272: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cos}[c+d x]^m \left(a \operatorname{Sin}[c+d x]+b \operatorname{Tan}[c+d x]\right)^2 \, dx$$

Optimal (type 5, 264 leaves, 8 steps):

$$\frac{\left(a^2-2 b^2\right) \operatorname{Cos}[c+d x]^{-1+m} \operatorname{Sin}[c+d x]}{d m (2+m)}-\frac{2 a b \operatorname{Cos}[c+d x]^m \operatorname{Sin}[c+d x]}{d \left(2+3 m+m^2\right)}-\frac{\operatorname{Cos}[c+d x]^{-1+m} \left(b+a \operatorname{Cos}[c+d x]\right)^2 \operatorname{Sin}[c+d x]}{d (2+m)}-$$
$$\left(\left(a^2 (1-m)-b^2 (2+m)\right) \operatorname{Cos}[c+d x]^{-1+m} \operatorname{Hypergeometric2F1}\left[\frac{1}{2}, \frac{1}{2} (-1+m), \frac{1+m}{2}, \operatorname{Cos}[c+d x]^2\right] \operatorname{Sin}[c+d x]\right) \Big/$$
$$\left(d (1-m) m (2+m) \sqrt{\operatorname{Sin}[c+d x]^2}\right)-\frac{2 a b \operatorname{Cos}[c+d x]^m \operatorname{Hypergeometric2F1}\left[\frac{1}{2}, \frac{m}{2}, \frac{2+m}{2}, \operatorname{Cos}[c+d x]^2\right] \operatorname{Sin}[c+d x]}{d m (1+m) \sqrt{\operatorname{Sin}[c+d x]^2}}$$

Result (type 5, 890 leaves):

$$-\left(\left(b^2 \text{Cos}[c+d x]^{1+m} \text{Hypergeometric2F1}\left[-\frac{1}{2}, \frac{1}{2}(-1+m), \frac{1+m}{2}, \text{Cos}[c+d x]^2\right] \text{Sin}[c+d x] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(4096 d (-1+m) (b+a \text{Cos}[c+d x])^2 \left(\text{Sin}[c+d x]^2\right)^{3/2}\right)\right) -$$

$$\left(a b \text{Cos}[c+d x]^{2+m} \text{Hypergeometric2F1}\left[-\frac{1}{2}, \frac{m}{2}, \frac{2+m}{2}, \text{Cos}[c+d x]^2\right] \text{Sin}[c+d x] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(2048 d m (b+a \text{Cos}[c+d x])^2 \left(\text{Sin}[c+d x]^2\right)^{3/2}\right) -$$

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

$$\left(4095 b^2 \text{Cos}[c+d x]^{1+m} \text{Csc}[c+d x] \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{1}{2}(-1+m), \frac{1+m}{2}, \text{Cos}[c+d x]^2\right] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(4096 d (-1+m) (b+a \text{Cos}[c+d x])^2 \sqrt{\text{Sin}[c+d x]^2}\right) -$$

$$\left(4095 a b \text{Cos}[c+d x]^{2+m} \text{Csc}[c+d x] \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{m}{2}, \frac{2+m}{2}, \text{Cos}[c+d x]^2\right] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(2048 d m (b+a \text{Cos}[c+d x])^2 \sqrt{\text{Sin}[c+d x]^2}\right) -$$

$$\left(a^2 \text{Cos}[c+d x]^{3+m} \text{Csc}[c+d x] \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{1+m}{2}, \frac{3+m}{2}, \text{Cos}[c+d x]^2\right] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(2 d (1+m) (b+a \text{Cos}[c+d x])^2 \sqrt{\text{Sin}[c+d x]^2}\right) +$$

$$\left(4095 b^2 \text{Cos}[c+d x]^{3+m} \text{Csc}[c+d x] \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{1+m}{2}, \frac{3+m}{2}, \text{Cos}[c+d x]^2\right] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(4096 d (1+m) (b+a \text{Cos}[c+d x])^2 \sqrt{\text{Sin}[c+d x]^2}\right) +$$

$$\left(4095 a b \text{Cos}[c+d x]^{4+m} \text{Csc}[c+d x] \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{2+m}{2}, \frac{4+m}{2}, \text{Cos}[c+d x]^2\right] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(2048 d (2+m) (b+a \text{Cos}[c+d x])^2 \sqrt{\text{Sin}[c+d x]^2}\right) +$$

$$\left(a^2 \text{Cos}[c+d x]^{5+m} \text{Csc}[c+d x] \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{3+m}{2}, \frac{5+m}{2}, \text{Cos}[c+d x]^2\right] (a \text{Sin}[c+d x]+b \text{Tan}[c+d x])^2\right) \Big/ \left(2 d (3+m) (b+a \text{Cos}[c+d x])^2 \sqrt{\text{Sin}[c+d x]^2}\right)$$

Problem 276: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 92 leaves, 7 steps):

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

Result (type 3, 153 leaves):

$$-\frac{1}{8\left(a^2+b^2\right)^2}\left(-2 a^3 x-6 i a^2 b x+6 a b^2 x+2 i b^3 x-2 i b\left(-3 a^2+b^2\right) \text{ArcTan}[\text{Tan}[x]]+2 b\left(a^2+b^2\right) \text{Cos}[2 x]-2\left(a^2+b^2\right)(a x+b \,\text{Log}[a \,\text{Cos}[x]+b \,\text{Sin}[x]])-3 a^2 b \,\text{Log}\left[(a \,\text{Cos}[x]+b \,\text{Sin}[x])^2\right]+b^3 \,\text{Log}\left[(a \,\text{Cos}[x]+b \,\text{Sin}[x])^2\right]+2 a^3 \,\text{Sin}[2 x]+2 a b^2 \,\text{Sin}[2 x]\right)$$

Problem 278: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 93 leaves, 7 steps):

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

Result (type 3, 82 leaves):

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

Problem 280: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[x]^2 \,\text{Sin}[x]^3}{a \,\text{Cos}[x]+b \,\text{Sin}[x]} \, dx$$

Optimal (type 3, 176 leaves, 13 steps):

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

Result (type 3, 178 leaves):

$$\frac{1}{32\left(a^2+b^2\right)^3}\left(-12 a^4 b x-32 i a^3 b^2 x+24 a^2 b^3 x+4 b^5 x+32 i a^3 b^2 \text{ArcTan}[\text{Tan}[x]]-4 a\left(a^4-b^4\right) \text{Cos}[2 x]+a^5 \text{Cos}[4 x]+2 a^3 b^2 \text{Cos}[4 x]+a b^4 \text{Cos}[4 x]-16 a^3 b^2 \text{Log}\left[(a \text{Cos}[x]+b \text{Sin}[x])^2\right]+8 a^4 b \text{Sin}[2 x]+8 a^2 b^3 \text{Sin}[2 x]-a^4 b \text{Sin}[4 x]-2 a^2 b^3 \text{Sin}[4 x]-b^5 \text{Sin}[4 x]\right)$$

Problem 282: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[x]^3 \text{Sin}[x]^2}{a \text{Cos}[x]+b \text{Sin}[x]} \, dx$$

Optimal (type 3, 175 leaves, 13 steps):

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

Result (type 3, 287 leaves):

$$-\frac{1}{32\left(a^2+b^2\right)^3}\left(-4 a^5 x+4 i a^4 b x-24 a^3 b^2 x-24 i a^2 b^3 x+12 a b^4 x+4 i b^5 x-4 i b\left(a^4-6 a^2 b^2+b^4\right) \text{ArcTan}[\text{Tan}[x]]+4 b\left(-a^4+b^4\right) \text{Cos}[2 x]+a^4 b \text{Cos}[4 x]+2 a^2 b^3 \text{Cos}[4 x]+b^5 \text{Cos}[4 x]-4 a^4 b \text{Log}[a \text{Cos}[x]+b \text{Sin}[x]]-8 a^2 b^3 \text{Log}[a \text{Cos}[x]+b \text{Sin}[x]]-4 b^5 \text{Log}[a \text{Cos}[x]+b \text{Sin}[x]]+2 a^4 b \text{Log}\left[(a \text{Cos}[x]+b \text{Sin}[x])^2\right]-12 a^2 b^3 \text{Log}\left[(a \text{Cos}[x]+b \text{Sin}[x])^2\right]+2 b^5 \text{Log}\left[(a \text{Cos}[x]+b \text{Sin}[x])^2\right]+8 a^3 b^2 \text{Sin}[2 x]+8 a b^4 \text{Sin}[2 x]+a^5 \text{Sin}[4 x]+2 a^3 b^2 \text{Sin}[4 x]+a b^4 \text{Sin}[4 x]\right)$$

Problem 284: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 70 leaves, 6 steps):

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

Result (type 3, 144 leaves):

$$\left(a \text{Cos}[x]\left(-2 i(a+i b)^2 x+\left(-a^2+b^2\right) \text{Log}\left[(a \text{Cos}[x]+b \text{Sin}[x])^2\right]\right)+b\left(2(a+i b)(a(-1-i x)+b(i+x))+\left(-a^2+b^2\right) \text{Log}\left[(a \text{Cos}[x]+b \text{Sin}[x])^2\right]\right) \text{Sin}[x]+2 i\left(a^2-b^2\right) \text{ArcTan}[\text{Tan}[x]](a \text{Cos}[x]+b \text{Sin}[x])\right) \Big/ \left(2\left(a^2+b^2\right)^2(a \text{Cos}[x]+b \text{Sin}[x])\right)$$

Problem 286: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 129 leaves, 17 steps):

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

Result (type 3, 226 leaves):

$$\frac{1}{4\,(a^2+b^2)^3\,(a\,\text{Cos}[x]+b\,\text{Sin}[x])}\Big(4\,i\,a^2\,(a^2-3\,b^2)\,\text{ArcTan}[\text{Tan}[x]]\,(a\,\text{Cos}[x]+b\,\text{Sin}[x])+$$
$$a\,\text{Cos}[x]\,\Big((a^4-b^4)\,\text{Cos}[2\,x]+2\,a\,\Big(2\,(i\,a-b)^3\,x-a\,(a^2-3\,b^2)\,\text{Log}\big[(a\,\text{Cos}[x]+b\,\text{Sin}[x])^2\big]-b\,(a^2+b^2)\,\text{Sin}[2\,x]\Big)\Big)-b\,\text{Sin}[x]$$
$$\Big((-a^4+b^4)\,\text{Cos}[2\,x]+2\,a\,\Big(2\,(a^3\,(1+i\,x)+a\,b^2\,(1-3\,i\,x)-3\,a^2\,b\,x+b^3\,x)+a\,(a^2-3\,b^2)\,\text{Log}\big[(a\,\text{Cos}[x]+b\,\text{Sin}[x])^2\big]+b\,(a^2+b^2)\,\text{Sin}[2\,x]\Big)\Big)\Big)$$

Problem 290: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 128 leaves, 17 steps):

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

Result (type 3, 221 leaves):

$$\frac{1}{4\,(a^2+b^2)^3\,(a\,\text{Cos}[x]+b\,\text{Sin}[x])}\Big(-4\,i\,b^2\,(-3\,a^2+b^2)\,\text{ArcTan}[\text{Tan}[x]]\,(a\,\text{Cos}[x]+b\,\text{Sin}[x])-$$
$$a\,\text{Cos}[x]\,\Big((a^4-b^4)\,\text{Cos}[2\,x]+2\,b\,\Big(2\,(a+i\,b)^3\,x-b\,(-3\,a^2+b^2)\,\text{Log}\big[(a\,\text{Cos}[x]+b\,\text{Sin}[x])^2\big]-a\,(a^2+b^2)\,\text{Sin}[2\,x]\Big)\Big)+b\,\text{Sin}[x]$$
$$\Big((-a^4+b^4)\,\text{Cos}[2\,x]+2\,b\,\Big(-2\,(a+i\,b)\,(a^2\,x-b^2\,(i+x)+a\,(b+2\,i\,b\,x))+(-3\,a^2\,b+b^3)\,\text{Log}\big[(a\,\text{Cos}[x]+b\,\text{Sin}[x])^2\big]+a\,(a^2+b^2)\,\text{Sin}[2\,x]\Big)\Big)\Big)$$

Problem 292: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 210 leaves, 48 steps):

$$-\frac{3\,a\,b\,\left(a^4-6\,a^2\,b^2+b^4\right)\,x}{4\,\left(a^2+b^2\right)^4}-\frac{b^2\,\text{Cos}[x]^4}{4\,\left(a^2+b^2\right)^2}-\frac{3\,a^2\,b^2\,\left(a^2-b^2\right)\,\text{Log}[a\,\text{Cos}[x]+b\,\text{Sin}[x]]}{\left(a^2+b^2\right)^4}+\frac{a\,b\,\left(5\,a^2-3\,b^2\right)\,\text{Cos}[x]\,\text{Sin}[x]}{4\,\left(a^2+b^2\right)^3}-\frac{a\,b\,\text{Cos}[x]^3\,\text{Sin}[x]}{2\,\left(a^2+b^2\right)^2}-\frac{2\,a^2\,b^2\,\text{Sin}[x]^2}{\left(a^2+b^2\right)^3}+\frac{a^2\,\text{Sin}[x]^4}{4\,\left(a^2+b^2\right)^2}-\frac{a^2\,b^3\,\text{Sin}[x]}{\left(a^2+b^2\right)^3\,\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)}$$

Result (type 3, 409 leaves):

$$\frac{1}{32\,\left(a^2+b^2\right)^4}\Bigg(-12\,a\,b\,\left(a^2-3\,b^2\right)\,\left(3\,a^2-b^2\right)\,x+6\,i\,\left(a^6-15\,a^4\,b^2+15\,a^2\,b^4-b^6\right)\,x-6\,i\,\left(a^6-15\,a^4\,b^2+15\,a^2\,b^4-b^6\right)\,\text{ArcTan}[\text{Tan}[x]]-4\,\left(a^2+b^2\right)\,\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{Cos}[2\,x]+\left(a^2-b^2\right)\,\left(a^2+b^2\right)^2\,\text{Cos}[4\,x]+3\,\left(a^6-15\,a^4\,b^2+15\,a^2\,b^4-b^6\right)\,\text{Log}\left[\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)^2\right]+\frac{2\,b\,\left(a^2+b^2\right)\,\left(3\,a^4-10\,a^2\,b^2+3\,b^4\right)\,\text{Sin}[x]}{a\,\text{Cos}[x]+b\,\text{Sin}[x]}+\frac{1}{a\,\text{Cos}[x]+b\,\text{Sin}[x]}3\,\left(a^2+b^2\right)^2\,\Big(a\,\text{Cos}[x]\,\left(-2\,i\,\left(a+i\,b\right)^2\,x+\left(-a^2+b^2\right)\,\text{Log}\left[\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)^2\right]\right)+b\,\left(2\,\left(a+i\,b\right)\,\left(a\,\left(-1-i\,x\right)+b\,\left(i+x\right)\right)+\left(-a^2+b^2\right)\,\text{Log}\left[\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)^2\right]\right)\,\text{Sin}[x]+2\,i\,\left(a^2-b^2\right)\,\text{ArcTan}[\text{Tan}[x]]\,\left(a\,\text{Cos}[x]+b\,\text{Sin}[x]\right)\Big)+16\,a\,b\,\left(a^4-b^4\right)\,\text{Sin}[2\,x]-2\,a\,b\,\left(a^2+b^2\right)^2\,\text{Sin}[4\,x]\Bigg)$$

Test results for the 397 problems in "4.7.3 (c+d x)^m trig^n trig^p.m"

Problem 32: Result more than twice size of optimal antiderivative.

$$\int (c+d\,x)^4\,\text{Cot}[a+b\,x]\,dx$$

Optimal (type 4, 151 leaves, 7 steps):

$$-\frac{i\,(c+d\,x)^5}{5\,d}+\frac{(c+d\,x)^4\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b}-\frac{2\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]}{b^2}+\frac{3\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{3\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]}{b^4}-\frac{3\,d^4\,\text{PolyLog}\left[5,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^5}$$

Result (type 4, 527 leaves):

$$\frac{2\,i\,c^3\,d\,\pi\,x}{b} - 2\,i\,c^2\,d^2\,x^3 - i\,c\,d^3\,x^4 - \frac{1}{5}\,i\,d^4\,x^5 - \frac{4\,i\,c^3\,d\,x\,\text{ArcTan}[\text{Tan}[a]]}{b} + 2\,c^3\,d\,x^2\,\text{Cot}[a] + \frac{2\,c^3\,d\,\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]}{b^2} +$$
$$\frac{6\,c^2\,d^2\,x^2\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b} + \frac{4\,c\,d^3\,x^3\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b} + \frac{d^4\,x^4\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b} + \frac{4\,c^3\,d\,x\,\text{Log}\left[1-e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]}{b} +$$
$$\frac{4\,c^3\,d\,\text{ArcTan}[\text{Tan}[a]]\,\text{Log}\left[1-e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]}{b^2} - \frac{2\,c^3\,d\,\pi\,\text{Log}[\text{Cos}[b\,x]]}{b^2} + \frac{c^4\,\text{Log}[\text{Sin}[a+b\,x]]}{b} -$$
$$\frac{4\,c^3\,d\,\text{ArcTan}[\text{Tan}[a]]\,\text{Log}[\text{Sin}[b\,x+\text{ArcTan}[\text{Tan}[a]]]]}{b^2} - \frac{2\,i\,d^2\,x\,\left(3\,c^2+3\,c\,d\,x+d^2\,x^2\right)\,\text{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]}{b^2} -$$
$$\frac{2\,i\,c^3\,d\,\text{PolyLog}\left[2,\,e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]}{b^2} + \frac{3\,c^2\,d^2\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{b^3} + \frac{6\,c\,d^3\,x\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{b^3} + \frac{3\,d^4\,x^2\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{b^3} +$$
$$\frac{3\,i\,c\,d^3\,\text{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]}{b^4} + \frac{3\,i\,d^4\,x\,\text{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]}{b^4} - \frac{3\,d^4\,\text{PolyLog}\left[5,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^5} - 2\,c^3\,d\,e^{i\,\text{ArcTan}[\text{Tan}[a]]}\,x^2\,\text{Cot}[a]\,\sqrt{\text{Sec}[a]^2}$$

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

$$\int (c+d\,x)^3\,\text{Cot}[a+b\,x]\,dx$$

Optimal (type 4, 127 leaves, 6 steps):

$$-\frac{i\,(c+d\,x)^4}{4\,d} + \frac{(c+d\,x)^3\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b} - \frac{3\,i\,d\,(c+d\,x)^2\,\text{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^2} +$$
$$\frac{3\,d^2\,(c+d\,x)\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^3} + \frac{3\,i\,d^3\,\text{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]}{4\,b^4}$$

Result (type 4, 410 leaves):

$$\frac{1}{4\,b^4}\left(6\,i\,b^3\,c^2\,d\,\pi\,x - 4\,i\,b^4\,c\,d^2\,x^3 - i\,b^4\,d^3\,x^4 - 12\,i\,b^3\,c^2\,d\,x\,\text{ArcTan}[\text{Tan}[a]] + \right.$$
$$6\,b^4\,c^2\,d\,x^2\,\text{Cot}[a] + 6\,b^2\,c^2\,d\,\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right] + 12\,b^3\,c\,d^2\,x^2\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right] + 4\,b^3\,d^3\,x^3\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right] +$$
$$12\,b^3\,c^2\,d\,x\,\text{Log}\left[1-e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right] + 12\,b^2\,c^2\,d\,\text{ArcTan}[\text{Tan}[a]]\,\text{Log}\left[1-e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right] -$$
$$6\,b^2\,c^2\,d\,\pi\,\text{Log}[\text{Cos}[b\,x]] + 4\,b^3\,c^3\,\text{Log}[\text{Sin}[a+b\,x]] - 12\,b^2\,c^2\,d\,\text{ArcTan}[\text{Tan}[a]]\,\text{Log}[\text{Sin}[b\,x+\text{ArcTan}[\text{Tan}[a]]]] -$$
$$6\,i\,b^2\,d^2\,x\,(2\,c+d\,x)\,\text{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right] - 6\,i\,b^2\,c^2\,d\,\text{PolyLog}\left[2,\,e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right] + 6\,b\,c\,d^2\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right] +$$
$$\left.6\,b\,d^3\,x\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right] + 3\,i\,d^3\,\text{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right] - 6\,b^4\,c^2\,d\,e^{i\,\text{ArcTan}[\text{Tan}[a]]}\,x^2\,\text{Cot}[a]\,\sqrt{\text{Sec}[a]^2}\right)$$

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

$$\int (c+d\,x)^2\,\text{Cot}[a+b\,x]\,dx$$

Optimal (type 4, 93 leaves, 5 steps):

$$-\frac{i (c+d x)^3}{3 d}+\frac{(c+d x)^2 \text{Log}\left[1-e^{2 i (a+b x)}\right]}{b}-\frac{i d (c+d x) \text{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^2}+\frac{d^2 \text{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{2 b^3}$$

Result (type 4, 287 leaves):

$$\frac{1}{6 b^3}\left(6 i b^2 c d \pi x-2 i b^3 d^2 x^3-12 i b^2 c d x \text{ArcTan}[\text{Tan}[a]]+6 b^3 c d x^2 \text{Cot}[a]+6 b c d \pi \text{Log}\left[1+e^{-2 i b x}\right]+6 b^2 d^2 x^2 \text{Log}\left[1-e^{2 i (a+b x)}\right]+ 12 b^2 c d x \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+12 b c d \text{ArcTan}[\text{Tan}[a]] \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]-6 b c d \pi \text{Log}[\text{Cos}[b x]]+ 6 b^2 c^2 \text{Log}[\text{Sin}[a+b x]]-12 b c d \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]-6 i b d^2 x \text{PolyLog}\left[2, e^{2 i (a+b x)}\right]- 6 i b c d \text{PolyLog}\left[2, e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+3 d^2 \text{PolyLog}\left[3, e^{2 i (a+b x)}\right]-6 b^3 c d e^{i \text{ArcTan}[\text{Tan}[a]]} x^2 \text{Cot}[a] \sqrt{\text{Sec}[a]^2}\right)$$

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

$$\int (c+d x) \text{Cot}[a+b x] \, dx$$

Optimal (type 4, 65 leaves, 4 steps):

$$-\frac{i (c+d x)^2}{2 d}+\frac{(c+d x) \text{Log}\left[1-e^{2 i (a+b x)}\right]}{b}-\frac{i d \text{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{2 b^2}$$

Result (type 4, 180 leaves):

$$\frac{1}{2} d x^2 \text{Cot}[a]+\frac{c \text{Log}[\text{Sin}[a+b x]]}{b}- \left(d \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\left(i b x (-\pi+2 \text{ArcTan}[\text{Tan}[a]])-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\text{ArcTan}[\text{Tan}[a]]) \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi \text{Log}[\text{Cos}[b x]]+2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+ i \text{PolyLog}\left[2, e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right) \Big/ \left(2 b^2 \sqrt{\text{Sec}[a]^2} \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)\right)$$

Problem 39: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^4 \text{Cot}[a+b x] \text{Csc}[a+b x] \, dx$$

Optimal (type 4, 208 leaves, 10 steps):

$$-\frac{8\,d\,(c+d\,x)^3\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]}{b^2}-\frac{(c+d\,x)^4\,\text{Csc}[a+b\,x]}{b}+\frac{12\,i\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]}{b^3}-\frac{12\,i\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]}{b^3}-\frac{24\,d^3\,(c+d\,x)\,\text{PolyLog}\left[3,-e^{i\,(a+b\,x)}\right]}{b^4}+\frac{24\,d^3\,(c+d\,x)\,\text{PolyLog}\left[3,e^{i\,(a+b\,x)}\right]}{b^4}-\frac{24\,i\,d^4\,\text{PolyLog}\left[4,-e^{i\,(a+b\,x)}\right]}{b^5}+\frac{24\,i\,d^4\,\text{PolyLog}\left[4,e^{i\,(a+b\,x)}\right]}{b^5}$$

Result (type 4, 458 leaves):

$$-\frac{1}{b^5}\Big(8\,b^3\,c^3\,d\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]+b^4\,c^4\,\text{Csc}[a+b\,x]+4\,b^4\,c^3\,d\,x\,\text{Csc}[a+b\,x]+6\,b^4\,c^2\,d^2\,x^2\,\text{Csc}[a+b\,x]+4\,b^4\,c\,d^3\,x^3\,\text{Csc}[a+b\,x]+b^4\,d^4\,x^4\,\text{Csc}[a+b\,x]-12\,b^3\,c^2\,d^2\,x\,\text{Log}\left[1-e^{i\,(a+b\,x)}\right]-12\,b^3\,c\,d^3\,x^2\,\text{Log}\left[1-e^{i\,(a+b\,x)}\right]-4\,b^3\,d^4\,x^3\,\text{Log}\left[1-e^{i\,(a+b\,x)}\right]+12\,b^3\,c^2\,d^2\,x\,\text{Log}\left[1+e^{i\,(a+b\,x)}\right]+12\,b^3\,c\,d^3\,x^2\,\text{Log}\left[1+e^{i\,(a+b\,x)}\right]+4\,b^3\,d^4\,x^3\,\text{Log}\left[1+e^{i\,(a+b\,x)}\right]-12\,i\,b^2\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]+12\,i\,b^2\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]+24\,b\,c\,d^3\,\text{PolyLog}\left[3,-e^{i\,(a+b\,x)}\right]+24\,b\,d^4\,x\,\text{PolyLog}\left[3,-e^{i\,(a+b\,x)}\right]-24\,b\,c\,d^3\,\text{PolyLog}\left[3,e^{i\,(a+b\,x)}\right]-24\,b\,d^4\,x\,\text{PolyLog}\left[3,e^{i\,(a+b\,x)}\right]+24\,i\,d^4\,\text{PolyLog}\left[4,-e^{i\,(a+b\,x)}\right]-24\,i\,d^4\,\text{PolyLog}\left[4,e^{i\,(a+b\,x)}\right]\Big)$$

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

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

Optimal (type 4, 90 leaves, 6 steps):

$$-\frac{4\,d\,(c+d\,x)\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]}{b^2}-\frac{(c+d\,x)^2\,\text{Csc}[a+b\,x]}{b}+\frac{2\,i\,d^2\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]}{b^3}-\frac{2\,i\,d^2\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]}{b^3}$$

Result (type 4, 234 leaves):

$$\frac{1}{2\,b^3}\Bigg(-8\,b\,c\,d\,\text{ArcTanh}\left[\text{Cos}[a]-\text{Sin}[a]\,\text{Tan}\left[\frac{b\,x}{2}\right]\right]-2\,b^2\,(c+d\,x)^2\,\text{Csc}[a]+4\,d^2\Bigg(2\,\text{ArcTan}[\text{Tan}[a]]\,\text{ArcTanh}\left[\text{Cos}[a]-\text{Sin}[a]\,\text{Tan}\left[\frac{b\,x}{2}\right]\right]+\frac{1}{\sqrt{\text{Sec}[a]^2}}\Big(\big(b\,x+\text{ArcTan}[\text{Tan}[a]]\big)\,\Big(\text{Log}\left[1-e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]-\text{Log}\left[1+e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]\Big)+i\,\text{PolyLog}\left[2,-e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]-i\,\text{PolyLog}\left[2,e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]\Big)\,\text{Sec}[a]\Bigg)+b^2\,(c+d\,x)^2\,\text{Csc}\left[\frac{a}{2}\right]\,\text{Csc}\left[\frac{1}{2}\,(a+b\,x)\right]\,\text{Sin}\left[\frac{b\,x}{2}\right]-b^2\,(c+d\,x)^2\,\text{Sec}\left[\frac{a}{2}\right]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]\,\text{Sin}\left[\frac{b\,x}{2}\right]\Bigg)$$

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

$$\int (c + d x) \operatorname{Cot}[a + b x] \operatorname{Csc}[a + b x] \, dx$$

Optimal (type 3, 30 leaves, 2 steps):

$$-\frac{d \operatorname{ArcTanh}[\operatorname{Cos}[a + b x]]}{b^2} - \frac{(c + d x) \operatorname{Csc}[a + b x]}{b}$$

Result (type 3, 131 leaves):

$$-\frac{d x \operatorname{Csc}[a]}{b} - \frac{c \operatorname{Csc}[a + b x]}{b} - \frac{d \operatorname{Log}\left[\operatorname{Cos}\left[\frac{a}{2} + \frac{b x}{2}\right]\right]}{b^2} + \frac{d \operatorname{Log}\left[\operatorname{Sin}\left[\frac{a}{2} + \frac{b x}{2}\right]\right]}{b^2} + \frac{d x \operatorname{Csc}\left[\frac{a}{2}\right] \operatorname{Csc}\left[\frac{a}{2} + \frac{b x}{2}\right] \operatorname{Sin}\left[\frac{b x}{2}\right]}{2 b} - \frac{d x \operatorname{Sec}\left[\frac{a}{2}\right] \operatorname{Sec}\left[\frac{a}{2} + \frac{b x}{2}\right] \operatorname{Sin}\left[\frac{b x}{2}\right]}{2 b}$$

Problem 46: Result more than twice size of optimal antiderivative.

$$\int (c + d x)^4 \operatorname{Cot}[a + b x] \operatorname{Csc}[a + b x]^2 \, dx$$

Optimal (type 4, 137 leaves, 7 steps):

$$-\frac{2 i d (c + d x)^3}{b^2} - \frac{2 d (c + d x)^3 \operatorname{Cot}[a + b x]}{b^2} - \frac{(c + d x)^4 \operatorname{Csc}[a + b x]^2}{2 b} + \frac{6 d^2 (c + d x)^2 \operatorname{Log}\left[1 - e^{2 i (a+b x)}\right]}{b^3} - \frac{6 i d^3 (c + d x) \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^4} + \frac{3 d^4 \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{b^5}$$

Result (type 4, 412 leaves):

$$-\frac{(c+d x)^4 \operatorname{Csc}[a+b x]^2}{2 b}-\frac{1}{2 b^5}d^4 e^{-i a}\operatorname{Csc}[a]$$
$$\left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right)+$$
$$\frac{6 c^2 d^2 \operatorname{Csc}[a] (-b x \operatorname{Cos}[a]+\operatorname{Log}[\operatorname{Cos}[b x] \operatorname{Sin}[a]+\operatorname{Cos}[a] \operatorname{Sin}[b x]] \operatorname{Sin}[a])}{b^3 \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}+$$
$$\frac{2 \operatorname{Csc}[a] \operatorname{Csc}[a+b x] \left(c^3 d \operatorname{Sin}[b x]+3 c^2 d^2 x \operatorname{Sin}[b x]+3 c d^3 x^2 \operatorname{Sin}[b x]+d^4 x^3 \operatorname{Sin}[b x]\right)}{b^2}-$$
$$\left(6 c d^3 \operatorname{Csc}[a] \operatorname{Sec}[a] \left(b^2 e^{i \operatorname{ArcTan}[\operatorname{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\operatorname{Tan}[a]^2}}\right.\right.$$
$$\left(i b x (-\pi+2 \operatorname{ArcTan}[\operatorname{Tan}[a]])-\pi \operatorname{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]) \operatorname{Log}\left[1-e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]+\pi \operatorname{Log}[\operatorname{Cos}[b x]]+2\right.$$
$$\left.\left.\left.\operatorname{ArcTan}[\operatorname{Tan}[a]] \operatorname{Log}[\operatorname{Sin}[b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]]]+i \operatorname{PolyLog}\left[2, e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]\right) \operatorname{Tan}[a]\right)\right) \Big/ \left(b^4 \sqrt{\operatorname{Sec}[a]^2 \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}\right)$$

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

$$\int (c+d x)^3 \operatorname{Cot}[a+b x] \operatorname{Csc}[a+b x]^2 \, dx$$

Optimal (type 4, 115 leaves, 6 steps):

$$-\frac{3 i d (c+d x)^2}{2 b^2}-\frac{3 d (c+d x)^2 \operatorname{Cot}[a+b x]}{2 b^2}-\frac{(c+d x)^3 \operatorname{Csc}[a+b x]^2}{2 b}+\frac{3 d^2 (c+d x) \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]}{b^3}-\frac{3 i d^3 \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{2 b^4}$$

Result (type 4, 277 leaves):

$$-\frac{(c+d x)^3 \operatorname{Csc}[a+b x]^2}{2 b}+\frac{3 c d^2 \operatorname{Csc}[a] (-b x \operatorname{Cos}[a]+\operatorname{Log}[\operatorname{Cos}[b x] \operatorname{Sin}[a]+\operatorname{Cos}[a] \operatorname{Sin}[b x]] \operatorname{Sin}[a])}{b^3 \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}+$$
$$\frac{3 \operatorname{Csc}[a] \operatorname{Csc}[a+b x] \left(c^2 d \operatorname{Sin}[b x]+2 c d^2 x \operatorname{Sin}[b x]+d^3 x^2 \operatorname{Sin}[b x]\right)}{2 b^2}-$$
$$\left(3 d^3 \operatorname{Csc}[a] \operatorname{Sec}[a] \left(b^2 e^{i \operatorname{ArcTan}[\operatorname{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\operatorname{Tan}[a]^2}}\left(i b x (-\pi+2 \operatorname{ArcTan}[\operatorname{Tan}[a]])-\pi \operatorname{Log}\left[1+e^{-2 i b x}\right]-\right.\right.\right.$$
$$2 (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]) \operatorname{Log}\left[1-e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]+\pi \operatorname{Log}[\operatorname{Cos}[b x]]+2 \operatorname{ArcTan}[\operatorname{Tan}[a]] \operatorname{Log}[\operatorname{Sin}[b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]]]+$$
$$\left.\left.\left.i \operatorname{PolyLog}\left[2, e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]\right) \operatorname{Tan}[a]\right)\right) \Big/ \left(2 b^4 \sqrt{\operatorname{Sec}[a]^2 \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}\right)$$

Problem 48: Result unnecessarily involves imaginary or complex numbers.

$$\int (c+d x)^2 \operatorname{Cot}[a+b x] \operatorname{Csc}[a+b x]^2 \, dx$$

Optimal (type 3, 54 leaves, 3 steps):

$$-\frac{d (c+d x) \operatorname{Cot}[a+b x]}{b^2}-\frac{(c+d x)^2 \operatorname{Csc}[a+b x]^2}{2 b}+\frac{d^2 \operatorname{Log}[\operatorname{Sin}[a+b x]]}{b^3}$$

Result (type 3, 94 leaves):

$$\frac{1}{2 b^3}\Big(2 i b d^2 x-2 i d^2 \operatorname{ArcTan}[\operatorname{Tan}[a+b x]]-2 b d^2 x \operatorname{Cot}[a]- b^2 (c+d x)^2 \operatorname{Csc}[a+b x]^2+d^2 \operatorname{Log}\left[\operatorname{Sin}[a+b x]^2\right]+2 b d (c+d x) \operatorname{Csc}[a] \operatorname{Csc}[a+b x] \operatorname{Sin}[b x]\Big)$$

Problem 98: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^4 \operatorname{Cos}[a+b x] \operatorname{Cot}[a+b x] \, dx$$

Optimal (type 4, 333 leaves, 17 steps):

$$-\frac{2 (c+d x)^4 \operatorname{ArcTanh}\left[e^{i (a+b x)}\right]}{b}+\frac{24 d^4 \operatorname{Cos}[a+b x]}{b^5}-\frac{12 d^2 (c+d x)^2 \operatorname{Cos}[a+b x]}{b^3}+\frac{(c+d x)^4 \operatorname{Cos}[a+b x]}{b}+\frac{4 i d (c+d x)^3 \operatorname{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^2}-\frac{4 i d (c+d x)^3 \operatorname{PolyLog}\left[2, e^{i (a+b x)}\right]}{b^2}-\frac{12 d^2 (c+d x)^2 \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^3}+\frac{12 d^2 (c+d x)^2 \operatorname{PolyLog}\left[3, e^{i (a+b x)}\right]}{b^3}-\frac{24 i d^3 (c+d x) \operatorname{PolyLog}\left[4,-e^{i (a+b x)}\right]}{b^4}+\frac{24 i d^3 (c+d x) \operatorname{PolyLog}\left[4, e^{i (a+b x)}\right]}{b^4}+\frac{24 d^4 \operatorname{PolyLog}\left[5,-e^{i (a+b x)}\right]}{b^5}-\frac{24 d^4 \operatorname{PolyLog}\left[5, e^{i (a+b x)}\right]}{b^5}+\frac{24 d^3 (c+d x) \operatorname{Sin}[a+b x]}{b^4}-\frac{4 d (c+d x)^3 \operatorname{Sin}[a+b x]}{b^2}$$

Result (type 4, 812 leaves):

$$\frac{1}{b^5}\Big(-2 b^4 c^4 \text{ArcTanh}\left[e^{i (a+b x)}\right]+b^4 c^4 \text{Cos}[a+b x]-12 b^2 c^2 d^2 \text{Cos}[a+b x]+24 d^4 \text{Cos}[a+b x]+4 b^4 c^3 d x \text{Cos}[a+b x]-24 b^2 c d^3 x \text{Cos}[a+b x]+6 b^4 c^2 d^2 x^2 \text{Cos}[a+b x]-12 b^2 d^4 x^2 \text{Cos}[a+b x]+4 b^4 c d^3 x^3 \text{Cos}[a+b x]+b^4 d^4 x^4 \text{Cos}[a+b x]+4 b^4 c^3 d x \text{Log}\left[1-e^{i (a+b x)}\right]+6 b^4 c^2 d^2 x^2 \text{Log}\left[1-e^{i (a+b x)}\right]+4 b^4 c d^3 x^3 \text{Log}\left[1-e^{i (a+b x)}\right]+b^4 d^4 x^4 \text{Log}\left[1-e^{i (a+b x)}\right]-4 b^4 c^3 d x \text{Log}\left[1+e^{i (a+b x)}\right]-6 b^4 c^2 d^2 x^2 \text{Log}\left[1+e^{i (a+b x)}\right]-4 b^4 c d^3 x^3 \text{Log}\left[1+e^{i (a+b x)}\right]-b^4 d^4 x^4 \text{Log}\left[1+e^{i (a+b x)}\right]+4 i b^3 d (c+d x)^3 \text{PolyLog}\left[2,-e^{i (a+b x)}\right]-4 i b^3 d (c+d x)^3 \text{PolyLog}\left[2,e^{i (a+b x)}\right]-12 b^2 c^2 d^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]-24 b^2 c d^3 x \text{PolyLog}\left[3,-e^{i (a+b x)}\right]-12 b^2 d^4 x^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]+12 b^2 c^2 d^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]+24 b^2 c d^3 x \text{PolyLog}\left[3,e^{i (a+b x)}\right]+12 b^2 d^4 x^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]-24 i b c d^3 \text{PolyLog}\left[4,-e^{i (a+b x)}\right]-24 i b d^4 x \text{PolyLog}\left[4,-e^{i (a+b x)}\right]+24 i b c d^3 \text{PolyLog}\left[4,e^{i (a+b x)}\right]+24 i b d^4 x \text{PolyLog}\left[4,e^{i (a+b x)}\right]+24 d^4 \text{PolyLog}\left[5,-e^{i (a+b x)}\right]-24 d^4 \text{PolyLog}\left[5,e^{i (a+b x)}\right]-4 b^3 c^3 d \text{Sin}[a+b x]+24 b c d^3 \text{Sin}[a+b x]-12 b^3 c^2 d^2 x \text{Sin}[a+b x]+24 b d^4 x \text{Sin}[a+b x]-12 b^3 c d^3 x^2 \text{Sin}[a+b x]-4 b^3 d^4 x^3 \text{Sin}[a+b x]\Big)$$

Problem 99: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^3 \text{Cos}[a+b x] \text{Cot}[a+b x] \, dx$$

Optimal (type 4, 254 leaves, 14 steps):

$$-\frac{2 (c+d x)^3 \text{ArcTanh}\left[e^{i (a+b x)}\right]}{b}-\frac{6 d^2 (c+d x) \text{Cos}[a+b x]}{b^3}+\frac{(c+d x)^3 \text{Cos}[a+b x]}{b}+\frac{3 i d (c+d x)^2 \text{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^2}-\frac{3 i d (c+d x)^2 \text{PolyLog}\left[2,e^{i (a+b x)}\right]}{b^2}-\frac{6 d^2 (c+d x) \text{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^3}+\frac{6 d^2 (c+d x) \text{PolyLog}\left[3,e^{i (a+b x)}\right]}{b^3}-\frac{6 i d^3 \text{PolyLog}\left[4,-e^{i (a+b x)}\right]}{b^4}+\frac{6 i d^3 \text{PolyLog}\left[4,e^{i (a+b x)}\right]}{b^4}+\frac{6 d^3 \text{Sin}[a+b x]}{b^4}-\frac{3 d (c+d x)^2 \text{Sin}[a+b x]}{b^2}$$

Result (type 4, 512 leaves):

$$\frac{1}{b^4}\Big(-2 b^3 c^3 \text{ArcTanh}\left[e^{i (a+b x)}\right]+b^3 c^3 \text{Cos}[a+b x]-6 b c d^2 \text{Cos}[a+b x]+3 b^3 c^2 d x \text{Cos}[a+b x]-6 b d^3 x \text{Cos}[a+b x]+3 b^3 c d^2 x^2 \text{Cos}[a+b x]+b^3 d^3 x^3 \text{Cos}[a+b x]+3 b^3 c^2 d x \text{Log}\left[1-e^{i (a+b x)}\right]+3 b^3 c d^2 x^2 \text{Log}\left[1-e^{i (a+b x)}\right]+b^3 d^3 x^3 \text{Log}\left[1-e^{i (a+b x)}\right]-3 b^3 c^2 d x \text{Log}\left[1+e^{i (a+b x)}\right]-3 b^3 c d^2 x^2 \text{Log}\left[1+e^{i (a+b x)}\right]-b^3 d^3 x^3 \text{Log}\left[1+e^{i (a+b x)}\right]+3 i b^2 d (c+d x)^2 \text{PolyLog}\left[2,-e^{i (a+b x)}\right]-3 i b^2 d (c+d x)^2 \text{PolyLog}\left[2,e^{i (a+b x)}\right]-6 b c d^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]-6 b d^3 x \text{PolyLog}\left[3,-e^{i (a+b x)}\right]+6 b c d^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]+6 b d^3 x \text{PolyLog}\left[3,e^{i (a+b x)}\right]-6 i d^3 \text{PolyLog}\left[4,-e^{i (a+b x)}\right]+6 i d^3 \text{PolyLog}\left[4,e^{i (a+b x)}\right]-3 b^2 c^2 d \text{Sin}[a+b x]+6 d^3 \text{Sin}[a+b x]-6 b^2 c d^2 x \text{Sin}[a+b x]-3 b^2 d^3 x^2 \text{Sin}[a+b x]\Big)$$

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

$$\int (c+d x)^4 \text{Cot}[a+b x]^2 \, dx$$

Optimal (type 4, 155 leaves, 8 steps):

$$-\frac{i (c+d x)^4}{b}-\frac{(c+d x)^5}{5 d}-\frac{(c+d x)^4 \operatorname{Cot}[a+b x]}{b}+\frac{4 d (c+d x)^3 \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]}{b^2}-$$
$$\frac{6 i d^2 (c+d x)^2 \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^3}+\frac{6 d^3 (c+d x) \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{b^4}+\frac{3 i d^4 \operatorname{PolyLog}\left[4, e^{2 i (a+b x)}\right]}{b^5}$$

Result (type 4, 592 leaves) :

$$-\frac{1}{5} x \left(5 c^4+10 c^3 d x+10 c^2 d^2 x^2+5 c d^3 x^3+d^4 x^4\right)-\frac{1}{b^4} c d^3 e^{-i a} \operatorname{Csc}[a]$$
$$\left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right)-$$
$$\frac{1}{b} d^4 e^{i a} \operatorname{Csc}[a] \left(x^4+\left(-1+e^{-2 i a}\right) x^4+\frac{1}{2 b^4} e^{-2 i a} \left(-1+e^{2 i a}\right)\right.$$
$$\left.\left(2 b^4 x^4+4 i b^3 x^3 \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]+6 b^2 x^2 \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]+6 i b x \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]-3 \operatorname{PolyLog}\left[4, e^{2 i (a+b x)}\right]\right)\right)+$$
$$\frac{4 c^3 d \operatorname{Csc}[a] \left(-b x \operatorname{Cos}[a]+\operatorname{Log}[\operatorname{Cos}[b x] \operatorname{Sin}[a]+\operatorname{Cos}[a] \operatorname{Sin}[b x]] \operatorname{Sin}[a]\right)}{b^2 \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}+\frac{1}{b}$$
$$\operatorname{Csc}[a] \operatorname{Csc}[a+b x] \left(c^4 \operatorname{Sin}[b x]+4 c^3 d x \operatorname{Sin}[b x]+6 c^2 d^2 x^2 \operatorname{Sin}[b x]+4 c d^3 x^3 \operatorname{Sin}[b x]+d^4 x^4 \operatorname{Sin}[b x]\right)-$$
$$\left(6 c^2 d^2 \operatorname{Csc}[a] \operatorname{Sec}[a] \left(b^2 e^{i \operatorname{ArcTan}[\operatorname{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\operatorname{Tan}[a]^2}}\right.\right.$$
$$\left(i b x \left(-\pi+2 \operatorname{ArcTan}[\operatorname{Tan}[a]]\right)-\pi \operatorname{Log}\left[1+e^{-2 i b x}\right]-2 \left(b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]\right) \operatorname{Log}\left[1-e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]+\pi \operatorname{Log}[\operatorname{Cos}[b x]]+2\right.$$
$$\left.\left.\left.\operatorname{ArcTan}[\operatorname{Tan}[a]] \operatorname{Log}[\operatorname{Sin}[b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]]]+i \operatorname{PolyLog}\left[2, e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]\right) \operatorname{Tan}[a]\right)\right) \Big/ \left(b^3 \sqrt{\operatorname{Sec}[a]^2 \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}\right)$$

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

$$\int (c+d x)^3 \operatorname{Cot}[a+b x]^2 \, dx$$

Optimal (type 4, 127 leaves, 7 steps) :

$$-\frac{i (c+d x)^3}{b}-\frac{(c+d x)^4}{4 d}-\frac{(c+d x)^3 \operatorname{Cot}[a+b x]}{b}+$$
$$\frac{3 d (c+d x)^2 \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]}{b^2}-\frac{3 i d^2 (c+d x) \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^3}+\frac{3 d^3 \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{2 b^4}$$

Result (type 4, 418 leaves) :

$$-\frac{1}{4} x \left(4 c^3+6 c^2 d x+4 c d^2 x^2+d^3 x^3\right)-\frac{1}{4 b^4}d^3 e^{-i a} \text{Csc}[a] \left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \text{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \text{PolyLog}\left[2, e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \text{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right)+\frac{3 c^2 d \text{Csc}[a] (-b x \text{Cos}[a]+\text{Log}[\text{Cos}[b x] \text{Sin}[a]+\text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a])}{b^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\frac{\text{Csc}[a] \text{Csc}[a+b x] \left(c^3 \text{Sin}[b x]+3 c^2 d x \text{Sin}[b x]+3 c d^2 x^2 \text{Sin}[b x]+d^3 x^3 \text{Sin}[b x]\right)}{b}-\left(3 c d^2 \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\left(i b x (-\pi+2 \text{ArcTan}[\text{Tan}[a]])-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\text{ArcTan}[\text{Tan}[a]]) \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi \text{Log}[\text{Cos}[b x]]+2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \text{PolyLog}\left[2, e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right)\Big/\left(b^3 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)$$

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

$$\int (c+d x)^2 \text{Cot}[a+b x]^2 \, dx$$

Optimal (type 4, 97 leaves, 6 steps):

$$-\frac{i (c+d x)^2}{b}-\frac{(c+d x)^3}{3 d}-\frac{(c+d x)^2 \text{Cot}[a+b x]}{b}+\frac{2 d (c+d x) \text{Log}\left[1-e^{2 i (a+b x)}\right]}{b^2}-\frac{i d^2 \text{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^3}$$

Result (type 4, 268 leaves):

$$-\frac{1}{3} x \left(3 c^2+3 c d x+d^2 x^2\right)+\frac{2 c d \text{Csc}[a] (-b x \text{Cos}[a]+\text{Log}[\text{Cos}[b x] \text{Sin}[a]+\text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a])}{b^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\frac{\text{Csc}[a] \text{Csc}[a+b x] \left(c^2 \text{Sin}[b x]+2 c d x \text{Sin}[b x]+d^2 x^2 \text{Sin}[b x]\right)}{b}-\left(d^2 \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\left(i b x (-\pi+2 \text{ArcTan}[\text{Tan}[a]])-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\text{ArcTan}[\text{Tan}[a]]) \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi \text{Log}[\text{Cos}[b x]]+2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \text{PolyLog}\left[2, e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right)\Big/\left(b^3 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)$$

Problem 112: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^4 \operatorname{Cot}[a+b x]^2 \operatorname{Csc}[a+b x] \, dx$$

Optimal (type 4, 416 leaves, 31 steps):

$$-\frac{12 d^2 (c+d x)^2 \operatorname{ArcTanh}\left[e^{i (a+b x)}\right]}{b^3}+\frac{(c+d x)^4 \operatorname{ArcTanh}\left[e^{i (a+b x)}\right]}{b}-\frac{2 d (c+d x)^3 \operatorname{Csc}[a+b x]}{b^2}-\frac{(c+d x)^4 \operatorname{Cot}[a+b x] \operatorname{Csc}[a+b x]}{2 b}+\frac{12 i d^3 (c+d x) \operatorname{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^4}-\frac{2 i d (c+d x)^3 \operatorname{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^2}-\frac{12 i d^3 (c+d x) \operatorname{PolyLog}\left[2,e^{i (a+b x)}\right]}{b^4}+\frac{2 i d (c+d x)^3 \operatorname{PolyLog}\left[2,e^{i (a+b x)}\right]}{b^2}-\frac{12 d^4 \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^5}+\frac{6 d^2 (c+d x)^2 \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^3}+\frac{12 d^4 \operatorname{PolyLog}\left[3,e^{i (a+b x)}\right]}{b^5}-\frac{6 d^2 (c+d x)^2 \operatorname{PolyLog}\left[3,e^{i (a+b x)}\right]}{b^3}+\frac{12 i d^3 (c+d x) \operatorname{PolyLog}\left[4,-e^{i (a+b x)}\right]}{b^4}-\frac{12 i d^3 (c+d x) \operatorname{PolyLog}\left[4,e^{i (a+b x)}\right]}{b^4}-\frac{12 d^4 \operatorname{PolyLog}\left[5,-e^{i (a+b x)}\right]}{b^5}+\frac{12 d^4 \operatorname{PolyLog}\left[5,e^{i (a+b x)}\right]}{b^5}$$

Result (type 4, 966 leaves):

$$\frac{1}{2 b^5}\Big(-b^4 c^4 \operatorname{Log}\left[1-e^{i (a+b x)}\right]+12 b^2 c^2 d^2 \operatorname{Log}\left[1-e^{i (a+b x)}\right]-4 b^4 c^3 d x \operatorname{Log}\left[1-e^{i (a+b x)}\right]+24 b^2 c d^3 x \operatorname{Log}\left[1-e^{i (a+b x)}\right]-6 b^4 c^2 d^2 x^2 \operatorname{Log}\left[1-e^{i (a+b x)}\right]+12 b^2 d^4 x^2 \operatorname{Log}\left[1-e^{i (a+b x)}\right]-4 b^4 c d^3 x^3 \operatorname{Log}\left[1-e^{i (a+b x)}\right]-b^4 d^4 x^4 \operatorname{Log}\left[1-e^{i (a+b x)}\right]+b^4 c^4 \operatorname{Log}\left[1+e^{i (a+b x)}\right]-12 b^2 c^2 d^2 \operatorname{Log}\left[1+e^{i (a+b x)}\right]+4 b^4 c^3 d x \operatorname{Log}\left[1+e^{i (a+b x)}\right]-24 b^2 c d^3 x \operatorname{Log}\left[1+e^{i (a+b x)}\right]+6 b^4 c^2 d^2 x^2 \operatorname{Log}\left[1+e^{i (a+b x)}\right]-12 b^2 d^4 x^2 \operatorname{Log}\left[1+e^{i (a+b x)}\right]+4 b^4 c d^3 x^3 \operatorname{Log}\left[1+e^{i (a+b x)}\right]+b^4 d^4 x^4 \operatorname{Log}\left[1+e^{i (a+b x)}\right]-4 i b d (c+d x) \left(-6 d^2+b^2 (c+d x)^2\right) \operatorname{PolyLog}\left[2,-e^{i (a+b x)}\right]+4 i b d (c+d x) \left(-6 d^2+b^2 (c+d x)^2\right) \operatorname{PolyLog}\left[2,e^{i (a+b x)}\right]+12 b^2 c^2 d^2 \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]-24 d^4 \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]+24 b^2 c d^3 x \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]+12 b^2 d^4 x^2 \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]-12 b^2 c^2 d^2 \operatorname{PolyLog}\left[3,e^{i (a+b x)}\right]+24 d^4 \operatorname{PolyLog}\left[3,e^{i (a+b x)}\right]-24 b^2 c d^3 x \operatorname{PolyLog}\left[3,e^{i (a+b x)}\right]-12 b^2 d^4 x^2 \operatorname{PolyLog}\left[3,e^{i (a+b x)}\right]+24 i b c d^3 \operatorname{PolyLog}\left[4,-e^{i (a+b x)}\right]+24 i b d^4 x \operatorname{PolyLog}\left[4,-e^{i (a+b x)}\right]-24 i b c d^3 \operatorname{PolyLog}\left[4,e^{i (a+b x)}\right]-24 i b d^4 x \operatorname{PolyLog}\left[4,e^{i (a+b x)}\right]-24 d^4 \operatorname{PolyLog}\left[5,-e^{i (a+b x)}\right]+24 d^4 \operatorname{PolyLog}\left[5,e^{i (a+b x)}\right]\Big)-\frac{1}{2 b^2}\operatorname{Csc}[a+b x]^2 \Big(b c^4 \operatorname{Cos}[a+b x]+4 b c^3 d x \operatorname{Cos}[a+b x]+6 b c^2 d^2 x^2 \operatorname{Cos}[a+b x]+4 b c d^3 x^3 \operatorname{Cos}[a+b x]+b d^4 x^4 \operatorname{Cos}[a+b x]+4 c^3 d \operatorname{Sin}[a+b x]+12 c^2 d^2 x \operatorname{Sin}[a+b x]+12 c d^3 x^2 \operatorname{Sin}[a+b x]+4 d^4 x^3 \operatorname{Sin}[a+b x]\Big)$$

Problem 114: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^2 \operatorname{Cot}[a+b x]^2 \operatorname{Csc}[a+b x] \, dx$$

Optimal (type 4, 179 leaves, 17 steps):

$$\frac{(c+d x)^2 \text{ArcTanh}\left[e^{i(a+b x)}\right]}{b}-\frac{d^2 \text{ArcTanh}[\text{Cos}[a+b x]]}{b^3}-\frac{d(c+d x) \text{Csc}[a+b x]}{b^2}-\frac{(c+d x)^2 \text{Cot}[a+b x] \text{Csc}[a+b x]}{2 b}-\frac{i d(c+d x) \text{PolyLog}\left[2,-e^{i(a+b x)}\right]}{b^2}+\frac{i d(c+d x) \text{PolyLog}\left[2, e^{i(a+b x)}\right]}{b^2}+\frac{d^2 \text{PolyLog}\left[3,-e^{i(a+b x)}\right]}{b^3}-\frac{d^2 \text{PolyLog}\left[3, e^{i(a+b x)}\right]}{b^3}$$

Result (type 4, 471 leaves):

$$-\frac{d(c+d x) \text{Csc}[a]}{b^2}+\frac{\left(-c^2-2 c d x-d^2 x^2\right) \text{Csc}\left[\frac{a}{2}+\frac{b x}{2}\right]^2}{8 b}+\frac{1}{2 b^3}\left(-b^2 c^2 \text{Log}\left[1-e^{i(a+b x)}\right]+2 d^2 \text{Log}\left[1-e^{i(a+b x)}\right]-2 b^2 c d x \text{Log}\left[1-e^{i(a+b x)}\right]-b^2 d^2 x^2 \text{Log}\left[1-e^{i(a+b x)}\right]+b^2 c^2 \text{Log}\left[1+e^{i(a+b x)}\right]-2 d^2 \text{Log}\left[1+e^{i(a+b x)}\right]+2 b^2 c d x \text{Log}\left[1+e^{i(a+b x)}\right]+b^2 d^2 x^2 \text{Log}\left[1+e^{i(a+b x)}\right]-2 i b d(c+d x) \text{PolyLog}\left[2,-e^{i(a+b x)}\right]+2 i b d(c+d x) \text{PolyLog}\left[2, e^{i(a+b x)}\right]+2 d^2 \text{PolyLog}\left[3,-e^{i(a+b x)}\right]-2 d^2 \text{PolyLog}\left[3, e^{i(a+b x)}\right]\right)+\frac{\left(c^2+2 c d x+d^2 x^2\right) \text{Sec}\left[\frac{a}{2}+\frac{b x}{2}\right]^2}{8 b}+\frac{\text{Sec}\left[\frac{a}{2}\right] \text{Sec}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(-c d \text{Sin}\left[\frac{b x}{2}\right]-d^2 x \text{Sin}\left[\frac{b x}{2}\right]\right)}{2 b^2}+\frac{\text{Csc}\left[\frac{a}{2}\right] \text{Csc}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(c d \text{Sin}\left[\frac{b x}{2}\right]+d^2 x \text{Sin}\left[\frac{b x}{2}\right]\right)}{2 b^2}$$

Problem 115: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 108 leaves, 12 steps):

$$\frac{(c+d x) \text{ArcTanh}\left[e^{i(a+b x)}\right]}{b}-\frac{d \text{Csc}[a+b x]}{2 b^2}-\frac{(c+d x) \text{Cot}[a+b x] \text{Csc}[a+b x]}{2 b}-\frac{i d \text{PolyLog}\left[2,-e^{i(a+b x)}\right]}{2 b^2}+\frac{i d \text{PolyLog}\left[2, e^{i(a+b x)}\right]}{2 b^2}$$

Result (type 4, 260 leaves):

$$-\frac{d \text{Cot}\left[\frac{1}{2}(a+b x)\right]}{4 b^2}-\frac{c \text{Csc}\left[\frac{1}{2}(a+b x)\right]^2}{8 b}-\frac{d x \text{Csc}\left[\frac{1}{2}(a+b x)\right]^2}{8 b}+\frac{c \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]\right]}{2 b}-\frac{c \text{Log}\left[\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{2 b}+\frac{a d \text{Log}\left[\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right]}{2 b^2}-\frac{d\left((a+b x)\left(\text{Log}\left[1-e^{i(a+b x)}\right]-\text{Log}\left[1+e^{i(a+b x)}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{i(a+b x)}\right]-\text{PolyLog}\left[2, e^{i(a+b x)}\right]\right)\right)}{2 b^2}+\frac{c \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2}{8 b}+\frac{d x \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2}{8 b}-\frac{d \text{Tan}\left[\frac{1}{2}(a+b x)\right]}{4 b^2}$$

Problem 130: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 615 leaves, 26 steps):

$$\frac{15 d^2 \sqrt{c+d x} \operatorname{Cos}[a+b x]}{32 b^3}-\frac{(c+d x)^{5/2} \operatorname{Cos}[a+b x]}{8 b}+\frac{5 d^2 \sqrt{c+d x} \operatorname{Cos}[3 a+3 b x]}{576 b^3}-\frac{(c+d x)^{5/2} \operatorname{Cos}[3 a+3 b x]}{48 b}-\frac{3 d^2 \sqrt{c+d x} \operatorname{Cos}[5 a+5 b x]}{1600 b^3}+\frac{(c+d x)^{5/2} \operatorname{Cos}[5 a+5 b x]}{80 b}-\frac{15 d^{5/2} \sqrt{\frac{\pi}{2}} \operatorname{Cos}\left[a-\frac{b c}{d}\right] \operatorname{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{32 b^{7/2}}-\frac{5 d^{5/2} \sqrt{\frac{\pi}{6}} \operatorname{Cos}\left[3 a-\frac{3 b c}{d}\right] \operatorname{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{576 b^{7/2}}+\frac{3 d^{5/2} \sqrt{\frac{\pi}{10}} \operatorname{Cos}\left[5 a-\frac{5 b c}{d}\right] \operatorname{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{1600 b^{7/2}}-\frac{3 d^{5/2} \sqrt{\frac{\pi}{10}} \operatorname{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \operatorname{Sin}\left[5 a-\frac{5 b c}{d}\right]}{1600 b^{7/2}}+\frac{5 d^{5/2} \sqrt{\frac{\pi}{6}} \operatorname{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \operatorname{Sin}\left[3 a-\frac{3 b c}{d}\right]}{576 b^{7/2}}+\frac{15 d^{5/2} \sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \operatorname{Sin}\left[a-\frac{b c}{d}\right]}{32 b^{7/2}}+\frac{5 d (c+d x)^{3/2} \operatorname{Sin}[a+b x]}{16 b^2}+\frac{5 d (c+d x)^{3/2} \operatorname{Sin}[3 a+3 b x]}{288 b^2}-\frac{d (c+d x)^{3/2} \operatorname{Sin}[5 a+5 b x]}{160 b^2}$$

Result (type 4, 4921 leaves):

$$\frac{1}{160 \sqrt{5} b \sqrt{\frac{b}{d}}} c^2 \left(2 \sqrt{5} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}[5 (a+b x)]-\sqrt{2 \pi} \operatorname{Cos}\left[5 a-\frac{5 b c}{d}\right] \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right]+\sqrt{2 \pi} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right] \operatorname{Sin}\left[5 a-\frac{5 b c}{d}\right]\right)-$$

$$\frac{1}{96 \sqrt{3} b \sqrt{\frac{b}{d}}} c^2 \left(2 \sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}[3 (a+b x)]-\sqrt{2 \pi} \operatorname{Cos}\left[3 a-\frac{3 b c}{d}\right] \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\right.$$

$$\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]\ \text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]\Bigg)-\frac{1}{16\,b\,\sqrt{\frac{b}{d}}}$$

$$c^2\left(2\,\sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Cos}[a+b\,x]-\sqrt{2\pi}\ \text{Cos}\left[a-\frac{b\,c}{d}\right]\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{2}{\pi}}\ \sqrt{c+d\,x}\right]+\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{2}{\pi}}\ \sqrt{c+d\,x}\right]\ \text{Sin}\left[a-\frac{b\,c}{d}\right]\right)-$$

$$\frac{1}{16\,b^3}c\,\sqrt{\frac{b}{d}}\ d\,\Bigg(\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{2}{\pi}}\ \sqrt{c+d\,x}\right]\ \left(3\,d\,\text{Cos}\left[a-\frac{b\,c}{d}\right]-2\,b\,c\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)+$$

$$\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{2}{\pi}}\ \sqrt{c+d\,x}\right]\ \left(2\,b\,c\,\text{Cos}\left[a-\frac{b\,c}{d}\right]+3\,d\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)+2\,\sqrt{\frac{b}{d}}\ d\,\sqrt{c+d\,x}\ \left(2\,b\,x\,\text{Cos}[a+b\,x]-3\,\text{Sin}[a+b\,x]\right)\Bigg)+\frac{1}{64\,b^5}$$

$$\left(\frac{b}{d}\right)^{3/2}d^2\,\Bigg(\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{2}{\pi}}\ \sqrt{c+d\,x}\right]\ \left(\left(4\,b^2\,c^2-15\,d^2\right)\,\text{Cos}\left[a-\frac{b\,c}{d}\right]+12\,b\,c\,d\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)-\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{2}{\pi}}\ \sqrt{c+d\,x}\right]$$

$$\left(-12\,b\,c\,d\,\text{Cos}\left[a-\frac{b\,c}{d}\right]+\left(4\,b^2\,c^2-15\,d^2\right)\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)-2\,\sqrt{\frac{b}{d}}\ d\,\sqrt{c+d\,x}\ \left(d\,\left(-15+4\,b^2\,x^2\right)\,\text{Cos}[a+b\,x]+2\,b\,\left(c-5\,d\,x\right)\,\text{Sin}[a+b\,x]\right)\Bigg)-$$

$$\frac{1}{96\,\sqrt{3}\ b^3}c\,\sqrt{\frac{b}{d}}\ d\,\Bigg(\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]\ \left(d\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]-2\,b\,c\,\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]\right)+\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]$$

$$\left(2\,b\,c\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]+d\,\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]\right)+2\,\sqrt{3}\ \sqrt{\frac{b}{d}}\ d\,\sqrt{c+d\,x}\ \left(2\,b\,x\,\text{Cos}\left[3\,\left(a+b\,x\right)\right]-\text{Sin}\left[3\,\left(a+b\,x\right)\right]\right)\Bigg)+\frac{1}{800\,\sqrt{5}\ b^3}$$

$$c\,\sqrt{\frac{b}{d}}\ d\,\Bigg(\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{10}{\pi}}\ \sqrt{c+d\,x}\right]\ \left(3\,d\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]-10\,b\,c\,\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]\right)+\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{10}{\pi}}\ \sqrt{c+d\,x}\right]$$

$$\left(10\,b\,c\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]+3\,d\,\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]\right)+2\,\sqrt{5}\ \sqrt{\frac{b}{d}}\ d\,\sqrt{c+d\,x}\ \left(10\,b\,x\,\text{Cos}\left[5\,\left(a+b\,x\right)\right]-3\,\text{Sin}\left[5\,\left(a+b\,x\right)\right]\right)\Bigg)+$$

$$\frac{1}{16} d^2 \left(\text{Sin}[3 a] \left(\frac{c^2 \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right) \text{Sin}\left[\frac{3 b c}{d}\right]}{3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3}+\right.\right.$$

$$\frac{c^2 \,\text{Cos}\left[\frac{3 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \,\text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)}{3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3}-\frac{1}{9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} d^3} 2 c \,\text{Cos}\left[\frac{3 b c}{d}\right]$$

$$\left(-\frac{3}{2} \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right)+3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \,\text{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)-$$

$$\frac{1}{9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} d^3} 2 c \,\text{Sin}\left[\frac{3 b c}{d}\right] \left(-3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \,\text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\frac{3}{2} \left(-\sqrt{\frac{\pi}{2}} \,\text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\right.\right.$$

$$\left.\left.\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\right)+\frac{1}{27 \sqrt{3} \left(\frac{b}{d}\right)^{7/2} d^3} \text{Sin}\left[\frac{3 b c}{d}\right] \left(-9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} (c+d x)^{5/2} \,\text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\right.$$

$$\left.\frac{5}{2} \left(-\frac{3}{2} \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right)+3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \,\text{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\right)+$$

$$\frac{1}{27 \sqrt{3} \left(\frac{b}{d}\right)^{7/2} d^3} \text{Cos}\left[\frac{3 b c}{d}\right] \left(9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} (c+d x)^{5/2} \,\text{Sin}\left[\frac{3 b (c+d x)}{d}\right]-\frac{5}{2} \left(-3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \,\text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\right.\right.$$

$$\left.\left.\left.\left.\frac{3}{2} \left(-\sqrt{\frac{\pi}{2}} \,\text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\right)\right)\right)+$$

$$\text{Cos}[3 a] \left(\frac{c^2 \,\text{Cos}\left[\frac{3 b c}{d}\right] \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right)}{3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3}-\right.$$

$$\frac{c^2 \operatorname{Sin}\left[\frac{3 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)}{3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3}+\frac{1}{9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} d^3} 2 c \operatorname{Sin}\left[\frac{3 b c}{d}\right]$$

$$\Bigg(-\frac{3}{2} \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right)+3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\Bigg)-$$

$$\frac{1}{9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} d^3} 2 c \operatorname{Cos}\left[\frac{3 b c}{d}\right] \Bigg(-3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\frac{3}{2} \Bigg(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+$$

$$\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\Bigg)\Bigg)+\frac{1}{27 \sqrt{3} \left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Cos}\left[\frac{3 b c}{d}\right] \Bigg(-9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} (c+d x)^{5/2} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+$$

$$\frac{5}{2} \left(-\frac{3}{2} \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right)+3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\Bigg)-$$

$$\frac{1}{27 \sqrt{3} \left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Sin}\left[\frac{3 b c}{d}\right] \Bigg(9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} (c+d x)^{5/2} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]-\frac{5}{2} \Bigg(-3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+$$

$$\frac{3}{2} \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\Bigg)\Bigg)\Bigg)\Bigg)-$$

$$\frac{1}{16} d^2 \Bigg(\operatorname{Sin}[5 a] \Bigg(\frac{c^2 \left(-\sqrt{5} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{5 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right]\right) \operatorname{Sin}\left[\frac{5 b c}{d}\right]}{5 \sqrt{5} \left(\frac{b}{d}\right)^{3/2} d^3}+$$

$$\frac{c^2 \operatorname{Cos}\left[\frac{5 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right]+\sqrt{5} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{5 b (c+d x)}{d}\right]\right)}{5 \sqrt{5} \left(\frac{b}{d}\right)^{3/2} d^3}-\frac{1}{25 \sqrt{5} \left(\frac{b}{d}\right)^{5/2} d^3}$$

$$2\,c\,\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)+\right.$$

$$\left.5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)-\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]$$

$$\left(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\left(-25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{5}{2}\right.$$

$$\left.\left(-\frac{3}{2}\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)+5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\left(25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\left(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\right.\right.$$

$$\left.\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\right)+$$

$$\mathrm{Cos}[5\,a]\left(\frac{c^2\,\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)}{5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}d^3}-\right.$$

$$\frac{c^2\,\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)}{5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}d^3}+\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}d^3}$$

$$2\,c\,\text{Sin}\left[\frac{5\,b\,c}{d}\right]\Bigg(-\frac{3}{2}\Bigg(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\text{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\Bigg)+$$

$$5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)-\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\text{Cos}\left[\frac{5\,b\,c}{d}\right]$$

$$\Bigg(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\Bigg(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\text{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg)+$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{5\,b\,c}{d}\right]\Bigg(-25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{5}{2}$$

$$\Bigg(-\frac{3}{2}\Bigg(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\text{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\Bigg)+5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg)-$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{5\,b\,c}{d}\right]\Bigg(25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\Bigg(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+$$

$$\frac{3}{2}\Bigg(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\text{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 135: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 615 leaves, 26 steps):

$$\frac{15 d^2 \sqrt{c+d x}\, \text{Cos}[a+b x]}{32 b^3}-\frac{(c+d x)^{5/2} \text{Cos}[a+b x]}{8 b}+\frac{5 d^2 \sqrt{c+d x}\, \text{Cos}[3 a+3 b x]}{576 b^3}-\frac{(c+d x)^{5/2} \text{Cos}[3 a+3 b x]}{48 b}-$$

$$\frac{3 d^2 \sqrt{c+d x}\, \text{Cos}[5 a+5 b x]}{1600 b^3}+\frac{(c+d x)^{5/2} \text{Cos}[5 a+5 b x]}{80 b}-\frac{15 d^{5/2} \sqrt{\frac{\pi}{2}}\, \text{Cos}\left[a-\frac{b c}{d}\right] \text{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{32 b^{7/2}}-$$

$$\frac{5 d^{5/2} \sqrt{\frac{\pi}{6}}\, \text{Cos}\left[3 a-\frac{3 b c}{d}\right] \text{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{576 b^{7/2}}+\frac{3 d^{5/2} \sqrt{\frac{\pi}{10}}\, \text{Cos}\left[5 a-\frac{5 b c}{d}\right] \text{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{1600 b^{7/2}}-$$

$$\frac{3 d^{5/2} \sqrt{\frac{\pi}{10}}\, \text{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sin}\left[5 a-\frac{5 b c}{d}\right]}{1600 b^{7/2}}+\frac{5 d^{5/2} \sqrt{\frac{\pi}{6}}\, \text{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sin}\left[3 a-\frac{3 b c}{d}\right]}{576 b^{7/2}}+$$

$$\frac{15 d^{5/2} \sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sin}\left[a-\frac{b c}{d}\right]}{32 b^{7/2}}+\frac{5 d (c+d x)^{3/2} \text{Sin}[a+b x]}{16 b^2}+\frac{5 d (c+d x)^{3/2} \text{Sin}[3 a+3 b x]}{288 b^2}-\frac{d (c+d x)^{3/2} \text{Sin}[5 a+5 b x]}{160 b^2}$$

Result (type 4, 4921 leaves) :

$$\frac{1}{160 \sqrt{5}\, b \sqrt{\frac{b}{d}}} c^2 \left(2 \sqrt{5} \sqrt{\frac{b}{d}} \sqrt{c+d x}\, \text{Cos}[5 (a+b x)]-\right.$$

$$\left.\sqrt{2 \pi}\, \text{Cos}\left[5 a-\frac{5 b c}{d}\right] \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right]+\sqrt{2 \pi}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right] \text{Sin}\left[5 a-\frac{5 b c}{d}\right]\right)-$$

$$\frac{1}{96 \sqrt{3}\, b \sqrt{\frac{b}{d}}} c^2 \left(2 \sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x}\, \text{Cos}[3 (a+b x)]-\sqrt{2 \pi}\, \text{Cos}\left[3 a-\frac{3 b c}{d}\right] \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\right.$$

$$\left.\sqrt{2 \pi}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right] \text{Sin}\left[3 a-\frac{3 b c}{d}\right]\right)-\frac{1}{16 b \sqrt{\frac{b}{d}}}$$

$$c^2 \left(2 \sqrt{\frac{b}{d}} \sqrt{c+d x}\, \text{Cos}[a+b x]-\sqrt{2 \pi}\, \text{Cos}\left[a-\frac{b c}{d}\right] \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right]+\sqrt{2 \pi}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right] \text{Sin}\left[a-\frac{b c}{d}\right]\right)-$$

$$\frac{1}{16 b^3} c \sqrt{\frac{b}{d}}\, d \left(\sqrt{2\pi}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right] \left(3 d \text{Cos}\left[a-\frac{b c}{d}\right]-2 b c \text{Sin}\left[a-\frac{b c}{d}\right]\right)+\right.$$

$$\left.\sqrt{2\pi}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right] \left(2 b c \text{Cos}\left[a-\frac{b c}{d}\right]+3 d \text{Sin}\left[a-\frac{b c}{d}\right]\right)+2 \sqrt{\frac{b}{d}}\, d \sqrt{c+d x} \left(2 b x \text{Cos}[a+b x]-3 \text{Sin}[a+b x]\right)\right)+\frac{1}{64 b^5}$$

$$\left(\frac{b}{d}\right)^{3/2} d^2 \left(\sqrt{2\pi}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right] \left(\left(4 b^2 c^2-15 d^2\right) \text{Cos}\left[a-\frac{b c}{d}\right]+12 b c d \text{Sin}\left[a-\frac{b c}{d}\right]\right)-\sqrt{2\pi}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right]\right.$$

$$\left.\left(-12 b c d \text{Cos}\left[a-\frac{b c}{d}\right]+\left(4 b^2 c^2-15 d^2\right) \text{Sin}\left[a-\frac{b c}{d}\right]\right)-2 \sqrt{\frac{b}{d}}\, d \sqrt{c+d x} \left(d \left(-15+4 b^2 x^2\right) \text{Cos}[a+b x]+2 b (c-5 d x) \text{Sin}[a+b x]\right)\right)-$$

$$\frac{1}{96 \sqrt{3}\, b^3} c \sqrt{\frac{b}{d}}\, d \left(\sqrt{2\pi}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right] \left(d \text{Cos}\left[3 a-\frac{3 b c}{d}\right]-2 b c \text{Sin}\left[3 a-\frac{3 b c}{d}\right]\right)+\sqrt{2\pi}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right.$$

$$\left.\left(2 b c \text{Cos}\left[3 a-\frac{3 b c}{d}\right]+d \text{Sin}\left[3 a-\frac{3 b c}{d}\right]\right)+2 \sqrt{3} \sqrt{\frac{b}{d}}\, d \sqrt{c+d x} \left(2 b x \text{Cos}[3 (a+b x)]-\text{Sin}[3 (a+b x)]\right)\right)+\frac{1}{800 \sqrt{5}\, b^3}$$

$$c \sqrt{\frac{b}{d}}\, d \left(\sqrt{2\pi}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right] \left(3 d \text{Cos}\left[5 a-\frac{5 b c}{d}\right]-10 b c \text{Sin}\left[5 a-\frac{5 b c}{d}\right]\right)+\sqrt{2\pi}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right]\right.$$

$$\left.\left(10 b c \text{Cos}\left[5 a-\frac{5 b c}{d}\right]+3 d \text{Sin}\left[5 a-\frac{5 b c}{d}\right]\right)+2 \sqrt{5} \sqrt{\frac{b}{d}}\, d \sqrt{c+d x} \left(10 b x \text{Cos}[5 (a+b x)]-3 \text{Sin}[5 (a+b x)]\right)\right)+$$

$$\frac{1}{16} d^2 \left(\text{Sin}[3 a] \left(\frac{c^2 \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x}\, \text{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right) \text{Sin}\left[\frac{3 b c}{d}\right]}{3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3}+\right.\right.$$

$$\frac{c^2 \text{Cos}\left[\frac{3 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x}\, \text{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)}{3 \sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3}-\frac{1}{9 \sqrt{3} \left(\frac{b}{d}\right)^{5/2} d^3} 2 c \text{Cos}\left[\frac{3 b c}{d}\right]$$

$$\left(-\frac{3}{2}\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)+3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)-$$

$$\frac{1}{9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(-3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]+\right.\right.$$

$$\left.\left.\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)+\frac{1}{27\sqrt{3}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(-9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)+3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{27\sqrt{3}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\left(-3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.\right.$$

$$\left.\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\right)+$$

$$\text{Cos}[3\,a]\left(\frac{c^2\,\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)}{3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}d^3}-\right.$$

$$\frac{c^2\,\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)}{3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}d^3}+\frac{1}{9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\text{Sin}\left[\frac{3\,b\,c}{d}\right]$$

$$\left(-\frac{3}{2}\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)+3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)-$$

$$\frac{1}{9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(-3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]+\right.\right.$$

$$\left.\left.\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)+\frac{1}{27\sqrt{3}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(-9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)+3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)-$$

$$\frac{1}{27\sqrt{3}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\left(-3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.\right.$$

$$\left.\left.\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\right)\right)-$$

$$\frac{1}{16}d^2\left(\text{Sin}[5\,a]\left(\frac{c^2\left(-\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\right)\text{Sin}\left[\frac{5\,b\,c}{d}\right]}{5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}d^3}+\right.\right.$$

$$\frac{c^2\,\text{Cos}\left[\frac{5\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)}{5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}d^3}-\frac{1}{25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}d^3}$$

$$2\,c\,\text{Cos}\left[\frac{5\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\right)+\right.$$

$$\left.5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)-\frac{1}{25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\text{Sin}\left[\frac{5\,b\,c}{d}\right]$$

$$\left(-5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Cos}\left[\frac{5b(c+dx)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+dx}\right]+\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{5b(c+dx)}{d}\right]\right)\right)+$$

$$\frac{1}{125\sqrt{5}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{5bc}{d}\right]\left(-25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}(c+dx)^{5/2}\,\text{Cos}\left[\frac{5b(c+dx)}{d}\right]+\frac{5}{2}\right.$$

$$\left(-\frac{3}{2}\left(-\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{5b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+dx}\right]\right)+5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Sin}\left[\frac{5b(c+dx)}{d}\right]\right)\Bigg)+$$

$$\frac{1}{125\sqrt{5}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{5bc}{d}\right]\left(25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}(c+dx)^{5/2}\,\text{Sin}\left[\frac{5b(c+dx)}{d}\right]-\frac{5}{2}\left(-5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Cos}\left[\frac{5b(c+dx)}{d}\right]+\right.\right.$$

$$\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+dx}\right]+\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{5b(c+dx)}{d}\right]\right)\right)\right)\Bigg)+$$

$$\text{Cos}[5a]\left(\frac{c^2\,\text{Cos}\left[\frac{5bc}{d}\right]\left(-\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{5b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+dx}\right]\right)}{5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}d^3}-\right.$$

$$\frac{c^2\,\text{Sin}\left[\frac{5bc}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+dx}\right]+\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{5b(c+dx)}{d}\right]\right)}{5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}d^3}+\frac{1}{25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}d^3}$$

$$2c\,\text{Sin}\left[\frac{5bc}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{5b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+dx}\right]\right)+\right.$$

$$\left.5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Sin}\left[\frac{5b(c+dx)}{d}\right]\right)-\frac{1}{25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}d^3}2c\,\text{Cos}\left[\frac{5bc}{d}\right]$$

$$\left(-5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2}\operatorname{Cos}\left[\frac{5 b (c+d x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\operatorname{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d x}\right]+\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d x}\operatorname{Sin}\left[\frac{5 b (c+d x)}{d}\right]\right)\right)+$$

$$\frac{1}{125\sqrt{5}\left(\frac{b}{d}\right)^{7/2} d^3}\operatorname{Cos}\left[\frac{5 b c}{d}\right]\left(-25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}(c+d x)^{5/2}\operatorname{Cos}\left[\frac{5 b (c+d x)}{d}\right]+\frac{5}{2}\right.$$

$$\left.\left(-\frac{3}{2}\left(-\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d x}\operatorname{Cos}\left[\frac{5 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}}\operatorname{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d x}\right]\right)+5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2}\operatorname{Sin}\left[\frac{5 b (c+d x)}{d}\right]\right)\right)-$$

$$\frac{1}{125\sqrt{5}\left(\frac{b}{d}\right)^{7/2} d^3}\operatorname{Sin}\left[\frac{5 b c}{d}\right]\left(25\sqrt{5}\left(\frac{b}{d}\right)^{5/2}(c+d x)^{5/2}\operatorname{Sin}\left[\frac{5 b (c+d x)}{d}\right]-\frac{5}{2}\left(-5\sqrt{5}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2}\operatorname{Cos}\left[\frac{5 b (c+d x)}{d}\right]+\right.\right.$$

$$\left.\left.\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\operatorname{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d x}\right]+\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d x}\operatorname{Sin}\left[\frac{5 b (c+d x)}{d}\right]\right)\right)\right)\right)\right)$$

Problem 156: Result unnecessarily involves imaginary or complex numbers.

$$\int (c+d x)^3 \operatorname{Cos}[a+b x]^3 \operatorname{Sin}[a+b x]^3\, dx$$

Optimal (type 3, 181 leaves, 10 steps):

$$\frac{9 d^2 (c+d x)\operatorname{Cos}[2 a+2 b x]}{128 b^3}-\frac{3 (c+d x)^3\operatorname{Cos}[2 a+2 b x]}{64 b}-\frac{d^2 (c+d x)\operatorname{Cos}[6 a+6 b x]}{1152 b^3}+\frac{(c+d x)^3\operatorname{Cos}[6 a+6 b x]}{192 b}-$$

$$\frac{9 d^3\operatorname{Sin}[2 a+2 b x]}{256 b^4}+\frac{9 d (c+d x)^2\operatorname{Sin}[2 a+2 b x]}{128 b^2}+\frac{d^3\operatorname{Sin}[6 a+6 b x]}{6912 b^4}-\frac{d (c+d x)^2\operatorname{Sin}[6 a+6 b x]}{384 b^2}$$

Result (type 3, 174 leaves):

$$\frac{1}{6912 b^4}\left(-162 b (c+d x)\left(-3 d^2+2 b^2 (c+d x)^2\right)\operatorname{Cos}[2 (a+b x)]+6 b (c+d x)\left(-d^2+6 b^2 (c+d x)^2\right)\operatorname{Cos}[6 (a+b x)]-\right.$$

$$\left.2 d\left(121 d^2-234 b^2 (c+d x)^2+\left(-d^2+18 b^2 (c+d x)^2\right)\operatorname{Cos}[4 (a+b x)]\right)\operatorname{Sin}[2 (a+b x)]\right)$$

$$(\operatorname{Cos}[6 (a+b x)]-i\operatorname{Sin}[6 (a+b x)])(\operatorname{Cos}[6 (a+b x)]+i\operatorname{Sin}[6 (a+b x)])$$

Problem 162: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[a+b x]^3\,\mathrm{Sin}[a+b x]^3}{(c+d x)^4}\,dx$$

Optimal (type 4, 287 leaves, 14 steps):

$$-\frac{b\,\mathrm{Cos}[2a+2bx]}{32 d^2 (c+dx)^2}+\frac{b\,\mathrm{Cos}[6a+6bx]}{32 d^2 (c+dx)^2}-\frac{b^3\,\mathrm{Cos}\left[2a-\frac{2bc}{d}\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]}{8 d^4}+$$
$$\frac{9 b^3\,\mathrm{Cos}\left[6a-\frac{6bc}{d}\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]}{8 d^4}-\frac{\mathrm{Sin}[2a+2bx]}{32 d (c+dx)^3}+\frac{b^2\,\mathrm{Sin}[2a+2bx]}{16 d^3 (c+dx)}+\frac{\mathrm{Sin}[6a+6bx]}{96 d (c+dx)^3}-$$
$$\frac{3 b^2\,\mathrm{Sin}[6a+6bx]}{16 d^3 (c+dx)}+\frac{b^3\,\mathrm{Sin}\left[2a-\frac{2bc}{d}\right]\mathrm{SinIntegral}\left[\frac{2bc}{d}+2bx\right]}{8 d^4}-\frac{9 b^3\,\mathrm{Sin}\left[6a-\frac{6bc}{d}\right]\mathrm{SinIntegral}\left[\frac{6bc}{d}+6bx\right]}{8 d^4}$$

Result (type 4, 3285 leaves):

$$\frac{1}{8 (c+dx)^3}\left(\frac{\mathrm{Cos}[6a+6bx]}{24 d^4}-\frac{i\,\mathrm{Sin}[6a+6bx]}{24 d^4}\right)$$

$$\Big(-18 i b^2 c^2 d+3 b c d^2+i d^3-36 i b^2 c d^2 x+3 b d^3 x-18 i b^2 d^3 x^2+6 i b^2 c^2 d\,\mathrm{Cos}[4a+4bx]-3 b c d^2\,\mathrm{Cos}[4a+4bx]-$$
$$3 i d^3\,\mathrm{Cos}[4a+4bx]+12 i b^2 c d^2 x\,\mathrm{Cos}[4a+4bx]-3 b d^3 x\,\mathrm{Cos}[4a+4bx]+6 i b^2 d^3 x^2\,\mathrm{Cos}[4a+4bx]-6 i b^2 c^2 d\,\mathrm{Cos}[8a+8bx]-$$
$$3 b c d^2\,\mathrm{Cos}[8a+8bx]+3 i d^3\,\mathrm{Cos}[8a+8bx]-12 i b^2 c d^2 x\,\mathrm{Cos}[8a+8bx]-3 b d^3 x\,\mathrm{Cos}[8a+8bx]-6 i b^2 d^3 x^2\,\mathrm{Cos}[8a+8bx]+$$
$$18 i b^2 c^2 d\,\mathrm{Cos}[12a+12bx]+3 b c d^2\,\mathrm{Cos}[12a+12bx]-i d^3\,\mathrm{Cos}[12a+12bx]+36 i b^2 c d^2 x\,\mathrm{Cos}[12a+12bx]+$$
$$3 b d^3 x\,\mathrm{Cos}[12a+12bx]+18 i b^2 d^3 x^2\,\mathrm{Cos}[12a+12bx]-12 b^3 c^3\,\mathrm{Cos}\left[8a-\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]-$$
$$36 b^3 c^2 d x\,\mathrm{Cos}\left[8a-\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]-36 b^3 c d^2 x^2\,\mathrm{Cos}\left[8a-\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]-$$
$$12 b^3 d^3 x^3\,\mathrm{Cos}\left[8a-\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]-12 b^3 c^3\,\mathrm{Cos}\left[4a+\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]-$$
$$36 b^3 c^2 d x\,\mathrm{Cos}\left[4a+\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]-36 b^3 c d^2 x^2\,\mathrm{Cos}\left[4a+\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]-$$
$$12 b^3 d^3 x^3\,\mathrm{Cos}\left[4a+\frac{2bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{2bc}{d}+2bx\right]+108 b^3 c^3\,\mathrm{Cos}\left[12a-\frac{6bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]+$$
$$324 b^3 c^2 d x\,\mathrm{Cos}\left[12a-\frac{6bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]+324 b^3 c d^2 x^2\,\mathrm{Cos}\left[12a-\frac{6bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]+$$
$$108 b^3 d^3 x^3\,\mathrm{Cos}\left[12a-\frac{6bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]+108 b^3 c^3\,\mathrm{Cos}\left[\frac{6bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]+$$
$$324 b^3 c^2 d x\,\mathrm{Cos}\left[\frac{6bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]+324 b^3 c d^2 x^2\,\mathrm{Cos}\left[\frac{6bc}{d}+6bx\right]\mathrm{CosIntegral}\left[\frac{6bc}{d}+6bx\right]+$$

$$
\begin{aligned}
&108\,b^3\,d^3\,x^3\,\text{Cos}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]-6\,b^2\,c^2\,d\,\text{Sin}[4\,a+4\,b\,x]-3\,\mathrm{i}\,b\,c\,d^2\,\text{Sin}[4\,a+4\,b\,x]+3\,d^3\,\text{Sin}[4\,a+4\,b\,x]-\\
&12\,b^2\,c\,d^2\,x\,\text{Sin}[4\,a+4\,b\,x]-3\,\mathrm{i}\,b\,d^3\,x\,\text{Sin}[4\,a+4\,b\,x]-6\,b^2\,d^3\,x^2\,\text{Sin}[4\,a+4\,b\,x]+108\,\mathrm{i}\,b^3\,c^3\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[12\,a-\frac{6\,b\,c}{d}+6\,b\,x\right]+\\
&324\,\mathrm{i}\,b^3\,c^2\,d\,x\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[12\,a-\frac{6\,b\,c}{d}+6\,b\,x\right]+324\,\mathrm{i}\,b^3\,c\,d^2\,x^2\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[12\,a-\frac{6\,b\,c}{d}+6\,b\,x\right]+\\
&108\,\mathrm{i}\,b^3\,d^3\,x^3\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[12\,a-\frac{6\,b\,c}{d}+6\,b\,x\right]-12\,\mathrm{i}\,b^3\,c^3\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]-\\
&36\,\mathrm{i}\,b^3\,c^2\,d\,x\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]-36\,\mathrm{i}\,b^3\,c\,d^2\,x^2\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]-\\
&12\,\mathrm{i}\,b^3\,d^3\,x^3\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]-12\,\mathrm{i}\,b^3\,c^3\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]-\\
&36\,\mathrm{i}\,b^3\,c^2\,d\,x\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]-36\,\mathrm{i}\,b^3\,c\,d^2\,x^2\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]-\\
&12\,\mathrm{i}\,b^3\,d^3\,x^3\,\text{CosIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]+108\,\mathrm{i}\,b^3\,c^3\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]+\\
&324\,\mathrm{i}\,b^3\,c^2\,d\,x\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]+324\,\mathrm{i}\,b^3\,c\,d^2\,x^2\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]+\\
&108\,\mathrm{i}\,b^3\,d^3\,x^3\,\text{CosIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{Sin}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]+6\,b^2\,c^2\,d\,\text{Sin}[8\,a+8\,b\,x]-3\,\mathrm{i}\,b\,c\,d^2\,\text{Sin}[8\,a+8\,b\,x]-\\
&3\,d^3\,\text{Sin}[8\,a+8\,b\,x]+12\,b^2\,c\,d^2\,x\,\text{Sin}[8\,a+8\,b\,x]-3\,\mathrm{i}\,b\,d^3\,x\,\text{Sin}[8\,a+8\,b\,x]+6\,b^2\,d^3\,x^2\,\text{Sin}[8\,a+8\,b\,x]-18\,b^2\,c^2\,d\,\text{Sin}[12\,a+12\,b\,x]+\\
&3\,\mathrm{i}\,b\,c\,d^2\,\text{Sin}[12\,a+12\,b\,x]+d^3\,\text{Sin}[12\,a+12\,b\,x]-36\,b^2\,c\,d^2\,x\,\text{Sin}[12\,a+12\,b\,x]+3\,\mathrm{i}\,b\,d^3\,x\,\text{Sin}[12\,a+12\,b\,x]-18\,b^2\,d^3\,x^2\,\text{Sin}[12\,a+12\,b\,x]-\\
&12\,\mathrm{i}\,b^3\,c^3\,\text{Cos}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]-36\,\mathrm{i}\,b^3\,c^2\,d\,x\,\text{Cos}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]-\\
&36\,\mathrm{i}\,b^3\,c\,d^2\,x^2\,\text{Cos}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]-12\,\mathrm{i}\,b^3\,d^3\,x^3\,\text{Cos}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+\\
&12\,\mathrm{i}\,b^3\,c^3\,\text{Cos}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+36\,\mathrm{i}\,b^3\,c^2\,d\,x\,\text{Cos}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+\\
&36\,\mathrm{i}\,b^3\,c\,d^2\,x^2\,\text{Cos}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+12\,\mathrm{i}\,b^3\,d^3\,x^3\,\text{Cos}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+\\
&12\,b^3\,c^3\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+36\,b^3\,c^2\,d\,x\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+\\
&36\,b^3\,c\,d^2\,x^2\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+12\,b^3\,d^3\,x^3\,\text{Sin}\left[8\,a-\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]-\\
&12\,b^3\,c^3\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]-36\,b^3\,c^2\,d\,x\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]-\\
&36\,b^3\,c\,d^2\,x^2\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]-12\,b^3\,d^3\,x^3\,\text{Sin}\left[4\,a+\frac{2\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{2\,b\,c}{d}+2\,b\,x\right]+\\
&108\,\mathrm{i}\,b^3\,c^3\,\text{Cos}\left[12\,a-\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]+324\,\mathrm{i}\,b^3\,c^2\,d\,x\,\text{Cos}\left[12\,a-\frac{6\,b\,c}{d}+6\,b\,x\right]\,\text{SinIntegral}\left[\frac{6\,b\,c}{d}+6\,b\,x\right]+
\end{aligned}
$$

$324\, i\, b^3\, c\, d^2\, x^2\, Cos\left[12\, a - \frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] + 108\, i\, b^3\, d^3\, x^3\, Cos\left[12\, a - \frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] -$

$108\, i\, b^3\, c^3\, Cos\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] - 324\, i\, b^3\, c^2\, d\, x\, Cos\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] -$

$324\, i\, b^3\, c\, d^2\, x^2\, Cos\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] - 108\, i\, b^3\, d^3\, x^3\, Cos\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] -$

$108\, b^3\, c^3\, Sin\left[12\, a - \frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] - 324\, b^3\, c^2\, d\, x\, Sin\left[12\, a - \frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] -$

$324\, b^3\, c\, d^2\, x^2\, Sin\left[12\, a - \frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] - 108\, b^3\, d^3\, x^3\, Sin\left[12\, a - \frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] +$

$108\, b^3\, c^3\, Sin\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] + 324\, b^3\, c^2\, d\, x\, Sin\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] +$

$324\, b^3\, c\, d^2\, x^2\, Sin\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] + 108\, b^3\, d^3\, x^3\, Sin\left[\frac{6\, b\, c}{d} + 6\, b\, x\right] SinIntegral\left[\frac{6\, b\, c}{d} + 6\, b\, x\right]\Big)$

Problem 164: Result more than twice size of optimal antiderivative.

$$\int (c + d\, x)^4\, Cos[a + b\, x]^2\, Cot[a + b\, x]\, dx$$

Optimal (type 4, 307 leaves, 13 steps):

$$-\frac{3\, c\, d^3\, x}{2\, b^3} - \frac{3\, d^4\, x^2}{4\, b^3} + \frac{(c + d\, x)^4}{4\, b} - \frac{i\, (c + d\, x)^5}{5\, d} + \frac{(c + d\, x)^4\, Log\left[1 - e^{2\, i\, (a+b\, x)}\right]}{b} -$$
$$\frac{2\, i\, d\, (c + d\, x)^3\, PolyLog\left[2, e^{2\, i\, (a+b\, x)}\right]}{b^2} + \frac{3\, d^2\, (c + d\, x)^2\, PolyLog\left[3, e^{2\, i\, (a+b\, x)}\right]}{b^3} +$$
$$\frac{3\, i\, d^3\, (c + d\, x)\, PolyLog\left[4, e^{2\, i\, (a+b\, x)}\right]}{b^4} - \frac{3\, d^4\, PolyLog\left[5, e^{2\, i\, (a+b\, x)}\right]}{2\, b^5} + \frac{3\, d^3\, (c + d\, x)\, Cos[a + b\, x]\, Sin[a + b\, x]}{2\, b^4} -$$
$$\frac{d\, (c + d\, x)^3\, Cos[a + b\, x]\, Sin[a + b\, x]}{b^2} - \frac{3\, d^4\, Sin[a + b\, x]^2}{4\, b^5} + \frac{3\, d^2\, (c + d\, x)^2\, Sin[a + b\, x]^2}{2\, b^3} - \frac{(c + d\, x)^4\, Sin[a + b\, x]^2}{2\, b}$$

Result (type 4, 2486 leaves):

$$-\frac{1}{2\,b^3}c^2\,d^2\,e^{-i\,a}\,\mathrm{Csc}[a]$$
$$\left(2\,b^2\,x^2\,\left(2\,b\,e^{2\,i\,a}\,x+3\,i\,\left(-1+e^{2\,i\,a}\right)\,\mathrm{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]\right)+6\,b\,\left(-1+e^{2\,i\,a}\right)\,x\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]+3\,i\,\left(-1+e^{2\,i\,a}\right)\,\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]\right)-$$
$$c\,d^3\,e^{i\,a}\,\mathrm{Csc}[a]\,\left(x^4+\left(-1+e^{-2\,i\,a}\right)\,x^4+\frac{1}{2\,b^4}e^{-2\,i\,a}\,\left(-1+e^{2\,i\,a}\right)\right.$$
$$\left.\left(2\,b^4\,x^4+4\,i\,b^3\,x^3\,\mathrm{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]+6\,b^2\,x^2\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]+6\,i\,b\,x\,\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]-3\,\mathrm{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]\right)\right)-$$
$$\frac{1}{5}\,d^4\,e^{i\,a}\,\mathrm{Csc}[a]\,\left(x^5+\left(-1+e^{-2\,i\,a}\right)\,x^5+\frac{1}{4\,b^5}e^{-2\,i\,a}\,\left(-1+e^{2\,i\,a}\right)\,\left(4\,b^5\,x^5+10\,i\,b^4\,x^4\,\mathrm{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]+20\,b^3\,x^3\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]+\right.\right.$$
$$\left.\left.30\,i\,b^2\,x^2\,\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]-30\,b\,x\,\mathrm{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]-15\,i\,\mathrm{PolyLog}\left[5,\,e^{2\,i\,(a+b\,x)}\right]\right)\right)+$$
$$\frac{c^4\,\mathrm{Csc}[a]\,\left(-b\,x\,\mathrm{Cos}[a]+\mathrm{Log}[\mathrm{Cos}[b\,x]\,\mathrm{Sin}[a]+\mathrm{Cos}[a]\,\mathrm{Sin}[b\,x]]\,\mathrm{Sin}[a]\right)}{b\,\left(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2\right)}+\mathrm{Csc}[a]\,\left(\frac{\mathrm{Cos}[2\,a+2\,b\,x]}{160\,b^5}-\frac{i\,\mathrm{Sin}[2\,a+2\,b\,x]}{160\,b^5}\right)$$
$$\left(80\,b^5\,c^4\,x\,\mathrm{Cos}[a+2\,b\,x]+160\,b^5\,c^3\,d\,x^2\,\mathrm{Cos}[a+2\,b\,x]+160\,b^5\,c^2\,d^2\,x^3\,\mathrm{Cos}[a+2\,b\,x]+80\,b^5\,c\,d^3\,x^4\,\mathrm{Cos}[a+2\,b\,x]+16\,b^5\,d^4\,x^5\,\mathrm{Cos}[a+2\,b\,x]+\right.$$
$$80\,b^5\,c^4\,x\,\mathrm{Cos}[3\,a+2\,b\,x]+160\,b^5\,c^3\,d\,x^2\,\mathrm{Cos}[3\,a+2\,b\,x]+160\,b^5\,c^2\,d^2\,x^3\,\mathrm{Cos}[3\,a+2\,b\,x]+80\,b^5\,c\,d^3\,x^4\,\mathrm{Cos}[3\,a+2\,b\,x]+$$
$$16\,b^5\,d^4\,x^5\,\mathrm{Cos}[3\,a+2\,b\,x]+10\,i\,b^4\,c^4\,\mathrm{Cos}[3\,a+4\,b\,x]-20\,b^3\,c^3\,d\,\mathrm{Cos}[3\,a+4\,b\,x]-30\,i\,b^2\,c^2\,d^2\,\mathrm{Cos}[3\,a+4\,b\,x]+30\,b\,c\,d^3\,\mathrm{Cos}[3\,a+4\,b\,x]+$$
$$15\,i\,d^4\,\mathrm{Cos}[3\,a+4\,b\,x]+40\,i\,b^4\,c^3\,d\,x\,\mathrm{Cos}[3\,a+4\,b\,x]-60\,b^3\,c^2\,d^2\,x\,\mathrm{Cos}[3\,a+4\,b\,x]-60\,i\,b^2\,c\,d^3\,x\,\mathrm{Cos}[3\,a+4\,b\,x]+30\,b\,d^4\,x\,\mathrm{Cos}[3\,a+4\,b\,x]+$$
$$60\,i\,b^4\,c^2\,d^2\,x^2\,\mathrm{Cos}[3\,a+4\,b\,x]-60\,b^3\,c\,d^3\,x^2\,\mathrm{Cos}[3\,a+4\,b\,x]-30\,i\,b^2\,d^4\,x^2\,\mathrm{Cos}[3\,a+4\,b\,x]+40\,i\,b^4\,c\,d^3\,x^3\,\mathrm{Cos}[3\,a+4\,b\,x]-$$
$$20\,b^3\,d^4\,x^3\,\mathrm{Cos}[3\,a+4\,b\,x]+10\,i\,b^4\,d^4\,x^4\,\mathrm{Cos}[3\,a+4\,b\,x]-10\,i\,b^4\,c^4\,\mathrm{Cos}[5\,a+4\,b\,x]+20\,b^3\,c^3\,d\,\mathrm{Cos}[5\,a+4\,b\,x]+30\,i\,b^2\,c^2\,d^2\,\mathrm{Cos}[5\,a+4\,b\,x]-$$
$$30\,b\,c\,d^3\,\mathrm{Cos}[5\,a+4\,b\,x]-15\,i\,d^4\,\mathrm{Cos}[5\,a+4\,b\,x]-40\,i\,b^4\,c^3\,d\,x\,\mathrm{Cos}[5\,a+4\,b\,x]+60\,b^3\,c^2\,d^2\,x\,\mathrm{Cos}[5\,a+4\,b\,x]+60\,i\,b^2\,c\,d^3\,x\,\mathrm{Cos}[5\,a+4\,b\,x]-$$
$$30\,b\,d^4\,x\,\mathrm{Cos}[5\,a+4\,b\,x]-60\,i\,b^4\,c^2\,d^2\,x^2\,\mathrm{Cos}[5\,a+4\,b\,x]+60\,b^3\,c\,d^3\,x^2\,\mathrm{Cos}[5\,a+4\,b\,x]+30\,i\,b^2\,d^4\,x^2\,\mathrm{Cos}[5\,a+4\,b\,x]-$$
$$40\,i\,b^4\,c\,d^3\,x^3\,\mathrm{Cos}[5\,a+4\,b\,x]+20\,b^3\,d^4\,x^3\,\mathrm{Cos}[5\,a+4\,b\,x]-10\,i\,b^4\,d^4\,x^4\,\mathrm{Cos}[5\,a+4\,b\,x]+20\,b^4\,c^4\,\mathrm{Sin}[a]-40\,i\,b^3\,c^3\,d\,\mathrm{Sin}[a]-$$
$$60\,b^2\,c^2\,d^2\,\mathrm{Sin}[a]+60\,i\,b\,c\,d^3\,\mathrm{Sin}[a]+30\,d^4\,\mathrm{Sin}[a]+80\,b^4\,c^3\,d\,x\,\mathrm{Sin}[a]-120\,i\,b^3\,c^2\,d^2\,x\,\mathrm{Sin}[a]-120\,b^2\,c\,d^3\,x\,\mathrm{Sin}[a]+$$
$$60\,i\,b\,d^4\,x\,\mathrm{Sin}[a]+120\,b^4\,c^2\,d^2\,x^2\,\mathrm{Sin}[a]-120\,i\,b^3\,c\,d^3\,x^2\,\mathrm{Sin}[a]-60\,b^2\,d^4\,x^2\,\mathrm{Sin}[a]+80\,b^4\,c\,d^3\,x^3\,\mathrm{Sin}[a]-40\,i\,b^3\,d^4\,x^3\,\mathrm{Sin}[a]+$$
$$20\,b^4\,d^4\,x^4\,\mathrm{Sin}[a]+80\,i\,b^5\,c^4\,x\,\mathrm{Sin}[a+2\,b\,x]+160\,i\,b^5\,c^3\,d\,x^2\,\mathrm{Sin}[a+2\,b\,x]+160\,i\,b^5\,c^2\,d^2\,x^3\,\mathrm{Sin}[a+2\,b\,x]+80\,i\,b^5\,c\,d^3\,x^4\,\mathrm{Sin}[a+2\,b\,x]+$$
$$16\,i\,b^5\,d^4\,x^5\,\mathrm{Sin}[a+2\,b\,x]+80\,i\,b^5\,c^4\,x\,\mathrm{Sin}[3\,a+2\,b\,x]+160\,i\,b^5\,c^3\,d\,x^2\,\mathrm{Sin}[3\,a+2\,b\,x]+160\,i\,b^5\,c^2\,d^2\,x^3\,\mathrm{Sin}[3\,a+2\,b\,x]+$$
$$80\,i\,b^5\,c\,d^3\,x^4\,\mathrm{Sin}[3\,a+2\,b\,x]+16\,i\,b^5\,d^4\,x^5\,\mathrm{Sin}[3\,a+2\,b\,x]-10\,b^4\,c^4\,\mathrm{Sin}[3\,a+4\,b\,x]-20\,i\,b^3\,c^3\,d\,\mathrm{Sin}[3\,a+4\,b\,x]+30\,b^2\,c^2\,d^2\,\mathrm{Sin}[3\,a+4\,b\,x]+$$
$$30\,i\,b\,c\,d^3\,\mathrm{Sin}[3\,a+4\,b\,x]-15\,d^4\,\mathrm{Sin}[3\,a+4\,b\,x]-40\,b^4\,c^3\,d\,x\,\mathrm{Sin}[3\,a+4\,b\,x]-60\,i\,b^3\,c^2\,d^2\,x\,\mathrm{Sin}[3\,a+4\,b\,x]+60\,b^2\,c\,d^3\,x\,\mathrm{Sin}[3\,a+4\,b\,x]+$$
$$30\,i\,b\,d^4\,x\,\mathrm{Sin}[3\,a+4\,b\,x]-60\,b^4\,c^2\,d^2\,x^2\,\mathrm{Sin}[3\,a+4\,b\,x]-60\,i\,b^3\,c\,d^3\,x^2\,\mathrm{Sin}[3\,a+4\,b\,x]+30\,b^2\,d^4\,x^2\,\mathrm{Sin}[3\,a+4\,b\,x]-$$
$$40\,b^4\,c\,d^3\,x^3\,\mathrm{Sin}[3\,a+4\,b\,x]-20\,i\,b^3\,d^4\,x^3\,\mathrm{Sin}[3\,a+4\,b\,x]-10\,b^4\,d^4\,x^4\,\mathrm{Sin}[3\,a+4\,b\,x]+10\,b^4\,c^4\,\mathrm{Sin}[5\,a+4\,b\,x]+20\,i\,b^3\,c^3\,d\,\mathrm{Sin}[5\,a+4\,b\,x]-$$
$$30\,b^2\,c^2\,d^2\,\mathrm{Sin}[5\,a+4\,b\,x]-30\,i\,b\,c\,d^3\,\mathrm{Sin}[5\,a+4\,b\,x]+15\,d^4\,\mathrm{Sin}[5\,a+4\,b\,x]+40\,b^4\,c^3\,d\,x\,\mathrm{Sin}[5\,a+4\,b\,x]+60\,i\,b^3\,c^2\,d^2\,x\,\mathrm{Sin}[5\,a+4\,b\,x]-$$
$$60\,b^2\,c\,d^3\,x\,\mathrm{Sin}[5\,a+4\,b\,x]-30\,i\,b\,d^4\,x\,\mathrm{Sin}[5\,a+4\,b\,x]+60\,b^4\,c^2\,d^2\,x^2\,\mathrm{Sin}[5\,a+4\,b\,x]+60\,i\,b^3\,c\,d^3\,x^2\,\mathrm{Sin}[5\,a+4\,b\,x]-$$
$$\left.30\,b^2\,d^4\,x^2\,\mathrm{Sin}[5\,a+4\,b\,x]+40\,b^4\,c\,d^3\,x^3\,\mathrm{Sin}[5\,a+4\,b\,x]+20\,i\,b^3\,d^4\,x^3\,\mathrm{Sin}[5\,a+4\,b\,x]+10\,b^4\,d^4\,x^4\,\mathrm{Sin}[5\,a+4\,b\,x]\right)-$$
$$\left(2\,c^3\,d\,\mathrm{Csc}[a]\,\mathrm{Sec}[a]\,\left(b^2\,e^{i\,\mathrm{ArcTan}[\mathrm{Tan}[a]]}\,x^2+\frac{1}{\sqrt{1+\mathrm{Tan}[a]^2}}\right.\right.$$
$$\left(i\,b\,x\,\left(-\pi+2\,\mathrm{ArcTan}[\mathrm{Tan}[a]]\right)-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,\left(b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]]\right)\,\mathrm{Log}\left[1-e^{2\,i\,(b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]])}\right]+\pi\,\mathrm{Log}[\mathrm{Cos}[b\,x]]+2\right.$$
$$\left.\left.\left.\mathrm{ArcTan}[\mathrm{Tan}[a]]\,\mathrm{Log}[\mathrm{Sin}[b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]])}\right]\right)\,\mathrm{Tan}[a]\right)\right)\Big/\left(b^2\,\sqrt{\mathrm{Sec}[a]^2\,\left(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2\right)}\right)$$

Problem 165: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^3 \operatorname{Cos}[a+b x]^2 \operatorname{Cot}[a+b x]\, dx$$

Optimal (type 4, 246 leaves, 12 steps):

$$-\frac{3 d^3 x}{8 b^3}+\frac{(c+d x)^3}{4 b}-\frac{i (c+d x)^4}{4 d}+\frac{(c+d x)^3 \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]}{b}-\frac{3 i d (c+d x)^2 \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{2 b^2}+\frac{3 d^2 (c+d x) \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{2 b^3}+\frac{3 i d^3 \operatorname{PolyLog}\left[4, e^{2 i (a+b x)}\right]}{4 b^4}+\frac{3 d^3 \operatorname{Cos}[a+b x] \operatorname{Sin}[a+b x]}{8 b^4}-\frac{3 d (c+d x)^2 \operatorname{Cos}[a+b x] \operatorname{Sin}[a+b x]}{4 b^2}+\frac{3 d^2 (c+d x) \operatorname{Sin}[a+b x]^2}{4 b^3}-\frac{(c+d x)^3 \operatorname{Sin}[a+b x]^2}{2 b}$$

Result (type 4, 1712 leaves):

$$-\frac{1}{4 b^3} c\, d^2\, e^{-i a} \mathrm{Csc}[a]$$
$$\left(2 b^2 x^2 \left(2 b\, e^{2 i a} x + 3 i \left(-1 + e^{2 i a}\right) \mathrm{Log}\left[1 - e^{2 i (a+b x)}\right]\right) + 6 b \left(-1 + e^{2 i a}\right) x\, \mathrm{PolyLog}\left[2, e^{2 i (a+b x)}\right] + 3 i \left(-1 + e^{2 i a}\right) \mathrm{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right) -$$
$$\frac{1}{4} d^3 e^{i a} \mathrm{Csc}[a] \left(x^4 + \left(-1 + e^{-2 i a}\right) x^4 + \frac{1}{2 b^4} e^{-2 i a} \left(-1 + e^{2 i a}\right)\right.$$
$$\left.\left(2 b^4 x^4 + 4 i b^3 x^3 \mathrm{Log}\left[1 - e^{2 i (a+b x)}\right] + 6 b^2 x^2 \mathrm{PolyLog}\left[2, e^{2 i (a+b x)}\right] + 6 i b x\, \mathrm{PolyLog}\left[3, e^{2 i (a+b x)}\right] - 3\, \mathrm{PolyLog}\left[4, e^{2 i (a+b x)}\right]\right)\right) +$$
$$\frac{c^3 \mathrm{Csc}[a] \left(-b x \mathrm{Cos}[a] + \mathrm{Log}[\mathrm{Cos}[b x] \mathrm{Sin}[a] + \mathrm{Cos}[a] \mathrm{Sin}[b x]] \mathrm{Sin}[a]\right)}{b \left(\mathrm{Cos}[a]^2 + \mathrm{Sin}[a]^2\right)} + \mathrm{Csc}[a] \left(\frac{\mathrm{Cos}[2 a + 2 b x]}{64 b^4} - \frac{i \mathrm{Sin}[2 a + 2 b x]}{64 b^4}\right)$$
$$\left(32 b^4 c^3 x \mathrm{Cos}[a + 2 b x] + 48 b^4 c^2 d x^2 \mathrm{Cos}[a + 2 b x] + 32 b^4 c d^2 x^3 \mathrm{Cos}[a + 2 b x] + 8 b^4 d^3 x^4 \mathrm{Cos}[a + 2 b x] + 32 b^4 c^3 x \mathrm{Cos}[3 a + 2 b x] +\right.$$
$$48 b^4 c^2 d x^2 \mathrm{Cos}[3 a + 2 b x] + 32 b^4 c d^2 x^3 \mathrm{Cos}[3 a + 2 b x] + 8 b^4 d^3 x^4 \mathrm{Cos}[3 a + 2 b x] + 4 i b^3 c^3 \mathrm{Cos}[3 a + 4 b x] - 6 b^2 c^2 d \mathrm{Cos}[3 a + 4 b x] -$$
$$6 i b c d^2 \mathrm{Cos}[3 a + 4 b x] + 3 d^3 \mathrm{Cos}[3 a + 4 b x] + 12 i b^3 c^2 d x \mathrm{Cos}[3 a + 4 b x] - 12 b^2 c d^2 x \mathrm{Cos}[3 a + 4 b x] - 6 i b d^3 x \mathrm{Cos}[3 a + 4 b x] +$$
$$12 i b^3 c d^2 x^2 \mathrm{Cos}[3 a + 4 b x] - 6 b^2 d^3 x^2 \mathrm{Cos}[3 a + 4 b x] + 4 i b^3 d^3 x^3 \mathrm{Cos}[3 a + 4 b x] - 4 i b^3 c^3 \mathrm{Cos}[5 a + 4 b x] + 6 b^2 c^2 d \mathrm{Cos}[5 a + 4 b x] +$$
$$6 i b c d^2 \mathrm{Cos}[5 a + 4 b x] - 3 d^3 \mathrm{Cos}[5 a + 4 b x] - 12 i b^3 c^2 d x \mathrm{Cos}[5 a + 4 b x] + 12 b^2 c d^2 x \mathrm{Cos}[5 a + 4 b x] + 6 i b d^3 x \mathrm{Cos}[5 a + 4 b x] -$$
$$12 i b^3 c d^2 x^2 \mathrm{Cos}[5 a + 4 b x] + 6 b^2 d^3 x^2 \mathrm{Cos}[5 a + 4 b x] - 4 i b^3 d^3 x^3 \mathrm{Cos}[5 a + 4 b x] + 8 b^3 c^3 \mathrm{Sin}[a] - 12 i b^2 c^2 d \mathrm{Sin}[a] -$$
$$12 b c d^2 \mathrm{Sin}[a] + 6 i d^3 \mathrm{Sin}[a] + 24 b^3 c^2 d x \mathrm{Sin}[a] - 24 i b^2 c d^2 x \mathrm{Sin}[a] - 12 b d^3 x \mathrm{Sin}[a] + 24 b^3 c d^2 x^2 \mathrm{Sin}[a] - 12 i b^2 d^3 x^2 \mathrm{Sin}[a] +$$
$$8 b^3 d^3 x^3 \mathrm{Sin}[a] + 32 i b^4 c^3 x \mathrm{Sin}[a + 2 b x] + 48 i b^4 c^2 d x^2 \mathrm{Sin}[a + 2 b x] + 32 i b^4 c d^2 x^3 \mathrm{Sin}[a + 2 b x] + 8 i b^4 d^3 x^4 \mathrm{Sin}[a + 2 b x] +$$
$$32 i b^4 c^3 x \mathrm{Sin}[3 a + 2 b x] + 48 i b^4 c^2 d x^2 \mathrm{Sin}[3 a + 2 b x] + 32 i b^4 c d^2 x^3 \mathrm{Sin}[3 a + 2 b x] + 8 i b^4 d^3 x^4 \mathrm{Sin}[3 a + 2 b x] -$$
$$4 b^3 c^3 \mathrm{Sin}[3 a + 4 b x] - 6 i b^2 c^2 d \mathrm{Sin}[3 a + 4 b x] + 6 b c d^2 \mathrm{Sin}[3 a + 4 b x] + 3 i d^3 \mathrm{Sin}[3 a + 4 b x] - 12 b^3 c^2 d x \mathrm{Sin}[3 a + 4 b x] -$$
$$12 i b^2 c d^2 x \mathrm{Sin}[3 a + 4 b x] + 6 b d^3 x \mathrm{Sin}[3 a + 4 b x] - 12 b^3 c d^2 x^2 \mathrm{Sin}[3 a + 4 b x] - 6 i b^2 d^3 x^2 \mathrm{Sin}[3 a + 4 b x] - 4 b^3 d^3 x^3 \mathrm{Sin}[3 a + 4 b x] +$$
$$4 b^3 c^3 \mathrm{Sin}[5 a + 4 b x] + 6 i b^2 c^2 d \mathrm{Sin}[5 a + 4 b x] - 6 b c d^2 \mathrm{Sin}[5 a + 4 b x] - 3 i d^3 \mathrm{Sin}[5 a + 4 b x] + 12 b^3 c^2 d x \mathrm{Sin}[5 a + 4 b x] +$$
$$\left.12 i b^2 c d^2 x \mathrm{Sin}[5 a + 4 b x] - 6 b d^3 x \mathrm{Sin}[5 a + 4 b x] + 12 b^3 c d^2 x^2 \mathrm{Sin}[5 a + 4 b x] + 6 i b^2 d^3 x^2 \mathrm{Sin}[5 a + 4 b x] + 4 b^3 d^3 x^3 \mathrm{Sin}[5 a + 4 b x]\right) -$$
$$\left(3 c^2 d \mathrm{Csc}[a] \mathrm{Sec}[a] \left(b^2 e^{i \mathrm{ArcTan}[\mathrm{Tan}[a]]} x^2 + \frac{1}{\sqrt{1 + \mathrm{Tan}[a]^2}} \left(i b x \left(-\pi + 2 \mathrm{ArcTan}[\mathrm{Tan}[a]]\right) - \pi \mathrm{Log}\left[1 + e^{-2 i b x}\right] -\right.\right.\right.$$
$$2 \left(b x + \mathrm{ArcTan}[\mathrm{Tan}[a]]\right) \mathrm{Log}\left[1 - e^{2 i (b x + \mathrm{ArcTan}[\mathrm{Tan}[a]])}\right] + \pi \mathrm{Log}[\mathrm{Cos}[b x]] + 2 \mathrm{ArcTan}[\mathrm{Tan}[a]] \mathrm{Log}[\mathrm{Sin}[b x + \mathrm{ArcTan}[\mathrm{Tan}[a]]]] +$$
$$\left.\left.\left. i \mathrm{PolyLog}\left[2, e^{2 i (b x + \mathrm{ArcTan}[\mathrm{Tan}[a]])}\right]\right) \mathrm{Tan}[a]\right)\right) \Big/ \left(2 b^2 \sqrt{\mathrm{Sec}[a]^2 \left(\mathrm{Cos}[a]^2 + \mathrm{Sin}[a]^2\right)}\right)$$

Problem 166: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 181 leaves, 9 steps):

$$\frac{c d x}{2 b} + \frac{d^2 x^2}{4 b} - \frac{i (c + d x)^3}{3 d} + \frac{(c + d x)^2 \mathrm{Log}\left[1 - e^{2 i (a+b x)}\right]}{b} - \frac{i d (c + d x) \mathrm{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^2} +$$
$$\frac{d^2 \mathrm{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{2 b^3} - \frac{d (c + d x) \mathrm{Cos}[a + b x] \mathrm{Sin}[a + b x]}{2 b^2} + \frac{d^2 \mathrm{Sin}[a + b x]^2}{4 b^3} - \frac{(c + d x)^2 \mathrm{Sin}[a + b x]^2}{2 b}$$

Result (type 4, 511 leaves):

$$\frac{1}{3} x \left(3 c^2 + 3 c d x + d^2 x^2\right) \text{Cot}[a] - \frac{1}{12 b^3} d^2 e^{-i a} \text{Csc}[a] \left(2 b^2 x^2 \left(2 b e^{2 i a} x + 3 i \left(-1 + e^{2 i a}\right) \text{Log}\left[1 - e^{2 i (a+b x)}\right]\right) + 6 b \left(-1 + e^{2 i a}\right) x \,\text{PolyLog}\left[2, e^{2 i (a+b x)}\right] + 3 i \left(-1 + e^{2 i a}\right) \text{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right) + \frac{c^2 \text{Csc}[a] \left(-b x \text{Cos}[a] + \text{Log}[\text{Cos}[b x] \text{Sin}[a] + \text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)} + \frac{1}{8 b^3} \text{Cos}[2 b x] \left(2 b^2 c^2 \text{Cos}[2 a] - d^2 \text{Cos}[2 a] + 4 b^2 c d x \text{Cos}[2 a] + 2 b^2 d^2 x^2 \text{Cos}[2 a] - 2 b c d \text{Sin}[2 a] - 2 b d^2 x \text{Sin}[2 a]\right) - \frac{1}{8 b^3} \left(2 b c d \text{Cos}[2 a] + 2 b d^2 x \text{Cos}[2 a] + 2 b^2 c^2 \text{Sin}[2 a] - d^2 \text{Sin}[2 a] + 4 b^2 c d x \text{Sin}[2 a] + 2 b^2 d^2 x^2 \text{Sin}[2 a]\right) \text{Sin}[2 b x] - \left(c d \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2 + \frac{1}{\sqrt{1 + \text{Tan}[a]^2}} \left(i b x \left(-\pi + 2 \text{ArcTan}[\text{Tan}[a]]\right) - \pi \text{Log}\left[1 + e^{-2 i b x}\right] - 2 \left(b x + \text{ArcTan}[\text{Tan}[a]]\right) \text{Log}\left[1 - e^{2 i (b x + \text{ArcTan}[\text{Tan}[a]])}\right] + \pi \text{Log}[\text{Cos}[b x]] + 2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x + \text{ArcTan}[\text{Tan}[a]]]] + i \text{PolyLog}\left[2, e^{2 i (b x + \text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right) \Big/ \left(b^2 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)}\right)$$

Problem 171: Result more than twice size of optimal antiderivative.

$$\int (c + d x)^4 \text{Cos}[a + b x] \text{Cot}[a + b x]^2 \, dx$$

Optimal (type 4, 299 leaves, 16 steps):

$$-\frac{8 d (c + d x)^3 \text{ArcTanh}\left[e^{i (a+b x)}\right]}{b^2} + \frac{24 d^3 (c + d x) \text{Cos}[a + b x]}{b^4} - \frac{4 d (c + d x)^3 \text{Cos}[a + b x]}{b^2} - \frac{(c + d x)^4 \text{Csc}[a + b x]}{b} + \frac{12 i d^2 (c + d x)^2 \text{PolyLog}\left[2, -e^{i (a+b x)}\right]}{b^3} - \frac{12 i d^2 (c + d x)^2 \text{PolyLog}\left[2, e^{i (a+b x)}\right]}{b^3} - \frac{24 d^3 (c + d x) \text{PolyLog}\left[3, -e^{i (a+b x)}\right]}{b^4} + \frac{24 d^3 (c + d x) \text{PolyLog}\left[3, e^{i (a+b x)}\right]}{b^4} - \frac{24 i d^4 \text{PolyLog}\left[4, -e^{i (a+b x)}\right]}{b^5} + \frac{24 i d^4 \text{PolyLog}\left[4, e^{i (a+b x)}\right]}{b^5} - \frac{24 d^4 \text{Sin}[a + b x]}{b^5} + \frac{12 d^2 (c + d x)^2 \text{Sin}[a + b x]}{b^3} - \frac{(c + d x)^4 \text{Sin}[a + b x]}{b}$$

Result (type 4, 833 leaves):

$$\frac{1}{2 b^5}\text{Csc}[a+b x]\left(-3 b^4 c^4+12 b^2 c^2 d^2-24 d^4-12 b^4 c^3 d x+24 b^2 c d^3 x-18 b^4 c^2 d^2 x^2+12 b^2 d^4 x^2-12 b^4 c d^3 x^3-3 b^4 d^4 x^4+b^4 c^4 \text{Cos}[2 (a+b x)]-12 b^2 c^2 d^2 \text{Cos}[2 (a+b x)]+24 d^4 \text{Cos}[2 (a+b x)]+4 b^4 c^3 d x \text{Cos}[2 (a+b x)]-24 b^2 c d^3 x \text{Cos}[2 (a+b x)]+6 b^4 c^2 d^2 x^2 \text{Cos}[2 (a+b x)]-12 b^2 d^4 x^2 \text{Cos}[2 (a+b x)]+4 b^4 c d^3 x^3 \text{Cos}[2 (a+b x)]+b^4 d^4 x^4 \text{Cos}[2 (a+b x)]-16 b^3 c^3 d \text{ArcTanh}\left[e^{i (a+b x)}\right] \text{Sin}[a+b x]+24 b^3 c^2 d^2 x \text{Log}\left[1-e^{i (a+b x)}\right] \text{Sin}[a+b x]+24 b^3 c d^3 x^2 \text{Log}\left[1-e^{i (a+b x)}\right] \text{Sin}[a+b x]+8 b^3 d^4 x^3 \text{Log}\left[1-e^{i (a+b x)}\right] \text{Sin}[a+b x]-24 b^3 c^2 d^2 x \text{Log}\left[1+e^{i (a+b x)}\right] \text{Sin}[a+b x]-24 b^3 c d^3 x^2 \text{Log}\left[1+e^{i (a+b x)}\right] \text{Sin}[a+b x]-8 b^3 d^4 x^3 \text{Log}\left[1+e^{i (a+b x)}\right] \text{Sin}[a+b x]+24 i b^2 d^2 (c+d x)^2 \text{PolyLog}\left[2,-e^{i (a+b x)}\right] \text{Sin}[a+b x]-24 i b^2 d^2 (c+d x)^2 \text{PolyLog}\left[2,e^{i (a+b x)}\right] \text{Sin}[a+b x]-48 b c d^3 \text{PolyLog}\left[3,-e^{i (a+b x)}\right] \text{Sin}[a+b x]-48 b d^4 x \text{PolyLog}\left[3,-e^{i (a+b x)}\right] \text{Sin}[a+b x]+48 b c d^3 \text{PolyLog}\left[3,e^{i (a+b x)}\right] \text{Sin}[a+b x]+48 b d^4 x \text{PolyLog}\left[3,e^{i (a+b x)}\right] \text{Sin}[a+b x]-48 i d^4 \text{PolyLog}\left[4,-e^{i (a+b x)}\right] \text{Sin}[a+b x]+48 i d^4 \text{PolyLog}\left[4,e^{i (a+b x)}\right] \text{Sin}[a+b x]-4 b^3 c^3 d \text{Sin}[2 (a+b x)]+24 b c d^3 \text{Sin}[2 (a+b x)]-12 b^3 c^2 d^2 x \text{Sin}[2 (a+b x)]+24 b d^4 x \text{Sin}[2 (a+b x)]-12 b^3 c d^3 x^2 \text{Sin}[2 (a+b x)]-4 b^3 d^4 x^3 \text{Sin}[2 (a+b x)]\right)$$

Problem 172: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 216 leaves, 13 steps):

$$-\frac{6 d (c+d x)^2 \text{ArcTanh}\left[e^{i (a+b x)}\right]}{b^2}+\frac{6 d^3 \text{Cos}[a+b x]}{b^4}-\frac{3 d (c+d x)^2 \text{Cos}[a+b x]}{b^2}-\frac{(c+d x)^3 \text{Csc}[a+b x]}{b}+\frac{6 i d^2 (c+d x) \text{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^3}-\frac{6 i d^2 (c+d x) \text{PolyLog}\left[2,e^{i (a+b x)}\right]}{b^3}-\frac{6 d^3 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^4}+\frac{6 d^3 \text{PolyLog}\left[3,e^{i (a+b x)}\right]}{b^4}+\frac{6 d^2 (c+d x) \text{Sin}[a+b x]}{b^3}-\frac{(c+d x)^3 \text{Sin}[a+b x]}{b}$$

Result (type 4, 506 leaves):

$$\frac{1}{2 b^4}\text{Csc}[a+b x]\left(-3 b^3 c^3+6 b c d^2-9 b^3 c^2 d x+6 b d^3 x-9 b^3 c d^2 x^2-3 b^3 d^3 x^3+b^3 c^3 \text{Cos}[2 (a+b x)]-6 b c d^2 \text{Cos}[2 (a+b x)]+3 b^3 c^2 d x \text{Cos}[2 (a+b x)]-6 b d^3 x \text{Cos}[2 (a+b x)]+3 b^3 c d^2 x^2 \text{Cos}[2 (a+b x)]+b^3 d^3 x^3 \text{Cos}[2 (a+b x)]-12 b^2 c^2 d \text{ArcTanh}\left[e^{i (a+b x)}\right] \text{Sin}[a+b x]+12 b^2 c d^2 x \text{Log}\left[1-e^{i (a+b x)}\right] \text{Sin}[a+b x]+6 b^2 d^3 x^2 \text{Log}\left[1-e^{i (a+b x)}\right] \text{Sin}[a+b x]-12 b^2 c d^2 x \text{Log}\left[1+e^{i (a+b x)}\right] \text{Sin}[a+b x]-6 b^2 d^3 x^2 \text{Log}\left[1+e^{i (a+b x)}\right] \text{Sin}[a+b x]+12 i b d^2 (c+d x) \text{PolyLog}\left[2,-e^{i (a+b x)}\right] \text{Sin}[a+b x]-12 i b d^2 (c+d x) \text{PolyLog}\left[2,e^{i (a+b x)}\right] \text{Sin}[a+b x]-12 d^3 \text{PolyLog}\left[3,-e^{i (a+b x)}\right] \text{Sin}[a+b x]+12 d^3 \text{PolyLog}\left[3,e^{i (a+b x)}\right] \text{Sin}[a+b x]-3 b^2 c^2 d \text{Sin}[2 (a+b x)]+6 d^3 \text{Sin}[2 (a+b x)]-6 b^2 c d^2 x \text{Sin}[2 (a+b x)]-3 b^2 d^3 x^2 \text{Sin}[2 (a+b x)]\right)$$

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

$$\int (c+d x)^2 \text{Cos}[a+b x] \text{Cot}[a+b x]^2 \, dx$$

Optimal (type 4, 139 leaves, 10 steps):

$$-\frac{4\,d\,(c+d\,x)\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]}{b^2}-\frac{2\,d\,(c+d\,x)\,\text{Cos}[a+b\,x]}{b^2}-\frac{(c+d\,x)^2\,\text{Csc}[a+b\,x]}{b}+$$
$$\frac{2\,i\,d^2\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]}{b^3}-\frac{2\,i\,d^2\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]}{b^3}+\frac{2\,d^2\,\text{Sin}[a+b\,x]}{b^3}-\frac{(c+d\,x)^2\,\text{Sin}[a+b\,x]}{b}$$

Result (type 4, 485 leaves) :

$$-\frac{(c+d\,x)^2\,\text{Csc}[a]}{b}-\frac{1}{b^3}\text{Cos}[b\,x]\,\left(2\,b\,c\,d\,\text{Cos}[a]+2\,b\,d^2\,x\,\text{Cos}[a]+b^2\,c^2\,\text{Sin}[a]-2\,d^2\,\text{Sin}[a]+2\,b^2\,c\,d\,x\,\text{Sin}[a]+b^2\,d^2\,x^2\,\text{Sin}[a]\right)+$$
$$\frac{4\,i\,c\,d\,\text{ArcTan}\left[\frac{i\,\text{Cos}[a]-i\,\text{Sin}[a]\,\text{Tan}\left[\frac{b\,x}{2}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right]}{b^2\,\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}+\frac{\text{Sec}\left[\frac{a}{2}\right]\,\text{Sec}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\,\left(-c^2\,\text{Sin}\left[\frac{b\,x}{2}\right]-2\,c\,d\,x\,\text{Sin}\left[\frac{b\,x}{2}\right]-d^2\,x^2\,\text{Sin}\left[\frac{b\,x}{2}\right]\right)}{2\,b}+$$
$$\frac{\text{Csc}\left[\frac{a}{2}\right]\,\text{Csc}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\,\left(c^2\,\text{Sin}\left[\frac{b\,x}{2}\right]+2\,c\,d\,x\,\text{Sin}\left[\frac{b\,x}{2}\right]+d^2\,x^2\,\text{Sin}\left[\frac{b\,x}{2}\right]\right)}{2\,b}-\frac{1}{b^3}$$
$$\left(b^2\,c^2\,\text{Cos}[a]-2\,d^2\,\text{Cos}[a]+2\,b^2\,c\,d\,x\,\text{Cos}[a]+b^2\,d^2\,x^2\,\text{Cos}[a]-2\,b\,c\,d\,\text{Sin}[a]-2\,b\,d^2\,x\,\text{Sin}[a]\right)\,\text{Sin}[b\,x]+$$
$$\frac{1}{b^3}2\,d^2\left(-\frac{2\,\text{ArcTan}[\text{Tan}[a]]\,\text{ArcTanh}\left[\frac{-\text{Cos}[a]+\text{Sin}[a]\,\text{Tan}\left[\frac{b\,x}{2}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\right.$$
$$\left(\left(b\,x+\text{ArcTan}[\text{Tan}[a]]\right)\,\left(\text{Log}\left[1-e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]-\text{Log}\left[1+e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]\right)+\right.$$
$$\left.\left.i\,\left(\text{PolyLog}\left[2,-e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]-\text{PolyLog}\left[2,e^{i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]\right)\right)\,\text{Sec}[a]\right)$$

Problem 178: Result more than twice size of optimal antiderivative.

$$\int (c+d\,x)^4\,\text{Cot}[a+b\,x]^3\,dx$$

Optimal (type 4, 302 leaves, 15 steps) :

$$-\frac{2\,i\,d\,(c+d\,x)^3}{b^2}-\frac{(c+d\,x)^4}{2\,b}+\frac{i\,(c+d\,x)^5}{5\,d}-\frac{2\,d\,(c+d\,x)^3\,\mathrm{Cot}[a+b\,x]}{b^2}-\frac{(c+d\,x)^4\,\mathrm{Cot}[a+b\,x]^2}{2\,b}+\frac{6\,d^2\,(c+d\,x)^2\,\mathrm{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b^3}-$$

$$\frac{(c+d\,x)^4\,\mathrm{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b}-\frac{6\,i\,d^3\,(c+d\,x)\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{2\,i\,d\,(c+d\,x)^3\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]}{b^2}+$$

$$\frac{3\,d^4\,\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{b^5}-\frac{3\,d^2\,(c+d\,x)^2\,\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{b^3}-\frac{3\,i\,d^3\,(c+d\,x)\,\mathrm{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{3\,d^4\,\mathrm{PolyLog}\left[5,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^5}$$

Result (type 4, 1101 leaves) :

$$-\frac{1}{5} x \left(5 c^4+10 c^3 d x+10 c^2 d^2 x^2+5 c d^3 x^3+d^4 x^4\right) \text{Cot}[a]-\frac{(c+d x)^4 \text{Csc}[a+b x]^2}{2 b}+\frac{1}{2 b^3} c^2 d^2 e^{-i a} \text{Csc}[a]$$

$$\left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \text{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \,\text{PolyLog}\left[2, e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \text{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right)-$$

$$\frac{1}{2 b^5} d^4 e^{-i a} \text{Csc}[a] \left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \text{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \,\text{PolyLog}\left[2, e^{2 i (a+b x)}\right]+\right.$$

$$\left.3 i \left(-1+e^{2 i a}\right) \text{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right)+c d^3 e^{i a} \text{Csc}[a] \left(x^4+\left(-1+e^{-2 i a}\right) x^4+\frac{1}{2 b^4} e^{-2 i a} \left(-1+e^{2 i a}\right)\right.$$

$$\left.\left(2 b^4 x^4+4 i b^3 x^3 \text{Log}\left[1-e^{2 i (a+b x)}\right]+6 b^2 x^2 \text{PolyLog}\left[2, e^{2 i (a+b x)}\right]+6 i b x \,\text{PolyLog}\left[3, e^{2 i (a+b x)}\right]-3 \,\text{PolyLog}\left[4, e^{2 i (a+b x)}\right]\right)\right)+$$

$$\frac{1}{5} d^4 e^{i a} \text{Csc}[a] \left(x^5+\left(-1+e^{-2 i a}\right) x^5+\frac{1}{4 b^5} e^{-2 i a} \left(-1+e^{2 i a}\right) \left(4 b^5 x^5+10 i b^4 x^4 \text{Log}\left[1-e^{2 i (a+b x)}\right]+20 b^3 x^3 \text{PolyLog}\left[2, e^{2 i (a+b x)}\right]+\right.\right.$$

$$\left.\left.30 i b^2 x^2 \text{PolyLog}\left[3, e^{2 i (a+b x)}\right]-30 b x \,\text{PolyLog}\left[4, e^{2 i (a+b x)}\right]-15 i \,\text{PolyLog}\left[5, e^{2 i (a+b x)}\right]\right)\right)-$$

$$\frac{c^4 \text{Csc}[a] \left(-b x \text{Cos}[a]+\text{Log}[\text{Cos}[b x] \text{Sin}[a]+\text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$

$$\frac{6 c^2 d^2 \text{Csc}[a] \left(-b x \text{Cos}[a]+\text{Log}[\text{Cos}[b x] \text{Sin}[a]+\text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a]\right)}{b^3 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$

$$\frac{2 \text{Csc}[a] \text{Csc}[a+b x] \left(c^3 d \text{Sin}[b x]+3 c^2 d^2 x \text{Sin}[b x]+3 c d^3 x^2 \text{Sin}[b x]+d^4 x^3 \text{Sin}[b x]\right)}{b^2}+$$

$$\left(2 c^3 d \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\right.\right.$$

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

$$\left.\left.\left.\pi \text{Log}[\text{Cos}[b x]]+2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \,\text{PolyLog}\left[2, e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right)\Big/$$

$$\left(b^2 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)-\left(6 c d^3 \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\right.\right.$$

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

$$\left.\left.\left.\text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \,\text{PolyLog}\left[2, e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right)\Big/\left(b^4 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)$$

Problem 179: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^3 \text{Cot}[a+b x]^3 \, dx$$

Optimal (type 4, 256 leaves, 13 steps):

$$-\frac{3 i d (c+d x)^2}{2 b^2}-\frac{(c+d x)^3}{2 b}+\frac{i (c+d x)^4}{4 d}-\frac{3 d (c+d x)^2 \text{Cot}[a+b x]}{2 b^2}-\frac{(c+d x)^3 \text{Cot}[a+b x]^2}{2 b}+\frac{3 d^2 (c+d x) \text{Log}\left[1-e^{2 i (a+b x)}\right]}{b^3}-\frac{(c+d x)^3 \text{Log}\left[1-e^{2 i (a+b x)}\right]}{b}-\frac{3 i d^3 \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]}{2 b^4}+\frac{3 i d (c+d x)^2 \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]}{2 b^2}-\frac{3 d^2 (c+d x) \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]}{2 b^3}-\frac{3 i d^3 \text{PolyLog}\left[4,e^{2 i (a+b x)}\right]}{4 b^4}$$

Result (type 4, 788 leaves):

$$-\frac{1}{4} x \left(4 c^3+6 c^2 d x+4 c d^2 x^2+d^3 x^3\right) \text{Cot}[a]-\frac{(c+d x)^3 \text{Csc}[a+b x]^2}{2 b}+\frac{1}{4 b^3} c d^2 e^{-i a} \text{Csc}[a] \left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \text{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]\right)+\frac{1}{4} d^3 e^{i a} \text{Csc}[a] \left(x^4+\left(-1+e^{-2 i a}\right) x^4+\frac{1}{2 b^4} e^{-2 i a} \left(-1+e^{2 i a}\right) \left(2 b^4 x^4+4 i b^3 x^3 \text{Log}\left[1-e^{2 i (a+b x)}\right]+6 b^2 x^2 \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]+6 i b x \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]-3 \text{PolyLog}\left[4,e^{2 i (a+b x)}\right]\right)\right)-\frac{c^3 \text{Csc}[a] (-b x \text{Cos}[a]+\text{Log}[\text{Cos}[b x] \text{Sin}[a]+\text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a])}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\frac{3 c d^2 \text{Csc}[a] (-b x \text{Cos}[a]+\text{Log}[\text{Cos}[b x] \text{Sin}[a]+\text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a])}{b^3 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\frac{3 \text{Csc}[a] \text{Csc}[a+b x] \left(c^2 d \text{Sin}[b x]+2 c d^2 x \text{Sin}[b x]+d^3 x^2 \text{Sin}[b x]\right)}{2 b^2}+\left(3 c^2 d \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\left(i b x (-\pi+2 \text{ArcTan}[\text{Tan}[a]])-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\text{ArcTan}[\text{Tan}[a]]) \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi \text{Log}[\text{Cos}[b x]]+2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \text{PolyLog}\left[2,e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right)\Big/\left(2 b^2 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)-\left(3 d^3 \text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\left(i b x (-\pi+2 \text{ArcTan}[\text{Tan}[a]])-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\text{ArcTan}[\text{Tan}[a]]) \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi \text{Log}[\text{Cos}[b x]]+2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \text{PolyLog}\left[2,e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right)\Big/\left(2 b^4 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)$$

Problem 180: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^2 \operatorname{Cot}[a+b x]^3 \, dx$$

Optimal (type 4, 168 leaves, 9 steps):

$$-\frac{c d x}{b}-\frac{d^2 x^2}{2 b}+\frac{i (c+d x)^3}{3 d}-\frac{d (c+d x) \operatorname{Cot}[a+b x]}{b^2}-\frac{(c+d x)^2 \operatorname{Cot}[a+b x]^2}{2 b}-\frac{(c+d x)^2 \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]}{b}+\frac{d^2 \operatorname{Log}[\operatorname{Sin}[a+b x]]}{b^3}+\frac{i d (c+d x) \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^2}-\frac{d^2 \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{2 b^3}$$

Result (type 4, 446 leaves):

$$-\frac{1}{3} x \left(3 c^2+3 c d x+d^2 x^2\right) \operatorname{Cot}[a]-\frac{(c+d x)^2 \operatorname{Csc}[a+b x]^2}{2 b}+\frac{1}{12 b^3} d^2 e^{-i a} \operatorname{Csc}[a] \left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right]\right)-$$
$$\frac{c^2 \operatorname{Csc}[a] (-b x \operatorname{Cos}[a]+\operatorname{Log}[\operatorname{Cos}[b x] \operatorname{Sin}[a]+\operatorname{Cos}[a] \operatorname{Sin}[b x]] \operatorname{Sin}[a])}{b \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}+$$
$$\frac{d^2 \operatorname{Csc}[a] (-b x \operatorname{Cos}[a]+\operatorname{Log}[\operatorname{Cos}[b x] \operatorname{Sin}[a]+\operatorname{Cos}[a] \operatorname{Sin}[b x]] \operatorname{Sin}[a])}{b^3 \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)}+$$
$$\frac{\operatorname{Csc}[a] \operatorname{Csc}[a+b x] \left(c d \operatorname{Sin}[b x]+d^2 x \operatorname{Sin}[b x]\right)}{b^2}+\left(c d \operatorname{Csc}[a] \operatorname{Sec}[a] \left(b^2 e^{i \operatorname{ArcTan}[\operatorname{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\operatorname{Tan}[a]^2}}\right.\right.$$
$$\left(i b x (-\pi+2 \operatorname{ArcTan}[\operatorname{Tan}[a]])-\pi \operatorname{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]) \operatorname{Log}\left[1-e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]+\pi \operatorname{Log}[\operatorname{Cos}[b x]]+2\right.$$
$$\left.\left.\left.\operatorname{ArcTan}[\operatorname{Tan}[a]] \operatorname{Log}[\operatorname{Sin}[b x+\operatorname{ArcTan}[\operatorname{Tan}[a]]]]+i \operatorname{PolyLog}\left[2, e^{2 i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]\right) \operatorname{Tan}[a]\right)\right) \Big/ \left(b^2 \sqrt{\operatorname{Sec}[a]^2} \left(\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2\right)\right)$$

Problem 181: Result more than twice size of optimal antiderivative.

$$\int (c+d x) \operatorname{Cot}[a+b x]^3 \, dx$$

Optimal (type 4, 109 leaves, 7 steps):

$$-\frac{d x}{2 b}+\frac{i (c+d x)^2}{2 d}-\frac{d \operatorname{Cot}[a+b x]}{2 b^2}-\frac{(c+d x) \operatorname{Cot}[a+b x]^2}{2 b}-\frac{(c+d x) \operatorname{Log}\left[1-e^{2 i (a+b x)}\right]}{b}+\frac{i d \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{2 b^2}$$

Result (type 4, 234 leaves):

$$-\frac{1}{2}\,d\,x^2\,\text{Cot}[a]-\frac{c\,\text{Csc}[a+b\,x]^2}{2\,b}-\frac{d\,x\,\text{Csc}[a+b\,x]^2}{2\,b}-\frac{c\,\text{Log}[\text{Sin}[a+b\,x]]}{b}+\frac{d\,\text{Csc}[a]\,\text{Csc}[a+b\,x]\,\text{Sin}[b\,x]}{2\,b^2}+\left(d\,\text{Csc}[a]\,\text{Sec}[a]\left(b^2\,e^{i\,\text{ArcTan}[\text{Tan}[a]]}\,x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\left(i\,b\,x\,(-\pi+2\,\text{ArcTan}[\text{Tan}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x+\text{ArcTan}[\text{Tan}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi\,\text{Log}[\text{Cos}[b\,x]]+2\,\text{ArcTan}[\text{Tan}[a]]\,\text{Log}[\text{Sin}[b\,x+\text{ArcTan}[\text{Tan}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]\right)\text{Tan}[a]\right)\right)\Big/\left(2\,b^2\,\sqrt{\text{Sec}[a]^2\,(\text{Cos}[a]^2+\text{Sin}[a]^2)}\right)$$

Problem 190: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 615 leaves, 26 steps):

$$\frac{5\,d\,(c+d\,x)^{3/2}\,\text{Cos}[a+b\,x]}{16\,b^2}-\frac{5\,d\,(c+d\,x)^{3/2}\,\text{Cos}[3\,a+3\,b\,x]}{288\,b^2}-\frac{d\,(c+d\,x)^{3/2}\,\text{Cos}[5\,a+5\,b\,x]}{160\,b^2}+\frac{15\,d^{5/2}\,\sqrt{\frac{\pi}{2}}\,\text{Cos}\left[a-\frac{b\,c}{d}\right]\,\text{FresnelS}\left[\frac{\sqrt{b}\,\sqrt{\frac{2}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{32\,b^{7/2}}-\frac{5\,d^{5/2}\,\sqrt{\frac{\pi}{6}}\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]\,\text{FresnelS}\left[\frac{\sqrt{b}\,\sqrt{\frac{6}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{576\,b^{7/2}}-\frac{3\,d^{5/2}\,\sqrt{\frac{\pi}{10}}\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]\,\text{FresnelS}\left[\frac{\sqrt{b}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{1600\,b^{7/2}}-\frac{3\,d^{5/2}\,\sqrt{\frac{\pi}{10}}\,\text{FresnelC}\left[\frac{\sqrt{b}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\,\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]}{1600\,b^{7/2}}-\frac{5\,d^{5/2}\,\sqrt{\frac{\pi}{6}}\,\text{FresnelC}\left[\frac{\sqrt{b}\,\sqrt{\frac{6}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\,\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]}{576\,b^{7/2}}+\frac{15\,d^{5/2}\,\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{\sqrt{b}\,\sqrt{\frac{2}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\,\text{Sin}\left[a-\frac{b\,c}{d}\right]}{32\,b^{7/2}}-\frac{15\,d^2\,\sqrt{c+d\,x}\,\text{Sin}[a+b\,x]}{32\,b^3}+\frac{(c+d\,x)^{5/2}\,\text{Sin}[a+b\,x]}{8\,b}+\frac{5\,d^2\,\sqrt{c+d\,x}\,\text{Sin}[3\,a+3\,b\,x]}{576\,b^3}-\frac{(c+d\,x)^{5/2}\,\text{Sin}[3\,a+3\,b\,x]}{48\,b}+\frac{3\,d^2\,\sqrt{c+d\,x}\,\text{Sin}[5\,a+5\,b\,x]}{1600\,b^3}-\frac{(c+d\,x)^{5/2}\,\text{Sin}[5\,a+5\,b\,x]}{80\,b}$$

Result (type 4, 4926 leaves):

$$\frac{1}{16\,b\,\sqrt{\frac{b}{d}}}$$

$$c^2 \left(-\sqrt{2\pi}\,\text{Cos}\left[a-\frac{b\,c}{d}\right]\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]-\sqrt{2\pi}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]\text{Sin}\left[a-\frac{b\,c}{d}\right]+2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}[a+b\,x]\right)+$$

$$\frac{1}{16\,b^3}c\,d\left(\sqrt{\frac{b}{d}}\sqrt{2\pi}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]\left(-3\,d\,\text{Cos}\left[a-\frac{b\,c}{d}\right]+2\,b\,c\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)+\right.$$

$$\left.\sqrt{\frac{b}{d}}\sqrt{2\pi}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]\left(2\,b\,c\,\text{Cos}\left[a-\frac{b\,c}{d}\right]+3\,d\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)+2\,b\sqrt{c+d\,x}\,\left(3\,\text{Cos}[a+b\,x]+2\,b\,x\,\text{Sin}[a+b\,x]\right)\right)+\frac{1}{64\,b^5}$$

$$\left(\frac{b}{d}\right)^{3/2}d^2\left(-\sqrt{2\pi}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]\left(\left(4\,b^2\,c^2-15\,d^2\right)\text{Cos}\left[a-\frac{b\,c}{d}\right]+12\,b\,c\,d\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)-\sqrt{2\pi}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]\right.$$

$$\left.\left(-12\,b\,c\,d\,\text{Cos}\left[a-\frac{b\,c}{d}\right]+\left(4\,b^2\,c^2-15\,d^2\right)\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)+2\sqrt{\frac{b}{d}}\,d\sqrt{c+d\,x}\,\left(-2\,b\,(c-5\,d\,x)\,\text{Cos}[a+b\,x]+d\left(-15+4\,b^2\,x^2\right)\text{Sin}[a+b\,x]\right)\right)-$$

$$\frac{1}{96\sqrt{3}\,b\sqrt{\frac{b}{d}}}c^2\left(-\sqrt{2\pi}\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]-\sqrt{2\pi}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]+\right.$$

$$\left.2\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}[3\,(a+b\,x)]\right)-\frac{1}{96\sqrt{3}\,b^3}$$

$$c\,d\left(\sqrt{\frac{b}{d}}\sqrt{2\pi}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\left(-d\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]+2\,b\,c\,\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]\right)+\sqrt{\frac{b}{d}}\sqrt{2\pi}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right.$$

$$\left.\left(2\,b\,c\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]+d\,\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]\right)+2\sqrt{3}\,b\sqrt{c+d\,x}\,\left(\text{Cos}[3\,(a+b\,x)]+2\,b\,x\,\text{Sin}[3\,(a+b\,x)]\right)\right)-\frac{1}{160\sqrt{5}\,b\sqrt{\frac{b}{d}}}$$

$$c^2\left(-\sqrt{2\pi}\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]-\sqrt{2\pi}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]+\right.$$

$$2\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[5\,(a+b\,x)\right]\Bigg)-\frac{1}{800\sqrt{5}\,b^3}$$

$$c\,d\left(\sqrt{\frac{b}{d}}\sqrt{2\pi}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\left(-3\,d\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]+10\,b\,c\,\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]\right)+\sqrt{\frac{b}{d}}\sqrt{2\pi}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\right.$$

$$\left.\left(10\,b\,c\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]+3\,d\,\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]\right)+2\sqrt{5}\,b\sqrt{c+d\,x}\,\left(3\,\text{Cos}\left[5\,(a+b\,x)\right]+10\,b\,x\,\text{Sin}\left[5\,(a+b\,x)\right]\right)\right)-$$

$$\frac{1}{16}d^2\left(\text{Cos}[3\,a]\left(\frac{c^2\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)\text{Sin}\left[\frac{3\,b\,c}{d}\right]}{3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}d^3}+\right.\right.$$

$$\frac{c^2\,\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)}{3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}d^3}-\frac{1}{9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\text{Cos}\left[\frac{3\,b\,c}{d}\right]$$

$$\left(-\frac{3}{2}\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)+3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)-$$

$$\frac{1}{9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(-3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]+\right.\right.$$

$$\left.\left.\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)+\frac{1}{27\sqrt{3}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(-9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right)+3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{27\sqrt{3}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(9\sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\left(-3\sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.\right.$$

$$\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]+\sqrt{3}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\Bigg)\Bigg)\Bigg)\Bigg) -$$

$$\text{Sin}[3\,a]\left(\frac{c^2\,\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(-\sqrt{3}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]\right)}{3\,\sqrt{3}\ \left(\frac{b}{d}\right)^{3/2}\,d^3}-\right.$$

$$\frac{c^2\,\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]+\sqrt{3}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)}{3\,\sqrt{3}\ \left(\frac{b}{d}\right)^{3/2}\,d^3}+\frac{1}{9\,\sqrt{3}\ \left(\frac{b}{d}\right)^{5/2}\,d^3}2\,c\,\text{Sin}\left[\frac{3\,b\,c}{d}\right]$$

$$\left(-\frac{3}{2}\left(-\sqrt{3}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]\right)+3\,\sqrt{3}\ \left(\frac{b}{d}\right)^{3/2}\ (c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)-$$

$$\frac{1}{9\,\sqrt{3}\ \left(\frac{b}{d}\right)^{5/2}\,d^3}2\,c\,\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(-3\,\sqrt{3}\ \left(\frac{b}{d}\right)^{3/2}\ (c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]+\right.\right.$$

$$\left.\left.\sqrt{3}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)+\frac{1}{27\,\sqrt{3}\ \left(\frac{b}{d}\right)^{7/2}\,d^3}\text{Cos}\left[\frac{3\,b\,c}{d}\right]\left(-9\,\sqrt{3}\ \left(\frac{b}{d}\right)^{5/2}\ (c+d\,x)^{5/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{3}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]\right)+3\,\sqrt{3}\ \left(\frac{b}{d}\right)^{3/2}\ (c+d\,x)^{3/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)-$$

$$\frac{1}{27\,\sqrt{3}\ \left(\frac{b}{d}\right)^{7/2}\,d^3}\text{Sin}\left[\frac{3\,b\,c}{d}\right]\left(9\,\sqrt{3}\ \left(\frac{b}{d}\right)^{5/2}\ (c+d\,x)^{5/2}\,\text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\left(-3\,\sqrt{3}\ \left(\frac{b}{d}\right)^{3/2}\ (c+d\,x)^{3/2}\,\text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right]+\right.\right.$$

$$\left.\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\ \sqrt{\frac{6}{\pi}}\ \sqrt{c+d\,x}\right]+\sqrt{3}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d\,x}\ \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\right)\Bigg) -$$

$$\frac{1}{16}\, d^2 \Bigg(\text{Cos}[5\, a] \Bigg(\frac{c^2 \left(-\sqrt{5}\, \sqrt{\frac{b}{d}}\, \sqrt{c+d\, x}\, \text{Cos}\left[\frac{5\, b\, (c+d\, x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}}\, \sqrt{\frac{10}{\pi}}\, \sqrt{c+d\, x}\right]\right) \text{Sin}\left[\frac{5\, b\, c}{d}\right]}{5\, \sqrt{5}\, \left(\frac{b}{d}\right)^{3/2} d^3} +$$

$$\frac{c^2\, \text{Cos}\left[\frac{5\, b\, c}{d}\right] \left(-\sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}}\, \sqrt{\frac{10}{\pi}}\, \sqrt{c+d\, x}\right] + \sqrt{5}\, \sqrt{\frac{b}{d}}\, \sqrt{c+d\, x}\, \text{Sin}\left[\frac{5\, b\, (c+d\, x)}{d}\right]\right)}{5\, \sqrt{5}\, \left(\frac{b}{d}\right)^{3/2} d^3} - \frac{1}{25\, \sqrt{5}\, \left(\frac{b}{d}\right)^{5/2} d^3}$$

$$2\, c\, \text{Cos}\left[\frac{5\, b\, c}{d}\right] \Bigg(-\frac{3}{2} \left(-\sqrt{5}\, \sqrt{\frac{b}{d}}\, \sqrt{c+d\, x}\, \text{Cos}\left[\frac{5\, b\, (c+d\, x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}}\, \sqrt{\frac{10}{\pi}}\, \sqrt{c+d\, x}\right]\right) +$$

$$5\, \sqrt{5}\, \left(\frac{b}{d}\right)^{3/2} (c+d\, x)^{3/2}\, \text{Sin}\left[\frac{5\, b\, (c+d\, x)}{d}\right]\Bigg) - \frac{1}{25\, \sqrt{5}\, \left(\frac{b}{d}\right)^{5/2} d^3} 2\, c\, \text{Sin}\left[\frac{5\, b\, c}{d}\right]$$

$$\Bigg(-5\, \sqrt{5}\, \left(\frac{b}{d}\right)^{3/2} (c+d\, x)^{3/2}\, \text{Cos}\left[\frac{5\, b\, (c+d\, x)}{d}\right] + \frac{3}{2} \left(-\sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}}\, \sqrt{\frac{10}{\pi}}\, \sqrt{c+d\, x}\right] + \sqrt{5}\, \sqrt{\frac{b}{d}}\, \sqrt{c+d\, x}\, \text{Sin}\left[\frac{5\, b\, (c+d\, x)}{d}\right]\right)\Bigg) +$$

$$\frac{1}{125\, \sqrt{5}\, \left(\frac{b}{d}\right)^{7/2} d^3} \text{Sin}\left[\frac{5\, b\, c}{d}\right] \Bigg(-25\, \sqrt{5}\, \left(\frac{b}{d}\right)^{5/2} (c+d\, x)^{5/2}\, \text{Cos}\left[\frac{5\, b\, (c+d\, x)}{d}\right] + \frac{5}{2}$$

$$\Bigg(-\frac{3}{2} \left(-\sqrt{5}\, \sqrt{\frac{b}{d}}\, \sqrt{c+d\, x}\, \text{Cos}\left[\frac{5\, b\, (c+d\, x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}}\, \sqrt{\frac{10}{\pi}}\, \sqrt{c+d\, x}\right]\right) + 5\, \sqrt{5}\, \left(\frac{b}{d}\right)^{3/2} (c+d\, x)^{3/2}\, \text{Sin}\left[\frac{5\, b\, (c+d\, x)}{d}\right]\Bigg)\Bigg) +$$

$$\frac{1}{125\, \sqrt{5}\, \left(\frac{b}{d}\right)^{7/2} d^3} \text{Cos}\left[\frac{5\, b\, c}{d}\right] \Bigg(25\, \sqrt{5}\, \left(\frac{b}{d}\right)^{5/2} (c+d\, x)^{5/2}\, \text{Sin}\left[\frac{5\, b\, (c+d\, x)}{d}\right] - \frac{5}{2} \Bigg(-5\, \sqrt{5}\, \left(\frac{b}{d}\right)^{3/2} (c+d\, x)^{3/2}\, \text{Cos}\left[\frac{5\, b\, (c+d\, x)}{d}\right] +$$

$$\frac{3}{2} \left(-\sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}}\, \sqrt{\frac{10}{\pi}}\, \sqrt{c+d\, x}\right] + \sqrt{5}\, \sqrt{\frac{b}{d}}\, \sqrt{c+d\, x}\, \text{Sin}\left[\frac{5\, b\, (c+d\, x)}{d}\right]\right)\Bigg)\Bigg)\Bigg) -$$

$$\mathrm{Sin}[5\,a]\,\Bigg(\frac{c^2\,\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)}{5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}\,d^3}-$$

$$\frac{c^2\,\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)}{5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}\,d^3}+\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}\,d^3}$$

$$2\,c\,\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\Bigg(-\frac{3}{2}\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)+$$

$$5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}\,(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)-\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}\,d^3}2\,c\,\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]$$

$$\Bigg(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}\,(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\Bigg)+$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}\,d^3}\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\Bigg(-25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}\,(c+d\,x)^{5/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{5}{2}$$

$$\Bigg(-\frac{3}{2}\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)+5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}\,(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg)-$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}\,d^3}\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\Bigg(25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}\,(c+d\,x)^{5/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\Bigg(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}\,(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+$$

$$\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 195: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 615 leaves, 26 steps):

$$\frac{5 d (c+d x)^{3/2} \text{Cos}[a+b x]}{16 b^2}-\frac{5 d (c+d x)^{3/2} \text{Cos}[3 a+3 b x]}{288 b^2}-\frac{d (c+d x)^{3/2} \text{Cos}[5 a+5 b x]}{160 b^2}+\frac{15 d^{5/2} \sqrt{\frac{\pi}{2}} \text{Cos}\left[a-\frac{b c}{d}\right] \text{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{32 b^{7/2}}-$$

$$\frac{5 d^{5/2} \sqrt{\frac{\pi}{6}} \text{Cos}\left[3 a-\frac{3 b c}{d}\right] \text{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{576 b^{7/2}}-\frac{3 d^{5/2} \sqrt{\frac{\pi}{10}} \text{Cos}\left[5 a-\frac{5 b c}{d}\right] \text{FresnelS}\left[\frac{\sqrt{b} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right]}{1600 b^{7/2}}-$$

$$\frac{3 d^{5/2} \sqrt{\frac{\pi}{10}} \text{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sin}\left[5 a-\frac{5 b c}{d}\right]}{1600 b^{7/2}}-\frac{5 d^{5/2} \sqrt{\frac{\pi}{6}} \text{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sin}\left[3 a-\frac{3 b c}{d}\right]}{576 b^{7/2}}+$$

$$\frac{15 d^{5/2} \sqrt{\frac{\pi}{2}} \text{FresnelC}\left[\frac{\sqrt{b} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}}{\sqrt{d}}\right] \text{Sin}\left[a-\frac{b c}{d}\right]}{32 b^{7/2}}-\frac{15 d^2 \sqrt{c+d x} \text{Sin}[a+b x]}{32 b^3}+\frac{(c+d x)^{5/2} \text{Sin}[a+b x]}{8 b}+$$

$$\frac{5 d^2 \sqrt{c+d x} \text{Sin}[3 a+3 b x]}{576 b^3}-\frac{(c+d x)^{5/2} \text{Sin}[3 a+3 b x]}{48 b}+\frac{3 d^2 \sqrt{c+d x} \text{Sin}[5 a+5 b x]}{1600 b^3}-\frac{(c+d x)^{5/2} \text{Sin}[5 a+5 b x]}{80 b}$$

Result (type 4, 4926 leaves):

$$\frac{1}{16 b \sqrt{\frac{b}{d}}}$$

$$c^2 \left(-\sqrt{2 \pi} \text{Cos}\left[a-\frac{b c}{d}\right] \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right]-\sqrt{2 \pi} \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right] \text{Sin}\left[a-\frac{b c}{d}\right]+2 \sqrt{\frac{b}{d}} \sqrt{c+d x} \text{Sin}[a+b x]\right)+$$

$$\frac{1}{16 b^3} c d \left(\sqrt{\frac{b}{d}} \sqrt{2 \pi} \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right] \left(-3 d \text{Cos}\left[a-\frac{b c}{d}\right]+2 b c \text{Sin}\left[a-\frac{b c}{d}\right]\right)+\right.$$

$$\left.\sqrt{\frac{b}{d}} \sqrt{2 \pi} \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{2}{\pi}} \sqrt{c+d x}\right] \left(2 b c \text{Cos}\left[a-\frac{b c}{d}\right]+3 d \text{Sin}\left[a-\frac{b c}{d}\right]\right)+2 b \sqrt{c+d x} (3 \text{Cos}[a+b x]+2 b x \text{Sin}[a+b x])\right)+\frac{1}{64 b^5}$$

$$\left(\frac{b}{d}\right)^{3/2} d^2 \left(-\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]\left(\left(4 b^2 c^2-15 d^2\right)\text{Cos}\left[a-\frac{b\,c}{d}\right]+12\,b\,c\,d\,\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)-\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{2}{\pi}}\sqrt{c+d\,x}\right]\right.$$

$$\left.\left(-12\,b\,c\,d\,\text{Cos}\left[a-\frac{b\,c}{d}\right]+\left(4 b^2 c^2-15 d^2\right)\text{Sin}\left[a-\frac{b\,c}{d}\right]\right)+2\sqrt{\frac{b}{d}}\ d\sqrt{c+d\,x}\ \left(-2\,b\,(c-5\,d\,x)\,\text{Cos}[a+b\,x]+d\left(-15+4\,b^2 x^2\right)\text{Sin}[a+b\,x]\right)\right)-$$

$$\frac{1}{96\sqrt{3}\ b\sqrt{\frac{b}{d}}}c^2\left(-\sqrt{2\pi}\ \text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]-\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]+\right.$$

$$\left.2\sqrt{3}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\ \text{Sin}\left[3\,(a+b\,x)\right]\right)-\frac{1}{96\sqrt{3}\ b^3}$$

$$c\,d\left(\sqrt{\frac{b}{d}}\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\left(-d\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]+2\,b\,c\,\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]\right)+\sqrt{\frac{b}{d}}\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{6}{\pi}}\sqrt{c+d\,x}\right]\right.$$

$$\left.\left(2\,b\,c\,\text{Cos}\left[3\,a-\frac{3\,b\,c}{d}\right]+d\,\text{Sin}\left[3\,a-\frac{3\,b\,c}{d}\right]\right)+2\sqrt{3}\ b\sqrt{c+d\,x}\ \left(\text{Cos}\left[3\,(a+b\,x)\right]+2\,b\,x\,\text{Sin}\left[3\,(a+b\,x)\right]\right)\right)-\frac{1}{160\sqrt{5}\ b\sqrt{\frac{b}{d}}}$$

$$c^2\left(-\sqrt{2\pi}\ \text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]\text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]-\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]+\right.$$

$$\left.2\sqrt{5}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\ \text{Sin}\left[5\,(a+b\,x)\right]\right)-\frac{1}{800\sqrt{5}\ b^3}$$

$$c\,d\left(\sqrt{\frac{b}{d}}\sqrt{2\pi}\ \text{FresnelC}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\left(-3\,d\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]+10\,b\,c\,\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]\right)+\sqrt{\frac{b}{d}}\sqrt{2\pi}\ \text{FresnelS}\left[\sqrt{\frac{b}{d}}\sqrt{\frac{10}{\pi}}\sqrt{c+d\,x}\right]\right.$$

$$\left.\left(10\,b\,c\,\text{Cos}\left[5\,a-\frac{5\,b\,c}{d}\right]+3\,d\,\text{Sin}\left[5\,a-\frac{5\,b\,c}{d}\right]\right)+2\sqrt{5}\ b\sqrt{c+d\,x}\ \left(3\,\text{Cos}\left[5\,(a+b\,x)\right]+10\,b\,x\,\text{Sin}\left[5\,(a+b\,x)\right]\right)\right)-$$

$$\frac{1}{16} d^2 \Bigg(\text{Cos}[3\,a] \Bigg(\frac{c^2 \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d\,x}\, \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d\,x}\right]\right) \text{Sin}\left[\frac{3\,b\,c}{d}\right]}{3\sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3} +$$

$$\frac{c^2\, \text{Cos}\left[\frac{3\,b\,c}{d}\right] \left(-\sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d\,x}\right] + \sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d\,x}\, \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)}{3\sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3} - \frac{1}{9\sqrt{3} \left(\frac{b}{d}\right)^{5/2} d^3} 2\,c\, \text{Cos}\left[\frac{3\,b\,c}{d}\right]$$

$$\left(-\frac{3}{2} \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d\,x}\, \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d\,x}\right]\right) + 3\sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d\,x)^{3/2}\, \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right) -$$

$$\frac{1}{9\sqrt{3} \left(\frac{b}{d}\right)^{5/2} d^3} 2\,c\, \text{Sin}\left[\frac{3\,b\,c}{d}\right] \Bigg(-3\sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d\,x)^{3/2}\, \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right] + \frac{3}{2} \Bigg(-\sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d\,x}\right] +$$

$$\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d\,x}\, \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg) + \frac{1}{27\sqrt{3} \left(\frac{b}{d}\right)^{7/2} d^3} \text{Sin}\left[\frac{3\,b\,c}{d}\right] \Bigg(-9\sqrt{3} \left(\frac{b}{d}\right)^{5/2} (c+d\,x)^{5/2}\, \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right] +$$

$$\frac{5}{2} \left(-\frac{3}{2} \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d\,x}\, \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d\,x}\right]\right) + 3\sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d\,x)^{3/2}\, \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\Bigg) +$$

$$\frac{1}{27\sqrt{3} \left(\frac{b}{d}\right)^{7/2} d^3} \text{Cos}\left[\frac{3\,b\,c}{d}\right] \Bigg(9\sqrt{3} \left(\frac{b}{d}\right)^{5/2} (c+d\,x)^{5/2}\, \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right] - \frac{5}{2} \Bigg(-3\sqrt{3} \left(\frac{b}{d}\right)^{3/2} (c+d\,x)^{3/2}\, \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right] +$$

$$\frac{3}{2} \left(-\sqrt{\frac{\pi}{2}}\, \text{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d\,x}\right] + \sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d\,x}\, \text{Sin}\left[\frac{3\,b\,(c+d\,x)}{d}\right]\right)\Bigg)\Bigg)\Bigg) -$$

$$\text{Sin}[3\,a] \Bigg(\frac{c^2\, \text{Cos}\left[\frac{3\,b\,c}{d}\right] \left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d\,x}\, \text{Cos}\left[\frac{3\,b\,(c+d\,x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \text{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d\,x}\right]\right)}{3\sqrt{3} \left(\frac{b}{d}\right)^{3/2} d^3} -$$

$$\frac{c^2 \operatorname{Sin}\left[\frac{3 b c}{d}\right]\left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)}{3 \sqrt{3}\left(\frac{b}{d}\right)^{3/2} d^3}+\frac{1}{9 \sqrt{3}\left(\frac{b}{d}\right)^{5/2} d^3} 2 c \operatorname{Sin}\left[\frac{3 b c}{d}\right]$$

$$\left(-\frac{3}{2}\left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right)+3 \sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)-$$

$$\frac{1}{9 \sqrt{3}\left(\frac{b}{d}\right)^{5/2} d^3} 2 c \operatorname{Cos}\left[\frac{3 b c}{d}\right]\left(-3 \sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\right.\right.$$

$$\left.\left.\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\right)+\frac{1}{27 \sqrt{3}\left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Cos}\left[\frac{3 b c}{d}\right]\left(-9 \sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d x)^{5/2} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]\right)+3 \sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\right)-$$

$$\frac{1}{27 \sqrt{3}\left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Sin}\left[\frac{3 b c}{d}\right]\left(9 \sqrt{3}\left(\frac{b}{d}\right)^{5/2}(c+d x)^{5/2} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]-\frac{5}{2}\left(-3 \sqrt{3}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2} \operatorname{Cos}\left[\frac{3 b (c+d x)}{d}\right]+\right.\right.$$

$$\left.\left.\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{6}{\pi}} \sqrt{c+d x}\right]+\sqrt{3} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{3 b (c+d x)}{d}\right]\right)\right)\right)\right)\right)-$$

$$\frac{1}{16} d^2\left(\operatorname{Cos}[5 a]\left(\frac{c^2\left(-\sqrt{5} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{5 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right]\right) \operatorname{Sin}\left[\frac{5 b c}{d}\right]}{5 \sqrt{5}\left(\frac{b}{d}\right)^{3/2} d^3}+\right.\right.$$

$$\frac{c^2 \operatorname{Cos}\left[\frac{5 b c}{d}\right]\left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\sqrt{\frac{b}{d}} \sqrt{\frac{10}{\pi}} \sqrt{c+d x}\right]+\sqrt{5} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{5 b (c+d x)}{d}\right]\right)}{5 \sqrt{5}\left(\frac{b}{d}\right)^{3/2} d^3}-\frac{1}{25 \sqrt{5}\left(\frac{b}{d}\right)^{5/2} d^3}$$

$$2\,c\,\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)+\right.$$

$$\left.5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)-\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]$$

$$\left(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\right)\Bigg)+$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\left(-25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{5}{2}\right.$$

$$\left(-\frac{3}{2}\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)+5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\Bigg)+$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\left(25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\left(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\right.\right.$$

$$\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\Bigg)-$$

$$\mathrm{Sin}[5\,a]\left(\frac{c^2\,\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\left(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\right)}{5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}d^3}-\right.$$

$$\frac{c^2\,\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\right)}{5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}d^3}+\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}d^3}$$

$$2\,c\,\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\Bigg(-\frac{3}{2}\Bigg(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\Bigg)+$$

$$5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)-\frac{1}{25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}d^3}2\,c\,\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]$$

$$\Bigg(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\Bigg(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg)+$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\mathrm{Cos}\left[\frac{5\,b\,c}{d}\right]\Bigg(-25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\frac{5}{2}$$

$$\Bigg(-\frac{3}{2}\Bigg(-\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]\Bigg)+5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg)-$$

$$\frac{1}{125\,\sqrt{5}\,\left(\frac{b}{d}\right)^{7/2}d^3}\mathrm{Sin}\left[\frac{5\,b\,c}{d}\right]\Bigg(25\,\sqrt{5}\,\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\Bigg(-5\,\sqrt{5}\,\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{5\,b\,(c+d\,x)}{d}\right]+$$

$$\frac{3}{2}\Bigg(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\sqrt{\frac{b}{d}}\,\sqrt{\frac{10}{\pi}}\,\sqrt{c+d\,x}\right]+\sqrt{5}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{5\,b\,(c+d\,x)}{d}\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 196: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 407 leaves, 18 steps) :

$$\frac{45\, d^2 \sqrt{c+d\,x}\;\text{Cos}[2\,a+2\,b\,x]}{1024\, b^3}-\frac{3\,(c+d\,x)^{5/2}\,\text{Cos}[2\,a+2\,b\,x]}{64\, b}-\frac{5\, d^2 \sqrt{c+d\,x}\;\text{Cos}[6\,a+6\,b\,x]}{9216\, b^3}+$$

$$\frac{(c+d\,x)^{5/2}\,\text{Cos}[6\,a+6\,b\,x]}{192\, b}+\frac{5\, d^{5/2}\sqrt{\frac{\pi}{3}}\;\text{Cos}\left[6\,a-\frac{6\,b\,c}{d}\right]\,\text{FresnelC}\left[\frac{2\sqrt{b}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}}{\sqrt{d}}\right]}{18\,432\, b^{7/2}}-$$

$$\frac{45\, d^{5/2}\sqrt{\pi}\;\text{Cos}\left[2\,a-\frac{2\,b\,c}{d}\right]\,\text{FresnelC}\left[\frac{2\sqrt{b}\sqrt{c+d\,x}}{\sqrt{d}\sqrt{\pi}}\right]}{2048\, b^{7/2}}-\frac{5\, d^{5/2}\sqrt{\frac{\pi}{3}}\;\text{FresnelS}\left[\frac{2\sqrt{b}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}}{\sqrt{d}}\right]\,\text{Sin}\left[6\,a-\frac{6\,b\,c}{d}\right]}{18\,432\, b^{7/2}}+$$

$$\frac{45\, d^{5/2}\sqrt{\pi}\;\text{FresnelS}\left[\frac{2\sqrt{b}\sqrt{c+d\,x}}{\sqrt{d}\sqrt{\pi}}\right]\,\text{Sin}\left[2\,a-\frac{2\,b\,c}{d}\right]}{2048\, b^{7/2}}+\frac{15\, d\,(c+d\,x)^{3/2}\,\text{Sin}[2\,a+2\,b\,x]}{256\, b^2}-\frac{5\, d\,(c+d\,x)^{3/2}\,\text{Sin}[6\,a+6\,b\,x]}{2304\, b^2}$$

Result (type 4, 6763 leaves) :

$$\frac{1}{8}\left(\frac{3}{4}\,c^2\,\text{Sin}[2\,a]\left(\frac{\text{Cos}\left[\frac{b\,c}{d}\right]\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\;\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\;\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\text{Sin}\left[\frac{b\,c}{d}\right]}{\sqrt{2}\left(\frac{b}{d}\right)^{3/2} d}+\right.\right.$$

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

$$\left(\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2} d}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\;\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\;\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]-\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]+\text{Sin}\left[\frac{b\,c}{d}\right]\right)-\right.$$

$$\left.\frac{\mathrm{Sin}\left[\frac{2\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\;\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\;\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}\;\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)}{2\sqrt{2}\;\left(\frac{b}{d}\right)^{3/2}d}\right)+$$

$$\frac{3}{2}\,c\,d\,\mathrm{Sin}[2\,a]\left(-\frac{c\,\mathrm{Cos}\left[\frac{b\,c}{d}\right]\left(-\sqrt{2}\;\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}\;\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\;\mathrm{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\mathrm{Sin}\left[\frac{b\,c}{d}\right]}{\sqrt{2}\;\left(\frac{b}{d}\right)^{3/2}d^2}-\right.$$

$$\frac{c\,\mathrm{Cos}\left[\frac{2\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\;\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\;\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}\;\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)}{2\sqrt{2}\;\left(\frac{b}{d}\right)^{3/2}d^2}+\frac{1}{4\sqrt{2}\;\left(\frac{b}{d}\right)^{5/2}d^2}$$

$$\mathrm{Cos}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{2}\;\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}\;\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\;\mathrm{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)+2\sqrt{2}\;\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)+$$

$$\frac{1}{2\sqrt{2}\;\left(\frac{b}{d}\right)^{5/2}d^2}\mathrm{Cos}\left[\frac{b\,c}{d}\right]\mathrm{Sin}\left[\frac{b\,c}{d}\right]\left(-2\sqrt{2}\;\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\;\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\;\sqrt{\frac{b}{d}}\;\sqrt{c+d\,x}\;\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)\right)+\frac{3}{2}\,c\,d\,(\mathrm{Cos}[a]-\mathrm{Sin}[a])\,(\mathrm{Cos}[a]+\mathrm{Sin}[a])$$

$$\left(-\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^2}c\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{2b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]\right)\left(\text{Cos}\left[\frac{bc}{d}\right]-\text{Sin}\left[\frac{bc}{d}\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{bc}{d}\right]+\text{Sin}\left[\frac{bc}{d}\right]\right)+\frac{c\,\text{Sin}\left[\frac{2bc}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{2b(c+dx)}{d}\right]\right)}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^2}-\frac{1}{4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^2}$$

$$\text{Sin}\left[\frac{2bc}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{2b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]\right)+2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Sin}\left[\frac{2b(c+dx)}{d}\right]\right)+$$

$$\frac{1}{4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^2}\left(\text{Cos}\left[\frac{bc}{d}\right]-\text{Sin}\left[\frac{bc}{d}\right]\right)\left(\text{Cos}\left[\frac{bc}{d}\right]+\text{Sin}\left[\frac{bc}{d}\right]\right)$$

$$\left.\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Cos}\left[\frac{2b(c+dx)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{2b(c+dx)}{d}\right]\right)\right)\right)\right)+$$

$$\frac{3}{4}d^2\,\text{Sin}[2a]\left(\frac{c^2\,\text{Cos}\left[\frac{bc}{d}\right]\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{2b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]\right)\text{Sin}\left[\frac{bc}{d}\right]}{\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^3}+\right.$$

$$\frac{c^2 \operatorname{Cos}\left[\frac{2 b c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\ \operatorname{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\ \sqrt{c+d x}}{\sqrt{\pi}}\right]+\sqrt{2}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d x}\ \operatorname{Sin}\left[\frac{2 b\,(c+d x)}{d}\right]\right)}{2\sqrt{2}\ \left(\frac{b}{d}\right)^{3/2} d^3}-\frac{1}{2\sqrt{2}\ \left(\frac{b}{d}\right)^{5/2} d^3}$$

$$c \operatorname{Cos}\left[\frac{2 b c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{2}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d x}\ \operatorname{Cos}\left[\frac{2 b\,(c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}}\ \operatorname{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\ \sqrt{c+d x}}{\sqrt{\pi}}\right]\right)+\right.$$

$$\left.2\sqrt{2}\ \left(\frac{b}{d}\right)^{3/2}\ (c+d x)^{3/2} \operatorname{Sin}\left[\frac{2 b\,(c+d x)}{d}\right]\right)-\frac{1}{\sqrt{2}\ \left(\frac{b}{d}\right)^{5/2} d^3} c \operatorname{Cos}\left[\frac{b c}{d}\right] \operatorname{Sin}\left[\frac{b c}{d}\right]$$

$$\left(-2\sqrt{2}\ \left(\frac{b}{d}\right)^{3/2}\ (c+d x)^{3/2} \operatorname{Cos}\left[\frac{2 b\,(c+d x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\ \operatorname{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\ \sqrt{c+d x}}{\sqrt{\pi}}\right]+\sqrt{2}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d x}\ \operatorname{Sin}\left[\frac{2 b\,(c+d x)}{d}\right]\right)\right)\right)+$$

$$\frac{1}{4\sqrt{2}\ \left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Cos}\left[\frac{b c}{d}\right] \operatorname{Sin}\left[\frac{b c}{d}\right]\left(-4\sqrt{2}\ \left(\frac{b}{d}\right)^{5/2}\ (c+d x)^{5/2} \operatorname{Cos}\left[\frac{2 b\,(c+d x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{2}\ \sqrt{\frac{b}{d}}\ \sqrt{c+d x}\ \operatorname{Cos}\left[\frac{2 b\,(c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}}\ \operatorname{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\ \sqrt{c+d x}}{\sqrt{\pi}}\right]\right)+2\sqrt{2}\ \left(\frac{b}{d}\right)^{3/2}\ (c+d x)^{3/2} \operatorname{Sin}\left[\frac{2 b\,(c+d x)}{d}\right]\right)\right)+$$

$$\frac{1}{8\sqrt{2}\ \left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Cos}\left[\frac{2 b c}{d}\right]\left(4\sqrt{2}\ \left(\frac{b}{d}\right)^{5/2}\ (c+d x)^{5/2} \operatorname{Sin}\left[\frac{2 b\,(c+d x)}{d}\right]-\right.$$

$$\frac{5}{2}\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\;\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\;\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)\Bigg)\Bigg)\Bigg)\Bigg)+$$

$$\frac{3}{4}d^2\,(\text{Cos}[a]-\text{Sin}[a])\,(\text{Cos}[a]+\text{Sin}[a])\left(\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^3}c^2\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\;\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\;\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{b\,c}{d}\right]-\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]+\text{Sin}\left[\frac{b\,c}{d}\right]\right)-\frac{c^2\,\text{Sin}\left[\frac{2\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\;\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\;\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^3}+$$

$$\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^3}c\,\text{Sin}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\;\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\;\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)+\right.$$

$$\left.2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)-\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^3}c\left(\text{Cos}\left[\frac{b\,c}{d}\right]-\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]+\text{Sin}\left[\frac{b\,c}{d}\right]\right)$$

$$\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\;\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\;\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{8\sqrt{2}\left(\frac{b}{d}\right)^{7/2} d^3}\left(\text{Cos}\left[\frac{b\,c}{d}\right]-\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]+\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(-4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)+2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)-$$

$$\frac{1}{8\sqrt{2}\left(\frac{b}{d}\right)^{7/2} d^3}\text{Sin}\left[\frac{2\,b\,c}{d}\right]\left(4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]-\right.$$

$$\left.\frac{5}{2}\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\Bigg)-$$

$$\frac{1}{4}c^2\,\text{Sin}[6\,a]\left(\frac{\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]\right)\text{Sin}\left[\frac{6\,b\,c}{d}\right]}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2} d}+\right.$$

$$\left.\frac{\text{Cos}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2} d}\right)-$$

$$\frac{1}{4} c^2 \operatorname{Cos}[6 a] \left(\frac{\operatorname{Cos}\left[\frac{6 b c}{d}\right] \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d} - \right.$$

$$\left. \frac{\operatorname{Sin}\left[\frac{6 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]+\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d}\right) -$$

$$\frac{1}{2} c d \operatorname{Cos}[6 a] \left(-\frac{c \operatorname{Cos}\left[\frac{6 b c}{d}\right] \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^2} + \right.$$

$$\frac{c \operatorname{Sin}\left[\frac{6 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]+\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^2} - \frac{1}{36 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^2}$$

$$\operatorname{Sin}\left[\frac{6 b c}{d}\right] \left(-\frac{3}{2} \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]\right) + \right.$$

$$\left. 6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right) + \frac{1}{36 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^2} \operatorname{Cos}\left[\frac{6 b c}{d}\right]$$

$$\left. \left(-6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right] + \frac{3}{2} \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right] + \sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)\right)\right) -$$

$$\frac{1}{2} c\, d\, \mathrm{Sin}[6 a] \left(-\frac{c \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c + d x}\, \mathrm{Cos}\left[\frac{6 b (c+d x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \mathrm{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c + d x}\right]\right) \mathrm{Sin}\left[\frac{6 b c}{d}\right]}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^2} - \right.$$

$$\frac{c\, \mathrm{Cos}\left[\frac{6 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}}\, \mathrm{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c + d x}\right] + \sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c + d x}\, \mathrm{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^2} + \frac{1}{36 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^2}$$

$$\mathrm{Cos}\left[\frac{6 b c}{d}\right] \left(-\frac{3}{2} \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c + d x}\, \mathrm{Cos}\left[\frac{6 b (c + d x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \mathrm{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c + d x}\right]\right) + \right.$$

$$\left. 6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} (c + d x)^{3/2}\, \mathrm{Sin}\left[\frac{6 b (c + d x)}{d}\right]\right) + \frac{1}{36 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^2} \mathrm{Sin}\left[\frac{6 b c}{d}\right]$$

$$\left.\left(-6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} (c + d x)^{3/2}\, \mathrm{Cos}\left[\frac{6 b (c + d x)}{d}\right] + \frac{3}{2} \left(-\sqrt{\frac{\pi}{2}}\, \mathrm{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c + d x}\right] + \sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c + d x}\, \mathrm{Sin}\left[\frac{6 b (c + d x)}{d}\right]\right)\right)\right) -$$

$$\frac{1}{4} d^2\, \mathrm{Sin}[6 a] \left(\frac{c^2 \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c + d x}\, \mathrm{Cos}\left[\frac{6 b (c+d x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \mathrm{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c + d x}\right]\right) \mathrm{Sin}\left[\frac{6 b c}{d}\right]}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^3} + \right.$$

$$\frac{c^2\, \mathrm{Cos}\left[\frac{6 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}}\, \mathrm{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c + d x}\right] + \sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c + d x}\, \mathrm{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^3} - \frac{1}{18 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^3}$$

$$c\, \mathrm{Cos}\left[\frac{6 b c}{d}\right] \left(-\frac{3}{2} \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c + d x}\, \mathrm{Cos}\left[\frac{6 b (c + d x)}{d}\right] + \sqrt{\frac{\pi}{2}}\, \mathrm{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c + d x}\right]\right) + \right.$$

$$6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Sin}\left[\frac{6b(c+dx)}{d}\right]\Bigg)-\frac{1}{18\sqrt{6}\left(\frac{b}{d}\right)^{5/2}d^3}c\,\text{Sin}\left[\frac{6bc}{d}\right]$$

$$\left(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Cos}\left[\frac{6b(c+dx)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+dx}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{6b(c+dx)}{d}\right]\right)\right)+$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{6bc}{d}\right]\left(-36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+dx)^{5/2}\,\text{Cos}\left[\frac{6b(c+dx)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{6b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+dx}\right]\right)+6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Sin}\left[\frac{6b(c+dx)}{d}\right]\right)\right)+$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{6bc}{d}\right]\left(36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+dx)^{5/2}\,\text{Sin}\left[\frac{6b(c+dx)}{d}\right]-\frac{5}{2}\left(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Cos}\left[\frac{6b(c+dx)}{d}\right]+\right.\right.$$

$$\left.\left.\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+dx}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{6b(c+dx)}{d}\right]\right)\right)\right)\Bigg)-$$

$$\frac{1}{4}d^2\,\text{Cos}[6a]\left(\frac{c^2\,\text{Cos}\left[\frac{6bc}{d}\right]\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{6b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+dx}\right]\right)}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}d^3}-\right.$$

$$\frac{c^2\,\text{Sin}\left[\frac{6bc}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+dx}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{6b(c+dx)}{d}\right]\right)}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}d^3}+\frac{1}{18\sqrt{6}\left(\frac{b}{d}\right)^{5/2}d^3}$$

$$c\,\text{Sin}\left[\frac{6bc}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{6b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+dx}\right]\right)+\right.$$

$$6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2}\operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\Bigg) - \frac{1}{18\sqrt{6}\left(\frac{b}{d}\right)^{5/2} d^3} c \operatorname{Cos}\left[\frac{6 b c}{d}\right]$$

$$\left(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2}\operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\operatorname{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d x}\operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)\right)+$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2} d^3}\operatorname{Cos}\left[\frac{6 b c}{d}\right]\Bigg(-36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+d x)^{5/2}\operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right]+$$

$$\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d x}\operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}}\operatorname{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d x}\right]\right)+6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2}\operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)\Bigg)-$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2} d^3}\operatorname{Sin}\left[\frac{6 b c}{d}\right]\Bigg(36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+d x)^{5/2}\operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]-\frac{5}{2}$$

$$\left(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d x)^{3/2}\operatorname{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\operatorname{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d x}\operatorname{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)\right)\Bigg)\Bigg)$$

Problem 201: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 407 leaves, 18 steps):

$$\frac{45\,d^2\sqrt{c+d\,x}\,\text{Cos}[2\,a+2\,b\,x]}{1024\,b^3}-\frac{3\,(c+d\,x)^{5/2}\,\text{Cos}[2\,a+2\,b\,x]}{64\,b}-\frac{5\,d^2\sqrt{c+d\,x}\,\text{Cos}[6\,a+6\,b\,x]}{9216\,b^3}+$$

$$\frac{(c+d\,x)^{5/2}\,\text{Cos}[6\,a+6\,b\,x]}{192\,b}+\frac{5\,d^{5/2}\sqrt{\frac{\pi}{3}}\,\text{Cos}\left[6\,a-\frac{6\,b\,c}{d}\right]\,\text{FresnelC}\left[\frac{2\sqrt{b}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]}{18\,432\,b^{7/2}}-$$

$$\frac{45\,d^{5/2}\sqrt{\pi}\,\text{Cos}\left[2\,a-\frac{2\,b\,c}{d}\right]\,\text{FresnelC}\left[\frac{2\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}\,\sqrt{\pi}}\right]}{2048\,b^{7/2}}-\frac{5\,d^{5/2}\sqrt{\frac{\pi}{3}}\,\text{FresnelS}\left[\frac{2\sqrt{b}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}}{\sqrt{d}}\right]\,\text{Sin}\left[6\,a-\frac{6\,b\,c}{d}\right]}{18\,432\,b^{7/2}}+$$

$$\frac{45\,d^{5/2}\sqrt{\pi}\,\text{FresnelS}\left[\frac{2\sqrt{b}\,\sqrt{c+d\,x}}{\sqrt{d}\,\sqrt{\pi}}\right]\,\text{Sin}\left[2\,a-\frac{2\,b\,c}{d}\right]}{2048\,b^{7/2}}+\frac{15\,d\,(c+d\,x)^{3/2}\,\text{Sin}[2\,a+2\,b\,x]}{256\,b^2}-\frac{5\,d\,(c+d\,x)^{3/2}\,\text{Sin}[6\,a+6\,b\,x]}{2304\,b^2}$$

Result (type 4, 6763 leaves) :

$$\frac{1}{8}\left(\frac{3}{4}\,c^2\,\text{Sin}[2\,a]\left(\frac{\text{Cos}\left[\frac{b\,c}{d}\right]\left(-\sqrt{2}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\text{Sin}\left[\frac{b\,c}{d}\right]}{\sqrt{2}\,\left(\frac{b}{d}\right)^{3/2}\,d}+\right.\right.$$

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

$$\left(\frac{1}{2\sqrt{2}\,\left(\frac{b}{d}\right)^{3/2}\,d}\left(-\sqrt{2}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]-\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]+\text{Sin}\left[\frac{b\,c}{d}\right]\right)-\right.$$

$$\frac{\text{Sin}\left[\frac{2bc}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{2b(c+dx)}{d}\right]\right)}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d}\Bigg)+$$

$$\frac{3}{2}\,c\,d\,\text{Sin}[2a]\Bigg(-\frac{c\,\text{Cos}\left[\frac{bc}{d}\right]\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{2b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]\right)\text{Sin}\left[\frac{bc}{d}\right]}{\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^2}-$$

$$\frac{c\,\text{Cos}\left[\frac{2bc}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{2b(c+dx)}{d}\right]\right)}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^2}+\frac{1}{4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^2}$$

$$\text{Cos}\left[\frac{2bc}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Cos}\left[\frac{2b(c+dx)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]\right)+2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Sin}\left[\frac{2b(c+dx)}{d}\right]\right)+$$

$$\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^2}\text{Cos}\left[\frac{bc}{d}\right]\text{Sin}\left[\frac{bc}{d}\right]\Bigg(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+dx)^{3/2}\,\text{Cos}\left[\frac{2b(c+dx)}{d}\right]+$$

$$\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+dx}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+dx}\,\text{Sin}\left[\frac{2b(c+dx)}{d}\right]\right)\Bigg)\Bigg)+\frac{3}{2}\,c\,d\,(\text{Cos}[a]-\text{Sin}[a])\,(\text{Cos}[a]+\text{Sin}[a])$$

$$\left(-\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^{2}}c\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]-\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)\right.$$

$$\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]+\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)+\frac{c\,\mathrm{Sin}\left[\frac{2\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^{2}}-\frac{1}{4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^{2}}$$

$$\mathrm{Sin}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)+2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)+$$

$$\frac{1}{4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^{2}}\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]-\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]+\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)$$

$$\left.\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)\right)+$$

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

$$\frac{c^2 \operatorname{Cos}\left[\frac{2 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\frac{2 \sqrt{\frac{b}{d}} \sqrt{c+d x}}{\sqrt{\pi}}\right] + \sqrt{2} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{2 b (c+d x)}{d}\right]\right)}{2 \sqrt{2} \left(\frac{b}{d}\right)^{3/2} d^3} - \frac{1}{2 \sqrt{2} \left(\frac{b}{d}\right)^{5/2} d^3}$$

$$c \operatorname{Cos}\left[\frac{2 b c}{d}\right] \left(-\frac{3}{2} \left(-\sqrt{2} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{2 b (c+d x)}{d}\right] + \sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\frac{2 \sqrt{\frac{b}{d}} \sqrt{c+d x}}{\sqrt{\pi}}\right]\right) + \right.$$

$$\left. 2 \sqrt{2} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Sin}\left[\frac{2 b (c+d x)}{d}\right]\right) - \frac{1}{\sqrt{2} \left(\frac{b}{d}\right)^{5/2} d^3} c \operatorname{Cos}\left[\frac{b c}{d}\right] \operatorname{Sin}\left[\frac{b c}{d}\right]$$

$$\left(-2 \sqrt{2} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Cos}\left[\frac{2 b (c+d x)}{d}\right] + \frac{3}{2} \left(-\sqrt{\frac{\pi}{2}} \operatorname{FresnelS}\left[\frac{2 \sqrt{\frac{b}{d}} \sqrt{c+d x}}{\sqrt{\pi}}\right] + \sqrt{2} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Sin}\left[\frac{2 b (c+d x)}{d}\right]\right)\right) +$$

$$\frac{1}{4 \sqrt{2} \left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Cos}\left[\frac{b c}{d}\right] \operatorname{Sin}\left[\frac{b c}{d}\right] \left(-4 \sqrt{2} \left(\frac{b}{d}\right)^{5/2} (c+d x)^{5/2} \operatorname{Cos}\left[\frac{2 b (c+d x)}{d}\right] + \right.$$

$$\left. \frac{5}{2} \left(-\frac{3}{2} \left(-\sqrt{2} \sqrt{\frac{b}{d}} \sqrt{c+d x} \operatorname{Cos}\left[\frac{2 b (c+d x)}{d}\right] + \sqrt{\frac{\pi}{2}} \operatorname{FresnelC}\left[\frac{2 \sqrt{\frac{b}{d}} \sqrt{c+d x}}{\sqrt{\pi}}\right]\right) + 2 \sqrt{2} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \operatorname{Sin}\left[\frac{2 b (c+d x)}{d}\right]\right)\right) +$$

$$\frac{1}{8 \sqrt{2} \left(\frac{b}{d}\right)^{7/2} d^3} \operatorname{Cos}\left[\frac{2 b c}{d}\right] \left(4 \sqrt{2} \left(\frac{b}{d}\right)^{5/2} (c+d x)^{5/2} \operatorname{Sin}\left[\frac{2 b (c+d x)}{d}\right] - \right.$$

$$\frac{5}{2}\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)\Bigg)\Bigg)\Bigg)+$$

$$\frac{3}{4}d^2\,(\mathrm{Cos}[a]-\mathrm{Sin}[a])\,(\mathrm{Cos}[a]+\mathrm{Sin}[a])\left(\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^3}c^2\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)\right.$$

$$\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]-\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]+\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)-\frac{c^2\,\mathrm{Sin}\left[\frac{2\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)}{2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}d^3}+$$

$$\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^3}c\,\mathrm{Sin}\left[\frac{2\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)+\right.$$

$$\left.2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)-\frac{1}{2\sqrt{2}\left(\frac{b}{d}\right)^{5/2}d^3}c\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]-\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\mathrm{Cos}\left[\frac{b\,c}{d}\right]+\mathrm{Sin}\left[\frac{b\,c}{d}\right]\right)$$

$$\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{8\sqrt{2}\left(\frac{b}{d}\right)^{7/2}d^3}\left(\text{Cos}\left[\frac{b\,c}{d}\right]-\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(\text{Cos}\left[\frac{b\,c}{d}\right]+\text{Sin}\left[\frac{b\,c}{d}\right]\right)\left(-4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]\right)+2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)-$$

$$\frac{1}{8\sqrt{2}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{2\,b\,c}{d}\right]\left(4\sqrt{2}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]-\right.$$

$$\left.\frac{5}{2}\left(-2\sqrt{2}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{2\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[\frac{2\sqrt{\frac{b}{d}}\sqrt{c+d\,x}}{\sqrt{\pi}}\right]+\sqrt{2}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{2\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\right)\right)-$$

$$\frac{1}{4}c^2\,\text{Sin}[6\,a]\left(\frac{\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]\right)\text{Sin}\left[\frac{6\,b\,c}{d}\right]}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}d}+\right.$$

$$\left.\frac{\text{Cos}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}d}\right)-$$

$$\frac{1}{4}\,c^2\,\mathrm{Cos}[6\,a]\left(\frac{\mathrm{Cos}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{6}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[2\,\sqrt{\frac{b}{d}}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}\,\right]\right)}{6\,\sqrt{6}\,\left(\frac{b}{d}\right)^{3/2}\,d}-\right.$$

$$\left.\frac{\mathrm{Sin}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[2\,\sqrt{\frac{b}{d}}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}\,\right]+\sqrt{6}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)}{6\,\sqrt{6}\,\left(\frac{b}{d}\right)^{3/2}\,d}\right)-$$

$$\frac{1}{2}\,c\,d\,\mathrm{Cos}[6\,a]\left(-\frac{c\,\mathrm{Cos}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{6}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[2\,\sqrt{\frac{b}{d}}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}\,\right]\right)}{6\,\sqrt{6}\,\left(\frac{b}{d}\right)^{3/2}\,d^2}+\right.$$

$$\frac{c\,\mathrm{Sin}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[2\,\sqrt{\frac{b}{d}}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}\,\right]+\sqrt{6}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)}{6\,\sqrt{6}\,\left(\frac{b}{d}\right)^{3/2}\,d^2}-\frac{1}{36\,\sqrt{6}\,\left(\frac{b}{d}\right)^{5/2}\,d^2}$$

$$\mathrm{Sin}\left[\frac{6\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{6}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelC}\left[2\,\sqrt{\frac{b}{d}}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}\,\right]\right)+\right.$$

$$\left.6\,\sqrt{6}\,\left(\frac{b}{d}\right)^{3/2}\,(c+d\,x)^{3/2}\,\mathrm{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)+\frac{1}{36\,\sqrt{6}\,\left(\frac{b}{d}\right)^{5/2}\,d^2}\mathrm{Cos}\left[\frac{6\,b\,c}{d}\right]$$

$$\left.\left(-6\,\sqrt{6}\,\left(\frac{b}{d}\right)^{3/2}\,(c+d\,x)^{3/2}\,\mathrm{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\mathrm{FresnelS}\left[2\,\sqrt{\frac{b}{d}}\,\sqrt{\frac{3}{\pi}}\,\sqrt{c+d\,x}\,\right]+\sqrt{6}\,\sqrt{\frac{b}{d}}\,\sqrt{c+d\,x}\,\mathrm{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)\right)\right)-$$

$$\frac{1}{2} c\, d\, \text{Sin}[6 a] \left(-\frac{c \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]\right) \text{Sin}\left[\frac{6 b c}{d}\right]}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^2}-\right.$$

$$\frac{c\, \text{Cos}\left[\frac{6 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \,\text{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]+\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^2}+\frac{1}{36 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^2}$$

$$\text{Cos}\left[\frac{6 b c}{d}\right] \left(-\frac{3}{2} \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]\right)+\right.$$

$$\left.6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \,\text{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)+\frac{1}{36 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^2}\text{Sin}\left[\frac{6 b c}{d}\right]$$

$$\left.\left(-6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} (c+d x)^{3/2} \,\text{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\frac{3}{2} \left(-\sqrt{\frac{\pi}{2}} \,\text{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]+\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)\right)\right)-$$

$$\frac{1}{4} d^2\, \text{Sin}[6 a] \left(\frac{c^2 \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]\right) \text{Sin}\left[\frac{6 b c}{d}\right]}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^3}+\right.$$

$$\frac{c^2\, \text{Cos}\left[\frac{6 b c}{d}\right] \left(-\sqrt{\frac{\pi}{2}} \,\text{FresnelS}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]+\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Sin}\left[\frac{6 b (c+d x)}{d}\right]\right)}{6 \sqrt{6} \left(\frac{b}{d}\right)^{3/2} d^3}-\frac{1}{18 \sqrt{6} \left(\frac{b}{d}\right)^{5/2} d^3}$$

$$c\, \text{Cos}\left[\frac{6 b c}{d}\right] \left(-\frac{3}{2} \left(-\sqrt{6} \sqrt{\frac{b}{d}} \sqrt{c+d x} \,\text{Cos}\left[\frac{6 b (c+d x)}{d}\right]+\sqrt{\frac{\pi}{2}} \,\text{FresnelC}\left[2 \sqrt{\frac{b}{d}} \sqrt{\frac{3}{\pi}} \sqrt{c+d x}\right]\right)+\right.$$

$$6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\Bigg)-\frac{1}{18\sqrt{6}\left(\frac{b}{d}\right)^{5/2}d^3}c\,\text{Sin}\left[\frac{6\,b\,c}{d}\right]$$

$$\left(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{6\,b\,c}{d}\right]\Bigg(-36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+$$

$$\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]\right)+6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)\Bigg)+$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{6\,b\,c}{d}\right]\Bigg(36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\Bigg(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+$$

$$\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)\Bigg)\Bigg)\Bigg)-$$

$$\frac{1}{4}d^2\,\text{Cos}[6\,a]\left(\frac{c^2\,\text{Cos}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]\right)}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}d^3}-\right.$$

$$\frac{c^2\,\text{Sin}\left[\frac{6\,b\,c}{d}\right]\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)}{6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}d^3}+\frac{1}{18\sqrt{6}\left(\frac{b}{d}\right)^{5/2}d^3}$$

$$c\,\text{Sin}\left[\frac{6\,b\,c}{d}\right]\left(-\frac{3}{2}\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]\right)+\right.$$

$$6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\Bigg) - \frac{1}{18\sqrt{6}\left(\frac{b}{d}\right)^{5/2}d^3}c\,\text{Cos}\left[\frac{6\,b\,c}{d}\right]$$

$$\left(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)\right)+$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Cos}\left[\frac{6\,b\,c}{d}\right]\left(-36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\right.$$

$$\left.\frac{5}{2}\left(-\frac{3}{2}\left(-\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\sqrt{\frac{\pi}{2}}\,\text{FresnelC}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]\right)+6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)\right)-$$

$$\frac{1}{216\sqrt{6}\left(\frac{b}{d}\right)^{7/2}d^3}\text{Sin}\left[\frac{6\,b\,c}{d}\right]\left(36\sqrt{6}\left(\frac{b}{d}\right)^{5/2}(c+d\,x)^{5/2}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]-\frac{5}{2}\right.$$

$$\left.\left(-6\sqrt{6}\left(\frac{b}{d}\right)^{3/2}(c+d\,x)^{3/2}\,\text{Cos}\left[\frac{6\,b\,(c+d\,x)}{d}\right]+\frac{3}{2}\left(-\sqrt{\frac{\pi}{2}}\,\text{FresnelS}\left[2\sqrt{\frac{b}{d}}\sqrt{\frac{3}{\pi}}\sqrt{c+d\,x}\right]+\sqrt{6}\sqrt{\frac{b}{d}}\sqrt{c+d\,x}\,\text{Sin}\left[\frac{6\,b\,(c+d\,x)}{d}\right]\right)\right)\right)\Bigg)\Bigg)$$

Problem 209: Result more than twice size of optimal antiderivative.

$$\int(c+d\,x)^4\,\text{Tan}[a+b\,x]\,dx$$

Optimal (type 4, 158 leaves, 7 steps):

$$\frac{i\,(c+d\,x)^5}{5\,d}-\frac{(c+d\,x)^4\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b}+\frac{2\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{b^2}-$$

$$\frac{3\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]}{b^3}-\frac{3\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,-e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{3\,d^4\,\text{PolyLog}\left[5,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^5}$$

Result (type 4, 722 leaves):

$$\frac{1}{2 b^3} c^2 d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x + 3 i \left(1 + e^{2 i a}\right) \text{Log}\left[1 + e^{2 i (a+b x)}\right]\right) + 6 i b \left(1 + e^{2 i a}\right) x\, \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right] - 3 \left(1 + e^{2 i a}\right) \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right]\right)$$

$$\text{Sec}[a] - i c d^3 e^{i a} \left(-x^4 + \left(1 + e^{-2 i a}\right) x^4 - \frac{1}{2 b^4} e^{-2 i a} \left(1 + e^{2 i a}\right)\right.$$

$$\left.\left(2 b^4 x^4 + 4 i b^3 x^3 \text{Log}\left[1 + e^{2 i (a+b x)}\right] + 6 b^2 x^2 \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right] + 6 i b x\, \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right] - 3 \text{PolyLog}\left[4, -e^{2 i (a+b x)}\right]\right)\right) \text{Sec}[a] -$$

$$\frac{1}{5} i d^4 e^{i a} \left(-x^5 + \left(1 + e^{-2 i a}\right) x^5 - \frac{1}{4 b^5} e^{-2 i a} \left(1 + e^{2 i a}\right) \left(4 b^5 x^5 + 10 i b^4 x^4 \text{Log}\left[1 + e^{2 i (a+b x)}\right] + 20 b^3 x^3 \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right] +\right.\right.$$

$$\left.\left.30 i b^2 x^2 \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right] - 30 b x\, \text{PolyLog}\left[4, -e^{2 i (a+b x)}\right] - 15 i\, \text{PolyLog}\left[5, -e^{2 i (a+b x)}\right]\right)\right) \text{Sec}[a] -$$

$$\frac{c^4 \text{Sec}[a] \left(\text{Cos}[a] \text{Log}[\text{Cos}[a] \text{Cos}[b x] - \text{Sin}[a] \text{Sin}[b x]] + b x \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)} - \left(2 c^3 d \text{Csc}[a] \left(b^2 e^{-i \text{ArcTan}[\text{Cot}[a]]} x^2 - \frac{1}{\sqrt{1 + \text{Cot}[a]^2}}\right.\right.$$

$$\text{Cot}[a] \left(i b x \left(-\pi - 2 \text{ArcTan}[\text{Cot}[a]]\right) - \pi \text{Log}\left[1 + e^{-2 i b x}\right] - 2 \left(b x - \text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1 - e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right] +\right.$$

$$\left.\left.\left.\pi \text{Log}[\text{Cos}[b x]] - 2 \text{ArcTan}[\text{Cot}[a]] \text{Log}[\text{Sin}[b x - \text{ArcTan}[\text{Cot}[a]]]] + i \text{PolyLog}\left[2, e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right) \Big/$$

$$\left(b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)}\right) + \frac{1}{5} x \left(5 c^4 + 10 c^3 d x + 10 c^2 d^2 x^2 + 5 c d^3 x^3 + d^4 x^4\right) \text{Tan}[a]$$

Problem 210: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 132 leaves, 6 steps):

$$\frac{i (c + d x)^4}{4 d} - \frac{(c + d x)^3 \text{Log}\left[1 + e^{2 i (a+b x)}\right]}{b} + \frac{3 i d (c + d x)^2 \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right]}{2 b^2} -$$

$$\frac{3 d^2 (c + d x) \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right]}{2 b^3} - \frac{3 i d^3 \text{PolyLog}\left[4, -e^{2 i (a+b x)}\right]}{4 b^4}$$

Result (type 4, 533 leaves):

$$\frac{1}{4 b^3} c\, d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x + 3 i \left(1 + e^{2 i a}\right) \text{Log}\left[1 + e^{2 i (a+b x)}\right]\right) + 6 i b \left(1 + e^{2 i a}\right) x\, \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right] - 3 \left(1 + e^{2 i a}\right) \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right]\right) \text{Sec}[a] - \frac{1}{4} i d^3 e^{i a} \left(-x^4 + \left(1 + e^{-2 i a}\right) x^4 - \frac{1}{2 b^4} e^{-2 i a} \left(1 + e^{2 i a}\right) \left(2 b^4 x^4 + 4 i b^3 x^3 \text{Log}\left[1 + e^{2 i (a+b x)}\right] + 6 b^2 x^2 \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right] + 6 i b x\, \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right] - 3\, \text{PolyLog}\left[4, -e^{2 i (a+b x)}\right]\right)\right) \text{Sec}[a] - \frac{c^3 \text{Sec}[a] \left(\text{Cos}[a] \text{Log}[\text{Cos}[a] \text{Cos}[b x] - \text{Sin}[a] \text{Sin}[b x]] + b x \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)} - \left(3 c^2 d\, \text{Csc}[a] \left(b^2 e^{-i \text{ArcTan}[\text{Cot}[a]]} x^2 - \frac{1}{\sqrt{1 + \text{Cot}[a]^2}} \text{Cot}[a] \left(i b x \left(-\pi - 2 \text{ArcTan}[\text{Cot}[a]]\right) - \pi \text{Log}\left[1 + e^{-2 i b x}\right] - 2 \left(b x - \text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1 - e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right] + \pi \text{Log}[\text{Cos}[b x]] - 2 \text{ArcTan}[\text{Cot}[a]] \text{Log}[\text{Sin}[b x - \text{ArcTan}[\text{Cot}[a]]]] + i\, \text{PolyLog}\left[2, e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right) \Big/ \left(2 b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)}\right) + \frac{1}{4} x \left(4 c^3 + 6 c^2 d x + 4 c d^2 x^2 + d^3 x^3\right) \text{Tan}[a]$$

Problem 211: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 96 leaves, 5 steps):

$$\frac{i (c + d x)^3}{3 d} - \frac{(c + d x)^2 \text{Log}\left[1 + e^{2 i (a+b x)}\right]}{b} + \frac{i d (c + d x) \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right]}{b^2} - \frac{d^2 \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right]}{2 b^3}$$

Result (type 4, 363 leaves):

$$\frac{1}{12 b^3} d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x + 3 i \left(1 + e^{2 i a}\right) \text{Log}\left[1 + e^{2 i (a+b x)}\right]\right) + 6 i b \left(1 + e^{2 i a}\right) x\, \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right] - 3 \left(1 + e^{2 i a}\right) \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right]\right) \text{Sec}[a] - \frac{c^2 \text{Sec}[a] \left(\text{Cos}[a] \text{Log}[\text{Cos}[a] \text{Cos}[b x] - \text{Sin}[a] \text{Sin}[b x]] + b x \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)} - \left(c\, d\, \text{Csc}[a] \left(b^2 e^{-i \text{ArcTan}[\text{Cot}[a]]} x^2 - \frac{1}{\sqrt{1 + \text{Cot}[a]^2}} \text{Cot}[a] \left(i b x \left(-\pi - 2 \text{ArcTan}[\text{Cot}[a]]\right) - \pi \text{Log}\left[1 + e^{-2 i b x}\right] - 2 \left(b x - \text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1 - e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right] + \pi \text{Log}[\text{Cos}[b x]] - 2 \text{ArcTan}[\text{Cot}[a]] \text{Log}[\text{Sin}[b x - \text{ArcTan}[\text{Cot}[a]]]] + i\, \text{PolyLog}\left[2, e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right) \Big/ \left(b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)}\right) + \frac{1}{3} x \left(3 c^2 + 3 c d x + d^2 x^2\right) \text{Tan}[a]$$

Problem 212: Result more than twice size of optimal antiderivative.

$$\int (c+d\,x)\,\mathrm{Tan}[a+b\,x]\,dx$$

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

$$\frac{i\,(c+d\,x)^2}{2\,d}-\frac{(c+d\,x)\,\mathrm{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b}+\frac{i\,d\,\mathrm{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^2}$$

Result (type 4, 190 leaves):

$$-\frac{c\,\mathrm{Log}[\mathrm{Cos}[a+b\,x]]}{b}-\left(d\,\mathrm{Csc}[a]\left(b^2\,e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\mathrm{Cot}[a]^2}}\mathrm{Cot}[a]\,\left(i\,b\,x\,(-\pi-2\,\mathrm{ArcTan}[\mathrm{Cot}[a]])-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])\,\mathrm{Log}\left[1-e^{2\,i\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])}\right]+\pi\,\mathrm{Log}[\mathrm{Cos}[b\,x]]-2\,\mathrm{ArcTan}[\mathrm{Cot}[a]]\,\mathrm{Log}[\mathrm{Sin}[b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])}\right]\right)\right)\mathrm{Sec}[a]\right)\Big/\left(2\,b^2\,\sqrt{\mathrm{Csc}[a]^2\,\left(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2\right)}\right)+\frac{1}{2}\,d\,x^2\,\mathrm{Tan}[a]$$

Problem 216: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 275 leaves, 14 steps):

$$-\frac{2\,i\,(c+d\,x)^3\,\mathrm{ArcTan}\left[e^{i\,(a+b\,x)}\right]}{b}+\frac{6\,d^3\,\mathrm{Cos}[a+b\,x]}{b^4}-\frac{3\,d\,(c+d\,x)^2\,\mathrm{Cos}[a+b\,x]}{b^2}+\frac{3\,i\,d\,(c+d\,x)^2\,\mathrm{PolyLog}\left[2,\,-i\,e^{i\,(a+b\,x)}\right]}{b^2}-\frac{3\,i\,d\,(c+d\,x)^2\,\mathrm{PolyLog}\left[2,\,i\,e^{i\,(a+b\,x)}\right]}{b^2}-\frac{6\,d^2\,(c+d\,x)\,\mathrm{PolyLog}\left[3,\,-i\,e^{i\,(a+b\,x)}\right]}{b^3}+\frac{6\,d^2\,(c+d\,x)\,\mathrm{PolyLog}\left[3,\,i\,e^{i\,(a+b\,x)}\right]}{b^3}-\frac{6\,i\,d^3\,\mathrm{PolyLog}\left[4,\,-i\,e^{i\,(a+b\,x)}\right]}{b^4}+\frac{6\,i\,d^3\,\mathrm{PolyLog}\left[4,\,i\,e^{i\,(a+b\,x)}\right]}{b^4}+\frac{6\,d^2\,(c+d\,x)\,\mathrm{Sin}[a+b\,x]}{b^3}-\frac{(c+d\,x)^3\,\mathrm{Sin}[a+b\,x]}{b}$$

Result (type 4, 557 leaves):

$$-\frac{1}{b^4}\Big(2\,i\,b^3 c^3 \text{ArcTan}\left[e^{i(a+b x)}\right]+3 b^2 c^2 d \text{Cos}[a+b x]-6 d^3 \text{Cos}[a+b x]+6 b^2 c d^2 x \text{Cos}[a+b x]+3 b^2 d^3 x^2 \text{Cos}[a+b x]-3 b^3 c^2 d x \text{Log}\left[1-i e^{i(a+b x)}\right]-3 b^3 c d^2 x^2 \text{Log}\left[1-i e^{i(a+b x)}\right]-b^3 d^3 x^3 \text{Log}\left[1-i e^{i(a+b x)}\right]+3 b^3 c^2 d x \text{Log}\left[1+i e^{i(a+b x)}\right]+3 b^3 c d^2 x^2 \text{Log}\left[1+i e^{i(a+b x)}\right]+b^3 d^3 x^3 \text{Log}\left[1+i e^{i(a+b x)}\right]-3\,i\,b^2 d (c+d x)^2 \text{PolyLog}\left[2,-i e^{i(a+b x)}\right]+3\,i\,b^2 d (c+d x)^2 \text{PolyLog}\left[2,i e^{i(a+b x)}\right]+6 b c d^2 \text{PolyLog}\left[3,-i e^{i(a+b x)}\right]+6 b d^3 x \text{PolyLog}\left[3,-i e^{i(a+b x)}\right]-6 b c d^2 \text{PolyLog}\left[3,i e^{i(a+b x)}\right]-6 b d^3 x \text{PolyLog}\left[3,i e^{i(a+b x)}\right]+6\,i\,d^3 \text{PolyLog}\left[4,-i e^{i(a+b x)}\right]-6\,i\,d^3 \text{PolyLog}\left[4,i e^{i(a+b x)}\right]+b^3 c^3 \text{Sin}[a+b x]-6 b c d^2 \text{Sin}[a+b x]+3 b^3 c^2 d x \text{Sin}[a+b x]-6 b d^3 x \text{Sin}[a+b x]+3 b^3 c d^2 x^2 \text{Sin}[a+b x]+b^3 d^3 x^3 \text{Sin}[a+b x]\Big)$$

Problem 218: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 103 leaves, 8 steps):

$$-\frac{2\,i\,(c+d x) \text{ArcTan}\left[e^{i(a+b x)}\right]}{b}-\frac{d \text{Cos}[a+b x]}{b^2}+\frac{i\,d \text{PolyLog}\left[2,-i e^{i(a+b x)}\right]}{b^2}-\frac{i\,d \text{PolyLog}\left[2,i e^{i(a+b x)}\right]}{b^2}-\frac{(c+d x) \text{Sin}[a+b x]}{b}$$

Result (type 4, 258 leaves):

$$-\frac{c \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{b}+\frac{c \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{b}+\frac{1}{b^2}d\left(\left(-a+\frac{\pi}{2}-b x\right)\left(\text{Log}\left[1-e^{i\left(-a+\frac{\pi}{2}-b x\right)}\right]-\text{Log}\left[1+e^{i\left(-a+\frac{\pi}{2}-b x\right)}\right]\right)-\left(-a+\frac{\pi}{2}\right)\text{Log}\left[\text{Tan}\left[\frac{1}{2}\left(-a+\frac{\pi}{2}-b x\right)\right]\right]+i\left(\text{PolyLog}\left[2,-e^{i\left(-a+\frac{\pi}{2}-b x\right)}\right]-\text{PolyLog}\left[2,e^{i\left(-a+\frac{\pi}{2}-b x\right)}\right]\right)\right)-\frac{d \text{Cos}[b x]\,(\text{Cos}[a]+b x \text{Sin}[a])}{b^2}-\frac{d\,(b x \text{Cos}[a]-\text{Sin}[a])\,\text{Sin}[b x]}{b^2}-\frac{c \text{Sin}[a+b x]}{b}$$

Problem 222: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 251 leaves, 12 steps):

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

Result (type 4, 1734 leaves):

$$\frac{1}{4 b^3}c d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(1+e^{2 i a}\right) \text{Log}\left[1+e^{2 i (a+b x)}\right]\right)+6 i b \left(1+e^{2 i a}\right) x \,\text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]-3 \left(1+e^{2 i a}\right) \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]\right)$$
$$\text{Sec}[a]-\frac{1}{4} i d^3 e^{i a} \left(-x^4+\left(1+e^{-2 i a}\right) x^4-\frac{1}{2 b^4}e^{-2 i a} \left(1+e^{2 i a}\right)\right.$$
$$\left.\left(2 b^4 x^4+4 i b^3 x^3 \text{Log}\left[1+e^{2 i (a+b x)}\right]+6 b^2 x^2 \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]+6 i b x \,\text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]-3 \text{PolyLog}\left[4,-e^{2 i (a+b x)}\right]\right)\right) \text{Sec}[a]-$$
$$\frac{c^3 \text{Sec}[a] \left(\text{Cos}[a] \text{Log}[\text{Cos}[a] \text{Cos}[b x]-\text{Sin}[a] \text{Sin}[b x]]+b x \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-\left(3 c^2 d \,\text{Csc}[a] \left(b^2 e^{-i \text{ArcTan}[\text{Cot}[a]]} x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a] \left(i b x \left(-\pi -2 \text{ArcTan}[\text{Cot}[a]]\right)-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 \left(b x-\text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1-e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi \text{Log}[\text{Cos}[b x]]-2 \text{ArcTan}[\text{Cot}[a]] \text{Log}[\text{Sin}[b x-\text{ArcTan}[\text{Cot}[a]]]]+i \,\text{PolyLog}\left[2,e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right)\Big/$$
$$\left(2 b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\text{Sec}[a] \left(\frac{\text{Cos}[2 a+2 b x]}{64 b^4}-\frac{i \,\text{Sin}[2 a+2 b x]}{64 b^4}\right)$$
$$\left(8 b^3 c^3 \text{Cos}[a]-12 i b^2 c^2 d \,\text{Cos}[a]-12 b c d^2 \text{Cos}[a]+6 i d^3 \text{Cos}[a]+24 b^3 c^2 d x \,\text{Cos}[a]-24 i b^2 c d^2 x \,\text{Cos}[a]-12 b d^3 x \,\text{Cos}[a]+\right.$$
$$24 b^3 c d^2 x^2 \text{Cos}[a]-12 i b^2 d^3 x^2 \text{Cos}[a]+8 b^3 d^3 x^3 \text{Cos}[a]+32 i b^4 c^3 x \,\text{Cos}[a+2 b x]+48 i b^4 c^2 d x^2 \text{Cos}[a+2 b x]+$$
$$32 i b^4 c d^2 x^3 \text{Cos}[a+2 b x]+8 i b^4 d^3 x^4 \text{Cos}[a+2 b x]-32 i b^4 c^3 x \,\text{Cos}[3 a+2 b x]-48 i b^4 c^2 d x^2 \text{Cos}[3 a+2 b x]-$$
$$32 i b^4 c d^2 x^3 \text{Cos}[3 a+2 b x]-8 i b^4 d^3 x^4 \text{Cos}[3 a+2 b x]+4 b^3 c^3 \text{Cos}[3 a+4 b x]+6 i b^2 c^2 d \,\text{Cos}[3 a+4 b x]-6 b c d^2 \text{Cos}[3 a+4 b x]-$$
$$3 i d^3 \text{Cos}[3 a+4 b x]+12 b^3 c^2 d x \,\text{Cos}[3 a+4 b x]+12 i b^2 c d^2 x \,\text{Cos}[3 a+4 b x]-6 b d^3 x \,\text{Cos}[3 a+4 b x]+12 b^3 c d^2 x^2 \text{Cos}[3 a+4 b x]+$$
$$6 i b^2 d^3 x^2 \text{Cos}[3 a+4 b x]+4 b^3 d^3 x^3 \text{Cos}[3 a+4 b x]+4 b^3 c^3 \text{Cos}[5 a+4 b x]+6 i b^2 c^2 d \,\text{Cos}[5 a+4 b x]-6 b c d^2 \text{Cos}[5 a+4 b x]-$$
$$3 i d^3 \text{Cos}[5 a+4 b x]+12 b^3 c^2 d x \,\text{Cos}[5 a+4 b x]+12 i b^2 c d^2 x \,\text{Cos}[5 a+4 b x]-6 b d^3 x \,\text{Cos}[5 a+4 b x]+12 b^3 c d^2 x^2 \text{Cos}[5 a+4 b x]+$$
$$6 i b^2 d^3 x^2 \text{Cos}[5 a+4 b x]+4 b^3 d^3 x^3 \text{Cos}[5 a+4 b x]-32 b^4 c^3 x \,\text{Sin}[a+2 b x]-48 b^4 c^2 d x^2 \text{Sin}[a+2 b x]-32 b^4 c d^2 x^3 \text{Sin}[a+2 b x]-$$
$$8 b^4 d^3 x^4 \text{Sin}[a+2 b x]+32 b^4 c^3 x \,\text{Sin}[3 a+2 b x]+48 b^4 c^2 d x^2 \text{Sin}[3 a+2 b x]+32 b^4 c d^2 x^3 \text{Sin}[3 a+2 b x]+8 b^4 d^3 x^4 \text{Sin}[3 a+2 b x]+$$
$$4 i b^3 c^3 \text{Sin}[3 a+4 b x]-6 b^2 c^2 d \,\text{Sin}[3 a+4 b x]-6 i b c d^2 \text{Sin}[3 a+4 b x]+3 d^3 \text{Sin}[3 a+4 b x]+12 i b^3 c^2 d x \,\text{Sin}[3 a+4 b x]-$$
$$12 b^2 c d^2 x \,\text{Sin}[3 a+4 b x]-6 i b d^3 x \,\text{Sin}[3 a+4 b x]+12 i b^3 c d^2 x^2 \text{Sin}[3 a+4 b x]-6 b^2 d^3 x^2 \text{Sin}[3 a+4 b x]+4 i b^3 d^3 x^3 \text{Sin}[3 a+4 b x]+$$
$$4 i b^3 c^3 \text{Sin}[5 a+4 b x]-6 b^2 c^2 d \,\text{Sin}[5 a+4 b x]-6 i b c d^2 \text{Sin}[5 a+4 b x]+3 d^3 \text{Sin}[5 a+4 b x]+12 i b^3 c^2 d x \,\text{Sin}[5 a+4 b x]-$$
$$\left.12 b^2 c d^2 x \,\text{Sin}[5 a+4 b x]-6 i b d^3 x \,\text{Sin}[5 a+4 b x]+12 i b^3 c d^2 x^2 \text{Sin}[5 a+4 b x]-6 b^2 d^3 x^2 \text{Sin}[5 a+4 b x]+4 i b^3 d^3 x^3 \text{Sin}[5 a+4 b x]\right)$$

Problem 223: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 184 leaves, 9 steps):

$$\frac{c\,d\,x}{2\,b}+\frac{d^2\,x^2}{4\,b}+\frac{i\,(c+d\,x)^3}{3\,d}-\frac{(c+d\,x)^2\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b}+\frac{i\,d\,(c+d\,x)\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{b^2}-\frac{d^2\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^3}-\frac{d\,(c+d\,x)\,\text{Cos}[a+b\,x]\,\text{Sin}[a+b\,x]}{2\,b^2}+\frac{d^2\,\text{Sin}[a+b\,x]^2}{4\,b^3}-\frac{(c+d\,x)^2\,\text{Sin}[a+b\,x]^2}{2\,b}$$

Result (type 4, 525 leaves):

$$\frac{1}{12\,b^3}d^2\,e^{-i\,a}\left(2\,i\,b^2\,x^2\left(2\,b\,e^{2\,i\,a}\,x+3\,i\left(1+e^{2\,i\,a}\right)\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right)+6\,i\,b\left(1+e^{2\,i\,a}\right)x\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]-3\left(1+e^{2\,i\,a}\right)\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]\right)\text{Sec}[a]-\frac{c^2\,\text{Sec}[a]\,(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a])}{b\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-$$

$$\left(c\,d\,\text{Csc}[a]\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\text{Cot}[a]\left(i\,b\,x\,(-\pi-2\,\text{ArcTan}[\text{Cot}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x-\text{ArcTan}[\text{Cot}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\text{Sec}[a]\right)\Big/\left(b^2\sqrt{\text{Csc}[a]^2\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\frac{1}{8\,b^3}$$

$$\text{Cos}[2\,b\,x]\left(2\,b^2\,c^2\,\text{Cos}[2\,a]-d^2\,\text{Cos}[2\,a]+4\,b^2\,c\,d\,x\,\text{Cos}[2\,a]+2\,b^2\,d^2\,x^2\,\text{Cos}[2\,a]-2\,b\,c\,d\,\text{Sin}[2\,a]-2\,b\,d^2\,x\,\text{Sin}[2\,a]\right)-\frac{1}{8\,b^3}$$

$$\left(2\,b\,c\,d\,\text{Cos}[2\,a]+2\,b\,d^2\,x\,\text{Cos}[2\,a]+2\,b^2\,c^2\,\text{Sin}[2\,a]-d^2\,\text{Sin}[2\,a]+4\,b^2\,c\,d\,x\,\text{Sin}[2\,a]+2\,b^2\,d^2\,x^2\,\text{Sin}[2\,a]\right)\text{Sin}[2\,b\,x]+\frac{1}{3}x\left(3\,c^2+3\,c\,d\,x+d^2\,x^2\right)\text{Tan}[a]$$

Problem 228: Result more than twice size of optimal antiderivative.

$$\int (c+d\,x)^4\,\text{Csc}[a+b\,x]\,\text{Sec}[a+b\,x]\,dx$$

Optimal (type 4, 247 leaves, 12 steps):

$$-\frac{2\,(c+d\,x)^4\,\text{ArcTanh}\left[e^{2\,i\,(a+b\,x)}\right]}{b}+\frac{2\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{b^2}-\frac{2\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,e^{2\,i\,(a+b\,x)}\right]}{b^2}-\frac{3\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{3\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,e^{2\,i\,(a+b\,x)}\right]}{b^3}-\frac{3\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,-e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{3\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{3\,d^4\,\text{PolyLog}\left[5,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^5}-\frac{3\,d^4\,\text{PolyLog}\left[5,e^{2\,i\,(a+b\,x)}\right]}{2\,b^5}$$

Result (type 4, 578 leaves):

$$\frac{1}{2 b^5}\left(-4 b^4 c^4 \text{ArcTanh}\left[e^{2 i (a+b x)}\right]+8 b^4 c^3 d x \text{Log}\left[1-e^{2 i (a+b x)}\right]+12 b^4 c^2 d^2 x^2 \text{Log}\left[1-e^{2 i (a+b x)}\right]+8 b^4 c d^3 x^3 \text{Log}\left[1-e^{2 i (a+b x)}\right]+2 b^4 d^4 x^4 \text{Log}\left[1-e^{2 i (a+b x)}\right]-8 b^4 c^3 d x \text{Log}\left[1+e^{2 i (a+b x)}\right]-12 b^4 c^2 d^2 x^2 \text{Log}\left[1+e^{2 i (a+b x)}\right]-8 b^4 c d^3 x^3 \text{Log}\left[1+e^{2 i (a+b x)}\right]-2 b^4 d^4 x^4 \text{Log}\left[1+e^{2 i (a+b x)}\right]+4 i b^3 d (c+d x)^3 \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]-4 i b^3 d (c+d x)^3 \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]-6 b^2 c^2 d^2 \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]-12 b^2 c d^3 x \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]-6 b^2 d^4 x^2 \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]+6 b^2 c^2 d^2 \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]+12 b^2 c d^3 x \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]+6 b^2 d^4 x^2 \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]-6 i b c d^3 \text{PolyLog}\left[4,-e^{2 i (a+b x)}\right]-6 i b d^4 x \text{PolyLog}\left[4,-e^{2 i (a+b x)}\right]+6 i b c d^3 \text{PolyLog}\left[4,e^{2 i (a+b x)}\right]+6 i b d^4 x \text{PolyLog}\left[4,e^{2 i (a+b x)}\right]+3 d^4 \text{PolyLog}\left[5,-e^{2 i (a+b x)}\right]-3 d^4 \text{PolyLog}\left[5,e^{2 i (a+b x)}\right]\right)$$

Problem 235: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 350 leaves, 23 steps):

$$-\frac{2 i (c+d x)^3 \text{ArcTan}\left[e^{i (a+b x)}\right]}{b}-\frac{6 d (c+d x)^2 \text{ArcTanh}\left[e^{i (a+b x)}\right]}{b^2}-\frac{(c+d x)^3 \text{Csc}[a+b x]}{b}+\frac{6 i d^2 (c+d x) \text{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^3}+\frac{3 i d (c+d x)^2 \text{PolyLog}\left[2,-i e^{i (a+b x)}\right]}{b^2}-\frac{3 i d (c+d x)^2 \text{PolyLog}\left[2,i e^{i (a+b x)}\right]}{b^2}-\frac{6 i d^2 (c+d x) \text{PolyLog}\left[2,e^{i (a+b x)}\right]}{b^3}-\frac{6 d^3 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^4}-\frac{6 d^2 (c+d x) \text{PolyLog}\left[3,-i e^{i (a+b x)}\right]}{b^3}+\frac{6 d^2 (c+d x) \text{PolyLog}\left[3,i e^{i (a+b x)}\right]}{b^3}+\frac{6 d^3 \text{PolyLog}\left[3,e^{i (a+b x)}\right]}{b^4}-\frac{6 i d^3 \text{PolyLog}\left[4,-i e^{i (a+b x)}\right]}{b^4}+\frac{6 i d^3 \text{PolyLog}\left[4,i e^{i (a+b x)}\right]}{b^4}$$

Result (type 4, 760 leaves):

$$-\frac{1}{b^4}\left(2 i b^3 c^3 \text{ArcTan}\left[e^{i (a+b x)}\right]+6 b^2 c^2 d \text{ArcTanh}\left[e^{i (a+b x)}\right]+b^3 c^3 \text{Csc}[a+b x]+3 b^3 c^2 d x \text{Csc}[a+b x]+3 b^3 c d^2 x^2 \text{Csc}[a+b x]+b^3 d^3 x^3 \text{Csc}[a+b x]-6 b^2 c d^2 x \text{Log}\left[1-e^{i (a+b x)}\right]-3 b^2 d^3 x^2 \text{Log}\left[1-e^{i (a+b x)}\right]-3 b^3 c^2 d x \text{Log}\left[1-i e^{i (a+b x)}\right]-3 b^3 c d^2 x^2 \text{Log}\left[1-i e^{i (a+b x)}\right]-b^3 d^3 x^3 \text{Log}\left[1-i e^{i (a+b x)}\right]+3 b^3 c^2 d x \text{Log}\left[1+i e^{i (a+b x)}\right]+3 b^3 c d^2 x^2 \text{Log}\left[1+i e^{i (a+b x)}\right]+b^3 d^3 x^3 \text{Log}\left[1+i e^{i (a+b x)}\right]+6 b^2 c d^2 x \text{Log}\left[1+e^{i (a+b x)}\right]+3 b^2 d^3 x^2 \text{Log}\left[1+e^{i (a+b x)}\right]-6 i b d^2 (c+d x) \text{PolyLog}\left[2,-e^{i (a+b x)}\right]-3 i b^2 d (c+d x)^2 \text{PolyLog}\left[2,-i e^{i (a+b x)}\right]+3 i b^2 c^2 d \text{PolyLog}\left[2,i e^{i (a+b x)}\right]+6 i b^2 c d^2 x \text{PolyLog}\left[2,i e^{i (a+b x)}\right]+3 i b^2 d^3 x^2 \text{PolyLog}\left[2,i e^{i (a+b x)}\right]+6 i b c d^2 \text{PolyLog}\left[2,e^{i (a+b x)}\right]+6 i b d^3 x \text{PolyLog}\left[2,e^{i (a+b x)}\right]+6 d^3 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]+6 b c d^2 \text{PolyLog}\left[3,-i e^{i (a+b x)}\right]+6 b d^3 x \text{PolyLog}\left[3,-i e^{i (a+b x)}\right]-6 b c d^2 \text{PolyLog}\left[3,i e^{i (a+b x)}\right]-6 b d^3 x \text{PolyLog}\left[3,i e^{i (a+b x)}\right]-6 d^3 \text{PolyLog}\left[3,e^{i (a+b x)}\right]+6 i d^3 \text{PolyLog}\left[4,-i e^{i (a+b x)}\right]-6 i d^3 \text{PolyLog}\left[4,i e^{i (a+b x)}\right]\right)$$

Problem 236: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^2 \operatorname{Csc}[a+b x]^2 \operatorname{Sec}[a+b x] \, dx$$

Optimal (type 4, 226 leaves, 19 steps):

$$-\frac{2 i (c+d x)^2 \operatorname{ArcTan}\left[e^{i (a+b x)}\right]}{b}-\frac{4 d (c+d x) \operatorname{ArcTanh}\left[e^{i (a+b x)}\right]}{b^2}-\frac{(c+d x)^2 \operatorname{Csc}[a+b x]}{b}+\frac{2 i d^2 \operatorname{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^3}+\frac{2 i d (c+d x) \operatorname{PolyLog}\left[2,-i e^{i (a+b x)}\right]}{b^2}-\frac{2 i d (c+d x) \operatorname{PolyLog}\left[2, i e^{i (a+b x)}\right]}{b^2}-\frac{2 i d^2 \operatorname{PolyLog}\left[2, e^{i (a+b x)}\right]}{b^3}-\frac{2 d^2 \operatorname{PolyLog}\left[3,-i e^{i (a+b x)}\right]}{b^3}+\frac{2 d^2 \operatorname{PolyLog}\left[3, i e^{i (a+b x)}\right]}{b^3}$$

Result (type 4, 593 leaves):

$$-\frac{(c+d x)^2 \operatorname{Csc}[a]}{b}+\frac{1}{b^3}\left(-2 i b^2 c^2 \operatorname{ArcTan}\left[e^{i (a+b x)}\right]+2 b^2 c d x \operatorname{Log}\left[1-i e^{i (a+b x)}\right]+b^2 d^2 x^2 \operatorname{Log}\left[1-i e^{i (a+b x)}\right]-2 b^2 c d x \operatorname{Log}\left[1+i e^{i (a+b x)}\right]-b^2 d^2 x^2 \operatorname{Log}\left[1+i e^{i (a+b x)}\right]+2 i b d (c+d x) \operatorname{PolyLog}\left[2,-i e^{i (a+b x)}\right]-2 i b d (c+d x) \operatorname{PolyLog}\left[2, i e^{i (a+b x)}\right]-2 d^2 \operatorname{PolyLog}\left[3,-i e^{i (a+b x)}\right]+2 d^2 \operatorname{PolyLog}\left[3, i e^{i (a+b x)}\right]\right)+\frac{4 i c d \operatorname{ArcTan}\left[\frac{i \operatorname{Cos}[a]-i \operatorname{Sin}[a] \operatorname{Tan}\left[\frac{b x}{2}\right]}{\sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}\right]}{b^2 \sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}+\frac{\operatorname{Sec}\left[\frac{a}{2}\right] \operatorname{Sec}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(-c^2 \operatorname{Sin}\left[\frac{b x}{2}\right]-2 c d x \operatorname{Sin}\left[\frac{b x}{2}\right]-d^2 x^2 \operatorname{Sin}\left[\frac{b x}{2}\right]\right)}{2 b}+\frac{\operatorname{Csc}\left[\frac{a}{2}\right] \operatorname{Csc}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(c^2 \operatorname{Sin}\left[\frac{b x}{2}\right]+2 c d x \operatorname{Sin}\left[\frac{b x}{2}\right]+d^2 x^2 \operatorname{Sin}\left[\frac{b x}{2}\right]\right)}{2 b}+\frac{1}{b^3} 2 d^2\left(-\frac{2 \operatorname{ArcTan}[\operatorname{Tan}[a]] \operatorname{ArcTanh}\left[\frac{-\operatorname{Cos}[a]+\operatorname{Sin}[a] \operatorname{Tan}\left[\frac{b x}{2}\right]}{\sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}\right]}{\sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}+\frac{1}{\sqrt{1+\operatorname{Tan}[a]^2}}\left((b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])\left(\operatorname{Log}\left[1-e^{i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]-\operatorname{Log}\left[1+e^{i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]\right)+i\left(\operatorname{PolyLog}\left[2,-e^{i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]-\operatorname{PolyLog}\left[2, e^{i (b x+\operatorname{ArcTan}[\operatorname{Tan}[a]])}\right]\right)\right) \operatorname{Sec}[a]\right)$$

Problem 237: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 131 leaves, 10 steps):

$$-\frac{2\,i\,d\,x\,\mathrm{ArcTan}\left[e^{i\,(a+b\,x)}\right]}{b}-\frac{d\,\mathrm{ArcTanh}[\mathrm{Cos}[a+b\,x]]}{b^2}-\frac{d\,x\,\mathrm{ArcTanh}[\mathrm{Sin}[a+b\,x]]}{b}+\frac{(c+d\,x)\,\mathrm{ArcTanh}[\mathrm{Sin}[a+b\,x]]}{b}-\frac{(c+d\,x)\,\mathrm{Csc}[a+b\,x]}{b}+\frac{i\,d\,\mathrm{PolyLog}\left[2,-i\,e^{i\,(a+b\,x)}\right]}{b^2}-\frac{i\,d\,\mathrm{PolyLog}\left[2,i\,e^{i\,(a+b\,x)}\right]}{b^2}$$

Result (type 4, 550 leaves):

$$-\frac{c\,\mathrm{Cot}\left[\frac{1}{2}(a+b\,x)\right]}{2\,b}+\frac{d\left(a\,\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-(a+b\,x)\,\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]\right)\mathrm{Csc}\left[\frac{1}{2}(a+b\,x)\right]}{2\,b^2}-\frac{d\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]\right]}{b^2}-\frac{c\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{b}+\frac{d\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{b^2}+\frac{c\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{b}+$$
$$\frac{1}{b^2}d\left(a\left(\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]-\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]\right)+(a+b\,x)\left(-\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]+\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]\right)-\right.$$
$$i\left(\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]\mathrm{Log}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]-\mathrm{Log}\left[\frac{1}{2}\left((1+i)-(1-i)\,\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]+\right.$$
$$\mathrm{Log}\left[\left(-\frac{1}{2}-\frac{i}{2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]-\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]\mathrm{Log}\left[\frac{1}{2}\left((1+i)+(1-i)\,\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]+$$
$$\mathrm{PolyLog}\left[2,\left(-\frac{1}{2}-\frac{i}{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]-\mathrm{PolyLog}\left[2,\left(-\frac{1}{2}+\frac{i}{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]-$$
$$\left.\left.\mathrm{PolyLog}\left[2,\left(\frac{1}{2}-\frac{i}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]+\mathrm{PolyLog}\left[2,\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]\right)\right)+$$
$$\frac{d\,\mathrm{Sec}\left[\frac{1}{2}(a+b\,x)\right]\left(a\,\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]-(a+b\,x)\,\mathrm{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}{2\,b^2}-\frac{c\,\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]}{2\,b}$$

Problem 241: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 325 leaves, 22 steps):

$$-\frac{3\,i\,d\,(c+d\,x)^2}{2\,b^2}-\frac{(c+d\,x)^3}{2\,b}-\frac{2\,(c+d\,x)^3\,\text{ArcTanh}\left[e^{2\,i\,(a+b\,x)}\right]}{b}-\frac{3\,d\,(c+d\,x)^2\,\text{Cot}[a+b\,x]}{2\,b^2}-\frac{(c+d\,x)^3\,\text{Cot}[a+b\,x]^2}{2\,b}+$$
$$\frac{3\,d^2\,(c+d\,x)\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{3\,i\,d\,(c+d\,x)^2\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^2}-\frac{3\,i\,d^3\,\text{PolyLog}\left[2,e^{2\,i\,(a+b\,x)}\right]}{2\,b^4}-\frac{3\,i\,d\,(c+d\,x)^2\,\text{PolyLog}\left[2,e^{2\,i\,(a+b\,x)}\right]}{2\,b^2}-$$
$$\frac{3\,d^2\,(c+d\,x)\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^3}+\frac{3\,d^2\,(c+d\,x)\,\text{PolyLog}\left[3,e^{2\,i\,(a+b\,x)}\right]}{2\,b^3}-\frac{3\,i\,d^3\,\text{PolyLog}\left[4,-e^{2\,i\,(a+b\,x)}\right]}{4\,b^4}+\frac{3\,i\,d^3\,\text{PolyLog}\left[4,e^{2\,i\,(a+b\,x)}\right]}{4\,b^4}$$

Result (type 4, 1285 leaves):

$$-\frac{(c+d\,x)^3\,\text{Csc}[a+b\,x]^2}{2\,b}-\frac{1}{4\,b^3}c\,d^2\,e^{-i\,a}\,\text{Csc}[a]$$
$$\left(2\,b^2\,x^2\,\left(2\,b\,e^{2\,i\,a}\,x+3\,i\,\left(-1+e^{2\,i\,a}\right)\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]\right)+6\,b\,\left(-1+e^{2\,i\,a}\right)\,x\,\text{PolyLog}\left[2,e^{2\,i\,(a+b\,x)}\right]+3\,i\,\left(-1+e^{2\,i\,a}\right)\,\text{PolyLog}\left[3,e^{2\,i\,(a+b\,x)}\right]\right)-$$
$$\frac{1}{4}\,d^3\,e^{i\,a}\,\text{Csc}[a]\,\left(x^4+\left(-1+e^{-2\,i\,a}\right)\,x^4+\frac{1}{2\,b^4}e^{-2\,i\,a}\,\left(-1+e^{2\,i\,a}\right)\right.$$
$$\left.\left(2\,b^4\,x^4+4\,i\,b^3\,x^3\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]+6\,b^2\,x^2\,\text{PolyLog}\left[2,e^{2\,i\,(a+b\,x)}\right]+6\,i\,b\,x\,\text{PolyLog}\left[3,e^{2\,i\,(a+b\,x)}\right]-3\,\text{PolyLog}\left[4,e^{2\,i\,(a+b\,x)}\right]\right)\right)+$$
$$\frac{1}{4}\,x\,\left(4\,c^3+6\,c^2\,d\,x+4\,c\,d^2\,x^2+d^3\,x^3\right)\,\text{Csc}[a]\,\text{Sec}[a]+\frac{1}{4\,b^3}c\,d^2\,e^{-i\,a}$$
$$\left(2\,i\,b^2\,x^2\,\left(2\,b\,e^{2\,i\,a}\,x+3\,i\,\left(1+e^{2\,i\,a}\right)\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right)+6\,i\,b\,\left(1+e^{2\,i\,a}\right)\,x\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]-3\,\left(1+e^{2\,i\,a}\right)\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]\right)$$
$$\text{Sec}[a]-\frac{1}{4}\,i\,d^3\,e^{i\,a}\,\left(-x^4+\left(1+e^{-2\,i\,a}\right)\,x^4-\frac{1}{2\,b^4}e^{-2\,i\,a}\,\left(1+e^{2\,i\,a}\right)\right.$$
$$\left.\left(2\,b^4\,x^4+4\,i\,b^3\,x^3\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]+6\,b^2\,x^2\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]+6\,i\,b\,x\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]-3\,\text{PolyLog}\left[4,-e^{2\,i\,(a+b\,x)}\right]\right)\right)\,\text{Sec}[a]-$$
$$\frac{c^3\,\text{Sec}[a]\,\left(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a]\right)}{b\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$
$$\frac{c^3\,\text{Csc}[a]\,\left(-b\,x\,\text{Cos}[a]+\text{Log}[\text{Cos}[b\,x]\,\text{Sin}[a]+\text{Cos}[a]\,\text{Sin}[b\,x]]\,\text{Sin}[a]\right)}{b\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$
$$\frac{3\,c\,d^2\,\text{Csc}[a]\,\left(-b\,x\,\text{Cos}[a]+\text{Log}[\text{Cos}[b\,x]\,\text{Sin}[a]+\text{Cos}[a]\,\text{Sin}[b\,x]]\,\text{Sin}[a]\right)}{b^3\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-$$
$$\left(3\,c^2\,d\,\text{Csc}[a]\,\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a]\,\left(i\,b\,x\,\left(-\pi-2\,\text{ArcTan}[\text{Cot}[a]]\right)-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,\left(b\,x-\text{ArcTan}[\text{Cot}[a]]\right)\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\,\text{Sec}[a]\right)\Big/$$
$$\left(2\,b^2\,\sqrt{\text{Csc}[a]^2\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\frac{3\,\text{Csc}[a]\,\text{Csc}[a+b\,x]\,\left(c^2\,d\,\text{Sin}[b\,x]+2\,c\,d^2\,x\,\text{Sin}[b\,x]+d^3\,x^2\,\text{Sin}[b\,x]\right)}{2\,b^2}-$$

$$\left(3 c^2 d \,\text{Csc}[a]\, \text{Sec}[a] \left(b^2 e^{i\,\text{ArcTan}[\text{Tan}[a]]} x^2 + \frac{1}{\sqrt{1+\text{Tan}[a]^2}} \left(i\, b\, x \left(-\pi + 2\,\text{ArcTan}[\text{Tan}[a]]\right) - \pi\,\text{Log}\left[1+e^{-2 i b x}\right] - 2 \left(b x + \text{ArcTan}[\text{Tan}[a]]\right) \text{Log}\left[1 - e^{2 i (b x + \text{ArcTan}[\text{Tan}[a]])}\right] + \pi\,\text{Log}[\text{Cos}[b x]] + 2\,\text{ArcTan}[\text{Tan}[a]]\,\text{Log}[\text{Sin}[b x + \text{ArcTan}[\text{Tan}[a]]]] + i\,\text{PolyLog}\left[2, e^{2 i (b x + \text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right) \Big/ \left(2 b^2 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)}\right) - \left(3 d^3 \,\text{Csc}[a]\, \text{Sec}[a] \left(b^2 e^{i\,\text{ArcTan}[\text{Tan}[a]]} x^2 + \frac{1}{\sqrt{1+\text{Tan}[a]^2}} \left(i\, b\, x \left(-\pi + 2\,\text{ArcTan}[\text{Tan}[a]]\right) - \pi\,\text{Log}\left[1+e^{-2 i b x}\right] - 2 \left(b x + \text{ArcTan}[\text{Tan}[a]]\right) \text{Log}\left[1 - e^{2 i (b x + \text{ArcTan}[\text{Tan}[a]])}\right] + \pi\,\text{Log}[\text{Cos}[b x]] + 2\,\text{ArcTan}[\text{Tan}[a]]\,\text{Log}[\text{Sin}[b x + \text{ArcTan}[\text{Tan}[a]]]] + i\,\text{PolyLog}\left[2, e^{2 i (b x + \text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right) \Big/ \left(2 b^4 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)}\right)$$

Problem 242: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 201 leaves, 17 steps):

$$-\frac{c d x}{b} - \frac{d^2 x^2}{2 b} - \frac{2 (c + d x)^2 \,\text{ArcTanh}\left[e^{2 i (a+b x)}\right]}{b} - \frac{d (c + d x)\,\text{Cot}[a + b x]}{b^2} - \frac{(c + d x)^2 \,\text{Cot}[a + b x]^2}{2 b} + \frac{d^2 \,\text{Log}[\text{Sin}[a + b x]]}{b^3} + \frac{i d (c + d x)\,\text{PolyLog}\left[2, -e^{2 i (a+b x)}\right]}{b^2} - \frac{i d (c + d x)\,\text{PolyLog}\left[2, e^{2 i (a+b x)}\right]}{b^2} - \frac{d^2 \,\text{PolyLog}\left[3, -e^{2 i (a+b x)}\right]}{2 b^3} + \frac{d^2 \,\text{PolyLog}\left[3, e^{2 i (a+b x)}\right]}{2 b^3}$$

Result (type 4, 785 leaves):

$$-\frac{(c+d x)^2 \text{Csc}[a+b x]^2}{2 b}-\frac{1}{12 b^3}d^2 e^{-i a} \text{Csc}[a]$$
$$\left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \text{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \,\text{PolyLog}\left[2,e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]\right)+$$
$$\frac{1}{3} x \left(3 c^2+3 c d x+d^2 x^2\right) \text{Csc}[a] \,\text{Sec}[a]+\frac{1}{12 b^3}$$
$$d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(1+e^{2 i a}\right) \text{Log}\left[1+e^{2 i (a+b x)}\right]\right)+6 i b \left(1+e^{2 i a}\right) x \,\text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]-3 \left(1+e^{2 i a}\right) \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]\right)$$
$$\text{Sec}[a]-\frac{c^2 \text{Sec}[a] \left(\text{Cos}[a] \,\text{Log}[\text{Cos}[a] \,\text{Cos}[b x]-\text{Sin}[a] \,\text{Sin}[b x]]+b x \,\text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$
$$\frac{c^2 \text{Csc}[a] \left(-b x \,\text{Cos}[a]+\text{Log}[\text{Cos}[b x] \,\text{Sin}[a]+\text{Cos}[a] \,\text{Sin}[b x]] \,\text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$
$$\frac{d^2 \text{Csc}[a] \left(-b x \,\text{Cos}[a]+\text{Log}[\text{Cos}[b x] \,\text{Sin}[a]+\text{Cos}[a] \,\text{Sin}[b x]] \,\text{Sin}[a]\right)}{b^3 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-$$
$$\left(c d \,\text{Csc}[a] \left(b^2 e^{-i \text{ArcTan}[\text{Cot}[a]]} x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\text{Cot}[a] \left(i b x \left(-\pi -2 \,\text{ArcTan}[\text{Cot}[a]]\right)-\pi \,\text{Log}\left[1+e^{-2 i b x}\right]-\right.\right.\right.$$
$$2 \left(b x-\text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1-e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]+\pi \,\text{Log}[\text{Cos}[b x]]-2 \,\text{ArcTan}[\text{Cot}[a]] \,\text{Log}[\text{Sin}[b x-\text{ArcTan}[\text{Cot}[a]]]]+$$
$$\left.\left.\left. i \,\text{PolyLog}\left[2,e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right) \Big/ \left(b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+$$
$$\frac{\text{Csc}[a] \,\text{Csc}[a+b x] \left(c d \,\text{Sin}[b x]+d^2 x \,\text{Sin}[b x]\right)}{b^2}-\left(c d \,\text{Csc}[a] \,\text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\right.\right.$$
$$\left(i b x \left(-\pi +2 \,\text{ArcTan}[\text{Tan}[a]]\right)-\pi \,\text{Log}\left[1+e^{-2 i b x}\right]-2 \left(b x+\text{ArcTan}[\text{Tan}[a]]\right) \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi \,\text{Log}[\text{Cos}[b x]]+2\right.$$
$$\left.\left.\left.\text{ArcTan}[\text{Tan}[a]] \,\text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \,\text{PolyLog}\left[2,e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right) \Big/ \left(b^2 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)$$

Problem 250: Result more than twice size of optimal antiderivative.

$$\int (c+d x) \,\text{Sec}[a+b x] \,\text{Tan}[a+b x] \, dx$$

Optimal (type 3, 29 leaves, 2 steps):

$$-\frac{d \,\text{ArcTanh}[\text{Sin}[a+b x]]}{b^2}+\frac{(c+d x) \,\text{Sec}[a+b x]}{b}$$

Result (type 3, 93 leaves):

$$\frac{d\,\text{Log}\left[\text{Cos}\left[\frac{a}{2}+\frac{b\,x}{2}\right]-\text{Sin}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\right]}{b^2}-\frac{d\,\text{Log}\left[\text{Cos}\left[\frac{a}{2}+\frac{b\,x}{2}\right]+\text{Sin}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\right]}{b^2}+\frac{c\,\text{Sec}[a+b\,x]}{b}+\frac{d\,x\,\text{Sec}[a+b\,x]}{b}$$

Problem 254: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 128 leaves, 7 steps):

$$-\frac{i\,(c+d\,x)^3}{b}-\frac{(c+d\,x)^4}{4\,d}+\frac{3\,d\,(c+d\,x)^2\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b^2}-\frac{3\,i\,d^2\,(c+d\,x)\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{3\,d^3\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^4}+\frac{(c+d\,x)^3\,\text{Tan}[a+b\,x]}{b}$$

Result (type 4, 431 leaves):

$$-\frac{1}{4}\,x\,\left(4\,c^3+6\,c^2\,d\,x+4\,c\,d^2\,x^2+d^3\,x^3\right)-\frac{1}{4\,b^4}$$
$$d^3\,e^{-i\,a}\left(2\,i\,b^2\,x^2\left(2\,b\,e^{2\,i\,a}\,x+3\,i\left(1+e^{2\,i\,a}\right)\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right)+6\,i\,b\left(1+e^{2\,i\,a}\right)x\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]-3\left(1+e^{2\,i\,a}\right)\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]\right)$$
$$\text{Sec}[a]+\frac{3\,c^2\,d\,\text{Sec}[a]\,\left(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a]\right)}{b^2\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\left(3\,c\,d^2\,\text{Csc}[a]\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a]\left(i\,b\,x\,(-\pi-2\,\text{ArcTan}[\text{Cot}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x-\text{ArcTan}[\text{Cot}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\text{Sec}[a]\right)\Big/$$
$$\left(b^3\,\sqrt{\text{Csc}[a]^2\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\frac{\text{Sec}[a]\,\text{Sec}[a+b\,x]\,\left(c^3\,\text{Sin}[b\,x]+3\,c^2\,d\,x\,\text{Sin}[b\,x]+3\,c\,d^2\,x^2\,\text{Sin}[b\,x]+d^3\,x^3\,\text{Sin}[b\,x]\right)}{b}$$

Problem 255: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 96 leaves, 6 steps):

$$-\frac{i\,(c+d\,x)^2}{b}-\frac{(c+d\,x)^3}{3\,d}+\frac{2\,d\,(c+d\,x)\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b^2}-\frac{i\,d^2\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{(c+d\,x)^2\,\text{Tan}[a+b\,x]}{b}$$

Result (type 4, 276 leaves):

$$-\frac{1}{3} x \left(3 c^2+3 c d x+d^2 x^2\right)+\frac{2 c d \,\text{Sec}[a] \left(\text{Cos}[a] \,\text{Log}[\text{Cos}[a] \,\text{Cos}[b x]-\text{Sin}[a] \,\text{Sin}[b x]]+b x \,\text{Sin}[a]\right)}{b^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$

$$\left(d^2 \,\text{Csc}[a] \left(b^2 e^{-i \,\text{ArcTan}[\text{Cot}[a]]} x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}} \text{Cot}[a] \left(i b x \left(-\pi-2 \,\text{ArcTan}[\text{Cot}[a]]\right)-\pi \,\text{Log}\left[1+e^{-2 i b x}\right]-2 \left(b x-\text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1-e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]+\pi \,\text{Log}[\text{Cos}[b x]]-2 \,\text{ArcTan}[\text{Cot}[a]] \,\text{Log}[\text{Sin}[b x-\text{ArcTan}[\text{Cot}[a]]]]+i \,\text{PolyLog}\left[2, e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right) \Big/$$

$$\left(b^3 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\frac{\text{Sec}[a] \,\text{Sec}[a+b x] \left(c^2 \,\text{Sin}[b x]+2 c d x \,\text{Sin}[b x]+d^2 x^2 \,\text{Sin}[b x]\right)}{b}$$

Problem 260: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 228 leaves, 13 steps):

$$\frac{6 i d (c+d x)^2 \,\text{ArcTan}\left[e^{i (a+b x)}\right]}{b^2}-\frac{6 d^2 (c+d x) \,\text{Cos}[a+b x]}{b^3}+\frac{(c+d x)^3 \,\text{Cos}[a+b x]}{b}-$$
$$\frac{6 i d^2 (c+d x) \,\text{PolyLog}\left[2,-i e^{i (a+b x)}\right]}{b^3}+\frac{6 i d^2 (c+d x) \,\text{PolyLog}\left[2, i e^{i (a+b x)}\right]}{b^3}+\frac{6 d^3 \,\text{PolyLog}\left[3,-i e^{i (a+b x)}\right]}{b^4}-$$
$$\frac{6 d^3 \,\text{PolyLog}\left[3, i e^{i (a+b x)}\right]}{b^4}+\frac{(c+d x)^3 \,\text{Sec}[a+b x]}{b}+\frac{6 d^3 \,\text{Sin}[a+b x]}{b^4}-\frac{3 d (c+d x)^2 \,\text{Sin}[a+b x]}{b^2}$$

Result (type 4, 532 leaves):

$$\frac{1}{2 b^4} \text{Sec}[a+b x] \left(3 b^3 c^3-6 b c d^2+9 b^3 c^2 d x-6 b d^3 x+9 b^3 c d^2 x^2+3 b^3 d^3 x^3+12 i b^2 c^2 d \,\text{ArcTan}\left[e^{i (a+b x)}\right] \text{Cos}[a+b x]+\right.$$
$$b^3 c^3 \,\text{Cos}[2 (a+b x)]-6 b c d^2 \,\text{Cos}[2 (a+b x)]+3 b^3 c^2 d x \,\text{Cos}[2 (a+b x)]-6 b d^3 x \,\text{Cos}[2 (a+b x)]+3 b^3 c d^2 x^2 \,\text{Cos}[2 (a+b x)]+$$
$$b^3 d^3 x^3 \,\text{Cos}[2 (a+b x)]-12 b^2 c d^2 x \,\text{Cos}[a+b x] \,\text{Log}\left[1-i e^{i (a+b x)}\right]-6 b^2 d^3 x^2 \,\text{Cos}[a+b x] \,\text{Log}\left[1-i e^{i (a+b x)}\right]+$$
$$12 b^2 c d^2 x \,\text{Cos}[a+b x] \,\text{Log}\left[1+i e^{i (a+b x)}\right]+6 b^2 d^3 x^2 \,\text{Cos}[a+b x] \,\text{Log}\left[1+i e^{i (a+b x)}\right]-12 i b d^2 (c+d x) \,\text{Cos}[a+b x] \,\text{PolyLog}\left[2,-i e^{i (a+b x)}\right]+$$
$$12 i b d^2 (c+d x) \,\text{Cos}[a+b x] \,\text{PolyLog}\left[2, i e^{i (a+b x)}\right]+12 d^3 \,\text{Cos}[a+b x] \,\text{PolyLog}\left[3,-i e^{i (a+b x)}\right]-12 d^3 \,\text{Cos}[a+b x] \,\text{PolyLog}\left[3, i e^{i (a+b x)}\right]-$$
$$\left.3 b^2 c^2 d \,\text{Sin}[2 (a+b x)]+6 d^3 \,\text{Sin}[2 (a+b x)]-6 b^2 c d^2 x \,\text{Sin}[2 (a+b x)]-3 b^2 d^3 x^2 \,\text{Sin}[2 (a+b x)]\right)$$

Problem 261: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 145 leaves, 10 steps):

$$\frac{4\,i\,d\,(c+d\,x)\,\text{ArcTan}\left[e^{i\,(a+b\,x)}\right]}{b^2}-\frac{2\,d^2\,\text{Cos}[a+b\,x]}{b^3}+\frac{(c+d\,x)^2\,\text{Cos}[a+b\,x]}{b}-\frac{2\,i\,d^2\,\text{PolyLog}\left[2,-i\,e^{i\,(a+b\,x)}\right]}{b^3}+\frac{2\,i\,d^2\,\text{PolyLog}\left[2,i\,e^{i\,(a+b\,x)}\right]}{b^3}+\frac{(c+d\,x)^2\,\text{Sec}[a+b\,x]}{b}-\frac{2\,d\,(c+d\,x)\,\text{Sin}[a+b\,x]}{b^2}$$

Result (type 4, 362 leaves):

$$\frac{1}{b^3}\left(-4\,b\,c\,d\,\text{ArcTanh}\left[\text{Sin}[a]+\text{Cos}[a]\,\text{Tan}\left[\frac{b\,x}{2}\right]\right]-4\,d^2\,\text{ArcTan}[\text{Cot}[a]]\,\text{ArcTanh}\left[\text{Sin}[a]+\text{Cos}[a]\,\text{Tan}\left[\frac{b\,x}{2}\right]\right]+\frac{1}{\sqrt{\text{Csc}[a]^2}}2\,d^2\,\text{Csc}[a]\,\left((b\,x-\text{ArcTan}[\text{Cot}[a]])\,\left(\text{Log}\left[1-e^{i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]-\text{Log}\left[1+e^{i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)+i\,\text{PolyLog}\left[2,-e^{i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]-i\,\text{PolyLog}\left[2,e^{i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)+b^2\,(c+d\,x)^2\,\text{Sec}[a]+\text{Cos}[b\,x]\,\left(\left(-2\,d^2+b^2\,(c+d\,x)^2\right)\,\text{Cos}[a]-2\,b\,d\,(c+d\,x)\,\text{Sin}[a]\right)-\left(2\,b\,d\,(c+d\,x)\,\text{Cos}[a]+\left(-2\,d^2+b^2\,(c+d\,x)^2\right)\,\text{Sin}[a]\right)\,\text{Sin}[b\,x]+\frac{b^2\,(c+d\,x)^2\,\text{Sin}\left[\frac{b\,x}{2}\right]}{\left(\text{Cos}\left[\frac{a}{2}\right]-\text{Sin}\left[\frac{a}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(a+b\,x)\right]\right)}-\frac{b^2\,(c+d\,x)^2\,\text{Sin}\left[\frac{b\,x}{2}\right]}{\left(\text{Cos}\left[\frac{a}{2}\right]+\text{Sin}\left[\frac{a}{2}\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(a+b\,x)\right]\right)}\right)$$

Problem 266: Result more than twice size of optimal antiderivative.

$$\int (c+d\,x)^4\,\text{Csc}[a+b\,x]\,\text{Sec}[a+b\,x]^2\,dx$$

Optimal (type 4, 469 leaves, 27 steps):

$$\frac{8\,i\,d\,(c+d\,x)^3\,\text{ArcTan}\left[e^{i\,(a+b\,x)}\right]}{b^2}-\frac{2\,(c+d\,x)^4\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]}{b}+\frac{4\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]}{b^2}-\frac{12\,i\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[2,-i\,e^{i\,(a+b\,x)}\right]}{b^3}+\frac{12\,i\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[2,i\,e^{i\,(a+b\,x)}\right]}{b^3}-\frac{4\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]}{b^2}-\frac{12\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,-e^{i\,(a+b\,x)}\right]}{b^3}+\frac{24\,d^3\,(c+d\,x)\,\text{PolyLog}\left[3,-i\,e^{i\,(a+b\,x)}\right]}{b^4}-\frac{24\,d^3\,(c+d\,x)\,\text{PolyLog}\left[3,i\,e^{i\,(a+b\,x)}\right]}{b^4}+\frac{12\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,e^{i\,(a+b\,x)}\right]}{b^3}-\frac{24\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,-e^{i\,(a+b\,x)}\right]}{b^4}+\frac{24\,i\,d^4\,\text{PolyLog}\left[4,-i\,e^{i\,(a+b\,x)}\right]}{b^5}-\frac{24\,i\,d^4\,\text{PolyLog}\left[4,i\,e^{i\,(a+b\,x)}\right]}{b^5}+\frac{24\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,e^{i\,(a+b\,x)}\right]}{b^4}+\frac{24\,d^4\,\text{PolyLog}\left[5,-e^{i\,(a+b\,x)}\right]}{b^5}-\frac{24\,d^4\,\text{PolyLog}\left[5,e^{i\,(a+b\,x)}\right]}{b^5}+\frac{(c+d\,x)^4\,\text{Sec}[a+b\,x]}{b}$$

Result (type 4, 998 leaves):

$$\frac{1}{b^5}\Big(-2 b^4 c^4 \text{ArcTanh}\left[e^{i (a+b x)}\right]+4 b^4 c^3 d x \text{Log}\left[1-e^{i (a+b x)}\right]+6 b^4 c^2 d^2 x^2 \text{Log}\left[1-e^{i (a+b x)}\right]+4 b^4 c d^3 x^3 \text{Log}\left[1-e^{i (a+b x)}\right]+$$
$$b^4 d^4 x^4 \text{Log}\left[1-e^{i (a+b x)}\right]-4 b^4 c^3 d x \text{Log}\left[1+e^{i (a+b x)}\right]-6 b^4 c^2 d^2 x^2 \text{Log}\left[1+e^{i (a+b x)}\right]-4 b^4 c d^3 x^3 \text{Log}\left[1+e^{i (a+b x)}\right]-$$
$$b^4 d^4 x^4 \text{Log}\left[1+e^{i (a+b x)}\right]+4 i b^3 d (c+d x)^3 \text{PolyLog}\left[2,-e^{i (a+b x)}\right]-4 i b^3 d (c+d x)^3 \text{PolyLog}\left[2,e^{i (a+b x)}\right]-$$
$$12 b^2 c^2 d^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]-24 b^2 c d^3 x \text{PolyLog}\left[3,-e^{i (a+b x)}\right]-12 b^2 d^4 x^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]+12 b^2 c^2 d^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]+$$
$$24 b^2 c d^3 x \text{PolyLog}\left[3,e^{i (a+b x)}\right]+12 b^2 d^4 x^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]-24 i b c d^3 \text{PolyLog}\left[4,-e^{i (a+b x)}\right]-24 i b d^4 x \text{PolyLog}\left[4,-e^{i (a+b x)}\right]-$$
$$4 d \Big(-2 i b^3 c^3 \text{ArcTan}\left[e^{i (a+b x)}\right]+3 b^3 c^2 d x \text{Log}\left[1-i e^{i (a+b x)}\right]+3 b^3 c d^2 x^2 \text{Log}\left[1-i e^{i (a+b x)}\right]+b^3 d^3 x^3 \text{Log}\left[1-i e^{i (a+b x)}\right]-$$
$$3 b^3 c^2 d x \text{Log}\left[1+i e^{i (a+b x)}\right]-3 b^3 c d^2 x^2 \text{Log}\left[1+i e^{i (a+b x)}\right]-b^3 d^3 x^3 \text{Log}\left[1+i e^{i (a+b x)}\right]+3 i b^2 d (c+d x)^2 \text{PolyLog}\left[2,-i e^{i (a+b x)}\right]-$$
$$3 i b^2 d (c+d x)^2 \text{PolyLog}\left[2,i e^{i (a+b x)}\right]-6 b c d^2 \text{PolyLog}\left[3,-i e^{i (a+b x)}\right]-6 b d^3 x \text{PolyLog}\left[3,-i e^{i (a+b x)}\right]+$$
$$6 b c d^2 \text{PolyLog}\left[3,i e^{i (a+b x)}\right]+6 b d^3 x \text{PolyLog}\left[3,i e^{i (a+b x)}\right]-6 i d^3 \text{PolyLog}\left[4,-i e^{i (a+b x)}\right]+6 i d^3 \text{PolyLog}\left[4,i e^{i (a+b x)}\right]\Big)+$$
$$24 i b c d^3 \text{PolyLog}\left[4,e^{i (a+b x)}\right]+24 i b d^4 x \text{PolyLog}\left[4,e^{i (a+b x)}\right]+24 d^4 \text{PolyLog}\left[5,-e^{i (a+b x)}\right]-$$
$$24 d^4 \text{PolyLog}\left[5,e^{i (a+b x)}\right]+b^4 (c+d x)^4 \text{Sec}[a+b x]\Big)$$

Problem 268: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 219 leaves, 19 steps):

$$\frac{4 i d (c+d x) \text{ArcTan}\left[e^{i (a+b x)}\right]}{b^2}-\frac{2 (c+d x)^2 \text{ArcTanh}\left[e^{i (a+b x)}\right]}{b}+$$
$$\frac{2 i d (c+d x) \text{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^2}-\frac{2 i d^2 \text{PolyLog}\left[2,-i e^{i (a+b x)}\right]}{b^3}+\frac{2 i d^2 \text{PolyLog}\left[2,i e^{i (a+b x)}\right]}{b^3}-$$
$$\frac{2 i d (c+d x) \text{PolyLog}\left[2,e^{i (a+b x)}\right]}{b^2}-\frac{2 d^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^3}+\frac{2 d^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]}{b^3}+\frac{(c+d x)^2 \text{Sec}[a+b x]}{b}$$

Result (type 4, 449 leaves):

$$\frac{1}{b^3}\left(-2 b^2 c^2 \text{ArcTanh}\left[e^{i (a+b x)}\right]+2 b^2 c d x \text{Log}\left[1-e^{i (a+b x)}\right]+b^2 d^2 x^2 \text{Log}\left[1-e^{i (a+b x)}\right]-2 b^2 c d x \text{Log}\left[1+e^{i (a+b x)}\right]-b^2 d^2 x^2 \text{Log}\left[1+e^{i (a+b x)}\right]+ 2 i b d (c+d x) \text{PolyLog}\left[2,-e^{i (a+b x)}\right]-2 i b d (c+d x) \text{PolyLog}\left[2,e^{i (a+b x)}\right]-2 d^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]+2 d^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]\right)+$$

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

$$2 d^2 \left(-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\text{Csc}[a] \left((b x-\text{ArcTan}[\text{Cot}[a]]) \left(\text{Log}\left[1-e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]-\text{Log}\left[1+e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)+ i \left(\text{PolyLog}\left[2,-e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]-\text{PolyLog}\left[2,e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)+\frac{2 \text{ArcTan}[\text{Cot}[a]] \text{ArcTanh}\left[\frac{\text{Sin}[a]+\text{Cos}[a] \text{Tan}\left[\frac{b x}{2}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right)$$

Problem 280: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 305 leaves, 36 steps):

$$\frac{4 i d^2 x \text{ArcTanh}\left[e^{i (a+b x)}\right]}{b^2}-\frac{3 (c+d x)^2 \text{ArcTanh}\left[e^{i (a+b x)}\right]}{b}-\frac{d^2 \text{ArcTanh}[\text{Cos}[a+b x]]}{b^3}-\frac{2 c d \text{ArcTanh}[\text{Sin}[a+b x]]}{b^2}-\frac{c d \text{Csc}[a+b x]}{b^2}-\frac{d^2 x \text{Csc}[a+b x]}{b^2}+\frac{3 i d (c+d x) \text{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^2}-\frac{2 i d^2 \text{PolyLog}\left[2,-i e^{i (a+b x)}\right]}{b^3}+\frac{2 i d^2 \text{PolyLog}\left[2,i e^{i (a+b x)}\right]}{b^3}-\frac{3 i d (c+d x) \text{PolyLog}\left[2,e^{i (a+b x)}\right]}{b^2}-\frac{3 d^2 \text{PolyLog}\left[3,-e^{i (a+b x)}\right]}{b^3}+\frac{3 d^2 \text{PolyLog}\left[3,e^{i (a+b x)}\right]}{b^3}+\frac{3 (c+d x)^2 \text{Sec}[a+b x]}{2 b}-\frac{(c+d x)^2 \text{Csc}[a+b x]^2 \text{Sec}[a+b x]}{2 b}$$

Result (type 4, 889 leaves):

$$\frac{\left(-c^2-2 c d x-d^2 x^2\right) \operatorname{Csc}\left[\frac{a}{2}+\frac{b x}{2}\right]^2}{8 b}+$$
$$\frac{1}{2 b^3}\left(3 b^2 c^2 \operatorname{Log}\left[1-e^{i (a+b x)}\right]+2 d^2 \operatorname{Log}\left[1-e^{i (a+b x)}\right]+6 b^2 c d x \operatorname{Log}\left[1-e^{i (a+b x)}\right]+3 b^2 d^2 x^2 \operatorname{Log}\left[1-e^{i (a+b x)}\right]-3 b^2 c^2 \operatorname{Log}\left[1+e^{i (a+b x)}\right]-\right.$$
$$2 d^2 \operatorname{Log}\left[1+e^{i (a+b x)}\right]-6 b^2 c d x \operatorname{Log}\left[1+e^{i (a+b x)}\right]-3 b^2 d^2 x^2 \operatorname{Log}\left[1+e^{i (a+b x)}\right]+6 i b d (c+d x) \operatorname{PolyLog}\left[2,-e^{i (a+b x)}\right]-$$
$$\left.6 i b d (c+d x) \operatorname{PolyLog}\left[2, e^{i (a+b x)}\right]-6 d^2 \operatorname{PolyLog}\left[3,-e^{i (a+b x)}\right]+6 d^2 \operatorname{PolyLog}\left[3, e^{i (a+b x)}\right]\right)+$$
$$\frac{\left(c^2+2 c d x+d^2 x^2\right) \operatorname{Sec}\left[\frac{a}{2}+\frac{b x}{2}\right]^2}{8 b}+\frac{(c+d x) \operatorname{Csc}[a] \operatorname{Sec}[a](-d \operatorname{Cos}[a]+b c \operatorname{Sin}[a]+b d x \operatorname{Sin}[a])}{b^2}-$$
$$\frac{4 i c d \operatorname{ArcTan}\left[\frac{-i \operatorname{Sin}[a]-i \operatorname{Cos}[a] \operatorname{Tan}\left[\frac{b x}{2}\right]}{\sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}\right]}{b^2 \sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}-\frac{1}{b^3}$$
$$2 d^2\left(-\frac{1}{\sqrt{1+\operatorname{Cot}[a]^2}} \operatorname{Csc}[a]\left((b x-\operatorname{ArcTan}[\operatorname{Cot}[a]])\left(\operatorname{Log}\left[1-e^{i (b x-\operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]-\operatorname{Log}\left[1+e^{i (b x-\operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]\right)+\right.\right.$$
$$\left.\left.i\left(\operatorname{PolyLog}\left[2,-e^{i (b x-\operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]-\operatorname{PolyLog}\left[2, e^{i (b x-\operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]\right)\right)+\frac{2 \operatorname{ArcTan}[\operatorname{Cot}[a]] \operatorname{ArcTanh}\left[\frac{\operatorname{Sin}[a]+\operatorname{Cos}[a] \operatorname{Tan}\left[\frac{b x}{2}\right]}{\sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}\right]}{\sqrt{\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2}}\right)+$$
$$\frac{\operatorname{Sec}\left[\frac{a}{2}\right] \operatorname{Sec}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(-c d \operatorname{Sin}\left[\frac{b x}{2}\right]-d^2 x \operatorname{Sin}\left[\frac{b x}{2}\right]\right)}{2 b^2}+\frac{\operatorname{Csc}\left[\frac{a}{2}\right] \operatorname{Csc}\left[\frac{a}{2}+\frac{b x}{2}\right]\left(c d \operatorname{Sin}\left[\frac{b x}{2}\right]+d^2 x \operatorname{Sin}\left[\frac{b x}{2}\right]\right)}{2 b^2}+$$
$$\frac{c^2 \operatorname{Sin}\left[\frac{b x}{2}\right]+2 c d x \operatorname{Sin}\left[\frac{b x}{2}\right]+d^2 x^2 \operatorname{Sin}\left[\frac{b x}{2}\right]}{b\left(\operatorname{Cos}\left[\frac{a}{2}\right]-\operatorname{Sin}\left[\frac{a}{2}\right]\right)\left(\operatorname{Cos}\left[\frac{a}{2}+\frac{b x}{2}\right]-\operatorname{Sin}\left[\frac{a}{2}+\frac{b x}{2}\right]\right)}+$$
$$\frac{-c^2 \operatorname{Sin}\left[\frac{b x}{2}\right]-2 c d x \operatorname{Sin}\left[\frac{b x}{2}\right]-d^2 x^2 \operatorname{Sin}\left[\frac{b x}{2}\right]}{b\left(\operatorname{Cos}\left[\frac{a}{2}\right]+\operatorname{Sin}\left[\frac{a}{2}\right]\right)\left(\operatorname{Cos}\left[\frac{a}{2}+\frac{b x}{2}\right]+\operatorname{Sin}\left[\frac{a}{2}+\frac{b x}{2}\right]\right)}$$

Problem 281: Result more than twice size of optimal antiderivative.

$$\int (c+d x) \operatorname{Csc}[a+b x]^3 \operatorname{Sec}[a+b x]^2 \, dx$$

Optimal (type 4, 154 leaves, 13 steps):

$$-\frac{3\,d\,x\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]}{b}-\frac{3\,c\,\text{ArcTanh}[\text{Cos}[a+b\,x]]}{2\,b}-\frac{d\,\text{ArcTanh}[\text{Sin}[a+b\,x]]}{b^2}-\frac{d\,\text{Csc}[a+b\,x]}{2\,b^2}+$$
$$\frac{3\,i\,d\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]}{2\,b^2}-\frac{3\,i\,d\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]}{2\,b^2}+\frac{3\,(c+d\,x)\,\text{Sec}[a+b\,x]}{2\,b}-\frac{(c+d\,x)\,\text{Csc}[a+b\,x]^2\,\text{Sec}[a+b\,x]}{2\,b}$$

Result (type 4, 520 leaves):

$$\frac{d\,x}{b}-\frac{d\,\text{Cot}\left[\frac{1}{2}(a+b\,x)\right]}{4\,b^2}-\frac{c\,\text{Csc}\left[\frac{1}{2}(a+b\,x)\right]^2}{8\,b}-\frac{d\,x\,\text{Csc}\left[\frac{1}{2}(a+b\,x)\right]^2}{8\,b}-\frac{3\,c\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]\right]}{2\,b}+$$
$$\frac{d\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{b^2}+\frac{3\,c\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{2\,b}-\frac{d\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]}{b^2}-$$
$$\frac{3\,a\,d\,\text{Log}\left[\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]}{2\,b^2}+\frac{1}{2\,b^2}3\,d\left((a+b\,x)\left(\text{Log}\left[1-e^{i\,(a+b\,x)}\right]-\text{Log}\left[1+e^{i\,(a+b\,x)}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]-\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]\right)\right)+$$
$$\frac{c\,\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2}{8\,b}+\frac{d\,x\,\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2}{8\,b}+\frac{c\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}{b\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}-\frac{c\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}{b\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}+$$
$$\frac{d\left(a\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]-(a+b\,x)\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}{b^2\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}+\frac{d\left(-a\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]+(a+b\,x)\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}{b^2\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}-\frac{d\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]}{4\,b^2}$$

Problem 286: Result more than twice size of optimal antiderivative.

$$\int x^2\,\text{Csc}[a+b\,x]^3\,\text{Sec}[a+b\,x]^2\,dx$$

Optimal (type 4, 235 leaves, 29 steps):

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

Result (type 4, 557 leaves):

$$-\frac{x^2\,\text{Csc}\left[\frac{a}{2}+\frac{b\,x}{2}\right]^2}{8\,b}-\frac{1}{b^3}2\left(\left(-a+\frac{\pi}{2}-b\,x\right)\left(\text{Log}\left[1-e^{i\left(-a+\frac{\pi}{2}-b\,x\right)}\right]-\text{Log}\left[1+e^{i\left(-a+\frac{\pi}{2}-b\,x\right)}\right]\right)-\left(-a+\frac{\pi}{2}\right)\text{Log}\left[\text{Tan}\left[\frac{1}{2}\left(-a+\frac{\pi}{2}-b\,x\right)\right]\right]+i\left(\text{PolyLog}\left[2,-e^{i\left(-a+\frac{\pi}{2}-b\,x\right)}\right]-\text{PolyLog}\left[2,e^{i\left(-a+\frac{\pi}{2}-b\,x\right)}\right]\right)\right)-\frac{1}{b^3}\left(2\,\text{ArcTanh}[\text{Cos}[a+b\,x]+i\,\text{Sin}[a+b\,x]]+3\,b^2\,x^2\,\text{ArcTanh}[\text{Cos}[a+b\,x]+i\,\text{Sin}[a+b\,x]]-3\,i\,b\,x\,\text{PolyLog}[2,-\text{Cos}[a+b\,x]-i\,\text{Sin}[a+b\,x]]+3\,i\,b\,x\,\text{PolyLog}[2,\text{Cos}[a+b\,x]+i\,\text{Sin}[a+b\,x]]+3\,\text{PolyLog}[3,-\text{Cos}[a+b\,x]-i\,\text{Sin}[a+b\,x]]-3\,\text{PolyLog}[3,\text{Cos}[a+b\,x]+i\,\text{Sin}[a+b\,x]]\right)+\frac{x^2\,\text{Sec}\left[\frac{a}{2}+\frac{b\,x}{2}\right]^2}{8\,b}+\frac{x\,\text{Csc}[a]\,\text{Sec}[a]\,(-\text{Cos}[a]+b\,x\,\text{Sin}[a])}{b^2}+\frac{x\,\text{Csc}\left[\frac{a}{2}\right]\text{Csc}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\text{Sin}\left[\frac{b\,x}{2}\right]}{2\,b^2}-\frac{x\,\text{Sec}\left[\frac{a}{2}\right]\text{Sec}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\text{Sin}\left[\frac{b\,x}{2}\right]}{2\,b^2}+\frac{x^2\,\text{Sin}\left[\frac{b\,x}{2}\right]}{b\left(\text{Cos}\left[\frac{a}{2}\right]-\text{Sin}\left[\frac{a}{2}\right]\right)\left(\text{Cos}\left[\frac{a}{2}+\frac{b\,x}{2}\right]-\text{Sin}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\right)}-\frac{x^2\,\text{Sin}\left[\frac{b\,x}{2}\right]}{b\left(\text{Cos}\left[\frac{a}{2}\right]+\text{Sin}\left[\frac{a}{2}\right]\right)\left(\text{Cos}\left[\frac{a}{2}+\frac{b\,x}{2}\right]+\text{Sin}\left[\frac{a}{2}+\frac{b\,x}{2}\right]\right)}$$

Problem 287: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Csc}[a+b\,x]^3\,\text{Sec}[a+b\,x]^2\,dx$$

Optimal (type 4, 126 leaves, 13 steps):

$$-\frac{3\,x\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]}{b}-\frac{\text{ArcTanh}[\text{Sin}[a+b\,x]]}{b^2}-\frac{\text{Csc}[a+b\,x]}{2\,b^2}+\frac{3\,i\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]}{2\,b^2}-\frac{3\,i\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]}{2\,b^2}+\frac{3\,x\,\text{Sec}[a+b\,x]}{2\,b}-\frac{x\,\text{Csc}[a+b\,x]^2\,\text{Sec}[a+b\,x]}{2\,b}$$

Result (type 4, 282 leaves):

$$\frac{1}{8\,b^2}\left(8\,b\,x-2\,\text{Cot}\left[\frac{1}{2}(a+b\,x)\right]-b\,x\,\text{Csc}\left[\frac{1}{2}(a+b\,x)\right]^2+12\,(a+b\,x)\left(\text{Log}\left[1-e^{i\,(a+b\,x)}\right]-\text{Log}\left[1+e^{i\,(a+b\,x)}\right]\right)+8\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]-8\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right]-12\,a\,\text{Log}\left[\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right]+12\,i\left(\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]-\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]\right)+b\,x\,\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2+\frac{8\,b\,x\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}{\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}-\frac{8\,b\,x\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}{\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}-2\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)$$

Problem 291: Result more than twice size of optimal antiderivative.

$$\int (c+d\,x)^4\,\text{Sec}[a+b\,x]^2\,\text{Tan}[a+b\,x]\,dx$$

Optimal (type 4, 139 leaves, 7 steps):

$$\frac{2\,i\,d\,(c+d\,x)^3}{b^2}-\frac{6\,d^2\,(c+d\,x)^2\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{6\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{b^4}-\frac{3\,d^4\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]}{b^5}+\frac{(c+d\,x)^4\,\text{Sec}[a+b\,x]^2}{2\,b}-\frac{2\,d\,(c+d\,x)^3\,\text{Tan}[a+b\,x]}{b^2}$$

Result (type 4, 425 leaves):

$$\frac{1}{2\,b^5}d^4\,e^{-i\,a}\left(2\,i\,b^2\,x^2\left(2\,b\,e^{2\,i\,a}\,x+3\,i\left(1+e^{2\,i\,a}\right)\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right)+6\,i\,b\left(1+e^{2\,i\,a}\right)x\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]-3\left(1+e^{2\,i\,a}\right)\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]\right)\text{Sec}[a]+\frac{(c+d\,x)^4\,\text{Sec}[a+b\,x]^2}{2\,b}-$$
$$\frac{6\,c^2\,d^2\,\text{Sec}[a]\,(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a])}{b^3\,(\text{Cos}[a]^2+\text{Sin}[a]^2)}-\left(6\,c\,d^3\,\text{Csc}[a]\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a]\left(i\,b\,x\,(-\pi-2\,\text{ArcTan}[\text{Cot}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x-\text{ArcTan}[\text{Cot}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\text{Sec}[a]\right)\Big/$$
$$\left(b^4\sqrt{\text{Csc}[a]^2\,(\text{Cos}[a]^2+\text{Sin}[a]^2)}\right)-\frac{2\,\text{Sec}[a]\,\text{Sec}[a+b\,x]\,(c^3\,d\,\text{Sin}[b\,x]+3\,c^2\,d^2\,x\,\text{Sin}[b\,x]+3\,c\,d^3\,x^2\,\text{Sin}[b\,x]+d^4\,x^3\,\text{Sin}[b\,x])}{b^2}$$

Problem 292: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 115 leaves, 6 steps):

$$\frac{3\,i\,d\,(c+d\,x)^2}{2\,b^2}-\frac{3\,d^2\,(c+d\,x)\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{3\,i\,d^3\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^4}+\frac{(c+d\,x)^3\,\text{Sec}[a+b\,x]^2}{2\,b}-\frac{3\,d\,(c+d\,x)^2\,\text{Tan}[a+b\,x]}{2\,b^2}$$

Result (type 4, 286 leaves):

$$\frac{(c+d x)^3 \operatorname{Sec}[a+b x]^2}{2 b}-\frac{3 c d^2 \operatorname{Sec}[a] (\operatorname{Cos}[a] \operatorname{Log}[\operatorname{Cos}[a] \operatorname{Cos}[b x]-\operatorname{Sin}[a] \operatorname{Sin}[b x]]+b x \operatorname{Sin}[a])}{b^3 (\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2)}-$$

$$\left(3 d^3 \operatorname{Csc}[a] \left(b^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[a]]} x^2-\frac{1}{\sqrt{1+\operatorname{Cot}[a]^2}}\right.\right.$$
$$\operatorname{Cot}[a] \left(i b x (-\pi-2 \operatorname{ArcTan}[\operatorname{Cot}[a]])-\pi \operatorname{Log}[1+e^{-2 i b x}]-2 (b x-\operatorname{ArcTan}[\operatorname{Cot}[a]]) \operatorname{Log}[1-e^{2 i (b x-\operatorname{ArcTan}[\operatorname{Cot}[a]])}]+\right.$$
$$\left.\left.\left.\pi \operatorname{Log}[\operatorname{Cos}[b x]]-2 \operatorname{ArcTan}[\operatorname{Cot}[a]] \operatorname{Log}[\operatorname{Sin}[b x-\operatorname{ArcTan}[\operatorname{Cot}[a]]]]+i \operatorname{PolyLog}[2, e^{2 i (b x-\operatorname{ArcTan}[\operatorname{Cot}[a]])}]\right)\right) \operatorname{Sec}[a]\right) \Big/$$
$$\left(2 b^4 \sqrt{\operatorname{Csc}[a]^2 (\operatorname{Cos}[a]^2+\operatorname{Sin}[a]^2)}\right)-\frac{3 \operatorname{Sec}[a] \operatorname{Sec}[a+b x] (c^2 d \operatorname{Sin}[b x]+2 c d^2 x \operatorname{Sin}[b x]+d^3 x^2 \operatorname{Sin}[b x])}{2 b^2}$$

Problem 299: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 193 leaves, 17 steps):

$$\frac{i (c+d x)^2 \operatorname{ArcTan}[e^{i (a+b x)}]}{b}+\frac{d^2 \operatorname{ArcTanh}[\operatorname{Sin}[a+b x]]}{b^3}-\frac{i d (c+d x) \operatorname{PolyLog}[2,-i e^{i (a+b x)}]}{b^2}+\frac{i d (c+d x) \operatorname{PolyLog}[2, i e^{i (a+b x)}]}{b^2}+$$
$$\frac{d^2 \operatorname{PolyLog}[3,-i e^{i (a+b x)}]}{b^3}-\frac{d^2 \operatorname{PolyLog}[3, i e^{i (a+b x)}]}{b^3}-\frac{d (c+d x) \operatorname{Sec}[a+b x]}{b^2}+\frac{(c+d x)^2 \operatorname{Sec}[a+b x] \operatorname{Tan}[a+b x]}{2 b}$$

Result (type 4, 526 leaves):

$$\frac{1}{b^2}\left(i b c^2 \operatorname{ArcTan}[e^{i (a+b x)}]-\frac{2 i d^2 \operatorname{ArcTan}[e^{i (a+b x)}]}{b}-b c d x \operatorname{Log}[1-i e^{i (a+b x)}]-\right.$$
$$\frac{1}{2} b d^2 x^2 \operatorname{Log}[1-i e^{i (a+b x)}]+b c d x \operatorname{Log}[1+i e^{i (a+b x)}]+\frac{1}{2} b d^2 x^2 \operatorname{Log}[1+i e^{i (a+b x)}]-i d (c+d x) \operatorname{PolyLog}[2,-i e^{i (a+b x)}]+$$
$$\left.i d (c+d x) \operatorname{PolyLog}[2, i e^{i (a+b x)}]+\frac{d^2 \operatorname{PolyLog}[3,-i e^{i (a+b x)}]}{b}-\frac{d^2 \operatorname{PolyLog}[3, i e^{i (a+b x)}]}{b}\right)-$$
$$\frac{d (c+d x) \operatorname{Sec}[a]}{b^2}+\frac{c^2+2 c d x+d^2 x^2}{4 b \left(\operatorname{Cos}[\frac{a}{2}+\frac{b x}{2}]-\operatorname{Sin}[\frac{a}{2}+\frac{b x}{2}]\right)^2}+\frac{-c d \operatorname{Sin}[\frac{b x}{2}]-d^2 x \operatorname{Sin}[\frac{b x}{2}]}{b^2 \left(\operatorname{Cos}[\frac{a}{2}]-\operatorname{Sin}[\frac{a}{2}]\right) \left(\operatorname{Cos}[\frac{a}{2}+\frac{b x}{2}]-\operatorname{Sin}[\frac{a}{2}+\frac{b x}{2}]\right)}+$$
$$\frac{-c^2-2 c d x-d^2 x^2}{4 b \left(\operatorname{Cos}[\frac{a}{2}+\frac{b x}{2}]+\operatorname{Sin}[\frac{a}{2}+\frac{b x}{2}]\right)^2}+\frac{c d \operatorname{Sin}[\frac{b x}{2}]+d^2 x \operatorname{Sin}[\frac{b x}{2}]}{b^2 \left(\operatorname{Cos}[\frac{a}{2}]+\operatorname{Sin}[\frac{a}{2}]\right) \left(\operatorname{Cos}[\frac{a}{2}+\frac{b x}{2}]+\operatorname{Sin}[\frac{a}{2}+\frac{b x}{2}]\right)}$$

Problem 300: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 117 leaves, 12 steps):

$$\frac{i\,(c+d\,x)\,\text{ArcTan}\left[e^{i\,(a+b\,x)}\right]}{b}-\frac{i\,d\,\text{PolyLog}\left[2,-i\,e^{i\,(a+b\,x)}\right]}{2\,b^2}+\frac{i\,d\,\text{PolyLog}\left[2,i\,e^{i\,(a+b\,x)}\right]}{2\,b^2}-\frac{d\,\text{Sec}[a+b\,x]}{2\,b^2}+\frac{(c+d\,x)\,\text{Sec}[a+b\,x]\,\text{Tan}[a+b\,x]}{2\,b}$$

Result (type 4, 607 leaves):

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

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

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

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

$$\text{PolyLog}\left[2,\left(-\frac{1}{2}-\frac{i}{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]-\text{PolyLog}\left[2,\left(-\frac{1}{2}+\frac{i}{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]-$$

$$\left.\left.\text{PolyLog}\left[2,\left(\frac{1}{2}-\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]+\text{PolyLog}\left[2,\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right]\right)\right)+$$

$$\frac{c}{4\,b\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^2}+\frac{d\,x}{4\,b\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^2}-$$

$$\frac{d\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}{2\,b^2\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]-\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}-$$

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

$$\frac{d\,x}{4\,b\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)^2}+$$

$$\frac{d\,\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]}{2\,b^2\left(\text{Cos}\left[\frac{1}{2}(a+b\,x)\right]+\text{Sin}\left[\frac{1}{2}(a+b\,x)\right]\right)}$$

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

$$\int (c+d x)^3 \operatorname{Tan}[a+b x]^3 \, dx$$

Optimal (type 4, 259 leaves, 13 steps):

$$\frac{3 i d (c+d x)^2}{2 b^2}+\frac{(c+d x)^3}{2 b}-\frac{i (c+d x)^4}{4 d}-\frac{3 d^2 (c+d x) \operatorname{Log}\left[1+e^{2 i (a+b x)}\right]}{b^3}+\frac{(c+d x)^3 \operatorname{Log}\left[1+e^{2 i (a+b x)}\right]}{b}+\frac{3 i d^3 \operatorname{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{2 b^4}-\frac{3 i d (c+d x)^2 \operatorname{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{2 b^2}+\frac{3 d^2 (c+d x) \operatorname{PolyLog}\left[3,-e^{2 i (a+b x)}\right]}{2 b^3}+\frac{3 i d^3 \operatorname{PolyLog}\left[4,-e^{2 i (a+b x)}\right]}{4 b^4}-\frac{3 d (c+d x)^2 \operatorname{Tan}[a+b x]}{2 b^2}+\frac{(c+d x)^3 \operatorname{Tan}[a+b x]^2}{2 b}$$

Result (type 4, 817 leaves):

$$-\frac{1}{4\,b^3}c\,d^2\,e^{-i\,a}$$

$$\left(2\,i\,b^2\,x^2\,\left(2\,b\,e^{2\,i\,a}\,x+3\,i\,\left(1+e^{2\,i\,a}\right)\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right)+6\,i\,b\,\left(1+e^{2\,i\,a}\right)\,x\,\text{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]-3\,\left(1+e^{2\,i\,a}\right)\,\text{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right]\right)$$

$$\text{Sec}[a]+\frac{1}{4}\,i\,d^3\,e^{i\,a}\,\Bigg(-x^4+\left(1+e^{-2\,i\,a}\right)\,x^4-\frac{1}{2\,b^4}e^{-2\,i\,a}\,\left(1+e^{2\,i\,a}\right)$$

$$\left(2\,b^4\,x^4+4\,i\,b^3\,x^3\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]+6\,b^2\,x^2\,\text{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]+6\,i\,b\,x\,\text{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right]-3\,\text{PolyLog}\left[4,\,-e^{2\,i\,(a+b\,x)}\right]\right)\Bigg)\,\text{Sec}[a]+$$

$$\frac{(c+d\,x)^3\,\text{Sec}[a+b\,x]^2}{2\,b}+\frac{c^3\,\text{Sec}[a]\,\left(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a]\right)}{b\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-$$

$$\frac{3\,c\,d^2\,\text{Sec}[a]\,\left(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a]\right)}{b^3\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$

$$\Bigg(3\,c^2\,d\,\text{Csc}[a]\,\Bigg(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}$$

$$\text{Cot}[a]\,\left(i\,b\,x\,\left(-\pi-2\,\text{ArcTan}[\text{Cot}[a]]\right)-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,\left(b\,x-\text{ArcTan}[\text{Cot}[a]]\right)\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$

$$\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,\,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\Bigg)\,\text{Sec}[a]\Bigg)\Bigg/$$

$$\left(2\,b^2\,\sqrt{\text{Csc}[a]^2\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)-\Bigg(3\,d^3\,\text{Csc}[a]\,\Bigg(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}$$

$$\text{Cot}[a]\,\left(i\,b\,x\,\left(-\pi-2\,\text{ArcTan}[\text{Cot}[a]]\right)-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,\left(b\,x-\text{ArcTan}[\text{Cot}[a]]\right)\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$

$$\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,\,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\Bigg)\,\text{Sec}[a]\Bigg)\Bigg/$$

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

$$\frac{1}{4}\,x\,\left(4\,c^3+6\,c^2\,d\,x+4\,c\,d^2\,x^2+d^3\,x^3\right)\,\text{Tan}[a]$$

Problem 305: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 169 leaves, 9 steps):

$$\frac{c\,d\,x}{b}+\frac{d^2 x^2}{2\,b}-\frac{i\,(c+d\,x)^3}{3\,d}+\frac{(c+d\,x)^2\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b}-\frac{d^2\,\text{Log}[\text{Cos}[a+b\,x]]}{b^3}-\frac{i\,d\,(c+d\,x)\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]}{b^2}+\frac{d^2\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^3}-\frac{d\,(c+d\,x)\,\text{Tan}[a+b\,x]}{b^2}+\frac{(c+d\,x)^2\,\text{Tan}[a+b\,x]^2}{2\,b}$$

Result (type 4, 461 leaves) :

$$-\frac{1}{12\,b^3}d^2\,e^{-i\,a}\left(2\,i\,b^2 x^2\left(2\,b\,e^{2\,i\,a}\,x+3\,i\,\left(1+e^{2\,i\,a}\right)\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right)+6\,i\,b\left(1+e^{2\,i\,a}\right)x\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]-3\left(1+e^{2\,i\,a}\right)\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]\right)$$
$$\text{Sec}[a]+\frac{(c+d\,x)^2\,\text{Sec}[a+b\,x]^2}{2\,b}+\frac{c^2\,\text{Sec}[a]\,(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a])}{b\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-$$
$$\frac{d^2\,\text{Sec}[a]\,(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a])}{b^3\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\left(c\,d\,\text{Csc}[a]\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a]\,\left(i\,b\,x\,(-\pi-2\,\text{ArcTan}[\text{Cot}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x-\text{ArcTan}[\text{Cot}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\text{Sec}[a]\right)\Big/$$
$$\left(b^2\sqrt{\text{Csc}[a]^2\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\frac{\text{Sec}[a]\,\text{Sec}[a+b\,x]\,\left(-c\,d\,\text{Sin}[b\,x]-d^2\,x\,\text{Sin}[b\,x]\right)}{b^2}-\frac{1}{3}\,x\,\left(3\,c^2+3\,c\,d\,x+d^2\,x^2\right)\text{Tan}[a]$$

Problem 306: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 108 leaves, 7 steps) :

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

Result (type 4, 242 leaves) :

$$\frac{c\,\text{Log}[\text{Cos}[a+b\,x]]}{b}+\frac{c\,\text{Sec}[a+b\,x]^2}{2\,b}+\frac{d\,x\,\text{Sec}[a+b\,x]^2}{2\,b}+$$

$$\left(d\,\text{Csc}[a]\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\text{Cot}[a]\left(i\,b\,x\left(-\pi-2\,\text{ArcTan}[\text{Cot}[a]]\right)-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\left(b\,x-\text{ArcTan}[\text{Cot}[a]]\right)\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,\,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\text{Sec}[a]\right)\Big/\left(2\,b^2\,\sqrt{\text{Csc}[a]^2\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)-\frac{d\,\text{Sec}[a]\,\text{Sec}[a+b\,x]\,\text{Sin}[b\,x]}{2\,b^2}-\frac{1}{2}d\,x^2\,\text{Tan}[a]$$

Problem 310: Result more than twice size of optimal antiderivative.

$$\int (c+d\,x)^4\,\text{Csc}[a+b\,x]\,\text{Sec}[a+b\,x]^3\,dx$$

Optimal (type 4, 399 leaves, 25 steps):

$$\frac{2\,i\,d\,(c+d\,x)^3}{b^2}+\frac{(c+d\,x)^4}{2\,b}-\frac{2\,(c+d\,x)^4\,\text{ArcTanh}\left[e^{2\,i\,(a+b\,x)}\right]}{b}-\frac{6\,d^2\,(c+d\,x)^2\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{6\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{2\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]}{b^2}-\frac{2\,i\,d\,(c+d\,x)^3\,\text{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]}{b^2}-\frac{3\,d^4\,\text{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right]}{b^5}-\frac{3\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right]}{b^3}+\frac{3\,d^2\,(c+d\,x)^2\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{b^3}-\frac{3\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,\,-e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{3\,i\,d^3\,(c+d\,x)\,\text{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]}{b^4}+\frac{3\,d^4\,\text{PolyLog}\left[5,\,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^5}-\frac{3\,d^4\,\text{PolyLog}\left[5,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^5}-\frac{2\,d\,(c+d\,x)^3\,\text{Tan}[a+b\,x]}{b^2}+\frac{(c+d\,x)^4\,\text{Tan}[a+b\,x]^2}{2\,b}$$

Result (type 4, 1790 leaves):

$$-\frac{1}{2\,b^3}c^2\,d^2\,e^{-i\,a}\,\text{Csc}[a]\left(2\,b^2\,x^2\left(2\,b\,e^{2\,i\,a}\,x+3\,i\left(-1+e^{2\,i\,a}\right)\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]\right)+6\,b\left(-1+e^{2\,i\,a}\right)x\,\text{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]+3\,i\left(-1+e^{2\,i\,a}\right)\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]\right)-$$

$$c\,d^3\,e^{i\,a}\,\text{Csc}[a]\left(x^4+\left(-1+e^{-2\,i\,a}\right)x^4+\frac{1}{2\,b^4}e^{-2\,i\,a}\left(-1+e^{2\,i\,a}\right)\left(2\,b^4\,x^4+4\,i\,b^3\,x^3\,\text{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]+6\,b^2\,x^2\,\text{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]+6\,i\,b\,x\,\text{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]-3\,\text{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]\right)\right)-$$

$$\frac{1}{5} d^4 e^{i a} \operatorname{Csc}[a] \left(x^5 + \left(-1 + e^{-2 i a}\right) x^5 + \frac{1}{4 b^5} e^{-2 i a} \left(-1 + e^{2 i a}\right) \left(4 b^5 x^5 + 10 i b^4 x^4 \operatorname{Log}\left[1 - e^{2 i (a+b x)}\right] + 20 b^3 x^3 \operatorname{PolyLog}\left[2, e^{2 i (a+b x)}\right] + 30 i b^2 x^2 \operatorname{PolyLog}\left[3, e^{2 i (a+b x)}\right] - 30 b x \operatorname{PolyLog}\left[4, e^{2 i (a+b x)}\right] - 15 i \operatorname{PolyLog}\left[5, e^{2 i (a+b x)}\right]\right)\right) +$$

$$\frac{1}{5} x \left(5 c^4 + 10 c^3 d x + 10 c^2 d^2 x^2 + 5 c d^3 x^3 + d^4 x^4\right) \operatorname{Csc}[a] \operatorname{Sec}[a] + \frac{1}{2 b^3} c^2 d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x + 3 i \left(1 + e^{2 i a}\right) \operatorname{Log}\left[1 + e^{2 i (a+b x)}\right]\right) + 6 i b \left(1 + e^{2 i a}\right) x \operatorname{PolyLog}\left[2, -e^{2 i (a+b x)}\right] - 3 \left(1 + e^{2 i a}\right) \operatorname{PolyLog}\left[3, -e^{2 i (a+b x)}\right]\right) \operatorname{Sec}[a] + \frac{1}{2 b^5}$$

$$d^4 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x + 3 i \left(1 + e^{2 i a}\right) \operatorname{Log}\left[1 + e^{2 i (a+b x)}\right]\right) + 6 i b \left(1 + e^{2 i a}\right) x \operatorname{PolyLog}\left[2, -e^{2 i (a+b x)}\right] - 3 \left(1 + e^{2 i a}\right) \operatorname{PolyLog}\left[3, -e^{2 i (a+b x)}\right]\right) \operatorname{Sec}[a] - i c d^3 e^{i a} \left(-x^4 + \left(1 + e^{-2 i a}\right) x^4 - \frac{1}{2 b^4} e^{-2 i a} \left(1 + e^{2 i a}\right) \left(2 b^4 x^4 + 4 i b^3 x^3 \operatorname{Log}\left[1 + e^{2 i (a+b x)}\right] + 6 b^2 x^2 \operatorname{PolyLog}\left[2, -e^{2 i (a+b x)}\right] + 6 i b x \operatorname{PolyLog}\left[3, -e^{2 i (a+b x)}\right] - 3 \operatorname{PolyLog}\left[4, -e^{2 i (a+b x)}\right]\right)\right) \operatorname{Sec}[a] -$$

$$\frac{1}{5} i d^4 e^{i a} \left(-x^5 + \left(1 + e^{-2 i a}\right) x^5 - \frac{1}{4 b^5} e^{-2 i a} \left(1 + e^{2 i a}\right) \left(4 b^5 x^5 + 10 i b^4 x^4 \operatorname{Log}\left[1 + e^{2 i (a+b x)}\right] + 20 b^3 x^3 \operatorname{PolyLog}\left[2, -e^{2 i (a+b x)}\right] + 30 i b^2 x^2 \operatorname{PolyLog}\left[3, -e^{2 i (a+b x)}\right] - 30 b x \operatorname{PolyLog}\left[4, -e^{2 i (a+b x)}\right] - 15 i \operatorname{PolyLog}\left[5, -e^{2 i (a+b x)}\right]\right)\right) \operatorname{Sec}[a] +$$

$$\frac{(c + d x)^4 \operatorname{Sec}[a + b x]^2}{2 b} - \frac{c^4 \operatorname{Sec}[a] \left(\operatorname{Cos}[a] \operatorname{Log}[\operatorname{Cos}[a] \operatorname{Cos}[b x] - \operatorname{Sin}[a] \operatorname{Sin}[b x]] + b x \operatorname{Sin}[a]\right)}{b \left(\operatorname{Cos}[a]^2 + \operatorname{Sin}[a]^2\right)} -$$

$$\frac{6 c^2 d^2 \operatorname{Sec}[a] \left(\operatorname{Cos}[a] \operatorname{Log}[\operatorname{Cos}[a] \operatorname{Cos}[b x] - \operatorname{Sin}[a] \operatorname{Sin}[b x]] + b x \operatorname{Sin}[a]\right)}{b^3 \left(\operatorname{Cos}[a]^2 + \operatorname{Sin}[a]^2\right)} +$$

$$\frac{c^4 \operatorname{Csc}[a] \left(-b x \operatorname{Cos}[a] + \operatorname{Log}[\operatorname{Cos}[b x] \operatorname{Sin}[a] + \operatorname{Cos}[a] \operatorname{Sin}[b x]] \operatorname{Sin}[a]\right)}{b \left(\operatorname{Cos}[a]^2 + \operatorname{Sin}[a]^2\right)} -$$

$$\left(2 c^3 d \operatorname{Csc}[a] \left(b^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[a]]} x^2 - \frac{1}{\sqrt{1 + \operatorname{Cot}[a]^2}} \operatorname{Cot}[a] \left(i b x \left(-\pi - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) - \pi \operatorname{Log}\left[1 + e^{-2 i b x}\right] - 2 \left(b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) \operatorname{Log}\left[1 - e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right] + \pi \operatorname{Log}[\operatorname{Cos}[b x]] - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]] \operatorname{Log}[\operatorname{Sin}[b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]]] + i \operatorname{PolyLog}\left[2, e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]\right)\right) \operatorname{Sec}[a]\right) \Big/$$

$$\left(b^2 \sqrt{\operatorname{Csc}[a]^2 \left(\operatorname{Cos}[a]^2 + \operatorname{Sin}[a]^2\right)}\right) - \left(6 c d^3 \operatorname{Csc}[a] \left(b^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[a]]} x^2 - \frac{1}{\sqrt{1 + \operatorname{Cot}[a]^2}} \operatorname{Cot}[a] \left(i b x \left(-\pi - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) - \pi \operatorname{Log}\left[1 + e^{-2 i b x}\right] - 2 \left(b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) \operatorname{Log}\left[1 - e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right] + \pi \operatorname{Log}[\operatorname{Cos}[b x]] - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]] \operatorname{Log}[\operatorname{Sin}[b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]]] + i \operatorname{PolyLog}\left[2, e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]\right)\right) \operatorname{Sec}[a]\right) \Big/$$

$$\left(b^4 \sqrt{\mathrm{Csc}[a]^2 \left(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2\right)}\right) - \frac{2\,\mathrm{Sec}[a]\,\mathrm{Sec}[a+b\,x]\left(c^3\,d\,\mathrm{Sin}[b\,x]+3\,c^2\,d^2\,x\,\mathrm{Sin}[b\,x]+3\,c\,d^3\,x^2\,\mathrm{Sin}[b\,x]+d^4\,x^3\,\mathrm{Sin}[b\,x]\right)}{b^2} -$$

$$\left(2\,c^3\,d\,\mathrm{Csc}[a]\,\mathrm{Sec}[a]\left(b^2\,e^{i\,\mathrm{ArcTan}[\mathrm{Tan}[a]]}\,x^2+\frac{1}{\sqrt{1+\mathrm{Tan}[a]^2}}\right.\right.$$

$$\left(i\,b\,x\left(-\pi+2\,\mathrm{ArcTan}[\mathrm{Tan}[a]]\right)-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\left(b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]]\right)\mathrm{Log}\left[1-e^{2\,i\,(b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]])}\right]+\pi\,\mathrm{Log}[\mathrm{Cos}[b\,x]]+2$$

$$\left.\left.\mathrm{ArcTan}[\mathrm{Tan}[a]]\,\mathrm{Log}[\mathrm{Sin}[b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(b\,x+\mathrm{ArcTan}[\mathrm{Tan}[a]])}\right]\right)\mathrm{Tan}[a]\right)\right)\Big/\left(b^2\sqrt{\mathrm{Sec}[a]^2\left(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2\right)}\right)$$

Problem 311: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 325 leaves, 22 steps):

$$\frac{3\,i\,d\,(c+d\,x)^2}{2\,b^2}+\frac{(c+d\,x)^3}{2\,b}-\frac{2\,(c+d\,x)^3\,\mathrm{ArcTanh}\left[e^{2\,i\,(a+b\,x)}\right]}{b}-\frac{3\,d^2\,(c+d\,x)\,\mathrm{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]}{b^3}+$$

$$\frac{3\,i\,d^3\,\mathrm{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^4}+\frac{3\,i\,d\,(c+d\,x)^2\,\mathrm{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^2}-\frac{3\,i\,d\,(c+d\,x)^2\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^2}-$$

$$\frac{3\,d^2\,(c+d\,x)\,\mathrm{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right]}{2\,b^3}+\frac{3\,d^2\,(c+d\,x)\,\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]}{2\,b^3}-\frac{3\,i\,d^3\,\mathrm{PolyLog}\left[4,\,-e^{2\,i\,(a+b\,x)}\right]}{4\,b^4}+$$

$$\frac{3\,i\,d^3\,\mathrm{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]}{4\,b^4}-\frac{3\,d\,(c+d\,x)^2\,\mathrm{Tan}[a+b\,x]}{2\,b^2}+\frac{(c+d\,x)^3\,\mathrm{Tan}[a+b\,x]^2}{2\,b}$$

Result (type 4, 1294 leaves):

$$-\frac{1}{4\,b^3}c\,d^2\,e^{-i\,a}\,\mathrm{Csc}[a]$$

$$\left(2\,b^2\,x^2\left(2\,b\,e^{2\,i\,a}\,x+3\,i\left(-1+e^{2\,i\,a}\right)\mathrm{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]\right)+6\,b\left(-1+e^{2\,i\,a}\right)x\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]+3\,i\left(-1+e^{2\,i\,a}\right)\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]\right)-$$

$$\frac{1}{4}\,d^3\,e^{i\,a}\,\mathrm{Csc}[a]\left(x^4+\left(-1+e^{-2\,i\,a}\right)x^4+\frac{1}{2\,b^4}e^{-2\,i\,a}\left(-1+e^{2\,i\,a}\right)\right.$$

$$\left.\left(2\,b^4\,x^4+4\,i\,b^3\,x^3\,\mathrm{Log}\left[1-e^{2\,i\,(a+b\,x)}\right]+6\,b^2\,x^2\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(a+b\,x)}\right]+6\,i\,b\,x\,\mathrm{PolyLog}\left[3,\,e^{2\,i\,(a+b\,x)}\right]-3\,\mathrm{PolyLog}\left[4,\,e^{2\,i\,(a+b\,x)}\right]\right)\right)+$$

$$\frac{1}{4}\,x\left(4\,c^3+6\,c^2\,d\,x+4\,c\,d^2\,x^2+d^3\,x^3\right)\mathrm{Csc}[a]\,\mathrm{Sec}[a]+\frac{1}{4\,b^3}c\,d^2\,e^{-i\,a}$$

$$\left(2\,i\,b^2\,x^2\left(2\,b\,e^{2\,i\,a}\,x+3\,i\left(1+e^{2\,i\,a}\right)\mathrm{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right)+6\,i\,b\left(1+e^{2\,i\,a}\right)x\,\mathrm{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right]-3\left(1+e^{2\,i\,a}\right)\mathrm{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right]\right)$$

$$\mathrm{Sec}[a]-\frac{1}{4}\,i\,d^3\,e^{i\,a}\left(-x^4+\left(1+e^{-2\,i\,a}\right)x^4-\frac{1}{2\,b^4}e^{-2\,i\,a}\left(1+e^{2\,i\,a}\right)\right.$$

$$\left(2\,b^4\,x^4+4\,i\,b^3\,x^3\,\text{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]+6\,b^2\,x^2\,\text{PolyLog}\left[2,-e^{2\,i\,(a+b\,x)}\right]+6\,i\,b\,x\,\text{PolyLog}\left[3,-e^{2\,i\,(a+b\,x)}\right]-3\,\text{PolyLog}\left[4,-e^{2\,i\,(a+b\,x)}\right]\right)\right)\text{Sec}[a]+$$

$$\frac{(c+d\,x)^3\,\text{Sec}[a+b\,x]^2}{2\,b}-\frac{c^3\,\text{Sec}[a]\,\left(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a]\right)}{b\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-$$

$$\frac{3\,c\,d^2\,\text{Sec}[a]\,\left(\text{Cos}[a]\,\text{Log}[\text{Cos}[a]\,\text{Cos}[b\,x]-\text{Sin}[a]\,\text{Sin}[b\,x]]+b\,x\,\text{Sin}[a]\right)}{b^3\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+$$

$$\frac{c^3\,\text{Csc}[a]\,\left(-b\,x\,\text{Cos}[a]+\text{Log}[\text{Cos}[b\,x]\,\text{Sin}[a]+\text{Cos}[a]\,\text{Sin}[b\,x]]\,\text{Sin}[a]\right)}{b\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-$$

$$\left(3\,c^2\,d\,\text{Csc}[a]\,\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a]\,\left(i\,b\,x\,(-\pi-2\,\text{ArcTan}[\text{Cot}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x-\text{ArcTan}[\text{Cot}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\text{Sec}[a]\right)\Big/$$

$$\left(2\,b^2\,\sqrt{\text{Csc}[a]^2\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)-\left(3\,d^3\,\text{Csc}[a]\,\left(b^2\,e^{-i\,\text{ArcTan}[\text{Cot}[a]]}\,x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a]\,\left(i\,b\,x\,(-\pi-2\,\text{ArcTan}[\text{Cot}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x-\text{ArcTan}[\text{Cot}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)\text{Sec}[a]\right)\Big/$$

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

$$\left(3\,c^2\,d\,\text{Csc}[a]\,\text{Sec}[a]\,\left(b^2\,e^{i\,\text{ArcTan}[\text{Tan}[a]]}\,x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\right.\right.$$
$$\left(i\,b\,x\,(-\pi+2\,\text{ArcTan}[\text{Tan}[a]])-\pi\,\text{Log}\left[1+e^{-2\,i\,b\,x}\right]-2\,(b\,x+\text{ArcTan}[\text{Tan}[a]])\,\text{Log}\left[1-e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi\,\text{Log}[\text{Cos}[b\,x]]+2\,\text{ArcTan}[\right.$$
$$\left.\left.\left.\text{Tan}[a]]\,\text{Log}[\text{Sin}[b\,x+\text{ArcTan}[\text{Tan}[a]]]]+i\,\text{PolyLog}\left[2,e^{2\,i\,(b\,x+\text{ArcTan}[\text{Tan}[a]])}\right]\right)\text{Tan}[a]\right)\right)\Big/\left(2\,b^2\,\sqrt{\text{Sec}[a]^2\,\left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)$$

Problem 312: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 201 leaves, 17 steps):

$$\frac{c\,d\,x}{b}+\frac{d^2 x^2}{2 b}-\frac{2 (c+d x)^2 \text{ArcTanh}\left[e^{2 i (a+b x)}\right]}{b}-\frac{d^2 \text{Log}[\text{Cos}[a+b x]]}{b^3}+\frac{i\,d (c+d x) \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{b^2}-\frac{i\,d (c+d x) \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]}{b^2}-\frac{d^2 \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]}{2 b^3}+\frac{d^2 \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]}{2 b^3}-\frac{d (c+d x) \text{Tan}[a+b x]}{b^2}+\frac{(c+d x)^2 \text{Tan}[a+b x]^2}{2 b}$$

Result (type 4, 788 leaves):

$$-\frac{1}{12 b^3} d^2 e^{-i a} \text{Csc}[a] \left(2 b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(-1+e^{2 i a}\right) \text{Log}\left[1-e^{2 i (a+b x)}\right]\right)+6 b \left(-1+e^{2 i a}\right) x \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]+3 i \left(-1+e^{2 i a}\right) \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]\right)+\frac{1}{3} x \left(3 c^2+3 c d x+d^2 x^2\right) \text{Csc}[a] \text{Sec}[a]+\frac{1}{12 b^3} d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(1+e^{2 i a}\right) \text{Log}\left[1+e^{2 i (a+b x)}\right]\right)+6 i b \left(1+e^{2 i a}\right) x \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]-3 \left(1+e^{2 i a}\right) \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]\right) \text{Sec}[a]+\frac{(c+d x)^2 \text{Sec}[a+b x]^2}{2 b}-\frac{c^2 \text{Sec}[a] (\text{Cos}[a] \text{Log}[\text{Cos}[a] \text{Cos}[b x]-\text{Sin}[a] \text{Sin}[b x]]+b x \text{Sin}[a])}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-\frac{d^2 \text{Sec}[a] (\text{Cos}[a] \text{Log}[\text{Cos}[a] \text{Cos}[b x]-\text{Sin}[a] \text{Sin}[b x]]+b x \text{Sin}[a])}{b^3 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\frac{c^2 \text{Csc}[a] (-b x \text{Cos}[a]+\text{Log}[\text{Cos}[b x] \text{Sin}[a]+\text{Cos}[a] \text{Sin}[b x]] \text{Sin}[a])}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}-\left(c\,d\,\text{Csc}[a] \left(b^2 e^{-i \text{ArcTan}[\text{Cot}[a]]} x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\text{Cot}[a] \left(i b x (-\pi-2 \text{ArcTan}[\text{Cot}[a]])-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 (b x-\text{ArcTan}[\text{Cot}[a]]) \text{Log}\left[1-e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]+\pi \text{Log}[\text{Cos}[b x]]-2 \text{ArcTan}[\text{Cot}[a]] \text{Log}[\text{Sin}[b x-\text{ArcTan}[\text{Cot}[a]]]]+i \text{PolyLog}\left[2,e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right)\Big/\left(b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\frac{\text{Sec}[a] \text{Sec}[a+b x] \left(-c\,d \text{Sin}[b x]-d^2 x \text{Sin}[b x]\right)}{b^2}-\left(c\,d\,\text{Csc}[a] \text{Sec}[a] \left(b^2 e^{i \text{ArcTan}[\text{Tan}[a]]} x^2+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\left(i b x (-\pi+2 \text{ArcTan}[\text{Tan}[a]])-\pi \text{Log}\left[1+e^{-2 i b x}\right]-2 (b x+\text{ArcTan}[\text{Tan}[a]]) \text{Log}\left[1-e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]+\pi \text{Log}[\text{Cos}[b x]]+2 \text{ArcTan}[\text{Tan}[a]] \text{Log}[\text{Sin}[b x+\text{ArcTan}[\text{Tan}[a]]]]+i \text{PolyLog}\left[2,e^{2 i (b x+\text{ArcTan}[\text{Tan}[a]])}\right]\right) \text{Tan}[a]\right)\right)\Big/\left(b^2 \sqrt{\text{Sec}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)$$

Problem 318: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^2 \operatorname{Csc}[a+b x]^2 \operatorname{Sec}[a+b x]^3 \, dx$$

Optimal (type 4, 341 leaves, 31 steps):

$$-\frac{3 i (c+d x)^2 \operatorname{ArcTan}\left[e^{i (a+b x)}\right]}{b}+\frac{2 d^2 x \operatorname{ArcTanh}\left[e^{i (a+b x)}\right]}{b^2}-\frac{6 d (c+d x) \operatorname{ArcTanh}\left[e^{i (a+b x)}\right]}{b^2}-\frac{d^2 x \operatorname{ArcTanh}[\operatorname{Cos}[a+b x]]}{b^2}+\frac{d (c+d x) \operatorname{ArcTanh}[\operatorname{Cos}[a+b x]]}{b^2}+\frac{d^2 \operatorname{ArcTanh}[\operatorname{Sin}[a+b x]]}{b^3}-\frac{3 (c+d x)^2 \operatorname{Csc}[a+b x]}{2 b}+\frac{2 i d^2 \operatorname{PolyLog}\left[2,-e^{i (a+b x)}\right]}{b^3}+\frac{3 i d (c+d x) \operatorname{PolyLog}\left[2,-i e^{i (a+b x)}\right]}{b^2}-\frac{3 i d (c+d x) \operatorname{PolyLog}\left[2, i e^{i (a+b x)}\right]}{b^2}-\frac{2 i d^2 \operatorname{PolyLog}\left[2, e^{i (a+b x)}\right]}{b^3}-\frac{3 d^2 \operatorname{PolyLog}\left[3,-i e^{i (a+b x)}\right]}{b^3}+\frac{3 d^2 \operatorname{PolyLog}\left[3, i e^{i (a+b x)}\right]}{b^3}-\frac{d (c+d x) \operatorname{Sec}[a+b x]}{b^2}+\frac{(c+d x)^2 \operatorname{Csc}[a+b x] \operatorname{Sec}[a+b x]^2}{2 b}$$

Result (type 4, 889 leaves):

$$-\frac{1}{2 b^3}\Big(6 i b^2 c^2 \text{ArcTan}\left[e^{i(a+bx)}\right]+4 i d^2 \text{ArcTan}\left[e^{i(a+bx)}\right]-6 b^2 c d x \text{Log}\left[1-i e^{i(a+bx)}\right]-3 b^2 d^2 x^2 \text{Log}\left[1-i e^{i(a+bx)}\right]+6 b^2 c d x \text{Log}\left[1+i e^{i(a+bx)}\right]+3 b^2 d^2 x^2 \text{Log}\left[1+i e^{i(a+bx)}\right]-6 i b d (c+dx) \text{PolyLog}\left[2,-i e^{i(a+bx)}\right]+6 i b d (c+dx) \text{PolyLog}\left[2,i e^{i(a+bx)}\right]+6 d^2 \text{PolyLog}\left[3,-i e^{i(a+bx)}\right]-6 d^2 \text{PolyLog}\left[3,i e^{i(a+bx)}\right]\Big)-$$

$$\frac{(c+dx)\,\text{Csc}[a]\,\text{Sec}[a]\,(b c \text{Cos}[a]+b d x \text{Cos}[a]+d \text{Sin}[a])}{b^2}+\frac{4 i c d \text{ArcTan}\left[\frac{i \text{Cos}[a]-i \text{Sin}[a] \text{Tan}\left[\frac{bx}{2}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right]}{b^2\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}+$$

$$\frac{\text{Sec}\left[\frac{a}{2}\right]\text{Sec}\left[\frac{a}{2}+\frac{bx}{2}\right]\left(-c^2 \text{Sin}\left[\frac{bx}{2}\right]-2 c d x \text{Sin}\left[\frac{bx}{2}\right]-d^2 x^2 \text{Sin}\left[\frac{bx}{2}\right]\right)}{2b}+$$

$$\frac{\text{Csc}\left[\frac{a}{2}\right]\text{Csc}\left[\frac{a}{2}+\frac{bx}{2}\right]\left(c^2 \text{Sin}\left[\frac{bx}{2}\right]+2 c d x \text{Sin}\left[\frac{bx}{2}\right]+d^2 x^2 \text{Sin}\left[\frac{bx}{2}\right]\right)}{2b}+$$

$$\frac{c^2+2cdx+d^2x^2}{4b\left(\text{Cos}\left[\frac{a}{2}+\frac{bx}{2}\right]-\text{Sin}\left[\frac{a}{2}+\frac{bx}{2}\right]\right)^2}+\frac{-c d \text{Sin}\left[\frac{bx}{2}\right]-d^2 x \text{Sin}\left[\frac{bx}{2}\right]}{b^2\left(\text{Cos}\left[\frac{a}{2}\right]-\text{Sin}\left[\frac{a}{2}\right]\right)\left(\text{Cos}\left[\frac{a}{2}+\frac{bx}{2}\right]-\text{Sin}\left[\frac{a}{2}+\frac{bx}{2}\right]\right)}+$$

$$\frac{-c^2-2cdx-d^2x^2}{4b\left(\text{Cos}\left[\frac{a}{2}+\frac{bx}{2}\right]+\text{Sin}\left[\frac{a}{2}+\frac{bx}{2}\right]\right)^2}+\frac{c d \text{Sin}\left[\frac{bx}{2}\right]+d^2 x \text{Sin}\left[\frac{bx}{2}\right]}{b^2\left(\text{Cos}\left[\frac{a}{2}\right]+\text{Sin}\left[\frac{a}{2}\right]\right)\left(\text{Cos}\left[\frac{a}{2}+\frac{bx}{2}\right]+\text{Sin}\left[\frac{a}{2}+\frac{bx}{2}\right]\right)}+$$

$$\frac{1}{b^3}2d^2\left(-\frac{2 \text{ArcTan}[\text{Tan}[a]]\,\text{ArcTanh}\left[\frac{-\text{Cos}[a]+\text{Sin}[a]\text{Tan}\left[\frac{bx}{2}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}+\frac{1}{\sqrt{1+\text{Tan}[a]^2}}\Big((bx+\text{ArcTan}[\text{Tan}[a]])\left(\text{Log}\left[1-e^{i(bx+\text{ArcTan}[\text{Tan}[a]])}\right]-\text{Log}\left[1+e^{i(bx+\text{ArcTan}[\text{Tan}[a]])}\right]\right)+i\left(\text{PolyLog}\left[2,-e^{i(bx+\text{ArcTan}[\text{Tan}[a]])}\right]-\text{PolyLog}\left[2,e^{i(bx+\text{ArcTan}[\text{Tan}[a]])}\right]\right)\Big)\text{Sec}[a]\right)$$

Problem 319: Result more than twice size of optimal antiderivative.

$$\int (c+dx)\,\text{Csc}[a+bx]^2\,\text{Sec}[a+bx]^3\,dx$$

Optimal (type 4, 162 leaves, 13 steps):

$$-\frac{3\,i\,d\,x\,\text{ArcTan}\left[e^{i\,(a+b\,x)}\right]}{b}-\frac{d\,\text{ArcTanh}[\text{Cos}[a+b\,x]]}{b^2}+\frac{3\,c\,\text{ArcTanh}[\text{Sin}[a+b\,x]]}{2\,b}-\frac{3\,(c+d\,x)\,\text{Csc}[a+b\,x]}{2\,b}+$$
$$\frac{3\,i\,d\,\text{PolyLog}\left[2,\,-i\,e^{i\,(a+b\,x)}\right]}{2\,b^2}-\frac{3\,i\,d\,\text{PolyLog}\left[2,\,i\,e^{i\,(a+b\,x)}\right]}{2\,b^2}-\frac{d\,\text{Sec}[a+b\,x]}{2\,b^2}+\frac{(c+d\,x)\,\text{Csc}[a+b\,x]\,\text{Sec}[a+b\,x]^2}{2\,b}$$

Result (type 4, 772 leaves) :

$$-\frac{c\,\text{Cot}\left[\frac{1}{2}(a+b x)\right]}{2 b}+\frac{d\left(a\,\text{Cos}\left[\frac{1}{2}(a+b x)\right]-(a+b x)\,\text{Cos}\left[\frac{1}{2}(a+b x)\right]\right)\text{Csc}\left[\frac{1}{2}(a+b x)\right]}{2 b^2}-\frac{d\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]\right]}{b^2}-$$

$$\frac{3 c\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{2 b}+\frac{d\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{b^2}+\frac{3 c\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]}{2 b}+$$

$$\frac{1}{2 b^2}3 d\left(a\left(\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right]-\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right]\right)+(a+b x)\left(-\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right]+\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right]\right)-\right.$$

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

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

$$\text{PolyLog}\left[2,\left(-\frac{1}{2}-\frac{i}{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\right]-\text{PolyLog}\left[2,\left(-\frac{1}{2}+\frac{i}{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\right]-$$

$$\left.\left.\text{PolyLog}\left[2,\left(\frac{1}{2}-\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\right]+\text{PolyLog}\left[2,\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\right]\right)\right)+$$

$$\frac{c}{4 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}+\frac{d x}{4 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}-$$

$$\frac{d\,\text{Sin}\left[\frac{1}{2}(a+b x)\right]}{2 b^2\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)}-$$

$$\frac{c}{4 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}-$$

$$\frac{d x}{4 b\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)^2}+$$

$$\frac{d\,\text{Sin}\left[\frac{1}{2}(a+b x)\right]}{2 b^2\left(\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)}+$$

$$\frac{d\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]\left(a\,\text{Sin}\left[\frac{1}{2}(a+b x)\right]-(a+b x)\,\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right)}{2 b^2}-$$

$$\frac{c\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{2 b}$$

Problem 324: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 190 leaves, 10 steps):

$$-\frac{4 (c+d x)^2 \text{ArcTanh}\left[e^{2 i (a+b x)}\right]}{b}-\frac{d^2 \text{ArcTanh}[\text{Cos}[2 a+2 b x]]}{b^3}-\frac{2 d (c+d x) \text{Csc}[2 a+2 b x]}{b^2}-\frac{2 (c+d x)^2 \text{Cot}[2 a+2 b x] \text{Csc}[2 a+2 b x]}{b}+\frac{2 i d (c+d x) \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{b^2}-\frac{2 i d (c+d x) \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]}{b^2}-\frac{d^2 \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]}{b^3}+\frac{d^2 \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]}{b^3}$$

Result (type 4, 429 leaves):

$$8 \left(-\frac{d (c+d x) \text{Csc}[2 a]}{4 b^2}+\frac{\left(-c^2-2 c d x-d^2 x^2\right) \text{Csc}[a+b x]^2}{16 b}+\frac{1}{8 b^3}\left(2 b^2 c^2 \text{Log}\left[1-e^{2 i (a+b x)}\right]+d^2 \text{Log}\left[1-e^{2 i (a+b x)}\right]+4 b^2 c d x \text{Log}\left[1-e^{2 i (a+b x)}\right]+2 b^2 d^2 x^2 \text{Log}\left[1-e^{2 i (a+b x)}\right]-2 b^2 c^2 \text{Log}\left[1+e^{2 i (a+b x)}\right]-d^2 \text{Log}\left[1+e^{2 i (a+b x)}\right]-4 b^2 c d x \text{Log}\left[1+e^{2 i (a+b x)}\right]-2 b^2 d^2 x^2 \text{Log}\left[1+e^{2 i (a+b x)}\right]+2 i b d (c+d x) \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]-2 i b d (c+d x) \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]-d^2 \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]+d^2 \text{PolyLog}\left[3,e^{2 i (a+b x)}\right]\right)+\frac{\left(c^2+2 c d x+d^2 x^2\right) \text{Sec}[a+b x]^2}{16 b}+\frac{\text{Sec}[a] \text{Sec}[a+b x] \left(-c d \text{Sin}[b x]-d^2 x \text{Sin}[b x]\right)}{8 b^2}+\frac{\text{Csc}[a] \text{Csc}[a+b x] \left(c d \text{Sin}[b x]+d^2 x \text{Sin}[b x]\right)}{8 b^2}\right)$$

Problem 325: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 110 leaves, 7 steps):

$$-\frac{4 (c+d x) \text{ArcTanh}\left[e^{2 i (a+b x)}\right]}{b}-\frac{d \text{Csc}[2 a+2 b x]}{b^2}-\frac{2 (c+d x) \text{Cot}[2 a+2 b x] \text{Csc}[2 a+2 b x]}{b}+\frac{i d \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{b^2}-\frac{i d \text{PolyLog}\left[2,e^{2 i (a+b x)}\right]}{b^2}$$

Result (type 4, 236 leaves):

$$-\frac{d \text{Cot}[a+b x]}{2 b^2}-\frac{c \text{Csc}[a+b x]^2}{2 b}+\frac{d (2 a-2 (a+b x)) \text{Csc}[a+b x]^2}{4 b^2}-\frac{2 c \text{Log}[\text{Cos}[a+b x]]}{b}+\frac{2 c \text{Log}[\text{Sin}[a+b x]]}{b}-\frac{2 a d \text{Log}[\text{Tan}[a+b x]]}{b^2}+\frac{1}{b^2}d \left(2 (a+b x) \left(\text{Log}\left[1-e^{2 i (a+b x)}\right]-\text{Log}\left[1+e^{2 i (a+b x)}\right]\right)+i \left(\text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]-\text{PolyLog}\left[2,e^{2 i (a+b x)}\right]\right)\right)+\frac{c \text{Sec}[a+b x]^2}{2 b}+\frac{d (-2 a+2 (a+b x)) \text{Sec}[a+b x]^2}{4 b^2}-\frac{d \text{Tan}[a+b x]}{2 b^2}$$

Problem 331: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 33 leaves, 2 steps):

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

Result (type 4, 181 leaves):

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

Problem 340: Result more than twice size of optimal antiderivative.

$$\int x \sqrt{\operatorname{Sec}[a+b x]} \operatorname{Sin}[a+b x] \, dx$$

Optimal (type 4, 53 leaves, 3 steps):

$$-\frac{2 x}{b \sqrt{\operatorname{Sec}[a+b x]}}+\frac{4 \sqrt{\operatorname{Cos}[a+b x]} \operatorname{EllipticE}\left[\frac{1}{2}(a+b x), 2\right] \sqrt{\operatorname{Sec}[a+b x]}}{b^2}$$

Result (type 4, 132 leaves):

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

Problem 342: Result more than twice size of optimal antiderivative.

$$\int \frac{x\, \mathrm{Sin}[a+b x]}{\mathrm{Sec}[a+b x]^{3/2}}\, dx$$

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

$$-\frac{2 x}{5 b\, \mathrm{Sec}[a+b x]^{5/2}}+\frac{12 \sqrt{\mathrm{Cos}[a+b x]}\, \mathrm{EllipticE}\left[\frac{1}{2}(a+b x), 2\right] \sqrt{\mathrm{Sec}[a+b x]}}{25 b^2}+\frac{4\, \mathrm{Sin}[a+b x]}{25 b^2\, \mathrm{Sec}[a+b x]^{3/2}}$$

Result (type 4, 212 leaves):

$$\frac{\sqrt{\mathrm{Sec}[a+b x]}\left(-\frac{1}{10} x\, \mathrm{Cos}[a+b x]-\frac{1}{10} x\, \mathrm{Cos}[3(a+b x)]+\frac{\mathrm{Sin}[a+b x]}{25 b}+\frac{\mathrm{Sin}[3(a+b x)]}{25 b}\right)}{b}+\frac{1}{25 b^2} \mathrm{Cos}\left[\frac{1}{2}(a+b x)\right]^2 \sqrt{\mathrm{Sec}[a+b x]} \left(12\, \mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\right],-1\right] \sqrt{\mathrm{Cos}[a+b x]\, \mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^4}-12\, \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\right],-1\right] \sqrt{\mathrm{Cos}[a+b x]\, \mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^4}+\left(-5 a+5(a+b x)-12\, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\right)$$

Problem 345: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x\, \mathrm{Cos}[a+b x]\, \mathrm{Sin}[a+b x]^{3/2}\, dx$$

Optimal (type 4, 65 leaves, 3 steps):

$$-\frac{12\,\text{EllipticE}\left[\frac{1}{2}\left(a-\frac{\pi}{2}+b\,x\right),2\right]}{25\,b^2}+\frac{4\,\text{Cos}[a+b\,x]\,\text{Sin}[a+b\,x]^{3/2}}{25\,b^2}+\frac{2\,x\,\text{Sin}[a+b\,x]^{5/2}}{5\,b}$$

Result (type 4, 186 leaves):

$$-\frac{1}{25\,b^2\sqrt{\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]}}\sqrt{\text{Sin}[a+b\,x]}\left(12\,(-1)^{3/4}\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]}\right],-1\right]\sqrt{\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2}-\right.$$
$$12\,(-1)^{3/4}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]}\right],-1\right]\sqrt{\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2}+$$
$$\left.\sqrt{\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]}\left(-5\,b\,x+5\,b\,x\,\text{Cos}[2\,(a+b\,x)]-2\,\text{Sin}[2\,(a+b\,x)]+12\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\right)\right)$$

Problem 347: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 38 leaves, 2 steps):

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

Result (type 4, 162 leaves):

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

Problem 356: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int x\,\text{Cos}[a+b\,x]\,\sqrt{\text{Csc}[a+b\,x]}\,dx$$

Optimal (type 4, 58 leaves, 3 steps):

$$\frac{2x}{b\sqrt{\text{Csc}[a+bx]}}-\frac{4\sqrt{\text{Csc}[a+bx]}\ \text{EllipticE}\left[\frac{1}{2}\left(a-\frac{\pi}{2}+bx\right),2\right]\sqrt{\text{Sin}[a+bx]}}{b^2}$$

Result (type 4, 161 leaves):

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

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

Problem 358: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{x\,\text{Cos}[a+bx]}{\text{Csc}[a+bx]^{3/2}}\,dx$$

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

$$\frac{2x}{5b\,\text{Csc}[a+bx]^{5/2}}+\frac{4\,\text{Cos}[a+bx]}{25b^2\,\text{Csc}[a+bx]^{3/2}}-\frac{12\sqrt{\text{Csc}[a+bx]}\ \text{EllipticE}\left[\frac{1}{2}\left(a-\frac{\pi}{2}+bx\right),2\right]\sqrt{\text{Sin}[a+bx]}}{25b^2}$$

Result (type 4, 190 leaves):

$$\frac{1}{25\, b^2 \sqrt{\text{Csc}[a+b\,x]}}\left(5\,b\,x-5\,b\,x\,\text{Cos}[2\,(a+b\,x)]+2\,\text{Sin}[2\,(a+b\,x)]-\frac{12\,(-1)^{3/4}\sqrt{2}\,\sqrt{\frac{1}{1+\text{Cos}[a+b\,x]}}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]}\right],-1\right]}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]}}+\frac{12\,(-1)^{3/4}\sqrt{2}\,\sqrt{\frac{1}{1+\text{Cos}[a+b\,x]}}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]}\right],-1\right]}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]}}-12\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\right)$$

Problem 376: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 255 leaves, 20 steps):

$$-\frac{6\,(c+d\,x)^3\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]}{b}-\frac{24\,d^2\,(c+d\,x)\,\text{Cos}[a+b\,x]}{b^3}+\frac{4\,(c+d\,x)^3\,\text{Cos}[a+b\,x]}{b}+\frac{9\,i\,d\,(c+d\,x)^2\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]}{b^2}-\frac{9\,i\,d\,(c+d\,x)^2\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]}{b^2}-\frac{18\,d^2\,(c+d\,x)\,\text{PolyLog}\left[3,-e^{i\,(a+b\,x)}\right]}{b^3}+\frac{18\,d^2\,(c+d\,x)\,\text{PolyLog}\left[3,e^{i\,(a+b\,x)}\right]}{b^3}-\frac{18\,i\,d^3\,\text{PolyLog}\left[4,-e^{i\,(a+b\,x)}\right]}{b^4}+\frac{18\,i\,d^3\,\text{PolyLog}\left[4,e^{i\,(a+b\,x)}\right]}{b^4}+\frac{24\,d^3\,\text{Sin}[a+b\,x]}{b^4}-\frac{12\,d\,(c+d\,x)^2\,\text{Sin}[a+b\,x]}{b^2}$$

Result (type 4, 515 leaves):

$$\frac{1}{b^4}\left(-6\,b^3\,c^3\,\text{ArcTanh}\left[e^{i\,(a+b\,x)}\right]+4\,b^3\,c^3\,\text{Cos}[a+b\,x]-24\,b\,c\,d^2\,\text{Cos}[a+b\,x]+12\,b^3\,c^2\,d\,x\,\text{Cos}[a+b\,x]-24\,b\,d^3\,x\,\text{Cos}[a+b\,x]+12\,b^3\,c\,d^2\,x^2\,\text{Cos}[a+b\,x]+4\,b^3\,d^3\,x^3\,\text{Cos}[a+b\,x]+9\,b^3\,c^2\,d\,x\,\text{Log}\left[1-e^{i\,(a+b\,x)}\right]+9\,b^3\,c\,d^2\,x^2\,\text{Log}\left[1-e^{i\,(a+b\,x)}\right]+3\,b^3\,d^3\,x^3\,\text{Log}\left[1-e^{i\,(a+b\,x)}\right]-9\,b^3\,c^2\,d\,x\,\text{Log}\left[1+e^{i\,(a+b\,x)}\right]-9\,b^3\,c\,d^2\,x^2\,\text{Log}\left[1+e^{i\,(a+b\,x)}\right]-3\,b^3\,d^3\,x^3\,\text{Log}\left[1+e^{i\,(a+b\,x)}\right]+9\,i\,b^2\,d\,(c+d\,x)^2\,\text{PolyLog}\left[2,-e^{i\,(a+b\,x)}\right]-9\,i\,b^2\,d\,(c+d\,x)^2\,\text{PolyLog}\left[2,e^{i\,(a+b\,x)}\right]-18\,b\,c\,d^2\,\text{PolyLog}\left[3,-e^{i\,(a+b\,x)}\right]-18\,b\,d^3\,x\,\text{PolyLog}\left[3,-e^{i\,(a+b\,x)}\right]+18\,b\,c\,d^2\,\text{PolyLog}\left[3,e^{i\,(a+b\,x)}\right]+18\,b\,d^3\,x\,\text{PolyLog}\left[3,e^{i\,(a+b\,x)}\right]-18\,i\,d^3\,\text{PolyLog}\left[4,-e^{i\,(a+b\,x)}\right]+18\,i\,d^3\,\text{PolyLog}\left[4,e^{i\,(a+b\,x)}\right]-12\,b^2\,c^2\,d\,\text{Sin}[a+b\,x]+24\,d^3\,\text{Sin}[a+b\,x]-24\,b^2\,c\,d^2\,x\,\text{Sin}[a+b\,x]-12\,b^2\,d^3\,x^2\,\text{Sin}[a+b\,x]\right)$$

Problem 382: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^4 \operatorname{Sec}[a+b x] \operatorname{Sin}[3 a+3 b x] \, dx$$

Optimal (type 4, 299 leaves, 20 steps):

$$\frac{6 c d^3 x}{b^3}+\frac{3 d^4 x^2}{b^3}-\frac{(c+d x)^4}{b}-\frac{i (c+d x)^5}{5 d}+\frac{(c+d x)^4 \operatorname{Log}\left[1+e^{2 i (a+b x)}\right]}{b}-\frac{2 i d (c+d x)^3 \operatorname{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{b^2}+\frac{3 d^2 (c+d x)^2 \operatorname{PolyLog}\left[3,-e^{2 i (a+b x)}\right]}{b^3}+\frac{3 i d^3 (c+d x) \operatorname{PolyLog}\left[4,-e^{2 i (a+b x)}\right]}{b^4}-\frac{3 d^4 \operatorname{PolyLog}\left[5,-e^{2 i (a+b x)}\right]}{2 b^5}-\frac{6 d^3 (c+d x) \operatorname{Cos}[a+b x] \operatorname{Sin}[a+b x]}{b^4}+\frac{4 d (c+d x)^3 \operatorname{Cos}[a+b x] \operatorname{Sin}[a+b x]}{b^2}+\frac{3 d^4 \operatorname{Sin}[a+b x]^2}{b^5}-\frac{6 d^2 (c+d x)^2 \operatorname{Sin}[a+b x]^2}{b^3}+\frac{2 (c+d x)^4 \operatorname{Sin}[a+b x]^2}{b}$$

Result (type 4, 2517 leaves):

$$-\frac{1}{2\,b^3} c^2\, d^2\, e^{-i\,a}$$

$$\left(2\,i\,b^2\,x^2\,\left(2\,b\,e^{2\,i\,a}\,x + 3\,i\,\left(1+e^{2\,i\,a}\right)\,\mathrm{Log}\left[1+e^{2\,i\,(a+b\,x)}\right]\right) + 6\,i\,b\,\left(1+e^{2\,i\,a}\right)\,x\,\mathrm{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right] - 3\,\left(1+e^{2\,i\,a}\right)\,\mathrm{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right]\right)$$

$$\mathrm{Sec}[a] + i\,c\,d^3\,e^{i\,a}\,\left(-x^4 + \left(1+e^{-2\,i\,a}\right)\,x^4 - \frac{1}{2\,b^4} e^{-2\,i\,a}\,\left(1+e^{2\,i\,a}\right)\right.$$

$$\left.\left(2\,b^4\,x^4 + 4\,i\,b^3\,x^3\,\mathrm{Log}\left[1+e^{2\,i\,(a+b\,x)}\right] + 6\,b^2\,x^2\,\mathrm{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right] + 6\,i\,b\,x\,\mathrm{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right] - 3\,\mathrm{PolyLog}\left[4,\,-e^{2\,i\,(a+b\,x)}\right]\right)\right)\,\mathrm{Sec}[a] +$$

$$\frac{1}{5}\,i\,d^4\,e^{i\,a}\,\left(-x^5 + \left(1+e^{-2\,i\,a}\right)\,x^5 - \frac{1}{4\,b^5} e^{-2\,i\,a}\,\left(1+e^{2\,i\,a}\right)\,\left(4\,b^5\,x^5 + 10\,i\,b^4\,x^4\,\mathrm{Log}\left[1+e^{2\,i\,(a+b\,x)}\right] + 20\,b^3\,x^3\,\mathrm{PolyLog}\left[2,\,-e^{2\,i\,(a+b\,x)}\right] +\right.\right.$$

$$\left.\left.30\,i\,b^2\,x^2\,\mathrm{PolyLog}\left[3,\,-e^{2\,i\,(a+b\,x)}\right] - 30\,b\,x\,\mathrm{PolyLog}\left[4,\,-e^{2\,i\,(a+b\,x)}\right] - 15\,i\,\mathrm{PolyLog}\left[5,\,-e^{2\,i\,(a+b\,x)}\right]\right)\right)\,\mathrm{Sec}[a] +$$

$$\frac{c^4\,\mathrm{Sec}[a]\,\left(\mathrm{Cos}[a]\,\mathrm{Log}[\mathrm{Cos}[a]\,\mathrm{Cos}[b\,x] - \mathrm{Sin}[a]\,\mathrm{Sin}[b\,x]] + b\,x\,\mathrm{Sin}[a]\right)}{b\,\left(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2\right)} + \left(2\,c^3\,d\,\mathrm{Csc}[a]\,\left(b^2\,e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[a]]}\,x^2 - \frac{1}{\sqrt{1+\mathrm{Cot}[a]^2}}\right.\right.$$

$$\mathrm{Cot}[a]\,\left(i\,b\,x\,\left(-\pi - 2\,\mathrm{ArcTan}[\mathrm{Cot}[a]]\right) - \pi\,\mathrm{Log}\left[1+e^{-2\,i\,b\,x}\right] - 2\,\left(b\,x - \mathrm{ArcTan}[\mathrm{Cot}[a]]\right)\,\mathrm{Log}\left[1 - e^{2\,i\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])}\right] +\right.$$

$$\left.\left.\left.\pi\,\mathrm{Log}[\mathrm{Cos}[b\,x]] - 2\,\mathrm{ArcTan}[\mathrm{Cot}[a]]\,\mathrm{Log}[\mathrm{Sin}[b\,x - \mathrm{ArcTan}[\mathrm{Cot}[a]]]] + i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])}\right]\right)\right)\,\mathrm{Sec}[a]\right)\Big/$$

$$\left(b^2\,\sqrt{\mathrm{Csc}[a]^2\,\left(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2\right)}\right) + \mathrm{Sec}[a]\,\left(\frac{\mathrm{Cos}[2\,a+2\,b\,x]}{40\,b^5} - \frac{i\,\mathrm{Sin}[2\,a+2\,b\,x]}{40\,b^5}\right)$$

$$\left(-20\,b^4\,c^4\,\mathrm{Cos}[a] + 40\,i\,b^3\,c^3\,d\,\mathrm{Cos}[a] + 60\,b^2\,c^2\,d^2\,\mathrm{Cos}[a] - 60\,i\,b\,c\,d^3\,\mathrm{Cos}[a] - 30\,d^4\,\mathrm{Cos}[a] - 80\,b^4\,c^3\,d\,x\,\mathrm{Cos}[a] + 120\,i\,b^3\,c^2\,d^2\,x\,\mathrm{Cos}[a] +\right.$$

$$120\,b^2\,c\,d^3\,x\,\mathrm{Cos}[a] - 60\,i\,b\,d^4\,x\,\mathrm{Cos}[a] - 120\,b^4\,c^2\,d^2\,x^2\,\mathrm{Cos}[a] + 120\,i\,b^3\,c\,d^3\,x^2\,\mathrm{Cos}[a] + 60\,b^2\,d^4\,x^2\,\mathrm{Cos}[a] - 80\,b^4\,c\,d^3\,x^3\,\mathrm{Cos}[a] +$$

$$40\,i\,b^3\,d^4\,x^3\,\mathrm{Cos}[a] - 20\,b^4\,d^4\,x^4\,\mathrm{Cos}[a] - 20\,i\,b^5\,c^4\,x\,\mathrm{Cos}[a+2\,b\,x] - 40\,i\,b^5\,c^3\,d\,x^2\,\mathrm{Cos}[a+2\,b\,x] - 40\,i\,b^5\,c^2\,d^2\,x^3\,\mathrm{Cos}[a+2\,b\,x] -$$

$$20\,i\,b^5\,c\,d^3\,x^4\,\mathrm{Cos}[a+2\,b\,x] - 4\,i\,b^5\,d^4\,x^5\,\mathrm{Cos}[a+2\,b\,x] + 20\,i\,b^5\,c^4\,x\,\mathrm{Cos}[3\,a+2\,b\,x] + 40\,i\,b^5\,c^3\,d\,x^2\,\mathrm{Cos}[3\,a+2\,b\,x] +$$

$$40\,i\,b^5\,c^2\,d^2\,x^3\,\mathrm{Cos}[3\,a+2\,b\,x] + 20\,i\,b^5\,c\,d^3\,x^4\,\mathrm{Cos}[3\,a+2\,b\,x] + 4\,i\,b^5\,d^4\,x^5\,\mathrm{Cos}[3\,a+2\,b\,x] - 10\,b^4\,c^4\,\mathrm{Cos}[3\,a+4\,b\,x] -$$

$$20\,i\,b^3\,c^3\,d\,\mathrm{Cos}[3\,a+4\,b\,x] + 30\,b^2\,c^2\,d^2\,\mathrm{Cos}[3\,a+4\,b\,x] + 30\,i\,b\,c\,d^3\,\mathrm{Cos}[3\,a+4\,b\,x] - 15\,d^4\,\mathrm{Cos}[3\,a+4\,b\,x] - 40\,b^4\,c^3\,d\,x\,\mathrm{Cos}[3\,a+4\,b\,x] -$$

$$60\,i\,b^3\,c^2\,d^2\,x\,\mathrm{Cos}[3\,a+4\,b\,x] + 60\,b^2\,c\,d^3\,x\,\mathrm{Cos}[3\,a+4\,b\,x] + 30\,i\,b\,d^4\,x\,\mathrm{Cos}[3\,a+4\,b\,x] - 60\,b^4\,c^2\,d^2\,x^2\,\mathrm{Cos}[3\,a+4\,b\,x] -$$

$$60\,i\,b^3\,c\,d^3\,x^2\,\mathrm{Cos}[3\,a+4\,b\,x] + 30\,b^2\,d^4\,x^2\,\mathrm{Cos}[3\,a+4\,b\,x] - 40\,b^4\,c\,d^3\,x^3\,\mathrm{Cos}[3\,a+4\,b\,x] - 20\,i\,b^3\,d^4\,x^3\,\mathrm{Cos}[3\,a+4\,b\,x] -$$

$$10\,b^4\,d^4\,x^4\,\mathrm{Cos}[3\,a+4\,b\,x] - 10\,b^4\,c^4\,\mathrm{Cos}[5\,a+4\,b\,x] - 20\,i\,b^3\,c^3\,d\,\mathrm{Cos}[5\,a+4\,b\,x] + 30\,b^2\,c^2\,d^2\,\mathrm{Cos}[5\,a+4\,b\,x] + 30\,i\,b\,c\,d^3\,\mathrm{Cos}[5\,a+4\,b\,x] -$$

$$15\,d^4\,\mathrm{Cos}[5\,a+4\,b\,x] - 40\,b^4\,c^3\,d\,x\,\mathrm{Cos}[5\,a+4\,b\,x] - 60\,i\,b^3\,c^2\,d^2\,x\,\mathrm{Cos}[5\,a+4\,b\,x] + 60\,b^2\,c\,d^3\,x\,\mathrm{Cos}[5\,a+4\,b\,x] + 30\,i\,b\,d^4\,x\,\mathrm{Cos}[5\,a+4\,b\,x] -$$

$$60\,b^4\,c^2\,d^2\,x^2\,\mathrm{Cos}[5\,a+4\,b\,x] - 60\,i\,b^3\,c\,d^3\,x^2\,\mathrm{Cos}[5\,a+4\,b\,x] + 30\,b^2\,d^4\,x^2\,\mathrm{Cos}[5\,a+4\,b\,x] - 40\,b^4\,c\,d^3\,x^3\,\mathrm{Cos}[5\,a+4\,b\,x] -$$

$$20\,i\,b^3\,d^4\,x^3\,\mathrm{Cos}[5\,a+4\,b\,x] - 10\,b^4\,d^4\,x^4\,\mathrm{Cos}[5\,a+4\,b\,x] + 20\,b^5\,c^4\,x\,\mathrm{Sin}[a+2\,b\,x] + 40\,b^5\,c^3\,d\,x^2\,\mathrm{Sin}[a+2\,b\,x] + 40\,b^5\,c^2\,d^2\,x^3\,\mathrm{Sin}[a+2\,b\,x] +$$

$$20\,b^5\,c\,d^3\,x^4\,\mathrm{Sin}[a+2\,b\,x] + 4\,b^5\,d^4\,x^5\,\mathrm{Sin}[a+2\,b\,x] - 20\,b^5\,c^4\,x\,\mathrm{Sin}[3\,a+2\,b\,x] - 40\,b^5\,c^3\,d\,x^2\,\mathrm{Sin}[3\,a+2\,b\,x] - 40\,b^5\,c^2\,d^2\,x^3\,\mathrm{Sin}[3\,a+2\,b\,x] -$$

$$20\,b^5\,c\,d^3\,x^4\,\mathrm{Sin}[3\,a+2\,b\,x] - 4\,b^5\,d^4\,x^5\,\mathrm{Sin}[3\,a+2\,b\,x] - 10\,i\,b^4\,c^4\,\mathrm{Sin}[3\,a+4\,b\,x] + 20\,b^3\,c^3\,d\,\mathrm{Sin}[3\,a+4\,b\,x] + 30\,i\,b^2\,c^2\,d^2\,\mathrm{Sin}[3\,a+4\,b\,x] -$$

$$30\,b\,c\,d^3\,\mathrm{Sin}[3\,a+4\,b\,x] - 15\,i\,d^4\,\mathrm{Sin}[3\,a+4\,b\,x] - 40\,i\,b^4\,c^3\,d\,x\,\mathrm{Sin}[3\,a+4\,b\,x] + 60\,b^3\,c^2\,d^2\,x\,\mathrm{Sin}[3\,a+4\,b\,x] + 60\,i\,b^2\,c\,d^3\,x\,\mathrm{Sin}[3\,a+4\,b\,x] -$$

$$30\,b\,d^4\,x\,\mathrm{Sin}[3\,a+4\,b\,x] - 60\,i\,b^4\,c^2\,d^2\,x^2\,\mathrm{Sin}[3\,a+4\,b\,x] + 60\,b^3\,c\,d^3\,x^2\,\mathrm{Sin}[3\,a+4\,b\,x] + 30\,i\,b^2\,d^4\,x^2\,\mathrm{Sin}[3\,a+4\,b\,x] -$$

$$40\,i\,b^4\,c\,d^3\,x^3\,\mathrm{Sin}[3\,a+4\,b\,x] + 20\,b^3\,d^4\,x^3\,\mathrm{Sin}[3\,a+4\,b\,x] - 10\,i\,b^4\,d^4\,x^4\,\mathrm{Sin}[3\,a+4\,b\,x] - 10\,i\,b^4\,c^4\,\mathrm{Sin}[5\,a+4\,b\,x] + 20\,b^3\,c^3\,d\,\mathrm{Sin}[5\,a+4\,b\,x] +$$

$$30\,i\,b^2\,c^2\,d^2\,\mathrm{Sin}[5\,a+4\,b\,x] - 30\,b\,c\,d^3\,\mathrm{Sin}[5\,a+4\,b\,x] - 15\,i\,d^4\,\mathrm{Sin}[5\,a+4\,b\,x] - 40\,i\,b^4\,c^3\,d\,x\,\mathrm{Sin}[5\,a+4\,b\,x] + 60\,b^3\,c^2\,d^2\,x\,\mathrm{Sin}[5\,a+4\,b\,x] +$$

$$60\,i\,b^2\,c\,d^3\,x\,\mathrm{Sin}[5\,a+4\,b\,x] - 30\,b\,d^4\,x\,\mathrm{Sin}[5\,a+4\,b\,x] - 60\,i\,b^4\,c^2\,d^2\,x^2\,\mathrm{Sin}[5\,a+4\,b\,x] + 60\,b^3\,c\,d^3\,x^2\,\mathrm{Sin}[5\,a+4\,b\,x] +$$

$$\left.30\,i\,b^2\,d^4\,x^2\,\mathrm{Sin}[5\,a+4\,b\,x] - 40\,i\,b^4\,c\,d^3\,x^3\,\mathrm{Sin}[5\,a+4\,b\,x] + 20\,b^3\,d^4\,x^3\,\mathrm{Sin}[5\,a+4\,b\,x] - 10\,i\,b^4\,d^4\,x^4\,\mathrm{Sin}[5\,a+4\,b\,x]\right)$$

Problem 383: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^3 \operatorname{Sec}[a+b x] \operatorname{Sin}[3 a+3 b x] \, dx$$

Optimal (type 4, 242 leaves, 19 steps):

$$\frac{3 d^3 x}{2 b^3}-\frac{(c+d x)^3}{b}-\frac{i (c+d x)^4}{4 d}+\frac{(c+d x)^3 \operatorname{Log}\left[1+e^{2 i (a+b x)}\right]}{b}-\frac{3 i d (c+d x)^2 \operatorname{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{2 b^2}+\frac{3 d^2 (c+d x) \operatorname{PolyLog}\left[3,-e^{2 i (a+b x)}\right]}{2 b^3}+\frac{3 i d^3 \operatorname{PolyLog}\left[4,-e^{2 i (a+b x)}\right]}{4 b^4}-\frac{3 d^3 \operatorname{Cos}[a+b x] \operatorname{Sin}[a+b x]}{2 b^4}+\frac{3 d (c+d x)^2 \operatorname{Cos}[a+b x] \operatorname{Sin}[a+b x]}{b^2}-\frac{3 d^2 (c+d x) \operatorname{Sin}[a+b x]^2}{b^3}+\frac{2 (c+d x)^3 \operatorname{Sin}[a+b x]^2}{b}$$

Result (type 4, 1733 leaves):

$$-\frac{1}{4 b^3} c\, d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x+3 i \left(1+e^{2 i a}\right) \text{Log}\left[1+e^{2 i (a+b x)}\right]\right)+6 i b \left(1+e^{2 i a}\right) x\, \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]-3 \left(1+e^{2 i a}\right) \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]\right)$$
$$\text{Sec}[a]+\frac{1}{4} i d^3 e^{i a} \left(-x^4+\left(1+e^{-2 i a}\right) x^4-\frac{1}{2 b^4}e^{-2 i a} \left(1+e^{2 i a}\right)\right.$$
$$\left.\left(2 b^4 x^4+4 i b^3 x^3 \text{Log}\left[1+e^{2 i (a+b x)}\right]+6 b^2 x^2 \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]+6 i b x\, \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]-3\, \text{PolyLog}\left[4,-e^{2 i (a+b x)}\right]\right)\right) \text{Sec}[a]+$$

$$\frac{c^3 \text{Sec}[a] \left(\text{Cos}[a]\, \text{Log}[\text{Cos}[a]\, \text{Cos}[b x]-\text{Sin}[a]\, \text{Sin}[b x]]+b x\, \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}+\left(3 c^2 d\, \text{Csc}[a] \left(b^2 e^{-i\, \text{ArcTan}[\text{Cot}[a]]} x^2-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\right.\right.$$
$$\text{Cot}[a] \left(i b x \left(-\pi-2\, \text{ArcTan}[\text{Cot}[a]]\right)-\pi\, \text{Log}\left[1+e^{-2 i b x}\right]-2 \left(b x-\text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1-e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]+\right.$$
$$\left.\left.\left.\pi\, \text{Log}[\text{Cos}[b x]]-2\, \text{ArcTan}[\text{Cot}[a]]\, \text{Log}[\text{Sin}[b x-\text{ArcTan}[\text{Cot}[a]]]]+i\, \text{PolyLog}\left[2, e^{2 i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right) \Big/$$

$$\left(2 b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2+\text{Sin}[a]^2\right)}\right)+\text{Sec}[a] \left(\frac{\text{Cos}[2 a+2 b x]}{16 b^4}-\frac{i\, \text{Sin}[2 a+2 b x]}{16 b^4}\right)$$
$$\left(-8 b^3 c^3 \text{Cos}[a]+12 i b^2 c^2 d\, \text{Cos}[a]+12 b c d^2 \text{Cos}[a]-6 i d^3 \text{Cos}[a]-24 b^3 c^2 d x\, \text{Cos}[a]+24 i b^2 c d^2 x\, \text{Cos}[a]+12 b d^3 x\, \text{Cos}[a]-\right.$$
$$24 b^3 c d^2 x^2 \text{Cos}[a]+12 i b^2 d^3 x^2 \text{Cos}[a]-8 b^3 d^3 x^3 \text{Cos}[a]-8 i b^4 c^3 x\, \text{Cos}[a+2 b x]-12 i b^4 c^2 d x^2 \text{Cos}[a+2 b x]-$$
$$8 i b^4 c d^2 x^3 \text{Cos}[a+2 b x]-2 i b^4 d^3 x^4 \text{Cos}[a+2 b x]+8 i b^4 c^3 x\, \text{Cos}[3 a+2 b x]+12 i b^4 c^2 d x^2 \text{Cos}[3 a+2 b x]+$$
$$8 i b^4 c d^2 x^3 \text{Cos}[3 a+2 b x]+2 i b^4 d^3 x^4 \text{Cos}[3 a+2 b x]-4 b^3 c^3 \text{Cos}[3 a+4 b x]-6 i b^2 c^2 d\, \text{Cos}[3 a+4 b x]+6 b c d^2 \text{Cos}[3 a+4 b x]+$$
$$3 i d^3 \text{Cos}[3 a+4 b x]-12 b^3 c^2 d x\, \text{Cos}[3 a+4 b x]-12 i b^2 c d^2 x\, \text{Cos}[3 a+4 b x]+6 b d^3 x\, \text{Cos}[3 a+4 b x]-12 b^3 c d^2 x^2 \text{Cos}[3 a+4 b x]-$$
$$6 i b^2 d^3 x^2 \text{Cos}[3 a+4 b x]-4 b^3 d^3 x^3 \text{Cos}[3 a+4 b x]-4 b^3 c^3 \text{Cos}[5 a+4 b x]-6 i b^2 c^2 d\, \text{Cos}[5 a+4 b x]+6 b c d^2 \text{Cos}[5 a+4 b x]+$$
$$3 i d^3 \text{Cos}[5 a+4 b x]-12 b^3 c^2 d x\, \text{Cos}[5 a+4 b x]-12 i b^2 c d^2 x\, \text{Cos}[5 a+4 b x]+6 b d^3 x\, \text{Cos}[5 a+4 b x]-12 b^3 c d^2 x^2 \text{Cos}[5 a+4 b x]-$$
$$6 i b^2 d^3 x^2 \text{Cos}[5 a+4 b x]-4 b^3 d^3 x^3 \text{Cos}[5 a+4 b x]+8 b^4 c^3 x\, \text{Sin}[a+2 b x]+12 b^4 c^2 d x^2 \text{Sin}[a+2 b x]+8 b^4 c d^2 x^3 \text{Sin}[a+2 b x]+$$
$$2 b^4 d^3 x^4 \text{Sin}[a+2 b x]-8 b^4 c^3 x\, \text{Sin}[3 a+2 b x]-12 b^4 c^2 d x^2 \text{Sin}[3 a+2 b x]-8 b^4 c d^2 x^3 \text{Sin}[3 a+2 b x]-2 b^4 d^3 x^4 \text{Sin}[3 a+2 b x]-$$
$$4 i b^3 c^3 \text{Sin}[3 a+4 b x]+6 b^2 c^2 d\, \text{Sin}[3 a+4 b x]+6 i b c d^2 \text{Sin}[3 a+4 b x]-3 d^3 \text{Sin}[3 a+4 b x]-12 i b^3 c^2 d x\, \text{Sin}[3 a+4 b x]+$$
$$12 b^2 c d^2 x\, \text{Sin}[3 a+4 b x]+6 i b d^3 x\, \text{Sin}[3 a+4 b x]-12 i b^3 c d^2 x^2 \text{Sin}[3 a+4 b x]+6 b^2 d^3 x^2 \text{Sin}[3 a+4 b x]-4 i b^3 d^3 x^3 \text{Sin}[3 a+4 b x]-$$
$$4 i b^3 c^3 \text{Sin}[5 a+4 b x]+6 b^2 c^2 d\, \text{Sin}[5 a+4 b x]+6 i b c d^2 \text{Sin}[5 a+4 b x]-3 d^3 \text{Sin}[5 a+4 b x]-12 i b^3 c^2 d x\, \text{Sin}[5 a+4 b x]+$$
$$\left.12 b^2 c d^2 x\, \text{Sin}[5 a+4 b x]+6 i b d^3 x\, \text{Sin}[5 a+4 b x]-12 i b^3 c d^2 x^2 \text{Sin}[5 a+4 b x]+6 b^2 d^3 x^2 \text{Sin}[5 a+4 b x]-4 i b^3 d^3 x^3 \text{Sin}[5 a+4 b x]\right)$$

Problem 384: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 173 leaves, 14 steps):

$$-\frac{2 c d x}{b}-\frac{d^2 x^2}{b}-\frac{i (c+d x)^3}{3 d}+\frac{(c+d x)^2 \text{Log}\left[1+e^{2 i (a+b x)}\right]}{b}-\frac{i d (c+d x)\, \text{PolyLog}\left[2,-e^{2 i (a+b x)}\right]}{b^2}+$$
$$\frac{d^2\, \text{PolyLog}\left[3,-e^{2 i (a+b x)}\right]}{2 b^3}+\frac{2 d (c+d x)\, \text{Cos}[a+b x]\, \text{Sin}[a+b x]}{b^2}-\frac{d^2\, \text{Sin}[a+b x]^2}{b^3}+\frac{2 (c+d x)^2\, \text{Sin}[a+b x]^2}{b}$$

Result (type 4, 523 leaves):

$$-\frac{1}{12 b^3} d^2 e^{-i a} \left(2 i b^2 x^2 \left(2 b e^{2 i a} x + 3 i \left(1 + e^{2 i a}\right) \text{Log}\left[1 + e^{2 i (a+b x)}\right]\right) + 6 i b \left(1 + e^{2 i a}\right) x\, \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right] - 3 \left(1 + e^{2 i a}\right) \text{PolyLog}\left[3, -e^{2 i (a+b x)}\right]\right) \text{Sec}[a] + \frac{c^2 \text{Sec}[a] \left(\text{Cos}[a] \text{Log}[\text{Cos}[a] \text{Cos}[b x] - \text{Sin}[a] \text{Sin}[b x]] + b x \text{Sin}[a]\right)}{b \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)} +$$

$$\left(c d \text{Csc}[a] \left(b^2 e^{-i \text{ArcTan}[\text{Cot}[a]]} x^2 - \frac{1}{\sqrt{1 + \text{Cot}[a]^2}} \text{Cot}[a] \left(i b x \left(-\pi - 2 \text{ArcTan}[\text{Cot}[a]]\right) - \pi \text{Log}\left[1 + e^{-2 i b x}\right] - 2 \left(b x - \text{ArcTan}[\text{Cot}[a]]\right) \text{Log}\left[1 - e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right] + \pi \text{Log}[\text{Cos}[b x]] - 2 \text{ArcTan}[\text{Cot}[a]] \text{Log}[\text{Sin}[b x - \text{ArcTan}[\text{Cot}[a]]]] + i \text{PolyLog}\left[2, e^{2 i (b x - \text{ArcTan}[\text{Cot}[a]])}\right]\right)\right) \text{Sec}[a]\right) \Big/ \left(b^2 \sqrt{\text{Csc}[a]^2 \left(\text{Cos}[a]^2 + \text{Sin}[a]^2\right)}\right) - \frac{1}{2 b^3}$$

$$\text{Cos}[2 b x] \left(2 b^2 c^2 \text{Cos}[2 a] - d^2 \text{Cos}[2 a] + 4 b^2 c d x \text{Cos}[2 a] + 2 b^2 d^2 x^2 \text{Cos}[2 a] - 2 b c d \text{Sin}[2 a] - 2 b d^2 x \text{Sin}[2 a]\right) + \frac{1}{2 b^3}$$

$$\left(2 b c d \text{Cos}[2 a] + 2 b d^2 x \text{Cos}[2 a] + 2 b^2 c^2 \text{Sin}[2 a] - d^2 \text{Sin}[2 a] + 4 b^2 c d x \text{Sin}[2 a] + 2 b^2 d^2 x^2 \text{Sin}[2 a]\right) \text{Sin}[2 b x] - \frac{1}{3} x \left(3 c^2 + 3 c d x + d^2 x^2\right) \text{Tan}[a]$$

Problem 385: Result more than twice size of optimal antiderivative.

$$\int (c + d x) \text{Sec}[a + b x] \text{Sin}[3 a + 3 b x] \, dx$$

Optimal (type 4, 107 leaves, 13 steps):

$$-\frac{d x}{b} - \frac{i (c + d x)^2}{2 d} + \frac{(c + d x) \text{Log}\left[1 + e^{2 i (a+b x)}\right]}{b} - \frac{i d \text{PolyLog}\left[2, -e^{2 i (a+b x)}\right]}{2 b^2} + \frac{d \text{Cos}[a + b x] \text{Sin}[a + b x]}{b^2} + \frac{2 (c + d x) \text{Sin}[a + b x]^2}{b}$$

Result (type 4, 257 leaves):

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

$$\text{Cot}[a]\,\Big(i\,b\,x\,(-\pi-2\,\text{ArcTan}[\text{Cot}[a]])-\pi\,\text{Log}\big[1+e^{-2\,i\,b\,x}\big]-2\,(b\,x-\text{ArcTan}[\text{Cot}[a]])\,\text{Log}\big[1-e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\big]+$$

$$\pi\,\text{Log}[\text{Cos}[b\,x]]-2\,\text{ArcTan}[\text{Cot}[a]]\,\text{Log}[\text{Sin}[b\,x-\text{ArcTan}[\text{Cot}[a]]]]+i\,\text{PolyLog}\big[2,\,e^{2\,i\,(b\,x-\text{ArcTan}[\text{Cot}[a]])}\big]\Big)\Bigg)\,\text{Sec}[a]\Bigg)\Big/$$

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

Problem 389: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 230 leaves, 19 steps):

$$-\frac{6\,i\,d\,(c+d\,x)^2\,\text{ArcTan}\big[e^{i\,(a+b\,x)}\big]}{b^2}+\frac{24\,d^2\,(c+d\,x)\,\text{Cos}[a+b\,x]}{b^3}-\frac{4\,(c+d\,x)^3\,\text{Cos}[a+b\,x]}{b}+$$

$$\frac{6\,i\,d^2\,(c+d\,x)\,\text{PolyLog}\big[2,\,-i\,e^{i\,(a+b\,x)}\big]}{b^3}-\frac{6\,i\,d^2\,(c+d\,x)\,\text{PolyLog}\big[2,\,i\,e^{i\,(a+b\,x)}\big]}{b^3}-\frac{6\,d^3\,\text{PolyLog}\big[3,\,-i\,e^{i\,(a+b\,x)}\big]}{b^4}+$$

$$\frac{6\,d^3\,\text{PolyLog}\big[3,\,i\,e^{i\,(a+b\,x)}\big]}{b^4}-\frac{(c+d\,x)^3\,\text{Sec}[a+b\,x]}{b}-\frac{24\,d^3\,\text{Sin}[a+b\,x]}{b^4}+\frac{12\,d\,(c+d\,x)^2\,\text{Sin}[a+b\,x]}{b^2}$$

Result (type 4, 532 leaves):

$$-\frac{1}{b^4}\text{Sec}[a+b\,x]\,\Big(3\,b^3\,c^3-12\,b\,c\,d^2+9\,b^3\,c^2\,d\,x-12\,b\,d^3\,x+9\,b^3\,c\,d^2\,x^2+3\,b^3\,d^3\,x^3+6\,i\,b^2\,c^2\,d\,\text{ArcTan}\big[e^{i\,(a+b\,x)}\big]\,\text{Cos}[a+b\,x]+$$

$$2\,b^3\,c^3\,\text{Cos}[2\,(a+b\,x)]-12\,b\,c\,d^2\,\text{Cos}[2\,(a+b\,x)]+6\,b^3\,c^2\,d\,x\,\text{Cos}[2\,(a+b\,x)]-12\,b\,d^3\,x\,\text{Cos}[2\,(a+b\,x)]+6\,b^3\,c\,d^2\,x^2\,\text{Cos}[2\,(a+b\,x)]+$$

$$2\,b^3\,d^3\,x^3\,\text{Cos}[2\,(a+b\,x)]-6\,b^2\,c\,d^2\,x\,\text{Cos}[a+b\,x]\,\text{Log}\big[1-i\,e^{i\,(a+b\,x)}\big]-3\,b^2\,d^3\,x^2\,\text{Cos}[a+b\,x]\,\text{Log}\big[1-i\,e^{i\,(a+b\,x)}\big]+$$

$$6\,b^2\,c\,d^2\,x\,\text{Cos}[a+b\,x]\,\text{Log}\big[1+i\,e^{i\,(a+b\,x)}\big]+3\,b^2\,d^3\,x^2\,\text{Cos}[a+b\,x]\,\text{Log}\big[1+i\,e^{i\,(a+b\,x)}\big]-6\,i\,b\,d^2\,(c+d\,x)\,\text{Cos}[a+b\,x]\,\text{PolyLog}\big[2,\,-i\,e^{i\,(a+b\,x)}\big]+$$

$$6\,i\,b\,d^2\,(c+d\,x)\,\text{Cos}[a+b\,x]\,\text{PolyLog}\big[2,\,i\,e^{i\,(a+b\,x)}\big]+6\,d^3\,\text{Cos}[a+b\,x]\,\text{PolyLog}\big[3,\,-i\,e^{i\,(a+b\,x)}\big]-6\,d^3\,\text{Cos}[a+b\,x]\,\text{PolyLog}\big[3,\,i\,e^{i\,(a+b\,x)}\big]-$$

$$6\,b^2\,c^2\,d\,\text{Sin}[2\,(a+b\,x)]+12\,d^3\,\text{Sin}[2\,(a+b\,x)]-12\,b^2\,c\,d^2\,x\,\text{Sin}[2\,(a+b\,x)]-6\,b^2\,d^3\,x^2\,\text{Sin}[2\,(a+b\,x)]\Big)$$

Problem 390: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 147 leaves, 15 steps):

$$-\frac{4 i d (c+d x) \text{ArcTan}\left[e^{i (a+b x)}\right]}{b^2}+\frac{8 d^2 \text{Cos}[a+b x]}{b^3}-\frac{4 (c+d x)^2 \text{Cos}[a+b x]}{b}+\frac{2 i d^2 \text{PolyLog}\left[2,-i e^{i (a+b x)}\right]}{b^3}-\frac{2 i d^2 \text{PolyLog}\left[2,i e^{i (a+b x)}\right]}{b^3}-\frac{(c+d x)^2 \text{Sec}[a+b x]}{b}+\frac{8 d (c+d x) \text{Sin}[a+b x]}{b^2}$$

Result (type 4, 542 leaves):

$$-\frac{(c+d x)^2 \text{Sec}[a]}{b}-\frac{1}{b^3}4 \text{Cos}[b x] \left(b^2 c^2 \text{Cos}[a]-2 d^2 \text{Cos}[a]+2 b^2 c d x \text{Cos}[a]+b^2 d^2 x^2 \text{Cos}[a]-2 b c d \text{Sin}[a]-2 b d^2 x \text{Sin}[a]\right)+$$
$$\frac{4 i c d \text{ArcTan}\left[\frac{-i \text{Sin}[a]-i \text{Cos}[a] \text{Tan}\left[\frac{b x}{2}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right]}{b^2 \sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}+\frac{1}{b^3}$$
$$2 d^2 \left(-\frac{1}{\sqrt{1+\text{Cot}[a]^2}}\text{Csc}[a] \left((b x-\text{ArcTan}[\text{Cot}[a]]) \left(\text{Log}\left[1-e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]-\text{Log}\left[1+e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)+\right.\right.$$
$$\left.\left.i \left(\text{PolyLog}\left[2,-e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]-\text{PolyLog}\left[2,e^{i (b x-\text{ArcTan}[\text{Cot}[a]])}\right]\right)\right)+\frac{2 \text{ArcTan}[\text{Cot}[a]] \text{ArcTanh}\left[\frac{\text{Sin}[a]+\text{Cos}[a] \text{Tan}\left[\frac{b x}{2}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right]}{\sqrt{\text{Cos}[a]^2+\text{Sin}[a]^2}}\right)+$$
$$\frac{1}{b^3}4 \left(2 b c d \text{Cos}[a]+2 b d^2 x \text{Cos}[a]+b^2 c^2 \text{Sin}[a]-2 d^2 \text{Sin}[a]+2 b^2 c d x \text{Sin}[a]+b^2 d^2 x^2 \text{Sin}[a]\right) \text{Sin}[b x]+$$
$$\frac{-c^2 \text{Sin}\left[\frac{b x}{2}\right]-2 c d x \text{Sin}\left[\frac{b x}{2}\right]-d^2 x^2 \text{Sin}\left[\frac{b x}{2}\right]}{b \left(\text{Cos}\left[\frac{a}{2}\right]-\text{Sin}\left[\frac{a}{2}\right]\right) \left(\text{Cos}\left[\frac{a}{2}+\frac{b x}{2}\right]-\text{Sin}\left[\frac{a}{2}+\frac{b x}{2}\right]\right)}+$$
$$\frac{c^2 \text{Sin}\left[\frac{b x}{2}\right]+2 c d x \text{Sin}\left[\frac{b x}{2}\right]+d^2 x^2 \text{Sin}\left[\frac{b x}{2}\right]}{b \left(\text{Cos}\left[\frac{a}{2}\right]+\text{Sin}\left[\frac{a}{2}\right]\right) \left(\text{Cos}\left[\frac{a}{2}+\frac{b x}{2}\right]+\text{Sin}\left[\frac{a}{2}+\frac{b x}{2}\right]\right)}$$

Problem 397: Result more than twice size of optimal antiderivative.

$$\int x \text{Cos}[2 x] \text{Sec}[x]^3 \, dx$$

Optimal (type 4, 67 leaves, 19 steps):

$$-3\,i\,x\,\text{ArcTan}\left[e^{i\,x}\right]+\frac{3}{2}\,i\,\text{PolyLog}\left[2,-i\,e^{i\,x}\right]-\frac{3}{2}\,i\,\text{PolyLog}\left[2,i\,e^{i\,x}\right]+\frac{\text{Sec}[x]}{2}-\frac{1}{2}\,x\,\text{Sec}[x]\,\text{Tan}[x]$$

Result (type 4, 146 leaves) :

$$\frac{1}{4}\left(6\,x\,\text{Log}\left[1-i\,e^{i\,x}\right]-6\,x\,\text{Log}\left[1+i\,e^{i\,x}\right]+6\,i\,\text{PolyLog}\left[2,-i\,e^{i\,x}\right]-6\,i\,\text{PolyLog}\left[2,i\,e^{i\,x}\right]+\frac{2\,\text{Sin}\left[\frac{x}{2}\right]}{\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}+\frac{x}{\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)^2}-\frac{2\,\text{Sin}\left[\frac{x}{2}\right]}{\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]}+\frac{x}{-1+\text{Sin}[x]}\right)$$

Test results for the 9 problems in "4.7.4 x^m (a+b trig^n)^p.m"

Problem 1: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 203 leaves, 9 steps) :

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

Result (type 4, 545 leaves) :

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

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

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

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

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

$$\left.i\left(\text{PolyLog}\left[2,\frac{\left(2\,a+b-2\,i\,\sqrt{-a\,(a+b)}\right)\left(-a+\sqrt{-a\,(a+b)}\,\,\text{Tan}[x]\right)}{b\left(a+\sqrt{-a\,(a+b)}\,\,\text{Tan}[x]\right)}\right]-\text{PolyLog}\left[2,\frac{\left(2\,a+b+2\,i\,\sqrt{-a\,(a+b)}\right)\left(-a+\sqrt{-a\,(a+b)}\,\,\text{Tan}[x]\right)}{b\left(a+\sqrt{-a\,(a+b)}\,\,\text{Tan}[x]\right)}\right]\right)\right)$$

Problem 6: Result more than twice size of optimal antiderivative.

$$\int \frac{x}{a+b\,\text{Cos}[x]^2}\,dx$$

Optimal (type 4, 203 leaves, 9 steps):

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

Result (type 4, 532 leaves):

$$\begin{aligned}
&\frac{1}{4\sqrt{-a\,(a+b)}}\left(4\,x\,\text{ArcTanh}\left[\frac{(a+b)\,\text{Cot}[x]}{\sqrt{-a\,(a+b)}}\right]+2\,\text{ArcCos}\left[-1-\frac{2\,a}{b}\right]\text{ArcTanh}\left[\frac{a\,\text{Tan}[x]}{\sqrt{-a\,(a+b)}}\right]+\right.\\
&\quad\left(\text{ArcCos}\left[-1-\frac{2\,a}{b}\right]-2\,i\left(\text{ArcTanh}\left[\frac{(a+b)\,\text{Cot}[x]}{\sqrt{-a\,(a+b)}}\right]+\text{ArcTanh}\left[\frac{a\,\text{Tan}[x]}{\sqrt{-a\,(a+b)}}\right]\right)\right)\text{Log}\left[\frac{\sqrt{2}\,\sqrt{-a\,(a+b)}\,e^{-i\,x}}{\sqrt{b}\,\sqrt{2\,a+b+b\,\text{Cos}[2\,x]}}\right]+\\
&\quad\left(\text{ArcCos}\left[-1-\frac{2\,a}{b}\right]+2\,i\left(\text{ArcTanh}\left[\frac{(a+b)\,\text{Cot}[x]}{\sqrt{-a\,(a+b)}}\right]+\text{ArcTanh}\left[\frac{a\,\text{Tan}[x]}{\sqrt{-a\,(a+b)}}\right]\right)\right)\text{Log}\left[\frac{\sqrt{2}\,\sqrt{-a\,(a+b)}\,e^{i\,x}}{\sqrt{b}\,\sqrt{2\,a+b+b\,\text{Cos}[2\,x]}}\right]-\\
&\quad\left(\text{ArcCos}\left[-1-\frac{2\,a}{b}\right]+2\,i\,\text{ArcTanh}\left[\frac{a\,\text{Tan}[x]}{\sqrt{-a\,(a+b)}}\right]\right)\text{Log}\left[\frac{2\,(a+b)\left(-i\,a+\sqrt{-a\,(a+b)}\right)(-i+\text{Tan}[x])}{b\left(a+b+\sqrt{-a\,(a+b)}\,\text{Tan}[x]\right)}\right]-\\
&\quad\left(\text{ArcCos}\left[-1-\frac{2\,a}{b}\right]-2\,i\,\text{ArcTanh}\left[\frac{a\,\text{Tan}[x]}{\sqrt{-a\,(a+b)}}\right]\right)\text{Log}\left[\frac{2\,(a+b)\left(i\,a+\sqrt{-a\,(a+b)}\right)(i+\text{Tan}[x])}{b\left(a+b+\sqrt{-a\,(a+b)}\,\text{Tan}[x]\right)}\right]+\\
&\quad i\left(\text{PolyLog}\left[2,\frac{\left(2\,a+b-2\,i\,\sqrt{-a\,(a+b)}\right)\left(a+b-\sqrt{-a\,(a+b)}\,\text{Tan}[x]\right)}{b\left(a+b+\sqrt{-a\,(a+b)}\,\text{Tan}[x]\right)}\right]-\right.\\
&\quad\left.\left.\text{PolyLog}\left[2,\frac{\left(2\,a+b+2\,i\,\sqrt{-a\,(a+b)}\right)\left(a+b-\sqrt{-a\,(a+b)}\,\text{Tan}[x]\right)}{b\left(a+b+\sqrt{-a\,(a+b)}\,\text{Tan}[x]\right)}\right]\right)\right)
\end{aligned}$$

Test results for the 330 problems in "4.7.5 x^m trig(a+b log(c x^n))^p.m"

Problem 26: Unable to integrate problem.

$$\int x^m\,\text{Sin}\left[a+\sqrt{-\frac{(1+m)^2}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]dx$$

Optimal (type 3, 133 leaves, 3 steps):

$$-\frac{e^{\frac{a(1+m)}{\sqrt{-\frac{(1+m)^2}{n^2}}\,n}}\,x^{1+m}\,\left(c\,x^n\right)^{\frac{1+m}{n}}}{4\,\sqrt{-\frac{(1+m)^2}{n^2}}\,n}+\frac{e^{\frac{a\sqrt{-\frac{(1+m)^2}{n^2}}\,n}{1+m}}\,(1+m)\,x^{1+m}\,\left(c\,x^n\right)^{-\frac{1+m}{n}}\,\text{Log}[x]}{2\,\sqrt{-\frac{(1+m)^2}{n^2}}\,n}$$

Result (type 8, 30 leaves):

$$\int x^m\,\text{Sin}\left[a+\sqrt{-\frac{(1+m)^2}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]\,dx$$

Problem 27: Unable to integrate problem.

$$\int x^2\,\text{Sin}\left[a+3\,\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]\,dx$$

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

$$\frac{1}{12}\,e^{-a\sqrt{-\frac{1}{n^2}}\,n}\,\sqrt{-\frac{1}{n^2}}\,n\,x^3\,\left(c\,x^n\right)^{3/n}-\frac{1}{2}\,e^{a\sqrt{-\frac{1}{n^2}}\,n}\,\sqrt{-\frac{1}{n^2}}\,n\,x^3\,\left(c\,x^n\right)^{-3/n}\,\text{Log}[x]$$

Result (type 8, 26 leaves):

$$\int x^2\,\text{Sin}\left[a+3\,\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]\,dx$$

Problem 28: Unable to integrate problem.

$$\int x\,\text{Sin}\left[a+2\,\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]\,dx$$

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

$$\frac{1}{8}\,e^{-a\sqrt{-\frac{1}{n^2}}\,n}\,\sqrt{-\frac{1}{n^2}}\,n\,x^2\,\left(c\,x^n\right)^{2/n}-\frac{1}{2}\,e^{a\sqrt{-\frac{1}{n^2}}\,n}\,\sqrt{-\frac{1}{n^2}}\,n\,x^2\,\left(c\,x^n\right)^{-2/n}\,\text{Log}[x]$$

Result (type 8, 24 leaves):

$$\int x \operatorname{Sin}\left[a+2\sqrt{-\frac{1}{n^2}}\operatorname{Log}\left[c\,x^n\right]\right]dx$$

Problem 29: Unable to integrate problem.

$$\int \operatorname{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\operatorname{Log}\left[c\,x^n\right]\right]dx$$

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

$$\frac{1}{4}e^{-a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x\left(c\,x^n\right)^{\frac{1}{n}}-\frac{1}{2}e^{a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x\left(c\,x^n\right)^{-1/n}\operatorname{Log}[x]$$

Result (type 8, 21 leaves):

$$\int \operatorname{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\operatorname{Log}\left[c\,x^n\right]\right]dx$$

Problem 31: Unable to integrate problem.

$$\int \frac{\operatorname{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\operatorname{Log}\left[c\,x^n\right]\right]}{x^2}dx$$

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

$$\frac{e^{a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\left(c\,x^n\right)^{-1/n}}{4\,x}+\frac{e^{-a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\left(c\,x^n\right)^{\frac{1}{n}}\operatorname{Log}[x]}{2\,x}$$

Result (type 8, 25 leaves):

$$\int \frac{\operatorname{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\operatorname{Log}\left[c\,x^n\right]\right]}{x^2}dx$$

Problem 32: Unable to integrate problem.

$$\int \frac{\text{Sin}\left[a+2\sqrt{-\frac{1}{n^2}}\ \text{Log}\left[c\ x^n\right]\right]}{x^3}\,dx$$

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

$$\frac{e^{a\sqrt{-\frac{1}{n^2}}\ n}\sqrt{-\frac{1}{n^2}}\ n\ \left(c\ x^n\right)^{-2/n}}{8\ x^2}+\frac{e^{-a\sqrt{-\frac{1}{n^2}}\ n}\sqrt{-\frac{1}{n^2}}\ n\ \left(c\ x^n\right)^{2/n}\ \text{Log}[x]}{2\ x^2}$$

Result (type 8, 26 leaves):

$$\int \frac{\text{Sin}\left[a+2\sqrt{-\frac{1}{n^2}}\ \text{Log}\left[c\ x^n\right]\right]}{x^3}\,dx$$

Problem 33: Unable to integrate problem.

$$\int x^m\ \text{Sin}\left[a+\frac{1}{2}\sqrt{-\frac{(1+m)^2}{n^2}}\ \text{Log}\left[c\ x^n\right]\right]^2\,dx$$

Optimal (type 3, 117 leaves, 3 steps):

$$\frac{x^{1+m}}{2\ (1+m)}-\frac{e^{-\frac{2\ a\sqrt{-\frac{(1+m)^2}{n^2}}\ n}{1+m}}\ x^{1+m}\ \left(c\ x^n\right)^{\frac{1+m}{n}}}{8\ (1+m)}-\frac{1}{4}\ e^{\frac{2\ a\sqrt{-\frac{(1+m)^2}{n^2}}\ n}{1+m}}\ x^{1+m}\ \left(c\ x^n\right)^{-\frac{1+m}{n}}\ \text{Log}[x]$$

Result (type 8, 35 leaves):

$$\int x^m\ \text{Sin}\left[a+\frac{1}{2}\sqrt{-\frac{(1+m)^2}{n^2}}\ \text{Log}\left[c\ x^n\right]\right]^2\,dx$$

Problem 34: Unable to integrate problem.

$$\int x^2\ \text{Sin}\left[a+\frac{3}{2}\sqrt{-\frac{1}{n^2}}\ \text{Log}\left[c\ x^n\right]\right]^2\,dx$$

Optimal (type 3, 76 leaves, 3 steps):

$$\frac{x^3}{6}-\frac{1}{24}e^{-2a\sqrt{-\frac{1}{n^2}}\,n}x^3\left(c\,x^n\right)^{3/n}-\frac{1}{4}e^{2a\sqrt{-\frac{1}{n^2}}\,n}x^3\left(c\,x^n\right)^{-3/n}\text{Log}[x]$$

Result (type 8, 30 leaves):

$$\int x^2\,\text{Sin}\left[a+\frac{3}{2}\sqrt{-\frac{1}{n^2}}\;\text{Log}\left[c\,x^n\right]\right]^2\,dx$$

Problem 35: Unable to integrate problem.

$$\int x\,\text{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\;\text{Log}\left[c\,x^n\right]\right]^2\,dx$$

Optimal (type 3, 76 leaves, 3 steps):

$$\frac{x^2}{4}-\frac{1}{16}e^{-2a\sqrt{-\frac{1}{n^2}}\,n}x^2\left(c\,x^n\right)^{2/n}-\frac{1}{4}e^{2a\sqrt{-\frac{1}{n^2}}\,n}x^2\left(c\,x^n\right)^{-2/n}\text{Log}[x]$$

Result (type 8, 25 leaves):

$$\int x\,\text{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\;\text{Log}\left[c\,x^n\right]\right]^2\,dx$$

Problem 36: Unable to integrate problem.

$$\int \text{Sin}\left[a+\frac{1}{2}\sqrt{-\frac{1}{n^2}}\;\text{Log}\left[c\,x^n\right]\right]^2\,dx$$

Optimal (type 3, 68 leaves, 3 steps):

$$\frac{x}{2}-\frac{1}{8}e^{-2a\sqrt{-\frac{1}{n^2}}\,n}x\left(c\,x^n\right)^{\frac{1}{n}}-\frac{1}{4}e^{2a\sqrt{-\frac{1}{n^2}}\,n}x\left(c\,x^n\right)^{-1/n}\text{Log}[x]$$

Result (type 8, 26 leaves):

$$\int \text{Sin}\left[a+\frac{1}{2}\sqrt{-\frac{1}{n^2}}\;\text{Log}\left[c\,x^n\right]\right]^2\,dx$$

Problem 38: Unable to integrate problem.

$$\int \frac{\text{Sin}\left[a+\frac{1}{2}\sqrt{-\frac{1}{n^2}}\ \text{Log}[c\ x^n]\right]^2}{x^2}\,dx$$

Optimal (type 3, 74 leaves, 3 steps):

$$-\frac{1}{2\,x}+\frac{e^{2\,a\,\sqrt{-\frac{1}{n^2}}\,n}\,\left(c\ x^n\right)^{-1/n}}{8\,x}-\frac{e^{-2\,a\,\sqrt{-\frac{1}{n^2}}\,n}\,\left(c\ x^n\right)^{\frac{1}{n}}\,\text{Log}[x]}{4\,x}$$

Result (type 8, 30 leaves):

$$\int \frac{\text{Sin}\left[a+\frac{1}{2}\sqrt{-\frac{1}{n^2}}\ \text{Log}[c\ x^n]\right]^2}{x^2}\,dx$$

Problem 39: Unable to integrate problem.

$$\int \frac{\text{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\ \text{Log}[c\ x^n]\right]^2}{x^3}\,dx$$

Optimal (type 3, 76 leaves, 3 steps):

$$-\frac{1}{4\,x^2}+\frac{e^{2\,a\,\sqrt{-\frac{1}{n^2}}\,n}\,\left(c\ x^n\right)^{-2/n}}{16\,x^2}-\frac{e^{-2\,a\,\sqrt{-\frac{1}{n^2}}\,n}\,\left(c\ x^n\right)^{2/n}\,\text{Log}[x]}{4\,x^2}$$

Result (type 8, 27 leaves):

$$\int \frac{\text{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\ \text{Log}[c\ x^n]\right]^2}{x^3}\,dx$$

Problem 41: Unable to integrate problem.

$$\int x^2\,\text{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\ \text{Log}[c\ x^n]\right]^3\,dx$$

Optimal (type 3, 172 leaves, 3 steps):

$$-\frac{3}{16} e^{a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^3\left(c\,x^n\right)^{-1/n}+\frac{3}{32} e^{-a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^3\left(c\,x^n\right)^{\frac{1}{n}}-\frac{1}{48} e^{-3a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^3\left(c\,x^n\right)^{3/n}+\frac{1}{8} e^{3a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^3\left(c\,x^n\right)^{-3/n}\,\text{Log}[x]$$

Result (type 8, 27 leaves):

$$\int x^2\,\text{Sin}\left[a+\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]^3\,dx$$

Problem 42: Unable to integrate problem.

$$\int x\,\text{Sin}\left[a+\frac{2}{3}\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]^3\,dx$$

Optimal (type 3, 178 leaves, 3 steps):

$$-\frac{9}{32} e^{a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^2\left(c\,x^n\right)^{-\frac{2}{3}/n}+\frac{9}{64} e^{-a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^2\left(c\,x^n\right)^{\frac{2}{3}/n}-\frac{1}{32} e^{-3a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^2\left(c\,x^n\right)^{2/n}+\frac{1}{8} e^{3a\sqrt{-\frac{1}{n^2}}\,n}\sqrt{-\frac{1}{n^2}}\,n\,x^2\left(c\,x^n\right)^{-2/n}\,\text{Log}[x]$$

Result (type 8, 28 leaves):

$$\int x\,\text{Sin}\left[a+\frac{2}{3}\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]^3\,dx$$

Problem 43: Unable to integrate problem.

$$\int \text{Sin}\left[a+\frac{1}{3}\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]^3\,dx$$

Optimal (type 3, 168 leaves, 3 steps):

$$-\frac{9}{16} e^{a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, x\, (c\, x^n)^{-\frac{1}{3}/n}+\frac{9}{32} e^{-a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, x\, (c\, x^n)^{\frac{1}{3}/n}-\frac{1}{16} e^{-3 a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, x\, (c\, x^n)^{\frac{1}{n}}+\frac{1}{8} e^{3 a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, x\, (c\, x^n)^{-1/n}\, \mathrm{Log}[x]$$

Result (type 8, 26 leaves):

$$\int \mathrm{Sin}\left[a+\frac{1}{3}\sqrt{-\frac{1}{n^2}}\, \mathrm{Log}[c\, x^n]\right]^3 dx$$

Problem 45: Unable to integrate problem.

$$\int \frac{\mathrm{Sin}\left[a+\frac{1}{3}\sqrt{-\frac{1}{n^2}}\, \mathrm{Log}[c\, x^n]\right]^3}{x^2} dx$$

Optimal (type 3, 176 leaves, 3 steps):

$$-\frac{e^{3 a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{-1/n}}{16\, x}+\frac{9\, e^{a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{-\frac{1}{3}/n}}{32\, x}-\frac{9\, e^{-a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{\frac{1}{3}/n}}{16\, x}-\frac{e^{-3 a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{\frac{1}{n}}\, \mathrm{Log}[x]}{8\, x}$$

Result (type 8, 30 leaves):

$$\int \frac{\mathrm{Sin}\left[a+\frac{1}{3}\sqrt{-\frac{1}{n^2}}\, \mathrm{Log}[c\, x^n]\right]^3}{x^2} dx$$

Problem 46: Unable to integrate problem.

$$\int \frac{\mathrm{Sin}\left[a+\frac{2}{3}\sqrt{-\frac{1}{n^2}}\, \mathrm{Log}[c\, x^n]\right]^3}{x^3} dx$$

Optimal (type 3, 178 leaves, 3 steps):

$$-\frac{e^{3 a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{-2/n}}{32\, x^2}+\frac{9\, e^{a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{-\frac{2}{3}/n}}{64\, x^2}-\frac{9\, e^{-a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{\frac{2}{3}/n}}{32\, x^2}-\frac{e^{-3 a\sqrt{-\frac{1}{n^2}}\, n}\sqrt{-\frac{1}{n^2}}\, n\, (c\, x^n)^{2/n}\, \mathrm{Log}[x]}{8\, x^2}$$

Result (type 8, 30 leaves):

$$\int \frac{\text{Sin}\left[a+\frac{2}{3}\sqrt{-\frac{1}{n^2}}\ \text{Log}[c\,x^n]\right]^3}{x^3}\,dx$$

Problem 47: Unable to integrate problem.

$$\int x^m\,\text{Sin}\left[a+\frac{1}{2}\sqrt{-(1+m)^2}\ \text{Log}[c\,x^2]\right]dx$$

Optimal (type 3, 112 leaves, 3 steps):

$$-\frac{e^{\frac{a(1+m)}{\sqrt{-(1+m)^2}}}\,x^{1+m}\,(c\,x^2)^{\frac{1+m}{2}}}{4\sqrt{-(1+m)^2}}+\frac{e^{\frac{a\sqrt{-(1+m)^2}}{1+m}}\,(1+m)\,x^{1+m}\,(c\,x^2)^{\frac{1}{2}(-1-m)}\,\text{Log}[x]}{2\sqrt{-(1+m)^2}}$$

Result (type 8, 30 leaves):

$$\int x^m\,\text{Sin}\left[a+\frac{1}{2}\sqrt{-(1+m)^2}\ \text{Log}[c\,x^2]\right]dx$$

Problem 49: Unable to integrate problem.

$$\int x^m\,\text{Sin}\left[a+\frac{1}{4}\sqrt{-(1+m)^2}\ \text{Log}[c\,x^2]\right]^2dx$$

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

$$\frac{x^{1+m}}{2(1+m)}-\frac{e^{\frac{2a(1+m)}{\sqrt{-(1+m)^2}}}\,x^{1+m}\,(c\,x^2)^{\frac{1+m}{2}}}{8(1+m)}-\frac{1}{4}\,e^{-\frac{2a(1+m)}{\sqrt{-(1+m)^2}}}\,x^{1+m}\,(c\,x^2)^{\frac{1}{2}(-1-m)}\,\text{Log}[x]$$

Result (type 8, 32 leaves):

$$\int x^m\,\text{Sin}\left[a+\frac{1}{4}\sqrt{-(1+m)^2}\ \text{Log}[c\,x^2]\right]^2dx$$

Problem 51: Unable to integrate problem.

$$\int x^m\,\text{Sin}\left[a+\frac{1}{6}\sqrt{-(1+m)^2}\ \text{Log}[c\,x^2]\right]^3dx$$

Optimal (type 3, 218 leaves, 3 steps):

$$\frac{9\, e^{\frac{a\sqrt{-(1+m)^2}}{1+m}}\, x^{1+m}\, \left(c\, x^2\right)^{\frac{1}{6}\,(-1-m)}}{16\,\sqrt{-(1+m)^2}} - \frac{9\, e^{\frac{a\,(1+m)}{\sqrt{-(1+m)^2}}}\, x^{1+m}\, \left(c\, x^2\right)^{\frac{1+m}{6}}}{32\,\sqrt{-(1+m)^2}} + \frac{e^{\frac{3\,a\,(1+m)}{\sqrt{-(1+m)^2}}}\, x^{1+m}\, \left(c\, x^2\right)^{\frac{1+m}{2}}}{16\,\sqrt{-(1+m)^2}} - \frac{e^{-\frac{3\,a\,(1+m)}{\sqrt{-(1+m)^2}}}\,(1+m)\, x^{1+m}\, \left(c\, x^2\right)^{\frac{1}{2}\,(-1-m)}\, \text{Log}[x]}{8\,\sqrt{-(1+m)^2}}$$

Result (type 8, 32 leaves):

$$\int x^m\, \text{Sin}\left[a + \frac{1}{6}\,\sqrt{-(1+m)^2}\, \text{Log}\left[c\, x^2\right]\right]^3 \, dx$$

Problem 72: Result unnecessarily involves imaginary or complex numbers.

$$\int (e\, x)^m\, \text{Sin}\left[d\, \left(a + b\, \text{Log}\left[c\, x^n\right]\right)\right]^2 \, dx$$

Optimal (type 3, 154 leaves, 2 steps):

$$\frac{2\, b^2\, d^2\, n^2\, (e\, x)^{1+m}}{e\,(1+m)\,\left((1+m)^2 + 4\, b^2\, d^2\, n^2\right)} - \frac{2\, b\, d\, n\, (e\, x)^{1+m}\, \text{Cos}\left[d\,\left(a + b\,\text{Log}\left[c\, x^n\right]\right)\right]\, \text{Sin}\left[d\,\left(a + b\,\text{Log}\left[c\, x^n\right]\right)\right]}{e\,\left((1+m)^2 + 4\, b^2\, d^2\, n^2\right)} + \frac{(1+m)\, (e\, x)^{1+m}\, \text{Sin}\left[d\,\left(a + b\,\text{Log}\left[c\, x^n\right]\right)\right]^2}{e\,\left((1+m)^2 + 4\, b^2\, d^2\, n^2\right)}$$

Result (type 3, 102 leaves):

$$-\left(\left(x\,(e\, x)^m\,\left(-1 - 2\, m - m^2 - 4\, b^2\, d^2\, n^2 + (1+m)^2\, \text{Cos}\left[2\, d\,\left(a + b\,\text{Log}\left[c\, x^n\right]\right)\right] + 2\, b\, d\,(1+m)\, n\, \text{Sin}\left[2\, d\,\left(a + b\,\text{Log}\left[c\, x^n\right]\right)\right]\right)\right) \Big/ \left(2\,(1+m)\,(1 + m - 2\, i\, b\, d\, n)\,(1 + m + 2\, i\, b\, d\, n)\right)\right)$$

Problem 75: Result more than twice size of optimal antiderivative.

$$\int (e\, x)^m\, \sqrt{\text{Sin}\left[d\,\left(a + b\,\text{Log}\left[c\, x^n\right]\right)\right]} \, dx$$

Optimal (type 5, 149 leaves, 3 steps):

$$\left(2\,(e\, x)^{1+m}\, \text{Hypergeometric2F1}\left[-\frac{1}{2}, -\frac{2\, i + 2\, i\, m + b\, d\, n}{4\, b\, d\, n}, -\frac{2\, i + 2\, i\, m - 3\, b\, d\, n}{4\, b\, d\, n}, e^{2\, i\, a\, d}\,\left(c\, x^n\right)^{2\, i\, b\, d}\right]\, \sqrt{\text{Sin}\left[d\,\left(a + b\,\text{Log}\left[c\, x^n\right]\right)\right]}\right) \Big/ \left(e\,(2 + 2\, m - i\, b\, d\, n)\,\sqrt{1 - e^{2\, i\, a\, d}\,\left(c\, x^n\right)^{2\, i\, b\, d}}\right)$$

Result (type 5, 582 leaves):

$$\left(2\,b\,d\,e^{i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,n\,x^{1-i\,b\,d\,n}\,(e\,x)^m\,\sqrt{2-2\,e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}}\right.$$
$$\left(\left(2+2\,m-i\,b\,d\,n\right)\,x^{2\,i\,b\,d\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,-\frac{2\,i+2\,i\,m-3\,b\,d\,n}{4\,b\,d\,n},\,-\frac{2\,i+2\,i\,m-7\,b\,d\,n}{4\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]-\right.$$
$$\left.\left.\left(2+2\,m+3\,i\,b\,d\,n\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,-\frac{2\,i+2\,i\,m+b\,d\,n}{4\,b\,d\,n},\,-\frac{2\,i+2\,i\,m-3\,b\,d\,n}{4\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]\right)\right)\Big/$$
$$\left(\left(2+2\,m-i\,b\,d\,n\right)\,\left(2+2\,m+3\,i\,b\,d\,n\right)\,\left(-2-2\,m+i\,b\,d\,n+e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,\left(2+2\,m+i\,b\,d\,n\right)\right)\right.$$
$$\left.\sqrt{-i\,e^{-i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{-i\,b\,d\,n}\,\left(-1+e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right)}\right)+$$
$$\left(2\,x\,(e\,x)^m\,\text{Sin}\left[d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]\,\sqrt{\text{Sin}\left[b\,d\,n\,Log[x]+d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]}\right)\Big/$$
$$\left(b\,d\,n\,\text{Cos}\left[d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]+2\,\text{Sin}\left[d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]+2\,m\,\text{Sin}\left[d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]\right)$$

Problem 77: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,x)^m}{\text{Sin}\left[d\,\left(a+b\,Log\left[c\,x^n\right]\right)\right]^{3/2}}\,dx$$

Optimal (type 5, 150 leaves, 3 steps):

$$\left(2\,(e\,x)^{1+m}\,\left(1-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right)^{3/2}\,\text{Hypergeometric2F1}\left[\frac{3}{2},\,-\frac{2\,i+2\,i\,m-3\,b\,d\,n}{4\,b\,d\,n},\,-\frac{2\,i+2\,i\,m-7\,b\,d\,n}{4\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]\right)\Big/$$
$$\left(e\,\left(2+2\,m+3\,i\,b\,d\,n\right)\,\text{Sin}\left[d\,\left(a+b\,Log\left[c\,x^n\right]\right)\right]^{3/2}\right)$$

Result (type 5, 2040 leaves):

$$\left(4\,i\,x^{1-i\,b\,d\,n}\,(e\,x)^m\,\sqrt{2-2\,e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}}\right.$$
$$\left(\left(2+2\,m-i\,b\,d\,n\right)\,x^{2\,i\,b\,d\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,-\frac{2\,i+2\,i\,m-3\,b\,d\,n}{4\,b\,d\,n},\,-\frac{2\,i+2\,i\,m-7\,b\,d\,n}{4\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]-\right.$$
$$\left.\left.\left(2+2\,m+3\,i\,b\,d\,n\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,-\frac{2\,i+2\,i\,m+b\,d\,n}{4\,b\,d\,n},\,-\frac{2\,i+2\,i\,m-3\,b\,d\,n}{4\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]\right)\right)\Big/$$
$$\left(b\,d\,n\,\left(2+2\,m-i\,b\,d\,n\right)\,\left(2+2\,m+3\,i\,b\,d\,n\right)\,\sqrt{-i\,e^{-i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{-i\,b\,d\,n}\,\left(-1+e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right)}\right.$$
$$\left.\left(b\,d\,n\,\text{Cos}\left[d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]+2\,\text{Sin}\left[d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]+2\,m\,\text{Sin}\left[d\,\left(a+b\,\left(-n\,Log[x]+Log\left[c\,x^n\right]\right)\right)\right]\right)\right)+$$
$$\left(8\,i\,m\,x^{1-i\,b\,d\,n}\,(e\,x)^m\,\sqrt{2-2\,e^{2\,i\,d\,(a+b\,(-n\,Log[x]+Log[c\,x^n]))}\,x^{2\,i\,b\,d\,n}}\right.$$

$$\left(\left(2+2m-\mathrm{i}\,b\,d\,n\right)x^{2\,\mathrm{i}\,b\,d\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-3\,b\,d\,n}{4\,b\,d\,n},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-7\,b\,d\,n}{4\,b\,d\,n},e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right]-\right.$$

$$\left.\left(2+2m+3\,\mathrm{i}\,b\,d\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m+b\,d\,n}{4\,b\,d\,n},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-3\,b\,d\,n}{4\,b\,d\,n},e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right]\right)\right)\Big/$$

$$\left(b\,d\,n\left(2+2m-\mathrm{i}\,b\,d\,n\right)\left(2+2m+3\,\mathrm{i}\,b\,d\,n\right)\sqrt{-\mathrm{i}\,e^{-\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-\mathrm{i}\,b\,d\,n}\left(-1+e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right)}\right.$$

$$\left.\left(b\,d\,n\,\text{Cos}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,m\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\right)\right)+$$

$$\left(4\,\mathrm{i}\,m^2\,x^{1-\mathrm{i}\,b\,d\,n}\,(e\,x)^m\sqrt{2-2\,e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}}\right.$$

$$\left(\left(2+2m-\mathrm{i}\,b\,d\,n\right)x^{2\,\mathrm{i}\,b\,d\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-3\,b\,d\,n}{4\,b\,d\,n},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-7\,b\,d\,n}{4\,b\,d\,n},e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right]-\right.$$

$$\left.\left(2+2m+3\,\mathrm{i}\,b\,d\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m+b\,d\,n}{4\,b\,d\,n},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-3\,b\,d\,n}{4\,b\,d\,n},e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right]\right)\right)\Big/$$

$$\left(b\,d\,n\left(2+2m-\mathrm{i}\,b\,d\,n\right)\left(2+2m+3\,\mathrm{i}\,b\,d\,n\right)\sqrt{-\mathrm{i}\,e^{-\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-\mathrm{i}\,b\,d\,n}\left(-1+e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right)}\right.$$

$$\left.\left(b\,d\,n\,\text{Cos}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,m\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\right)\right)+$$

$$\left(\mathrm{i}\,b\,d\,n\,x^{1-\mathrm{i}\,b\,d\,n}\,(e\,x)^m\sqrt{2-2\,e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}}\right.$$

$$\left(\left(2+2m-\mathrm{i}\,b\,d\,n\right)x^{2\,\mathrm{i}\,b\,d\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-3\,b\,d\,n}{4\,b\,d\,n},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-7\,b\,d\,n}{4\,b\,d\,n},e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right]-\right.$$

$$\left.\left(2+2m+3\,\mathrm{i}\,b\,d\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m+b\,d\,n}{4\,b\,d\,n},-\frac{2\,\mathrm{i}+2\,\mathrm{i}\,m-3\,b\,d\,n}{4\,b\,d\,n},e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right]\right)\right)\Big/$$

$$\left(\left(2+2m-\mathrm{i}\,b\,d\,n\right)\left(2+2m+3\,\mathrm{i}\,b\,d\,n\right)\sqrt{-\mathrm{i}\,e^{-\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-\mathrm{i}\,b\,d\,n}\left(-1+e^{2\,\mathrm{i}\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,\mathrm{i}\,b\,d\,n}\right)}\right.$$

$$\left.\left(b\,d\,n\,\text{Cos}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,m\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\right)\right)+$$

$$x^{-m}\,(e\,x)^m\left(\frac{1}{b\,d\,n}2\,x^{1+m}\,\text{Csc}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\text{Csc}\left[b\,d\,n\,\text{Log}[x]+d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\text{Sin}[b\,d\,n\,\text{Log}[x]]-\right.$$

$$\left.\left(2\,x^{1+m}\,\text{Csc}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\right)\right)\Big/$$

$$\left(b\,d\,n\,\text{Cos}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+2\,m\,\text{Sin}\left[d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\right)$$

$$\sqrt{\text{Sin}\left[b\,d\,n\,\text{Log}[x]+d\left(a+b\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]}$$

Problem 89: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[a+b\,\text{Log}[c\,x^n]]}{x}\,dx$$

Optimal (type 3, 18 leaves, 2 steps):

$$\frac{\text{Sin}[a+b\,\text{Log}[c\,x^n]]}{b\,n}$$

Result (type 3, 37 leaves):

$$\frac{\text{Cos}[b\,\text{Log}[c\,x^n]]\,\text{Sin}[a]}{b\,n}+\frac{\text{Cos}[a]\,\text{Sin}[b\,\text{Log}[c\,x^n]]}{b\,n}$$

Problem 104: Unable to integrate problem.

$$\int x^m\,\text{Cos}\left[a+\sqrt{-\frac{(1+m)^2}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]\,dx$$

Optimal (type 3, 101 leaves, 3 steps):

$$\frac{e^{\frac{a\,(1+m)}{\sqrt{-\frac{(1+m)^2}{n^2}}\,n}}\,x^{1+m}\,\left(c\,x^n\right)^{\frac{1+m}{n}}}{4\,(1+m)}+\frac{1}{2}\,e^{\frac{a\sqrt{-\frac{(1+m)^2}{n^2}}\,n}{1+m}}\,x^{1+m}\,\left(c\,x^n\right)^{-\frac{1+m}{n}}\,\text{Log}[x]$$

Result (type 8, 30 leaves):

$$\int x^m\,\text{Cos}\left[a+\sqrt{-\frac{(1+m)^2}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]\,dx$$

Problem 105: Unable to integrate problem.

$$\int \text{Cos}\left[a+\sqrt{-\frac{1}{n^2}}\,\text{Log}\left[c\,x^n\right]\right]\,dx$$

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

$$\frac{1}{4}\,e^{-a\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{\frac{1}{n}}+\frac{1}{2}\,e^{a\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{-1/n}\,\text{Log}[x]$$

Result (type 8, 21 leaves):

$$\int \mathrm{Cos}\left[a+\sqrt{-\frac{1}{n^2}}\ \mathrm{Log}\left[c\,x^n\right]\right] dx$$

Problem 106: Unable to integrate problem.

$$\int x^m\,\mathrm{Cos}\left[a+\frac{1}{2}\sqrt{-\frac{(1+m)^2}{n^2}}\ \mathrm{Log}\left[c\,x^n\right]\right]^2 dx$$

Optimal (type 3, 117 leaves, 3 steps):

$$\frac{x^{1+m}}{2\,(1+m)}+\frac{e^{-\frac{2\,a\,\sqrt{-\frac{(1+m)^2}{n^2}}\,n}{1+m}}\,x^{1+m}\,\left(c\,x^n\right)^{\frac{1+m}{n}}}{8\,(1+m)}+\frac{1}{4}\,e^{\frac{2\,a\,\sqrt{-\frac{(1+m)^2}{n^2}}\,n}{1+m}}\,x^{1+m}\,\left(c\,x^n\right)^{-\frac{1+m}{n}}\,\mathrm{Log}[x]$$

Result (type 8, 35 leaves):

$$\int x^m\,\mathrm{Cos}\left[a+\frac{1}{2}\sqrt{-\frac{(1+m)^2}{n^2}}\ \mathrm{Log}\left[c\,x^n\right]\right]^2 dx$$

Problem 107: Unable to integrate problem.

$$\int \mathrm{Cos}\left[a+\frac{1}{2}\sqrt{-\frac{1}{n^2}}\ \mathrm{Log}\left[c\,x^n\right]\right]^2 dx$$

Optimal (type 3, 68 leaves, 3 steps):

$$\frac{x}{2}+\frac{1}{8}\,e^{-2\,a\,\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{\frac{1}{n}}+\frac{1}{4}\,e^{2\,a\,\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{-1/n}\,\mathrm{Log}[x]$$

Result (type 8, 26 leaves):

$$\int \mathrm{Cos}\left[a+\frac{1}{2}\sqrt{-\frac{1}{n^2}}\ \mathrm{Log}\left[c\,x^n\right]\right]^2 dx$$

Problem 109: Unable to integrate problem.

$$\int \text{Cos}\left[a+\frac{1}{3}\sqrt{-\frac{1}{n^2}}\ \text{Log}\left[c\,x^n\right]\right]^3 dx$$

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

$$\frac{9}{16}e^{a\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{-\frac{1}{3}/n}+\frac{9}{32}e^{-a\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{\frac{1}{3}/n}+\frac{1}{16}e^{-3\,a\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{\frac{1}{n}}+\frac{1}{8}e^{3\,a\sqrt{-\frac{1}{n^2}}\,n}\,x\,\left(c\,x^n\right)^{-1/n}\,\text{Log}[x]$$

Result (type 8, 26 leaves):

$$\int \text{Cos}\left[a+\frac{1}{3}\sqrt{-\frac{1}{n^2}}\ \text{Log}\left[c\,x^n\right]\right]^3 dx$$

Problem 110: Result more than twice size of optimal antiderivative.

$$\int \sqrt{\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]}\ dx$$

Optimal (type 5, 110 leaves, 3 steps):

$$\frac{2\,x\,\sqrt{\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]}\ \text{Hypergeometric2F1}\left[-\frac{1}{2},-\frac{2\,i+b\,n}{4\,b\,n},\frac{1}{4}\left(3-\frac{2\,i}{b\,n}\right),-e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2-i\,b\,n\right)\sqrt{1+e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}}}$$

Result (type 5, 438 leaves):

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

Problem 112: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{3/2}\,dx$$

Optimal (type 5, 109 leaves, 3 steps):

$$\frac{2\,x\,\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{3/2}\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\frac{1}{4}\left(-3-\frac{2\,i}{b\,n}\right),\frac{1}{4}\left(1-\frac{2\,i}{b\,n}\right),-e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2-3\,i\,b\,n\right)\left(1+e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right)^{3/2}}$$

Result (type 5, 220 leaves):

$$-\frac{6\,i\,\sqrt{2}\,b^2\,\sqrt{1+e^{2\,i\,(a+b\,\text{Log}[c\,x^n])}}\,n^2\,x\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1}{4}-\frac{i}{2\,b\,n},\frac{5}{4}-\frac{i}{2\,b\,n},-e^{2\,i\,(a+b\,\text{Log}[c\,x^n])}\right]}{\sqrt{e^{-i\,(a+b\,\text{Log}[c\,x^n])}\left(1+e^{2\,i\,(a+b\,\text{Log}[c\,x^n])}\right)}\,\left(-2\,i+b\,n\right)\left(-2\,i+3\,b\,n\right)\left(2\,i+3\,b\,n\right)}+$$

$$\frac{2\,x\,\sqrt{\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]}\,\left(2\,\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]+3\,b\,n\,\text{Sin}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]\right)}{4+9\,b^2\,n^2}$$

Problem 114: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{5/2}\,dx$$

Optimal (type 5, 110 leaves, 3 steps):

$$\frac{2\,x\,\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{5/2}\,\text{Hypergeometric2F1}\left[-\frac{5}{2},\frac{1}{4}\left(-5-\frac{2\,i}{b\,n}\right),-\frac{2\,i+b\,n}{4\,b\,n},-e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2-5\,i\,b\,n\right)\left(1+e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right)^{5/2}}$$

Result (type 5, 681 leaves):

$$\left(30\,i\,\sqrt{2}\,b^3\,e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,n^3\,x^{1-i\,b\,n}\left(\left(2\,i+b\,n\right)\left(1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right)+\left(-2\,i-b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\left(-2\,i+b\,n\right)\right)\right.\right.$$
$$\left.\left.\sqrt{1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+b\,n}{4\,b\,n},\frac{3}{4}-\frac{i}{2\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\right)\Big/$$
$$\left(\left(-2\,i+5\,b\,n\right)\left(2\,i+5\,b\,n\right)\left(4+b^2\,n^2\right)\left(-2\,i-b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\left(-2\,i+b\,n\right)\right)\right.$$
$$\left.\sqrt{e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-i\,b\,n}\left(1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right)}\right)+\sqrt{\text{Cos}\left[a+b\,n\,\text{Log}[x]+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]}$$
$$\left(-\left(\left(2\,x\left(2\,\text{Cos}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+15\,b^2\,n^2\,\text{Cos}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]-b\,n\,\text{Sin}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]\right)\right)\Big/\right.\right.$$
$$\left.\left(\left(-2\,i+5\,b\,n\right)\left(2\,i+5\,b\,n\right)\left(-2\,\text{Cos}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+b\,n\,\text{Sin}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]\right)\right)\right)+$$
$$\left(x\,\text{Sin}[2\,b\,n\,\text{Log}[x]]\left(5\,b\,n\,\text{Cos}\left[2\left(a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]-2\,\text{Sin}\left[2\left(a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]\right)\right)\Big/\left(\left(-2\,i+5\,b\,n\right)\left(2\,i+5\,b\,n\right)\right)+$$
$$\left.\left(x\,\text{Cos}[2\,b\,n\,\text{Log}[x]]\left(2\,\text{Cos}\left[2\left(a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]+5\,b\,n\,\text{Sin}\left[2\left(a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]\right)\right)\Big/\left(\left(-2\,i+5\,b\,n\right)\left(2\,i+5\,b\,n\right)\right)\right)$$

Problem 118: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\text{Cos}[a+b\,\text{Log}[c\,x^n]]^{3/2}}\,dx$$

Optimal (type 5, 109 leaves, 3 steps):

$$\frac{2\,x\left(1+e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right)^{3/2}\text{Hypergeometric2F1}\left[\frac{3}{2},\frac{1}{4}\left(3-\frac{2\,i}{b\,n}\right),\frac{1}{4}\left(7-\frac{2\,i}{b\,n}\right),-e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2+3\,i\,b\,n\right)\text{Cos}[a+b\,\text{Log}[c\,x^n]]^{3/2}}$$

Result (type 5, 847 leaves):

$$-\Bigg(\bigg(4\sqrt{2}\,e^{-2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{1-i b n}\Big((2 i+b n)\left(1+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}\right)+\left(-2 i-b n+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,(-2 i+b n)\right)$$

$$\sqrt{1+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{3}{4}-\frac{i}{2 b n},-e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}\right]\Big)\bigg)\Big/$$

$$\bigg(b n\left(4+b^2 n^2\right)\sqrt{e^{-i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{-i b n}\left(1+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}\right)}$$

$$\left(-2 \operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+b n \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\right)\bigg)-$$

$$\bigg(\sqrt{2}\,b\,e^{-2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,n\,x^{1-i b n}\Big((2 i+b n)\left(1+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}\right)+\left(-2 i-b n+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,(-2 i+b n)\right)$$

$$\sqrt{1+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}}\;\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{3}{4}-\frac{i}{2 b n},-e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}\right]\Big)\bigg)\Big/$$

$$\bigg(\left(4+b^2 n^2\right)\sqrt{e^{-i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{-i b n}\left(1+e^{2 i (a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\,x^{2 i b n}\right)}$$

$$\left(-2 \operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+b n \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\right)\bigg)+$$

$$\sqrt{\operatorname{Cos}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]}$$

$$\Bigg(\frac{1}{b n} 2 x \operatorname{Sec}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\operatorname{Sec}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\operatorname{Sin}[b n \operatorname{Log}[x]]+$$

$$\frac{2 x \operatorname{Sec}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]}{-2 \operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+b n \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]}\Bigg)$$

Problem 123: Result unnecessarily involves imaginary or complex numbers.

$$\int x^m \operatorname{Cos}[a+b \operatorname{Log}[c x^n]]^4\, dx$$

Optimal (type 3, 266 leaves, 3 steps):

$$\frac{24 b^4 n^4 x^{1+m}}{(1+m)\left((1+m)^2+4 b^2 n^2\right)\left((1+m)^2+16 b^2 n^2\right)}+\frac{12 b^2 (1+m) n^2 x^{1+m} \operatorname{Cos}[a+b \operatorname{Log}[c x^n]]^2}{\left((1+m)^2+4 b^2 n^2\right)\left((1+m)^2+16 b^2 n^2\right)}+\frac{(1+m) x^{1+m} \operatorname{Cos}[a+b \operatorname{Log}[c x^n]]^4}{(1+m)^2+16 b^2 n^2}+$$

$$\frac{24 b^3 n^3 x^{1+m} \operatorname{Cos}[a+b \operatorname{Log}[c x^n]] \operatorname{Sin}[a+b \operatorname{Log}[c x^n]]}{\left((1+m)^2+4 b^2 n^2\right)\left((1+m)^2+16 b^2 n^2\right)}+\frac{4 b n x^{1+m} \operatorname{Cos}[a+b \operatorname{Log}[c x^n]]^3 \operatorname{Sin}[a+b \operatorname{Log}[c x^n]]}{(1+m)^2+16 b^2 n^2}$$

Result (type 3, 435 leaves):

$$\frac{3\,x^{1+m}}{8\,(1+m)} - \Big(x^{1+m}\,\text{Sin}[2\,b\,n\,\text{Log}[x]]\,\big(-2\,b\,n\,\text{Cos}\big[2\,a+2\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + \text{Sin}\big[2\,a+2\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + m\,\text{Sin}\big[2\,a+2\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big]\big)\Big) \Big/ \big(2\,(1+m-2\,i\,b\,n)\,(1+m+2\,i\,b\,n)\big) + \Big(x^{1+m}\,\text{Cos}[2\,b\,n\,\text{Log}[x]]\,\big(\text{Cos}\big[2\,a+2\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + m\,\text{Cos}\big[2\,a+2\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + 2\,b\,n\,\text{Sin}\big[2\,a+2\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big]\big)\Big) \Big/ \big(2\,(1+m-2\,i\,b\,n)\,(1+m+2\,i\,b\,n)\big) - \Big(x^{1+m}\,\text{Sin}[4\,b\,n\,\text{Log}[x]]\,\big(-4\,b\,n\,\text{Cos}\big[4\,a+4\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + \text{Sin}\big[4\,a+4\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + m\,\text{Sin}\big[4\,a+4\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big]\big)\Big) \Big/ \big(8\,(1+m-4\,i\,b\,n)\,(1+m+4\,i\,b\,n)\big) + \Big(x^{1+m}\,\text{Cos}[4\,b\,n\,\text{Log}[x]]\,\big(\text{Cos}\big[4\,a+4\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + m\,\text{Cos}\big[4\,a+4\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big] + 4\,b\,n\,\text{Sin}\big[4\,a+4\,b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\big]\big)\Big) \Big/ \big(8\,(1+m-4\,i\,b\,n)\,(1+m+4\,i\,b\,n)\big)$$

Problem 125: Result unnecessarily involves imaginary or complex numbers.

$$\int x^m\,\text{Cos}[a+b\,\text{Log}[c\,x^n]]^2\,dx$$

Optimal (type 3, 120 leaves, 2 steps):

$$\frac{2\,b^2\,n^2\,x^{1+m}}{(1+m)\,\left((1+m)^2+4\,b^2\,n^2\right)} + \frac{(1+m)\,x^{1+m}\,\text{Cos}[a+b\,\text{Log}[c\,x^n]]^2}{(1+m)^2+4\,b^2\,n^2} + \frac{2\,b\,n\,x^{1+m}\,\text{Cos}[a+b\,\text{Log}[c\,x^n]]\,\text{Sin}[a+b\,\text{Log}[c\,x^n]]}{(1+m)^2+4\,b^2\,n^2}$$

Result (type 3, 91 leaves):

$$\frac{x^{1+m}\,\left(1+2\,m+m^2+4\,b^2\,n^2+(1+m)^2\,\text{Cos}\big[2\,(a+b\,\text{Log}[c\,x^n])\big]+2\,b\,(1+m)\,n\,\text{Sin}\big[2\,(a+b\,\text{Log}[c\,x^n])\big]\right)}{2\,(1+m)\,(1+m-2\,i\,b\,n)\,(1+m+2\,i\,b\,n)}$$

Problem 128: Result more than twice size of optimal antiderivative.

$$\int x^m\,\sqrt{\text{Cos}[a+b\,\text{Log}[c\,x^n]]}\,dx$$

Optimal (type 5, 129 leaves, 3 steps):

$$\frac{2\,x^{1+m}\,\sqrt{\text{Cos}[a+b\,\text{Log}[c\,x^n]]}\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},\,-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},\,-e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\right]}{(2+2\,m-i\,b\,n)\,\sqrt{1+e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}}}$$

Result (type 5, 529 leaves):

$$-\left(\left(2\,b\,e^{i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,n\,x^{1+m-i\,b\,n}\,\sqrt{2+2\,e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\right.\right.$$

$$\left(\left(2\,i+2\,i\,m+b\,n\right)\,x^{2\,i\,b\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]+\right.$$

$$\left.\left.\left(-2\,i-2\,i\,m+3\,b\,n\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\right)\Big/$$

$$\left(\left(2+2\,m-i\,b\,n\right)\,\left(2+2\,m+3\,i\,b\,n\right)\,\left(2+2\,m-i\,b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,\left(2+2\,m+i\,b\,n\right)\right)\right.$$

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

$$\left(2\,x^{1+m}\,\text{Cos}\left[a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]\,\sqrt{\text{Cos}\left[a+b\,n\,\text{Log}[x]+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]}\right)\Big/$$

$$\left(2\,\text{Cos}\left[a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+2\,m\,\text{Cos}\left[a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]-b\,n\,\text{Sin}\left[a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]\right)$$

Problem 130: Result more than twice size of optimal antiderivative.

$$\int\frac{x^m}{\text{Cos}[a+b\,\text{Log}[c\,x^n]]^{3/2}}\,dx$$

Optimal (type 5, 130 leaves, 3 steps):

$$\frac{2\,x^{1+m}\,\left(1+e^{2\,i\,a}\,\left(c\,x^n\right)^{2\,i\,b}\right)^{3/2}\,\text{Hypergeometric2F1}\left[\frac{3}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},-e^{2\,i\,a}\,\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2+2\,m+3\,i\,b\,n\right)\,\text{Cos}[a+b\,\text{Log}[c\,x^n]]^{3/2}}$$

Result (type 5, 1822 leaves):

$$-\left(\left(4\,i\,x^{1+m-i\,b\,n}\,\sqrt{2+2\,e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\right.\right.$$

$$\left(\left(2+2\,m-i\,b\,n\right)\,x^{2\,i\,b\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]-\right.$$

$$\left.\left.\left(2+2\,m+3\,i\,b\,n\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\right)\Big/$$

$$\left(b\,n\,\left(2+2\,m-i\,b\,n\right)\,\left(2+2\,m+3\,i\,b\,n\right)\,\sqrt{e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-i\,b\,n}\,\left(1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right)}\right.$$

$$\left.\left.\left(-2\,\text{Cos}\left[a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]-2\,m\,\text{Cos}\left[a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+b\,n\,\text{Sin}\left[a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]\right)\right)\right)-$$

$$\left(8\,i\,m\,x^{1+m-i\,b\,n}\,\sqrt{2+2\,e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\right.$$

$$\left(\left(2+2m-i\,b\,n\right)x^{2\,i\,b\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]-\right.$$

$$\left.\left(2+2m+3\,i\,b\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\Big)\Big/$$

$$\left(b\,n\left(2+2m-i\,b\,n\right)\left(2+2m+3\,i\,b\,n\right)\sqrt{e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-i\,b\,n}\left(1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right)}\right.$$

$$\left.\left(-2\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]-2\,m\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+b\,n\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right)\right)-$$

$$\left(4\,i\,m^2\,x^{1+m-i\,b\,n}\sqrt{2+2\,e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\right.$$

$$\left(\left(2+2m-i\,b\,n\right)x^{2\,i\,b\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]-\right.$$

$$\left.\left(2+2m+3\,i\,b\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\Big)\Big/$$

$$\left(b\,n\left(2+2m-i\,b\,n\right)\left(2+2m+3\,i\,b\,n\right)\sqrt{e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-i\,b\,n}\left(1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right)}\right.$$

$$\left.\left(-2\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]-2\,m\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+b\,n\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right)\right)-$$

$$\left(i\,b\,n\,x^{1+m-i\,b\,n}\sqrt{2+2\,e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\right.$$

$$\left(\left(2+2m-i\,b\,n\right)x^{2\,i\,b\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]-\right.$$

$$\left.\left(2+2m+3\,i\,b\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\Big)\Big/$$

$$\left(\left(2+2m-i\,b\,n\right)\left(2+2m+3\,i\,b\,n\right)\sqrt{e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{-i\,b\,n}\left(1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right)}\right.$$

$$\left.\left(-2\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]-2\,m\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+b\,n\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right)\right)+$$

$$\sqrt{\text{Cos}[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]}\;\left(\frac{1}{b\,n}2\,x^{1+m}\,\text{Sec}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right.$$

$$\text{Sec}[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Sin}[b\,n\,\text{Log}[x]]-\left(2\,x^{1+m}\,\text{Sec}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right)\Big/$$

$$\left.\left(2\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+2\,m\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]-b\,n\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right)\right)$$

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

$$\int \frac{x^m}{\text{Cos}[a+b\,\text{Log}[c\,x^n]]^{5/2}}\,dx$$

Optimal (type 5, 130 leaves, 3 steps):

$$\frac{2\,x^{1+m}\left(1+e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right)^{5/2}\text{Hypergeometric2F1}\left[\frac{5}{2},-\frac{2\,i+2\,i\,m-5\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-9\,b\,n}{4\,b\,n},-e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2+2\,m+5\,i\,b\,n\right)\,\text{Cos}[a+b\,\text{Log}[c\,x^n]]^{5/2}}$$

Result (type 5, 263 leaves):

$$\Bigg(x^{1+m}\Bigg(-4\,(1+m)\,\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]+$$
$$\Bigg(\left(2+2\,m-i\,b\,n\right)\sqrt{1+e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{-2\,i-2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-5\,b\,n}{4\,b\,n},-e^{2\,i\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)}\right]$$
$$\left(e^{-i\,a}\left(\left(1+e^{2\,i\,a}\right)\text{Cos}\left[b\,\text{Log}\left[c\,x^n\right]\right]+i\left(-1+e^{2\,i\,a}\right)\text{Sin}\left[b\,\text{Log}\left[c\,x^n\right]\right]\right)\right)^{3/2}\Bigg)\Bigg/$$
$$\left(\sqrt{e^{-i\,a}\left(c\,x^n\right)^{-i\,b}+e^{i\,a}\left(c\,x^n\right)^{i\,b}}\right)+2\,b\,n\,\text{Sin}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]\Bigg)\Bigg)\Bigg/\left(3\,b^2\,n^2\,\text{Cos}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{3/2}\right)$$

Problem 135: Result more than twice size of optimal antiderivative.

$$\int x^3\,\text{Tan}[a+i\,\text{Log}[x]]\,dx$$

Optimal (type 3, 47 leaves, 5 steps):

$$-i\,e^{2\,i\,a}\,x^2+\frac{i\,x^4}{4}+i\,e^{4\,i\,a}\,\text{Log}\left[e^{2\,i\,a}+x^2\right]$$

Result (type 3, 132 leaves):

$$\frac{i\,x^4}{4}-i\,x^2\,\text{Cos}[2\,a]+\text{ArcTan}\left[\frac{\left(1+x^2\right)\,\text{Cos}[a]}{\text{Sin}[a]-x^2\,\text{Sin}[a]}\right]\,\text{Cos}[4\,a]+\frac{1}{2}\,i\,\text{Cos}[4\,a]\,\text{Log}\left[1+x^4+2\,x^2\,\text{Cos}[2\,a]\right]+$$
$$x^2\,\text{Sin}[2\,a]+i\,\text{ArcTan}\left[\frac{\left(1+x^2\right)\,\text{Cos}[a]}{\text{Sin}[a]-x^2\,\text{Sin}[a]}\right]\,\text{Sin}[4\,a]-\frac{1}{2}\,\text{Log}\left[1+x^4+2\,x^2\,\text{Cos}[2\,a]\right]\,\text{Sin}[4\,a]$$

Problem 137: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Tan}[a+i\,\text{Log}[x]]\,dx$$

Optimal (type 3, 33 leaves, 5 steps):

$$\frac{i x^2}{2} - i e^{2 i a} \text{Log}\left[e^{2 i a} + x^2\right]$$

Result (type 3, 114 leaves):

$$\frac{i x^2}{2} - \text{ArcTan}\left[\frac{\left(1 + x^2\right) \text{Cos}[a]}{\text{Sin}[a] - x^2 \text{Sin}[a]}\right] \text{Cos}[2 a] - \frac{1}{2} i \text{Cos}[2 a] \text{Log}\left[1 + x^4 + 2 x^2 \text{Cos}[2 a]\right] - i \text{ArcTan}\left[\frac{\left(1 + x^2\right) \text{Cos}[a]}{\text{Sin}[a] - x^2 \text{Sin}[a]}\right] \text{Sin}[2 a] + \frac{1}{2} \text{Log}\left[1 + x^4 + 2 x^2 \text{Cos}[2 a]\right] \text{Sin}[2 a]$$

Problem 141: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[a + i \text{Log}[x]]}{x^3} \, dx$$

Optimal (type 3, 35 leaves, 4 steps):

$$\frac{i}{2 x^2} - i e^{-2 i a} \text{Log}\left[1 + \frac{e^{2 i a}}{x^2}\right]$$

Result (type 3, 132 leaves):

$$\frac{i}{2 x^2} - \text{ArcTan}\left[\frac{\left(1 + x^2\right) \text{Cos}[a]}{\text{Sin}[a] - x^2 \text{Sin}[a]}\right] \text{Cos}[2 a] + 2 i \text{Cos}[2 a] \text{Log}[x] - \frac{1}{2} i \text{Cos}[2 a] \text{Log}\left[1 + x^4 + 2 x^2 \text{Cos}[2 a]\right] + i \text{ArcTan}\left[\frac{\left(1 + x^2\right) \text{Cos}[a]}{\text{Sin}[a] - x^2 \text{Sin}[a]}\right] \text{Sin}[2 a] + 2 \text{Log}[x] \text{Sin}[2 a] - \frac{1}{2} \text{Log}\left[1 + x^4 + 2 x^2 \text{Cos}[2 a]\right] \text{Sin}[2 a]$$

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

$$\int x^3 \text{Tan}[a + i \text{Log}[x]]^2 \, dx$$

Optimal (type 3, 63 leaves, 5 steps):

$$2 e^{2 i a} x^2 - \frac{x^4}{4} - \frac{2 e^{6 i a}}{e^{2 i a} + x^2} - 4 e^{4 i a} \text{Log}\left[e^{2 i a} + x^2\right]$$

Result (type 3, 155 leaves):

$$-\frac{x^4}{4} + 2 x^2 \text{Cos}[2 a] - 4 i \text{ArcTan}\left[\frac{\left(1 + x^2\right) \text{Cot}[a]}{-1 + x^2}\right] \text{Cos}[4 a] - 2 \text{Cos}[4 a] \text{Log}\left[1 + x^4 + 2 x^2 \text{Cos}[2 a]\right] + 2 i x^2 \text{Sin}[2 a] + 4 \text{ArcTan}\left[\frac{\left(1 + x^2\right) \text{Cot}[a]}{-1 + x^2}\right] \text{Sin}[4 a] - 2 i \text{Log}\left[1 + x^4 + 2 x^2 \text{Cos}[2 a]\right] \text{Sin}[4 a] - \frac{2 \left(\text{Cos}[5 a] + i \text{Sin}[5 a]\right)}{\left(1 + x^2\right) \text{Cos}[a] - i \left(-1 + x^2\right) \text{Sin}[a]}$$

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

$$\int x \operatorname{Tan}[a + i \operatorname{Log}[x]]^2 \, dx$$

Optimal (type 3, 51 leaves, 5 steps):

$$-\frac{x^2}{2} + \frac{2 e^{4 i a}}{e^{2 i a} + x^2} + 2 e^{2 i a} \operatorname{Log}\left[e^{2 i a} + x^2\right]$$

Result (type 3, 135 leaves):

$$-\frac{x^2}{2} + 2 i \operatorname{ArcTan}\left[\frac{(1 + x^2) \operatorname{Cot}[a]}{-1 + x^2}\right] \operatorname{Cos}[2 a] + \operatorname{Cos}[2 a] \operatorname{Log}\left[1 + x^4 + 2 x^2 \operatorname{Cos}[2 a]\right] -$$
$$2 \operatorname{ArcTan}\left[\frac{(1 + x^2) \operatorname{Cot}[a]}{-1 + x^2}\right] \operatorname{Sin}[2 a] + i \operatorname{Log}\left[1 + x^4 + 2 x^2 \operatorname{Cos}[2 a]\right] \operatorname{Sin}[2 a] + \frac{2 \operatorname{Cos}[3 a] + 2 i \operatorname{Sin}[3 a]}{(1 + x^2) \operatorname{Cos}[a] - i (-1 + x^2) \operatorname{Sin}[a]}$$

Problem 149: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Tan}[a + i \operatorname{Log}[x]]^2}{x^3} \, dx$$

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

$$-\frac{2 e^{-2 i a}}{1 + \frac{e^{2 i a}}{x^2}} + \frac{1}{2 x^2} - 2 e^{-2 i a} \operatorname{Log}\left[1 + \frac{e^{2 i a}}{x^2}\right]$$

Result (type 3, 150 leaves):

$$\frac{1}{2 x^2} - 2 i \operatorname{ArcTan}\left[\frac{(1 + x^2) \operatorname{Cot}[a]}{-1 + x^2}\right] \operatorname{Cos}[2 a] + 4 \operatorname{Cos}[2 a] \operatorname{Log}[x] - \operatorname{Cos}[2 a] \operatorname{Log}\left[1 + x^4 + 2 x^2 \operatorname{Cos}[2 a]\right] +$$
$$\frac{2 \operatorname{Cos}[a] - 2 i \operatorname{Sin}[a]}{(1 + x^2) \operatorname{Cos}[a] - i (-1 + x^2) \operatorname{Sin}[a]} - 2 \operatorname{ArcTan}\left[\frac{(1 + x^2) \operatorname{Cot}[a]}{-1 + x^2}\right] \operatorname{Sin}[2 a] - 4 i \operatorname{Log}[x] \operatorname{Sin}[2 a] + i \operatorname{Log}\left[1 + x^4 + 2 x^2 \operatorname{Cos}[2 a]\right] \operatorname{Sin}[2 a]$$

Problem 151: Result more than twice size of optimal antiderivative.

$$\int (e x)^m \operatorname{Tan}[a + i \operatorname{Log}[x]]^2 \, dx$$

Optimal (type 5, 77 leaves, 5 steps):

$$-\frac{x\,(e\,x)^m}{1+m}+\frac{2\,x\,(e\,x)^m}{1+\frac{e^{2\,i\,a}}{x^2}}-2\,x\,(e\,x)^m\,\text{Hypergeometric2F1}\left[1,\frac{1}{2}\,(-1-m),\frac{1-m}{2},-\frac{e^{2\,i\,a}}{x^2}\right]$$

Result (type 5, 172 leaves):

$$\frac{1}{(\text{Cos}[a]+i\,\text{Sin}[a])^2}x\,(e\,x)^m\left(\frac{2\,x^2\,\text{Hypergeometric2F1}\left[2,\frac{3+m}{2},\frac{5+m}{2},-x^2\,(\text{Cos}[2\,a]-i\,\text{Sin}[2\,a])\right]}{3+m}-\right.$$
$$\frac{x^4\,\text{Hypergeometric2F1}\left[2,\frac{5+m}{2},\frac{7+m}{2},-x^2\,(\text{Cos}[2\,a]-i\,\text{Sin}[2\,a])\right]\,(\text{Cos}[a]-i\,\text{Sin}[a])^2}{5+m}-$$
$$\left.\frac{\text{Hypergeometric2F1}\left[2,\frac{1+m}{2},\frac{3+m}{2},-x^2\,(\text{Cos}[2\,a]-i\,\text{Sin}[2\,a])\right]\,(\text{Cos}[2\,a]+i\,\text{Sin}[2\,a])}{1+m}\right)$$

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

$$\int \text{Tan}[a+b\,\text{Log}[x]]^p\,dx$$

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

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

Result (type 6, 330 leaves):

$$\left((-i+2\,b)\,x\,\left(-\frac{i\,\left(-1+e^{2\,i\,a}\,x^{2\,i\,b}\right)}{1+e^{2\,i\,a}\,x^{2\,i\,b}}\right)^p\,\text{AppellF1}\left[-\frac{i}{2\,b},-p,p,1-\frac{i}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]\right)\Big/$$
$$\left(-2\,b\,e^{2\,i\,a}\,p\,x^{2\,i\,b}\,\text{AppellF1}\left[1-\frac{i}{2\,b},1-p,p,2-\frac{i}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]-\right.$$
$$\left.2\,b\,e^{2\,i\,a}\,p\,x^{2\,i\,b}\,\text{AppellF1}\left[1-\frac{i}{2\,b},-p,1+p,2-\frac{i}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]+(-i+2\,b)\,\text{AppellF1}\left[-\frac{i}{2\,b},-p,p,1-\frac{i}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]\right)$$

Problem 154: Result more than twice size of optimal antiderivative.

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

Optimal (type 6, 162 leaves, 4 steps):

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

Result (type 6, 351 leaves):

$$\left((1+2\,i\,b+m)\,x\,(e\,x)^m\left(-\frac{i\left(-1+e^{2\,i\,a}\,x^{2\,i\,b}\right)}{1+e^{2\,i\,a}\,x^{2\,i\,b}}\right)^p \text{AppellF1}\left[-\frac{i\,(1+m)}{2\,b},-p,p,1-\frac{i\,(1+m)}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]\right)\Big/ \left((1+m)\left((1+2\,i\,b+m)\,\text{AppellF1}\left[-\frac{i\,(1+m)}{2\,b},-p,p,1-\frac{i\,(1+m)}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]-2\,i\,b\,e^{2\,i\,a}\,p\,x^{2\,i\,b}\left(\text{AppellF1}\left[1-\frac{i\,(1+m)}{2\,b},1-p,p,2-\frac{i\,(1+m)}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]+\text{AppellF1}\left[1-\frac{i\,(1+m)}{2\,b},-p,1+p,2-\frac{i\,(1+m)}{2\,b},e^{2\,i\,a}\,x^{2\,i\,b},-e^{2\,i\,a}\,x^{2\,i\,b}\right]\right)\right)\right)$$

Problem 158: Result more than twice size of optimal antiderivative.

$$\int x^3\,\text{Tan}\left[d\,(a+b\,\text{Log}[c\,x^n])\right]\,dx$$

Optimal (type 5, 71 leaves, 4 steps):

$$-\frac{i\,x^4}{4}+\frac{1}{2}\,i\,x^4\,\text{Hypergeometric2F1}\left[1,-\frac{2\,i}{b\,d\,n},1-\frac{2\,i}{b\,d\,n},-e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right]$$

Result (type 5, 146 leaves):

$$\frac{1}{-8-4\,i\,b\,d\,n}x^4\left(2\,i\,e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\,\text{Hypergeometric2F1}\left[1,1-\frac{2\,i}{b\,d\,n},2-\frac{2\,i}{b\,d\,n},-e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+(-2\,i+b\,d\,n)\,\text{Hypergeometric2F1}\left[1,-\frac{2\,i}{b\,d\,n},1-\frac{2\,i}{b\,d\,n},-e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]\right)$$

Problem 159: Result more than twice size of optimal antiderivative.

$$\int x^2\,\text{Tan}\left[d\,(a+b\,\text{Log}[c\,x^n])\right]\,dx$$

Optimal (type 5, 75 leaves, 4 steps):

$$-\frac{i\,x^3}{3}+\frac{2}{3}\,i\,x^3\,\text{Hypergeometric2F1}\left[1,-\frac{3\,i}{2\,b\,d\,n},1-\frac{3\,i}{2\,b\,d\,n},-e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right]$$

Result (type 5, 155 leaves):

$$\frac{1}{-9-6\,i\,b\,d\,n}x^3\left(3\,i\,e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\,\text{Hypergeometric2F1}\left[1,1-\frac{3\,i}{2\,b\,d\,n},2-\frac{3\,i}{2\,b\,d\,n},-e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+(-3\,i+2\,b\,d\,n)\,\text{Hypergeometric2F1}\left[1,-\frac{3\,i}{2\,b\,d\,n},1-\frac{3\,i}{2\,b\,d\,n},-e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]\right)$$

Problem 160: Result more than twice size of optimal antiderivative.

$$\int x \operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right] dx$$

Optimal (type 5, 69 leaves, 4 steps):

$$-\frac{i x^2}{2}+i x^2 \operatorname{Hypergeometric2F1}\left[1,-\frac{i}{b d n}, 1-\frac{i}{b d n},-e^{2 i a d}\left(c x^n\right)^{2 i b d}\right]$$

Result (type 5, 146 leaves):

$$\frac{1}{-2-2 i b d n} x^2 \left(i e^{2 i d\left(a+b \operatorname{Log}\left[c x^n\right]\right)} \operatorname{Hypergeometric2F1}\left[1, 1-\frac{i}{b d n}, 2-\frac{i}{b d n},-e^{2 i d\left(a+b \operatorname{Log}\left[c x^n\right]\right)}\right]+\left(-i+b d n\right) \operatorname{Hypergeometric2F1}\left[1,-\frac{i}{b d n}, 1-\frac{i}{b d n},-e^{2 i d\left(a+b \operatorname{Log}\left[c x^n\right]\right)}\right]\right)$$

Problem 161: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right] dx$$

Optimal (type 5, 67 leaves, 4 steps):

$$-i x+2 i x \operatorname{Hypergeometric2F1}\left[1,-\frac{i}{2 b d n}, 1-\frac{i}{2 b d n},-e^{2 i a d}\left(c x^n\right)^{2 i b d}\right]$$

Result (type 5, 154 leaves):

$$\frac{1}{-i+2 b d n} x \left(-e^{2 i a d}\left(c x^n\right)^{2 i b d} \operatorname{Hypergeometric2F1}\left[1, 1-\frac{i}{2 b d n}, 2-\frac{i}{2 b d n},-e^{2 i d\left(a+b \operatorname{Log}\left[c x^n\right]\right)}\right]+\left(1+2 i b d n\right) \operatorname{Hypergeometric2F1}\left[1,-\frac{i}{2 b d n}, 1-\frac{i}{2 b d n},-e^{2 i d\left(a+b \operatorname{Log}\left[c x^n\right]\right)}\right]\right)$$

Problem 163: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]}{x^2} dx$$

Optimal (type 5, 71 leaves, 4 steps):

$$\frac{i}{x}-\frac{2 i \operatorname{Hypergeometric2F1}\left[1, \frac{i}{2 b d n}, 1+\frac{i}{2 b d n},-e^{2 i a d}\left(c x^n\right)^{2 i b d}\right]}{x}$$

Result (type 5, 153 leaves):

$$\frac{1}{(\text{i} + 2\,b\,d\,n)\,x}\left(-e^{2\,\text{i}\,d\,(a+b\,\text{Log}[c\,x^n])}\,\text{Hypergeometric2F1}\left[1,\,1+\frac{\text{i}}{2\,b\,d\,n},\,2+\frac{\text{i}}{2\,b\,d\,n},\,-e^{2\,\text{i}\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$\left.(1-2\,\text{i}\,b\,d\,n)\,\text{Hypergeometric2F1}\left[1,\,\frac{\text{i}}{2\,b\,d\,n},\,1+\frac{\text{i}}{2\,b\,d\,n},\,-e^{2\,\text{i}\,d\,(a+b\,\text{Log}[c\,x^n])}\right]\right)$$

Problem 164: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[d\,(a+b\,\text{Log}[c\,x^n])]}{x^3}\,dx$$

Optimal (type 5, 69 leaves, 4 steps):

$$\frac{\text{i}}{2\,x^2}-\frac{\text{i}\,\text{Hypergeometric2F1}\left[1,\,\frac{\text{i}}{b\,d\,n},\,1+\frac{\text{i}}{b\,d\,n},\,-e^{2\,\text{i}\,a\,d}\,(c\,x^n)^{2\,\text{i}\,b\,d}\right]}{x^2}$$

Result (type 5, 147 leaves):

$$\frac{1}{2\,(\text{i}+b\,d\,n)\,x^2}\left(-e^{2\,\text{i}\,d\,(a+b\,\text{Log}[c\,x^n])}\,\text{Hypergeometric2F1}\left[1,\,1+\frac{\text{i}}{b\,d\,n},\,2+\frac{\text{i}}{b\,d\,n},\,-e^{2\,\text{i}\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$\left.(1-\text{i}\,b\,d\,n)\,\text{Hypergeometric2F1}\left[1,\,\frac{\text{i}}{b\,d\,n},\,1+\frac{\text{i}}{b\,d\,n},\,-e^{2\,\text{i}\,d\,(a+b\,\text{Log}[c\,x^n])}\right]\right)$$

Problem 178: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[d\,(a+b\,\text{Log}[c\,x^n])]^p\,dx$$

Optimal (type 6, 190 leaves, 5 steps):

$$x\left(1-e^{2\,\text{i}\,a\,d}\,(c\,x^n)^{2\,\text{i}\,b\,d}\right)^{-p}\left(\frac{\text{i}\left(1-e^{2\,\text{i}\,a\,d}\,(c\,x^n)^{2\,\text{i}\,b\,d}\right)}{1+e^{2\,\text{i}\,a\,d}\,(c\,x^n)^{2\,\text{i}\,b\,d}}\right)^p\left(1+e^{2\,\text{i}\,a\,d}\,(c\,x^n)^{2\,\text{i}\,b\,d}\right)^p$$
$$\text{AppellF1}\left[-\frac{\text{i}}{2\,b\,d\,n},\,-p,\,p,\,1-\frac{\text{i}}{2\,b\,d\,n},\,e^{2\,\text{i}\,a\,d}\,(c\,x^n)^{2\,\text{i}\,b\,d},\,-e^{2\,\text{i}\,a\,d}\,(c\,x^n)^{2\,\text{i}\,b\,d}\right]$$

Result (type 6, 458 leaves):

$$\left(\left(-i+2\,b\,d\,n\right)\,x\,\left(-\frac{i\,\left(-1+e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right)}{1+e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}}\right)^p\,\text{AppellF1}\left[-\frac{i}{2\,b\,d\,n},\,-p,\,p,\,1-\frac{i}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]\right)\Big/$$
$$\left(-2\,b\,d\,e^{2\,i\,a\,d}\,n\,p\,\left(c\,x^n\right)^{2\,i\,b\,d}\,\text{AppellF1}\left[1-\frac{i}{2\,b\,d\,n},\,1-p,\,p,\,2-\frac{i}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]-\right.$$
$$2\,b\,d\,e^{2\,i\,a\,d}\,n\,p\,\left(c\,x^n\right)^{2\,i\,b\,d}\,\text{AppellF1}\left[1-\frac{i}{2\,b\,d\,n},\,-p,\,1+p,\,2-\frac{i}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]+$$
$$\left.\left(-i+2\,b\,d\,n\right)\,\text{AppellF1}\left[-\frac{i}{2\,b\,d\,n},\,-p,\,p,\,1-\frac{i}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]\right)$$

Problem 179: Result more than twice size of optimal antiderivative.

$$\int (e\,x)^m\,\text{Tan}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^p\,dx$$

Optimal (type 6, 210 leaves, 5 steps):

$$\frac{1}{e\,\left(1+m\right)}\left(e\,x\right)^{1+m}\,\left(1-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right)^{-p}\,\left(\frac{i\,\left(1-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right)}{1+e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}}\right)^p$$
$$\left(1+e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right)^p\,\text{AppellF1}\left[-\frac{i\,\left(1+m\right)}{2\,b\,d\,n},\,-p,\,p,\,1-\frac{i\,\left(1+m\right)}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]$$

Result (type 6, 496 leaves):

$$\left(\left(1+m+2\,i\,b\,d\,n\right)\,x\,\left(e\,x\right)^m\,\left(-\frac{i\,\left(-1+e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right)}{1+e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}}\right)^p\,\text{AppellF1}\left[-\frac{i\,\left(1+m\right)}{2\,b\,d\,n},\,-p,\,p,\,1-\frac{i\,\left(1+m\right)}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]\right)\Big/$$
$$\left(\left(1+m\right)\,\left(\left(1+m+2\,i\,b\,d\,n\right)\,\text{AppellF1}\left[-\frac{i\,\left(1+m\right)}{2\,b\,d\,n},\,-p,\,p,\,-\frac{i\,\left(1+m+2\,i\,b\,d\,n\right)}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]-\right.\right.$$
$$2\,i\,b\,d\,e^{2\,i\,a\,d}\,n\,p\,\left(c\,x^n\right)^{2\,i\,b\,d}\,\left(\text{AppellF1}\left[-\frac{i\,\left(1+m+2\,i\,b\,d\,n\right)}{2\,b\,d\,n},\,1-p,\,p,\,-\frac{i\,\left(1+m+4\,i\,b\,d\,n\right)}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]+\right.$$
$$\left.\left.\left.\text{AppellF1}\left[-\frac{i\,\left(1+m+2\,i\,b\,d\,n\right)}{2\,b\,d\,n},\,-p,\,1+p,\,-\frac{i\,\left(1+m+4\,i\,b\,d\,n\right)}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]\right)\right)\right)$$

Problem 186: Result more than twice size of optimal antiderivative.

$$\int x^3\,\text{Cot}\left[a+i\,\text{Log}[x]\right]\,dx$$

Optimal (type 3, 49 leaves, 5 steps):

$$-i e^{2 i a} x^2 - \frac{i x^4}{4} - i e^{4 i a} \mathrm{Log}\left[e^{2 i a} - x^2\right]$$

Result (type 3, 137 leaves):

$$-\frac{i x^4}{4} - i x^2 \mathrm{Cos}[2 a] - \mathrm{ArcTan}\left[\frac{\left(-1+x^2\right) \mathrm{Cos}[a]}{-\mathrm{Sin}[a] - x^2 \mathrm{Sin}[a]}\right] \mathrm{Cos}[4 a] - \frac{1}{2} i \mathrm{Cos}[4 a] \mathrm{Log}\left[1+x^4-2 x^2 \mathrm{Cos}[2 a]\right] + x^2 \mathrm{Sin}[2 a] - i \mathrm{ArcTan}\left[\frac{\left(-1+x^2\right) \mathrm{Cos}[a]}{-\mathrm{Sin}[a] - x^2 \mathrm{Sin}[a]}\right] \mathrm{Sin}[4 a] + \frac{1}{2} \mathrm{Log}\left[1+x^4-2 x^2 \mathrm{Cos}[2 a]\right] \mathrm{Sin}[4 a]$$

Problem 188: Result more than twice size of optimal antiderivative.

$$\int x \mathrm{Cot}[a + i \mathrm{Log}[x]] \, dx$$

Optimal (type 3, 35 leaves, 5 steps):

$$-\frac{i x^2}{2} - i e^{2 i a} \mathrm{Log}\left[e^{2 i a} - x^2\right]$$

Result (type 3, 118 leaves):

$$-\frac{i x^2}{2} - \mathrm{ArcTan}\left[\frac{\left(-1+x^2\right) \mathrm{Cos}[a]}{-\mathrm{Sin}[a] - x^2 \mathrm{Sin}[a]}\right] \mathrm{Cos}[2 a] - \frac{1}{2} i \mathrm{Cos}[2 a] \mathrm{Log}\left[1+x^4-2 x^2 \mathrm{Cos}[2 a]\right] - i \mathrm{ArcTan}\left[\frac{\left(-1+x^2\right) \mathrm{Cos}[a]}{-\mathrm{Sin}[a] - x^2 \mathrm{Sin}[a]}\right] \mathrm{Sin}[2 a] + \frac{1}{2} \mathrm{Log}\left[1+x^4-2 x^2 \mathrm{Cos}[2 a]\right] \mathrm{Sin}[2 a]$$

Problem 192: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cot}[a + i \mathrm{Log}[x]]}{x^3} \, dx$$

Optimal (type 3, 36 leaves, 4 steps):

$$-\frac{i}{2 x^2} - i e^{-2 i a} \mathrm{Log}\left[1 - \frac{e^{2 i a}}{x^2}\right]$$

Result (type 3, 136 leaves):

$$-\frac{i}{2 x^2} - \mathrm{ArcTan}\left[\frac{\left(-1+x^2\right) \mathrm{Cos}[a]}{-\mathrm{Sin}[a] - x^2 \mathrm{Sin}[a]}\right] \mathrm{Cos}[2 a] + 2 i \mathrm{Cos}[2 a] \mathrm{Log}[x] - \frac{1}{2} i \mathrm{Cos}[2 a] \mathrm{Log}\left[1+x^4-2 x^2 \mathrm{Cos}[2 a]\right] + i \mathrm{ArcTan}\left[\frac{\left(-1+x^2\right) \mathrm{Cos}[a]}{-\mathrm{Sin}[a] - x^2 \mathrm{Sin}[a]}\right] \mathrm{Sin}[2 a] + 2 \mathrm{Log}[x] \mathrm{Sin}[2 a] - \frac{1}{2} \mathrm{Log}\left[1+x^4-2 x^2 \mathrm{Cos}[2 a]\right] \mathrm{Sin}[2 a]$$

Problem 194: Result more than twice size of optimal antiderivative.

$$\int x^3 \operatorname{Cot}[a + i \operatorname{Log}[x]]^2 \, dx$$

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

$$-2 e^{2 i a} x^2 - \frac{x^4}{4} - \frac{2 e^{6 i a}}{e^{2 i a} - x^2} - 4 e^{4 i a} \operatorname{Log}\left[e^{2 i a} - x^2\right]$$

Result (type 3, 162 leaves):

$$-\frac{x^4}{4} - 2 x^2 \operatorname{Cos}[2 a] + 4 i \operatorname{ArcTan}\left[\frac{\operatorname{Cot}[a] - x^2 \operatorname{Cot}[a]}{1 + x^2}\right] \operatorname{Cos}[4 a] - 2 \operatorname{Cos}[4 a] \operatorname{Log}\left[1 + x^4 - 2 x^2 \operatorname{Cos}[2 a]\right] - 2 i x^2 \operatorname{Sin}[2 a] - 4 \operatorname{ArcTan}\left[\frac{\operatorname{Cot}[a] - x^2 \operatorname{Cot}[a]}{1 + x^2}\right] \operatorname{Sin}[4 a] - 2 i \operatorname{Log}\left[1 + x^4 - 2 x^2 \operatorname{Cos}[2 a]\right] \operatorname{Sin}[4 a] + \frac{2 \operatorname{Cos}[5 a] + 2 i \operatorname{Sin}[5 a]}{\left(-1 + x^2\right) \operatorname{Cos}[a] - i \left(1 + x^2\right) \operatorname{Sin}[a]}$$

Problem 196: Result more than twice size of optimal antiderivative.

$$\int x \operatorname{Cot}[a + i \operatorname{Log}[x]]^2 \, dx$$

Optimal (type 3, 55 leaves, 5 steps):

$$-\frac{x^2}{2} - \frac{2 e^{4 i a}}{e^{2 i a} - x^2} - 2 e^{2 i a} \operatorname{Log}\left[e^{2 i a} - x^2\right]$$

Result (type 3, 142 leaves):

$$-\frac{x^2}{2} + 2 i \operatorname{ArcTan}\left[\frac{\operatorname{Cot}[a] - x^2 \operatorname{Cot}[a]}{1 + x^2}\right] \operatorname{Cos}[2 a] - \operatorname{Cos}[2 a] \operatorname{Log}\left[1 + x^4 - 2 x^2 \operatorname{Cos}[2 a]\right] - 4 \operatorname{ArcTan}\left[\frac{\operatorname{Cot}[a] - x^2 \operatorname{Cot}[a]}{1 + x^2}\right] \operatorname{Cos}[a] \operatorname{Sin}[a] - i \operatorname{Log}\left[1 + x^4 - 2 x^2 \operatorname{Cos}[2 a]\right] \operatorname{Sin}[2 a] + \frac{2 \operatorname{Cos}[3 a] + 2 i \operatorname{Sin}[3 a]}{\left(-1 + x^2\right) \operatorname{Cos}[a] - i \left(1 + x^2\right) \operatorname{Sin}[a]}$$

Problem 200: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cot}[a + i \operatorname{Log}[x]]^2}{x^3} \, dx$$

Optimal (type 3, 57 leaves, 4 steps):

$$\frac{2 e^{-2 i a}}{1 - \frac{e^{2 i a}}{x^2}} + \frac{1}{2 x^2} + 2 e^{-2 i a} \operatorname{Log}\left[1 - \frac{e^{2 i a}}{x^2}\right]$$

Result (type 3, 153 leaves):

$$\frac{1}{2x^2}+\mathrm{Cos}[2a]\left(-4\,\mathrm{Log}[x]+\mathrm{Log}\left[1+x^4-2x^2\,\mathrm{Cos}[2a]\right]\right)+\frac{2\,\mathrm{Cos}[a]}{\left(-1+x^2\right)\mathrm{Cos}[a]-i\left(1+x^2\right)\mathrm{Sin}[a]}+\frac{2\,\mathrm{Sin}[a]}{i\left(-1+x^2\right)\mathrm{Cos}[a]+\left(1+x^2\right)\mathrm{Sin}[a]}+$$
$$\mathrm{ArcTan}\left[\frac{\mathrm{Cot}[a]-x^2\,\mathrm{Cot}[a]}{1+x^2}\right]\left(-2\,i\,\mathrm{Cos}[2a]-4\,\mathrm{Cos}[a]\,\mathrm{Sin}[a]\right)+4\,i\,\mathrm{Log}[x]\,\mathrm{Sin}[2a]-i\,\mathrm{Log}\left[1+x^4-2x^2\,\mathrm{Cos}[2a]\right]\mathrm{Sin}[2a]$$

Problem 202: Result more than twice size of optimal antiderivative.

$$\int (e\,x)^m\,\mathrm{Cot}[a+i\,\mathrm{Log}[x]]^2\,dx$$

Optimal (type 5, 77 leaves, 5 steps):

$$-\frac{x\,(e\,x)^m}{1+m}+\frac{2x\,(e\,x)^m}{1-\frac{e^{2ia}}{x^2}}-2x\,(e\,x)^m\,\mathrm{Hypergeometric2F1}\left[1,\frac{1}{2}(-1-m),\frac{1-m}{2},\frac{e^{2ia}}{x^2}\right]$$

Result (type 5, 169 leaves):

$$\frac{1}{\left(\mathrm{Cos}[a]+i\,\mathrm{Sin}[a]\right)^2}x\,(e\,x)^m\left(-\frac{2x^2\,\mathrm{Hypergeometric2F1}\left[2,\frac{3+m}{2},\frac{5+m}{2},x^2\left(\mathrm{Cos}[2a]-i\,\mathrm{Sin}[2a]\right)\right]}{3+m}-\right.$$
$$\frac{x^4\,\mathrm{Hypergeometric2F1}\left[2,\frac{5+m}{2},\frac{7+m}{2},x^2\left(\mathrm{Cos}[2a]-i\,\mathrm{Sin}[2a]\right)\right]\left(\mathrm{Cos}[a]-i\,\mathrm{Sin}[a]\right)^2}{5+m}-$$
$$\left.\frac{\mathrm{Hypergeometric2F1}\left[2,\frac{1+m}{2},\frac{3+m}{2},x^2\left(\mathrm{Cos}[2a]-i\,\mathrm{Sin}[2a]\right)\right]\left(\mathrm{Cos}[2a]+i\,\mathrm{Sin}[2a]\right)}{1+m}\right)$$

Problem 204: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[a+b\,\mathrm{Log}[x]]^p\,dx$$

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

$$x\left(1-e^{2ia}x^{2ib}\right)^p\left(1+e^{2ia}x^{2ib}\right)^{-p}\left(-\frac{i\left(1+e^{2ia}x^{2ib}\right)}{1-e^{2ia}x^{2ib}}\right)^p\mathrm{AppellF1}\left[-\frac{i}{2b},p,-p,1-\frac{i}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]$$

Result (type 6, 330 leaves):

$$\left((-i+2b)\,x\left(\frac{i\left(1+e^{2ia}x^{2ib}\right)}{-1+e^{2ia}x^{2ib}}\right)^p \text{AppellF1}\left[-\frac{i}{2b},p,-p,1-\frac{i}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]\right)\Big/$$
$$\left(2b\,e^{2ia}p\,x^{2ib}\,\text{AppellF1}\left[1-\frac{i}{2b},p,1-p,2-\frac{i}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]+\right.$$
$$\left.2b\,e^{2ia}p\,x^{2ib}\,\text{AppellF1}\left[1-\frac{i}{2b},1+p,-p,2-\frac{i}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]+(-i+2b)\,\text{AppellF1}\left[-\frac{i}{2b},p,-p,1-\frac{i}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]\right)$$

Problem 205: Result more than twice size of optimal antiderivative.

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

Optimal (type 6, 162 leaves, 4 steps):

$$\frac{1}{e\,(1+m)}(e\,x)^{1+m}\left(1-e^{2ia}x^{2ib}\right)^p\left(1+e^{2ia}x^{2ib}\right)^{-p}\left(-\frac{i\left(1+e^{2ia}x^{2ib}\right)}{1-e^{2ia}x^{2ib}}\right)^p \text{AppellF1}\left[-\frac{i\,(1+m)}{2b},p,-p,1-\frac{i\,(1+m)}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]$$

Result (type 6, 351 leaves):

$$\left((1+2ib+m)\,x\,(e\,x)^m\left(\frac{i\left(1+e^{2ia}x^{2ib}\right)}{-1+e^{2ia}x^{2ib}}\right)^p \text{AppellF1}\left[-\frac{i\,(1+m)}{2b},p,-p,1-\frac{i\,(1+m)}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]\right)\Big/$$
$$\left((1+m)\left((1+2ib+m)\,\text{AppellF1}\left[-\frac{i\,(1+m)}{2b},p,-p,1-\frac{i\,(1+m)}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]+2ib\,e^{2ia}p\,x^{2ib}\left(\text{AppellF1}\left[1-\frac{i\,(1+m)}{2b},p,\right.\right.\right.\right.$$
$$\left.\left.\left.\left.1-p,2-\frac{i\,(1+m)}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]+\text{AppellF1}\left[1-\frac{i\,(1+m)}{2b},1+p,-p,2-\frac{i\,(1+m)}{2b},e^{2ia}x^{2ib},-e^{2ia}x^{2ib}\right]\right)\right)\right)$$

Problem 209: Result more than twice size of optimal antiderivative.

$$\int x^3\,\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]dx$$

Optimal (type 5, 70 leaves, 4 steps):

$$\frac{i\,x^4}{4}-\frac{1}{2}\,i\,x^4\,\text{Hypergeometric2F1}\left[1,-\frac{2i}{b\,d\,n},1-\frac{2i}{b\,d\,n},e^{2iad}\left(c\,x^n\right)^{2ibd}\right]$$

Result (type 5, 220 leaves):

$$-\frac{1}{-8\,i+4\,b\,d\,n}x^4\left(2\,e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\,\text{Hypergeometric2F1}\left[1,1-\frac{2\,i}{b\,d\,n},2-\frac{2\,i}{b\,d\,n},e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$(-2\,i+b\,d\,n)\left(\text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]-\text{Cot}[d\,(a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n])]+i\,\text{Hypergeometric2F1}\left[1,-\frac{2\,i}{b\,d\,n},1-\frac{2\,i}{b\,d\,n},e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$\left.\left.\text{Csc}[d\,(a+b\,\text{Log}[c\,x^n])]\,\text{Csc}[d\,(a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n])]\,\text{Sin}[b\,d\,n\,\text{Log}[x]]\right)\right)$$

Problem 210: Result more than twice size of optimal antiderivative.

$$\int x^2\,\text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]\,dx$$

Optimal (type 5, 74 leaves, 4 steps):

$$\frac{i\,x^3}{3}-\frac{2}{3}\,i\,x^3\,\text{Hypergeometric2F1}\left[1,-\frac{3\,i}{2\,b\,d\,n},1-\frac{3\,i}{2\,b\,d\,n},e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right]$$

Result (type 5, 229 leaves):

$$-\frac{1}{-9\,i+6\,b\,d\,n}x^3\left(3\,e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\,\text{Hypergeometric2F1}\left[1,1-\frac{3\,i}{2\,b\,d\,n},2-\frac{3\,i}{2\,b\,d\,n},e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+(-3\,i+2\,b\,d\,n)\right.$$
$$\left(\text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]-\text{Cot}[d\,(a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n])]+i\,\text{Hypergeometric2F1}\left[1,-\frac{3\,i}{2\,b\,d\,n},1-\frac{3\,i}{2\,b\,d\,n},e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$\left.\left.\text{Csc}[d\,(a+b\,\text{Log}[c\,x^n])]\,\text{Csc}[d\,(a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n])]\,\text{Sin}[b\,d\,n\,\text{Log}[x]]\right)\right)$$

Problem 211: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]\,dx$$

Optimal (type 5, 68 leaves, 4 steps):

$$\frac{i\,x^2}{2}-i\,x^2\,\text{Hypergeometric2F1}\left[1,-\frac{i}{b\,d\,n},1-\frac{i}{b\,d\,n},e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right]$$

Result (type 5, 219 leaves):

$$-\frac{1}{-2\,i+2\,b\,d\,n}x^2\left(e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\,\text{Hypergeometric2F1}\left[1,1-\frac{i}{b\,d\,n},2-\frac{i}{b\,d\,n},e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$(-i+b\,d\,n)\left(\text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]-\text{Cot}[d\,(a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n])]+i\,\text{Hypergeometric2F1}\left[1,-\frac{i}{b\,d\,n},1-\frac{i}{b\,d\,n},e^{2\,i\,d\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$\left.\left.\text{Csc}[d\,(a+b\,\text{Log}[c\,x^n])]\,\text{Csc}[d\,(a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n])]\,\text{Sin}[b\,d\,n\,\text{Log}[x]]\right)\right)$$

Problem 212: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,dx$$

Optimal (type 5, 66 leaves, 4 steps):

$$i\,x-2\,i\,x\,\text{Hypergeometric2F1}\left[1,-\frac{i}{2\,b\,d\,n},1-\frac{i}{2\,b\,d\,n},e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]$$

Result (type 5, 338 leaves):

$$x\,\text{Cot}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]-\text{Csc}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\,\Bigg(x\,\text{Csc}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,\text{Sin}[b\,d\,n\,\text{Log}[x]]-\frac{1}{-i+2\,b\,d\,n}\,e^{-\frac{a+b\,\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)}{b\,n}}\,\Bigg(-e^{\frac{(1+2\,i\,b\,d\,n)\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)}{b\,n}}\,\text{Hypergeometric2F1}\left[1,1-\frac{i}{2\,b\,d\,n},2-\frac{i}{2\,b\,d\,n},e^{2\,i\,d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)}\right]-e^{\frac{a}{b\,n}+\frac{-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]}{n}}\,(-i+2\,b\,d\,n)\,x\,\Bigg(\text{Cot}\left[d\,\left(a+b\,n\,\text{Log}[x]+b\,\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]+i\,\text{Hypergeometric2F1}\left[1,-\frac{i}{2\,b\,d\,n},1-\frac{i}{2\,b\,d\,n},e^{2\,i\,d\,\left(a+b\,n\,\text{Log}[x]+b\,\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)}\right]\Bigg)\Bigg)\,\text{Sin}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}\left[c\,x^n\right]\right)\right)\right]\Bigg)$$

Problem 214: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]}{x^2}\,dx$$

Optimal (type 5, 70 leaves, 4 steps):

$$-\frac{i}{x}+\frac{2\,i\,\text{Hypergeometric2F1}\left[1,\frac{i}{2\,b\,d\,n},1+\frac{i}{2\,b\,d\,n},e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]}{x}$$

Result (type 5, 217 leaves):

$$\frac{1}{x}\Bigg(\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]-\text{Cot}\left[d\,\left(a-b\,n\,\text{Log}[x]+b\,\text{Log}\left[c\,x^n\right]\right)\right]-\frac{e^{2\,i\,d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)}\,\text{Hypergeometric2F1}\left[1,1+\frac{i}{2\,b\,d\,n},2+\frac{i}{2\,b\,d\,n},e^{2\,i\,d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)}\right]}{i+2\,b\,d\,n}+i\,\text{Hypergeometric2F1}\left[1,\frac{i}{2\,b\,d\,n},1+\frac{i}{2\,b\,d\,n},e^{2\,i\,d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)}\right]+\text{Csc}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,\text{Csc}\left[d\,\left(a-b\,n\,\text{Log}[x]+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,\text{Sin}[b\,d\,n\,\text{Log}[x]]\Bigg)$$

Problem 215: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[d (a + b \text{Log}[c x^n])]}{x^3} \, dx$$

Optimal (type 5, 68 leaves, 4 steps):

$$-\frac{i}{2 x^2} + \frac{i \, \text{Hypergeometric2F1}\left[1, \frac{i}{b d n}, 1 + \frac{i}{b d n}, e^{2 i a d} (c x^n)^{2 i b d}\right]}{x^2}$$

Result (type 5, 211 leaves):

$$\frac{1}{2 x^2}\left(\text{Cot}[d (a + b \text{Log}[c x^n])] - \text{Cot}[d (a - b n \text{Log}[x] + b \text{Log}[c x^n])] - \frac{e^{2 i d (a+b \text{Log}[c x^n])} \text{Hypergeometric2F1}\left[1, 1 + \frac{i}{b d n}, 2 + \frac{i}{b d n}, e^{2 i d (a+b \text{Log}[c x^n])}\right]}{i + b d n} + i \, \text{Hypergeometric2F1}\left[1, \frac{i}{b d n}, 1 + \frac{i}{b d n}, e^{2 i d (a+b \text{Log}[c x^n])}\right] + \text{Csc}[d (a + b \text{Log}[c x^n])] \text{Csc}[d (a - b n \text{Log}[x] + b \text{Log}[c x^n])] \text{Sin}[b d n \text{Log}[x]]\right)$$

Problem 228: Result more than twice size of optimal antiderivative.

$$\int (e x)^m \text{Cot}[d (a + b \text{Log}[c x^n])]^3 \, dx$$

Optimal (type 5, 350 leaves, 6 steps):

$$\frac{(i (1 + m) - b d n) (1 + m + 2 i b d n) (e x)^{1+m}}{2 b^2 d^2 e (1 + m) n^2} + \frac{(e x)^{1+m} \left(1 + e^{2 i a d} (c x^n)^{2 i b d}\right)^2}{2 b d e n \left(1 - e^{2 i a d} (c x^n)^{2 i b d}\right)^2} + \frac{i e^{-2 i a d} (e x)^{1+m} \left(\frac{e^{2 i a d} (1+m-2 i b d n)}{n} + \frac{e^{4 i a d} (1+m+2 i b d n) (c x^n)^{2 i b d}}{n}\right)}{2 b^2 d^2 e n \left(1 - e^{2 i a d} (c x^n)^{2 i b d}\right)} - \frac{i (1 + 2 m + m^2 - 2 b^2 d^2 n^2) (e x)^{1+m} \text{Hypergeometric2F1}\left[1, -\frac{i (1+m)}{2 b d n}, 1 - \frac{i (1+m)}{2 b d n}, e^{2 i a d} (c x^n)^{2 i b d}\right]}{b^2 d^2 e (1 + m) n^2}$$

Result (type 5, 812 leaves):

$$-\frac{x\,(e\,x)^m\,\text{Cot}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]}{1+m}-\frac{x\,(e\,x)^m\,\text{Csc}\left[b\,d\,n\,\text{Log}[x]+d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]^2}{2\,b\,d\,n}+$$

$$\frac{1}{1+m}e^{-i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x\,(e\,x)^m\,\text{Csc}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]$$

$$\left(1+\left(-1+e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\right)\,\text{Hypergeometric2F1}\left[1,\,-\frac{i\,(1+m)}{2\,b\,d\,n},\,1-\frac{i\,(1+m)}{2\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]\right)-$$

$$\frac{1}{2\,b^2\,d^2\,(1+m)\,n^2}e^{-i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x\,(e\,x)^m\,\text{Csc}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]$$

$$\left(1+\left(-1+e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\right)\,\text{Hypergeometric2F1}\left[1,\,-\frac{i\,(1+m)}{2\,b\,d\,n},\,1-\frac{i\,(1+m)}{2\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]\right)-$$

$$\frac{1}{b^2\,d^2\,(1+m)\,n^2}e^{-i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,m\,x\,(e\,x)^m\,\text{Csc}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]$$

$$\left(1+\left(-1+e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\right)\,\text{Hypergeometric2F1}\left[1,\,-\frac{i\,(1+m)}{2\,b\,d\,n},\,1-\frac{i\,(1+m)}{2\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]\right)-$$

$$\frac{1}{2\,b^2\,d^2\,(1+m)\,n^2}e^{-i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,m^2\,x\,(e\,x)^m\,\text{Csc}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]$$

$$\left(1+\left(-1+e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\right)\,\text{Hypergeometric2F1}\left[1,\,-\frac{i\,(1+m)}{2\,b\,d\,n},\,1-\frac{i\,(1+m)}{2\,b\,d\,n},\,e^{2\,i\,d\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,d\,n}\right]\right)+\frac{1}{2\,b^2\,d^2\,n^2}$$

$$(1+m)\,x\,(e\,x)^m\,\text{Csc}\left[d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]\,\text{Csc}\left[b\,d\,n\,\text{Log}[x]+d\,\left(a+b\,\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]\,\text{Sin}[b\,d\,n\,\text{Log}[x]]$$

Problem 229: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}\left[d\,\left(a+b\,\text{Log}[c\,x^n]\right)\right]^p\,dx$$

Optimal (type 6, 190 leaves, 5 steps):

$$x\,\left(1-e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right)^p\,\left(1+e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right)^{-p}\,\left(-\frac{i\,\left(1+e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right)}{1-e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}}\right)^p$$

$$\text{AppellF1}\left[-\frac{i}{2\,b\,d\,n},\,p,\,-p,\,1-\frac{i}{2\,b\,d\,n},\,e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d},\,-e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right]$$

Result (type 6, 458 leaves):

$$\left((-i+2bdn)\,x\left(\frac{i\left(1+e^{2iad}(cx^n)^{2ibd}\right)}{-1+e^{2iad}(cx^n)^{2ibd}}\right)^p \text{AppellF1}\left[-\frac{i}{2bdn},p,-p,1-\frac{i}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]\right)\Big/$$
$$\left(2bd\,e^{2iad}np\,(cx^n)^{2ibd}\,\text{AppellF1}\left[1-\frac{i}{2bdn},p,1-p,2-\frac{i}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]+\right.$$
$$2bd\,e^{2iad}np\,(cx^n)^{2ibd}\,\text{AppellF1}\left[1-\frac{i}{2bdn},1+p,-p,2-\frac{i}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]+$$
$$\left.(-i+2bdn)\,\text{AppellF1}\left[-\frac{i}{2bdn},p,-p,1-\frac{i}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]\right)$$

Problem 230: Result more than twice size of optimal antiderivative.

$$\int (e\,x)^m\,\text{Cot}\left[d\,(a+b\,\text{Log}[c\,x^n])\right]^p\,dx$$

Optimal (type 6, 210 leaves, 5 steps):

$$\frac{1}{e\,(1+m)}(e\,x)^{1+m}\left(1-e^{2iad}(cx^n)^{2ibd}\right)^p\left(1+e^{2iad}(cx^n)^{2ibd}\right)^{-p}$$
$$\left(-\frac{i\left(1+e^{2iad}(cx^n)^{2ibd}\right)}{1-e^{2iad}(cx^n)^{2ibd}}\right)^p \text{AppellF1}\left[-\frac{i\,(1+m)}{2bdn},p,-p,1-\frac{i\,(1+m)}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]$$

Result (type 6, 496 leaves):

$$\left((1+m+2ibdn)\,x\,(e\,x)^m\left(\frac{i\left(1+e^{2iad}(cx^n)^{2ibd}\right)}{-1+e^{2iad}(cx^n)^{2ibd}}\right)^p \text{AppellF1}\left[-\frac{i\,(1+m)}{2bdn},p,-p,1-\frac{i\,(1+m)}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]\right)\Big/$$
$$\left((1+m)\left((1+m+2ibdn)\,\text{AppellF1}\left[-\frac{i\,(1+m)}{2bdn},p,-p,-\frac{i\,(1+m+2ibdn)}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]+\right.\right.$$
$$2ibd\,e^{2iad}np\,(cx^n)^{2ibd}\left(\text{AppellF1}\left[-\frac{i\,(1+m+2ibdn)}{2bdn},p,1-p,-\frac{i\,(1+m+4ibdn)}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]+\right.$$
$$\left.\left.\left.\text{AppellF1}\left[-\frac{i\,(1+m+2ibdn)}{2bdn},1+p,-p,-\frac{i\,(1+m+4ibdn)}{2bdn},e^{2iad}(cx^n)^{2ibd},-e^{2iad}(cx^n)^{2ibd}\right]\right)\right)\right)$$

Problem 240: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[a+b\,\text{Log}[c\,x^n]]}{x}\,dx$$

Optimal (type 3, 19 leaves, 2 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[a+b\,\text{Log}[c\,x^n]]]}{b\,n}$$

Result (type 3, 94 leaves):

$$-\frac{\text{Log}\left[\text{Cos}\left[\frac{a}{2}+\frac{1}{2}b\,\text{Log}[c\,x^n]\right]-\text{Sin}\left[\frac{a}{2}+\frac{1}{2}b\,\text{Log}[c\,x^n]\right]\right]}{b\,n}+\frac{\text{Log}\left[\text{Cos}\left[\frac{a}{2}+\frac{1}{2}b\,\text{Log}[c\,x^n]\right]+\text{Sin}\left[\frac{a}{2}+\frac{1}{2}b\,\text{Log}[c\,x^n]\right]\right]}{b\,n}$$

Problem 254: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Sec}[a+b\,\text{Log}[c\,x^n]]^4\,dx$$

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

$$\frac{8\,e^{4\,i\,a}\,x^2\,(c\,x^n)^{4\,i\,b}\,\text{Hypergeometric2F1}\left[4,\,2-\frac{i}{b\,n},\,3-\frac{i}{b\,n},\,-e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\right]}{1+2\,i\,b\,n}$$

Result (type 5, 668 leaves):

$$\frac{1}{3\,b^3\,n^3}2\,(1+b^2\,n^2)\,x^2\,\text{Sec}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Sec}[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Sin}[b\,n\,\text{Log}[x]]+$$
$$\frac{x^2\,\text{Sec}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Sec}[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]^3\,\text{Sin}[b\,n\,\text{Log}[x]]}{3\,b\,n}-$$
$$\frac{1}{3\,b^3\,n^3\,(-2-2\,i\,b\,n)}4\,x^2\,\text{Sec}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]$$
$$\left(i\,e^{2\,i\,(a+b\,\text{Log}[c\,x^n])}\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Hypergeometric2F1}\left[1,\,1-\frac{i}{b\,n},\,2-\frac{i}{b\,n},\,-e^{2\,i\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$(-i+b\,n)\left(\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Hypergeometric2F1}\left[1,\,-\frac{i}{b\,n},\,1-\frac{i}{b\,n},\,-e^{2\,i\,(a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\right]+\right.$$
$$\left.\left.i\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right)\right)-\frac{1}{3\,b\,n\,(-2-2\,i\,b\,n)}4\,x^2\,\text{Sec}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]$$
$$\left(i\,e^{2\,i\,(a+b\,\text{Log}[c\,x^n])}\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Hypergeometric2F1}\left[1,\,1-\frac{i}{b\,n},\,2-\frac{i}{b\,n},\,-e^{2\,i\,(a+b\,\text{Log}[c\,x^n])}\right]+\right.$$
$$(-i+b\,n)\left(\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Hypergeometric2F1}\left[1,\,-\frac{i}{b\,n},\,1-\frac{i}{b\,n},\,-e^{2\,i\,(a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\right]+\right.$$
$$\left.\left.i\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\right)\right)+$$
$$\frac{1}{3\,b^2\,n^2}x^2\,\text{Sec}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]\,\text{Sec}[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]^2$$
$$(-\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+b\,n\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])])$$

Problem 255: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[a+b \operatorname{Log}[c x^n]]^4 \, dx$$

Optimal (type 5, 85 leaves, 3 steps):

$$\frac{16\, e^{4 i a}\, x\, (c x^n)^{4 i b}\, \text{Hypergeometric2F1}\left[4, \frac{1}{2}\left(4-\frac{i}{b n}\right), \frac{1}{2}\left(6-\frac{i}{b n}\right), -e^{2 i a} (c x^n)^{2 i b}\right]}{1+4 i b n}$$

Result (type 5, 517 leaves):

$$\frac{1}{6 b^3 n^3}\left(1+4 b^2 n^2\right) x \operatorname{Sec}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \operatorname{Sec}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \operatorname{Sin}[b n \operatorname{Log}[x]]+$$
$$\frac{x \operatorname{Sec}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \operatorname{Sec}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]^3 \operatorname{Sin}[b n \operatorname{Log}[x]]}{3 b n}-$$
$$\frac{1}{6 b^3 n^3(-i+2 b n)} e^{-\frac{a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])}{b n}}\left(1+4 b^2 n^2\right) \operatorname{Sec}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]$$
$$\left(-e^{\left(2 i+\frac{1}{b n}\right)(a+b \operatorname{Log}[c x^n])} \operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \text{Hypergeometric2F1}\left[1, 1-\frac{i}{2 b n}, 2-\frac{i}{2 b n}, -e^{2 i(a+b \operatorname{Log}[c x^n])}\right]+e^{\frac{a}{b n}+\frac{-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]}{n}}\right.$$
$$(1+2 i b n)\, x \left(\operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \text{Hypergeometric2F1}\left[1, -\frac{i}{2 b n}, 1-\frac{i}{2 b n}, -e^{2 i(a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\right]+\right.$$
$$\left.\left. i \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\right)\right)+\frac{1}{6 b^2 n^2} x \operatorname{Sec}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]$$
$$\operatorname{Sec}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]^2\left(-\operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+2 b n \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\right)$$

Problem 257: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[a+b \operatorname{Log}[c x^n]]^4}{x^2} \, dx$$

Optimal (type 5, 87 leaves, 3 steps):

$$-\frac{16\, e^{4 i a}\, (c x^n)^{4 i b}\, \text{Hypergeometric2F1}\left[4, \frac{1}{2}\left(4+\frac{i}{b n}\right), \frac{1}{2}\left(6+\frac{i}{b n}\right), -e^{2 i a} (c x^n)^{2 i b}\right]}{(1-4 i b n)\, x}$$

Result (type 5, 660 leaves):

$$\frac{1}{6 b^3 n^3 x}\left(1+4 b^2 n^2\right) \text{Sec}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])] \text{Sec}[a+b n \text{Log}[x]+b(-n \text{Log}[x]+\text{Log}[c x^n])] \text{Sin}[b n \text{Log}[x]]+$$
$$\frac{\text{Sec}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])] \text{Sec}[a+b n \text{Log}[x]+b(-n \text{Log}[x]+\text{Log}[c x^n])]^3 \text{Sin}[b n \text{Log}[x]]}{3 b n x}+\frac{1}{6 b^3 n^3 x}\text{Sec}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])]$$
$$\left(-\frac{1}{i+2 b n}e^{2 i (a+b \text{Log}[c x^n])} \text{Cos}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])] \text{Hypergeometric2F1}\left[1,1+\frac{i}{2 b n},2+\frac{i}{2 b n},-e^{2 i (a+b \text{Log}[c x^n])}\right]-\right.$$
$$i \text{Cos}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])] \text{Hypergeometric2F1}\left[1,\frac{i}{2 b n},1+\frac{i}{2 b n},-e^{2 i (a+b n \text{Log}[x]+b(-n \text{Log}[x]+\text{Log}[c x^n]))}\right]+$$
$$\left.\text{Sin}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])]\right)+\frac{1}{3 b n x}2 \text{Sec}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])]$$
$$\left(-\frac{1}{i+2 b n}e^{2 i (a+b \text{Log}[c x^n])} \text{Cos}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])] \text{Hypergeometric2F1}\left[1,1+\frac{i}{2 b n},2+\frac{i}{2 b n},-e^{2 i (a+b \text{Log}[c x^n])}\right]-\right.$$
$$i \text{Cos}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])] \text{Hypergeometric2F1}\left[1,\frac{i}{2 b n},1+\frac{i}{2 b n},-e^{2 i (a+b n \text{Log}[x]+b(-n \text{Log}[x]+\text{Log}[c x^n]))}\right]+$$
$$\left.\text{Sin}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])]\right)+\frac{1}{6 b^2 n^2 x}\text{Sec}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])]$$
$$\text{Sec}[a+b n \text{Log}[x]+b(-n \text{Log}[x]+\text{Log}[c x^n])]^2 (\text{Cos}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])]+2 b n \text{Sin}[a+b(-n \text{Log}[x]+\text{Log}[c x^n])])$$

Problem 258: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[a+b \text{Log}[c x^n]]^4}{x^3} \, dx$$

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

$$-\frac{8 e^{4 i a} (c x^n)^{4 i b} \text{Hypergeometric2F1}\left[4,2+\frac{i}{b n},3+\frac{i}{b n},-e^{2 i a} (c x^n)^{2 i b}\right]}{(1-2 i b n) x^2}$$

Result (type 5, 640 leaves):

$$\frac{1}{3 b^3 n^3 x^2} 2 \left(1+b^2 n^2\right) \text{Sec}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right] \text{Sec}\left[a+b n \text{Log}[x]+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right] \text{Sin}[b n \text{Log}[x]]+$$
$$\frac{\text{Sec}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right] \text{Sec}\left[a+b n \text{Log}[x]+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]^3 \text{Sin}[b n \text{Log}[x]]}{3 b n x^2}+$$
$$\frac{1}{3 b^3 n^3 x^2} 2 \text{Sec}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]$$
$$\left(-\frac{1}{i+b n} e^{2 i \left(a+b \text{Log}\left[c x^n\right]\right)} \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right] \text{Hypergeometric2F1}\left[1, 1+\frac{i}{b n}, 2+\frac{i}{b n}, -e^{2 i \left(a+b \text{Log}\left[c x^n\right]\right)}\right]-\right.$$
$$i \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right] \text{Hypergeometric2F1}\left[1, \frac{i}{b n}, 1+\frac{i}{b n}, -e^{2 i \left(a+b n \text{Log}[x]+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)}\right]+$$
$$\left.\text{Sin}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]\right)+\frac{1}{3 b n x^2} 2 \text{Sec}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]$$
$$\left(-\frac{1}{i+b n} e^{2 i \left(a+b \text{Log}\left[c x^n\right]\right)} \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right] \text{Hypergeometric2F1}\left[1, 1+\frac{i}{b n}, 2+\frac{i}{b n}, -e^{2 i \left(a+b \text{Log}\left[c x^n\right]\right)}\right]-\right.$$
$$i \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right] \text{Hypergeometric2F1}\left[1, \frac{i}{b n}, 1+\frac{i}{b n}, -e^{2 i \left(a+b n \text{Log}[x]+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)}\right]+$$
$$\left.\text{Sin}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]\right)+\frac{1}{3 b^2 n^2 x^2} \text{Sec}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]$$
$$\text{Sec}\left[a+b n \text{Log}[x]+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]^2 \left(\text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]+b n \text{Sin}\left[a+b\left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]\right)$$

Problem 261: Result more than twice size of optimal antiderivative.

$$\int x \text{Sec}\left[a+2 \text{Log}\left[c x^i\right]\right]^3 dx$$

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

$$\frac{e^{i a} \left(c x^i\right)^{2 i} x^2}{\left(1+e^{2 i a} \left(c x^i\right)^{4 i}\right)^2}$$

Result (type 3, 127 leaves):

$$-\frac{1}{4 x^4} \text{Sec}\left[a+2 \text{Log}\left[c x^i\right]\right]^2 \left(\left(1+2 x^4\right) \text{Cos}\left[a+2 \text{Log}\left[c x^i\right]-2 i \text{Log}[x]\right]+i \left(1-2 x^4\right) \text{Sin}\left[a+2 \text{Log}\left[c x^i\right]-2 i \text{Log}[x]\right]\right)$$
$$\left(\text{Cos}\left[2 \left(a+2 \text{Log}\left[c x^i\right]-2 i \text{Log}[x]\right)\right]+i \text{Sin}\left[2 \left(a+2 \text{Log}\left[c x^i\right]-2 i \text{Log}[x]\right)\right]\right)$$

Problem 262: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}\left[a+2 \text{Log}\left[c x^{\frac{i}{2}}\right]\right]^3 dx$$

Optimal (type 3, 58 leaves, 3 steps):

$$\frac{1}{2} x \operatorname{Sec}\left[a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]\right]-\frac{1}{2} i x \operatorname{Sec}\left[a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]\right] \operatorname{Tan}\left[a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]\right]$$

Result (type 3, 137 leaves):

$$-\frac{1}{2 x^2}\operatorname{Sec}\left[a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]\right]^2 \left(\left(1+2 x^2\right) \operatorname{Cos}\left[a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]-i \operatorname{Log}[x]\right]+i \left(1-2 x^2\right) \operatorname{Sin}\left[a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]-i \operatorname{Log}[x]\right]\right) \left(\operatorname{Cos}\left[2 \left(a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]-i \operatorname{Log}[x]\right)\right]+i \operatorname{Sin}\left[2 \left(a+2 \operatorname{Log}\left[c x^{\frac{i}{2}}\right]-i \operatorname{Log}[x]\right)\right]\right)$$

Problem 263: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}\left[a+2 \operatorname{Log}\left[c x^{-\frac{i}{2}}\right]\right]^3 dx$$

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

$$\frac{2 e^{3 i a} \left(c x^{-\frac{i}{2}}\right)^{6 i} x}{\left(1+e^{2 i a} \left(c x^{-\frac{i}{2}}\right)^{4 i}\right)^2}$$

Result (type 3, 139 leaves):

$$\frac{1}{4 x^2}\operatorname{Sec}\left[a+2 \operatorname{Log}\left[c x^{-\frac{i}{2}}\right]\right]^2 \left(\left(1+2 x^2\right) \operatorname{Cos}\left[a+2 \operatorname{Log}\left[c x^{-\frac{i}{2}}\right]+i \operatorname{Log}[x]\right]+i \left(-1+2 x^2\right) \operatorname{Sin}\left[a+2 \operatorname{Log}\left[c x^{-\frac{i}{2}}\right]+i \operatorname{Log}[x]\right]\right) \left(-2 \operatorname{Cos}\left[2 \left(a+2 \operatorname{Log}\left[c x^{-\frac{i}{2}}\right]+i \operatorname{Log}[x]\right)\right]+2 i \operatorname{Sin}\left[2 \left(a+2 \operatorname{Log}\left[c x^{-\frac{i}{2}}\right]+i \operatorname{Log}[x]\right)\right]\right)$$

Problem 268: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}\left[a+b \operatorname{Log}\left[c x^n\right]\right]^{3/2} dx$$

Optimal (type 5, 109 leaves, 3 steps):

$$\frac{1}{2+3 i b n}2 x \left(1+e^{2 i a} \left(c x^n\right)^{2 i b}\right)^{3/2} \operatorname{Hypergeometric2F1}\left[\frac{3}{2}, \frac{1}{4} \left(3-\frac{2 i}{b n}\right), \frac{1}{4} \left(7-\frac{2 i}{b n}\right), -e^{2 i a} \left(c x^n\right)^{2 i b}\right] \operatorname{Sec}\left[a+b \operatorname{Log}\left[c x^n\right]\right]^{3/2}$$

Result (type 5, 843 leaves):

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

$$\left((2 i+b n) \left(1+e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} x^{2 i b n}\right)+\left(-2 i-b n+e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} (-2 i+b n)\right)\right.$$

$$\left.\left.\sqrt{1+e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} x^{2 i b n}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{3}{4}-\frac{i}{2 b n},-e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} x^{2 i b n}\right]\right)\right)\Big/$$

$$\left.\left(b n \left(4+b^2 n^2\right) \left(-2 \text{Cos}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]+b n \text{Sin}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]\right)\right)\right)-$$

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

$$\left((2 i+b n) \left(1+e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} x^{2 i b n}\right)+\left(-2 i-b n+e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} (-2 i+b n)\right)\right.$$

$$\left.\left.\sqrt{1+e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} x^{2 i b n}}\ \text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{3}{4}-\frac{i}{2 b n},-e^{2 i \left(a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)} x^{2 i b n}\right]\right)\right)\Big/$$

$$\left(\left(4+b^2 n^2\right) \left(-2 \text{Cos}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]+b n \text{Sin}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]\right)\right)+$$

$$\sqrt{\text{Sec}\left[a+b n \text{Log}[x]+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]}$$

$$\left(\frac{2 x \text{Cos}[b n \text{Log}[x]]}{-2 \text{Cos}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]+b n \text{Sin}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]}-\right.$$

$$\left.\frac{4 x \text{Sin}[b n \text{Log}[x]]}{b n \left(-2 \text{Cos}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]+b n \text{Sin}\left[a+b \left(-n \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]\right)}\right)$$

Problem 272: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{\text{Sec}\left[a+b \text{Log}\left[c x^n\right]\right]}} \, dx$$

Optimal (type 5, 110 leaves, 3 steps):

$$\frac{2 x \text{Hypergeometric2F1}\left[-\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{1}{4} \left(3-\frac{2 i}{b n}\right),-e^{2 i a} \left(c x^n\right)^{2 i b}\right]}{(2-i b n) \sqrt{1+e^{2 i a} \left(c x^n\right)^{2 i b}} \sqrt{\text{Sec}\left[a+b \text{Log}\left[c x^n\right]\right]}}$$

Result (type 5, 364 leaves):

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

Problem 276: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\text{Sec}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{5/2}}\,dx$$

Optimal (type 5, 110 leaves, 3 steps):

$$\frac{2\,x\,\text{Hypergeometric2F1}\left[-\frac{5}{2},\,\frac{1}{4}\,\left(-5-\frac{2\,i}{b\,n}\right),\,-\frac{2\,i+b\,n}{4\,b\,n},\,-e^{2\,i\,a}\,\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2-5\,i\,b\,n\right)\,\left(1+e^{2\,i\,a}\,\left(c\,x^n\right)^{2\,i\,b}\right)^{5/2}\,\text{Sec}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{5/2}}$$

Result (type 5, 861 leaves):

$$\Bigg(30\, i\, \sqrt{2}\, b^3\, e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\, n^3\, x^{1-i\,b\,n}\, \sqrt{\frac{e^{i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\, x^{i\,b\,n}}{1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\, x^{2\,i\,b\,n}}}$$

$$\Big((2\,i+b\,n)\,\big(1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\, x^{2\,i\,b\,n}\big)+\big(-2\,i-b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,(-2\,i+b\,n)\big)$$

$$\sqrt{1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\, x^{2\,i\,b\,n}}\ \text{Hypergeometric2F1}\Big[\frac{1}{2},\ -\frac{2\,i+b\,n}{4\,b\,n},\ \frac{3}{4}-\frac{i}{2\,b\,n},\ -e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\, x^{2\,i\,b\,n}\Big]\Big)\Bigg)\Big/$$

$$\Big((-2\,i+5\,b\,n)\,(2\,i+5\,b\,n)\,(4+b^2\,n^2)\,\big(-2\,i-b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,(-2\,i+b\,n)\big)\Big)+$$

$$\sqrt{\text{Sec}[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]}$$

$$\Big(-\Big(\big(x\,\text{Cos}[b\,n\,\text{Log}[x]]\,\big(12+55\,b^2\,n^2+12\,\text{Cos}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+65\,b^2\,n^2\,\text{Cos}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+$$
$$4\,b\,n\,\text{Sin}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]\big)\big)\Big/$$
$$\big(4\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n)\,(-2\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+b\,n\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])])\big)\Big)+$$
$$\big(x\,\text{Sin}[b\,n\,\text{Log}[x]]\,\big(-16\,b\,n-4\,b\,n\,\text{Cos}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+12\,\text{Sin}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+$$
$$65\,b^2\,n^2\,\text{Sin}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]\big)\big)\Big/$$
$$\big(4\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n)\,(-2\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+b\,n\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])])\big)+$$
$$\big(x\,\text{Sin}[3\,b\,n\,\text{Log}[x]]\,(5\,b\,n\,\text{Cos}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]-2\,\text{Sin}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))])\big)\Big/$$
$$\big(2\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n)\big)+$$
$$\big(x\,\text{Cos}[3\,b\,n\,\text{Log}[x]]\,(2\,\text{Cos}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+5\,b\,n\,\text{Sin}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))])\big)\Big/$$
$$\big(2\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n)\big)\Big)$$

Problem 282: Result more than twice size of optimal antiderivative.

$$\int x^m\,\text{Sec}[a+b\,\text{Log}[c\,x^n]]^{3/2}\,dx$$

Optimal (type 5, 130 leaves, 3 steps):

$$\frac{1}{2+2\,m+3\,i\,b\,n}2\,x^{1+m}\,\big(1+e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\big)^{3/2}\,\text{Hypergeometric2F1}\Big[\frac{3}{2},\ -\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},\ -\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},\ -e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\Big]\,\text{Sec}[a+b\,\text{Log}[c\,x^n]]^{3/2}$$

Result (type 5, 470 leaves):

$$\left(\sqrt{2}\, x^{1+m-i b n} \left(-\left(4+8 m+4 m^2+b^2 n^2\right) x^{2 i b n} \sqrt{\frac{e^{i a} \left(c x^n\right)^{i b}}{1+e^{2 i a} \left(c x^n\right)^{2 i b}}} \sqrt{1+e^{2 i a} \left(c x^n\right)^{2 i b}}\right.\right.$$
$$\text{Hypergeometric2F1}\left[\frac{1}{2}, -\frac{2 i+2 i m-3 b n}{4 b n}, -\frac{2 i+2 i m-7 b n}{4 b n}, -e^{2 i a} \left(c x^n\right)^{2 i b}\right] + (2+2 m+3 i b n)$$
$$\left((2+2 m+i b n) \sqrt{\frac{e^{i a} \left(c x^n\right)^{i b}}{1+e^{2 i a} \left(c x^n\right)^{2 i b}}} \sqrt{1+e^{2 i a} \left(c x^n\right)^{2 i b}}\, \text{Hypergeometric2F1}\left[\frac{1}{2}, -\frac{2 i+2 i m+b n}{4 b n}, -\frac{2 i+2 i m-3 b n}{4 b n}, -e^{2 i a} \left(c x^n\right)^{2 i b}\right] -\right.$$
$$\left.\left.\left. i \sqrt{2}\, x^{i b n} \sqrt{\text{Sec}\left[a+b \text{Log}\left[c x^n\right]\right]} \left(b n \text{Cos}[b n \text{Log}[x]] - 2 (1+m) \text{Sin}[b n \text{Log}[x]]\right)\right)\right)\right) \Big/$$
$$\left(b n (-2 i-2 i m+3 b n) \left(-2 (1+m) \text{Cos}\left[a-b n \text{Log}[x]+b \text{Log}\left[c x^n\right]\right] + b n \text{Sin}\left[a-b n \text{Log}[x]+b \text{Log}\left[c x^n\right]\right]\right)\right)$$

Problem 284: Result more than twice size of optimal antiderivative.

$$\int \frac{x^m}{\sqrt{\text{Sec}[a+b \text{Log}[c x^n]]}}\, dx$$

Optimal (type 5, 129 leaves, 3 steps):

$$\frac{2 x^{1+m} \text{Hypergeometric2F1}\left[-\frac{1}{2}, -\frac{2 i+2 i m+b n}{4 b n}, -\frac{2 i+2 i m-3 b n}{4 b n}, -e^{2 i a} \left(c x^n\right)^{2 i b}\right]}{(2+2 m-i b n) \sqrt{1+e^{2 i a} \left(c x^n\right)^{2 i b}} \sqrt{\text{Sec}[a+b \text{Log}[c x^n]]}}$$

Result (type 5, 630 leaves):

$$-\left(\left(2\,b\,e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,n\,x^{1+m}\left(\left(2\,i+2\,i\,m+b\,n\right)x^{2\,i\,b\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]+\left(-2\,i-2\,i\,m+3\,b\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\right)\Big/\left(\left(2+2\,m-i\,b\,n\right)\left(2+2\,m+3\,i\,b\,n\right)\left(2+2\,m-i\,b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\left(2+2\,m+i\,b\,n\right)\right)\sqrt{1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\,\sqrt{\frac{e^{i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{i\,b\,n}}{2+2\,e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}}\right)\right)+$$

$$\sqrt{\text{Sec}\left[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]}\left(\left(2\,x^{1+m}\,\text{Cos}[b\,n\,\text{Log}[x]]\,\text{Cos}\left[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]^2\right)\Big/\left(2\,\text{Cos}\left[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]+2\,m\,\text{Cos}\left[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]-b\,n\,\text{Sin}\left[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]\right)-\left(x^{1+m}\,\text{Sin}[b\,n\,\text{Log}[x]]\,\text{Sin}\left[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))\right]\right)\Big/\left(2\,\text{Cos}\left[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]+2\,m\,\text{Cos}\left[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]-b\,n\,\text{Sin}\left[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])\right]\right)\right)$$

Problem 292: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[a+b\,\text{Log}[c\,x^n]]}{x}\,dx$$

Optimal (type 3, 20 leaves, 2 steps):

$$-\frac{\text{ArcTanh}[\text{Cos}[a+b\,\text{Log}[c\,x^n]]]}{b\,n}$$

Result (type 3, 54 leaves):

$$-\frac{\text{Log}\left[\text{Cos}\left[\frac{a}{2}+\frac{1}{2}\,b\,\text{Log}[c\,x^n]\right]\right]}{b\,n}+\frac{\text{Log}\left[\text{Sin}\left[\frac{a}{2}+\frac{1}{2}\,b\,\text{Log}[c\,x^n]\right]\right]}{b\,n}$$

Problem 297: Result more than twice size of optimal antiderivative.

$$\int\text{Csc}\left[a+b\,\text{Log}[c\,x^n]\right]^3\,dx$$

Optimal (type 5, 84 leaves, 3 steps):

$$-\frac{8\, e^{3 i a}\, x \left(c x^n\right)^{3 i b} \text{Hypergeometric2F1}\left[3, \frac{1}{2}\left(3-\frac{i}{b n}\right), \frac{1}{2}\left(5-\frac{i}{b n}\right), e^{2 i a}\left(c x^n\right)^{2 i b}\right]}{i-3 b n}$$

Result (type 5, 549 leaves):

$$-\frac{x\, \text{Csc}\left[a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right]}{2 b^2 n^2}-\frac{x\, \text{Csc}\left[\frac{1}{2} b n\, \text{Log}[x]+\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]^2}{8 b n}-$$

$$\frac{e^{i\left(a+(-i+b n)\, \text{Log}[x]+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)}\left(1+b^2 n^2\right) \text{Hypergeometric2F1}\left[1, \frac{1}{2}-\frac{i}{2 b n}, \frac{3}{2}-\frac{i}{2 b n}, e^{2 i\left(a+b\, \text{Log}\left[c x^n\right]\right)}\right]}{b^2 n^2(-i+b n)}+$$

$$\frac{x\, \text{Sec}\left[\frac{1}{2} b n\, \text{Log}[x]+\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]^2}{8 b n}-$$

$$\left(x\, \text{Sec}\left[\frac{1}{2} b n\, \text{Log}[x]+\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right] \text{Sin}\left[\frac{1}{2} b n\, \text{Log}[x]\right]\right) \Big/ \left(4 b^2 n^2\left(\frac{1}{2} \text{Cos}\left[\frac{1}{2}\left(-a-b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]+\right.\right.$$

$$\left.\left.\frac{1}{2} \text{Cos}\left[\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]+\frac{1}{2} i\, \text{Sin}\left[\frac{1}{2}\left(-a-b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]+\frac{1}{2} i\, \text{Sin}\left[\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]\right)\right)+$$

$$\left(x\, \text{Csc}\left[\frac{1}{2} b n\, \text{Log}[x]+\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right] \text{Sin}\left[\frac{1}{2} b n\, \text{Log}[x]\right]\right) \Big/ \left(4 b^2 n^2\left(\frac{1}{2} i\, \text{Cos}\left[\frac{1}{2}\left(-a-b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]-\right.\right.$$

$$\left.\left.\frac{1}{2} i\, \text{Cos}\left[\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]-\frac{1}{2} \text{Sin}\left[\frac{1}{2}\left(-a-b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]+\frac{1}{2} \text{Sin}\left[\frac{1}{2}\left(a+b\left(-n\, \text{Log}[x]+\text{Log}\left[c x^n\right]\right)\right)\right]\right)\right)$$

Problem 299: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}\left[a+b\, \text{Log}\left[c x^n\right]\right]^4 \, dx$$

Optimal (type 5, 84 leaves, 3 steps):

$$\frac{16\, e^{4 i a}\, x \left(c x^n\right)^{4 i b} \text{Hypergeometric2F1}\left[4, \frac{1}{2}\left(4-\frac{i}{b n}\right), \frac{1}{2}\left(6-\frac{i}{b n}\right), e^{2 i a}\left(c x^n\right)^{2 i b}\right]}{1+4 i b n}$$

Result (type 5, 782 leaves):

$$\frac{1}{6 b^3 n^3}\left(1+4 b^2 n^2\right) x \operatorname{Csc}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \operatorname{Csc}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \operatorname{Sin}[b n \operatorname{Log}[x]]+$$

$$\frac{x \operatorname{Csc}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \operatorname{Csc}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]^3 \operatorname{Sin}[b n \operatorname{Log}[x]]}{3 b n}-$$

$$\frac{1}{6 b^2 n^2} x \operatorname{Csc}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])] \operatorname{Csc}[a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]^2$$
$$\left(2 b n \operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+\operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\right)-$$

$$\frac{1}{6 b^3 n^3(-i+2 b n)} e^{-\frac{a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])}{b n}} \operatorname{Csc}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]$$
$$\left(e^{\left(2 i+\frac{1}{b n}\right)(a+b \operatorname{Log}[c x^n])} \operatorname{Hypergeometric2F1}\left[1, 1-\frac{i}{2 b n}, 2-\frac{i}{2 b n}, e^{2 i(a+b \operatorname{Log}[c x^n])}\right] \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+\right.$$
$$e^{\frac{a}{b n}+\frac{-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]}{n}}(-i+2 b n) x \left(\operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+\right.$$
$$\left.\left. i \operatorname{Hypergeometric2F1}\left[1,-\frac{i}{2 b n}, 1-\frac{i}{2 b n}, e^{2 i(a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\right] \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\right)\right)-\frac{1}{3 b n(-i+2 b n)}$$
$$2 e^{-\frac{a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])}{b n}} \operatorname{Csc}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\left(e^{\left(2 i+\frac{1}{b n}\right)(a+b \operatorname{Log}[c x^n])} \operatorname{Hypergeometric2F1}\left[1, 1-\frac{i}{2 b n}, 2-\frac{i}{2 b n}, e^{2 i(a+b \operatorname{Log}[c x^n])}\right]\right.$$
$$\operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+e^{\frac{a}{b n}+\frac{-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]}{n}}(-i+2 b n) x \left(\operatorname{Cos}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]+\right.$$
$$\left.\left. i \operatorname{Hypergeometric2F1}\left[1,-\frac{i}{2 b n}, 1-\frac{i}{2 b n}, e^{2 i(a+b n \operatorname{Log}[x]+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n]))}\right] \operatorname{Sin}[a+b(-n \operatorname{Log}[x]+\operatorname{Log}[c x^n])]\right)\right)$$

Problem 303: Result more than twice size of optimal antiderivative.

$$\int x \operatorname{Csc}[a+2 \operatorname{Log}[c x^i]]^3 \, dx$$

Optimal (type 3, 49 leaves, 3 steps):

$$-\frac{i e^{i a}(c x^i)^{2 i} x^2}{\left(1-e^{2 i a}(c x^i)^{4 i}\right)^2}$$

Result (type 3, 127 leaves):

$$\frac{1}{4 x^4} \operatorname{Csc}[a+2 \operatorname{Log}[c x^i]]^2 \left(i(-1+2 x^4) \operatorname{Cos}[a+2 \operatorname{Log}[c x^i]-2 i \operatorname{Log}[x]]+(1+2 x^4) \operatorname{Sin}[a+2 \operatorname{Log}[c x^i]-2 i \operatorname{Log}[x]]\right)$$
$$\left(\operatorname{Cos}[2(a+2 \operatorname{Log}[c x^i]-2 i \operatorname{Log}[x])]+i \operatorname{Sin}[2(a+2 \operatorname{Log}[c x^i]-2 i \operatorname{Log}[x])]\right)$$

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

$$\int \text{Csc}\left[a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]\right]^3 dx$$

Optimal (type 3, 58 leaves, 3 steps):

$$\frac{1}{2}\,x\,\text{Csc}\left[a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]\right]+\frac{1}{2}\,i\,x\,\text{Cot}\left[a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]\right]\,\text{Csc}\left[a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]\right]$$

Result (type 3, 137 leaves):

$$\frac{1}{2\,x^2}\text{Csc}\left[a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]\right]^2\,\left(i\,\left(-1+2\,x^2\right)\,\text{Cos}\left[a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]-i\,\text{Log}[x]\right]+\left(1+2\,x^2\right)\,\text{Sin}\left[a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]-i\,\text{Log}[x]\right]\right)\\ \left(\text{Cos}\left[2\,\left(a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]-i\,\text{Log}[x]\right)\right]+i\,\text{Sin}\left[2\,\left(a+2\,\text{Log}\left[c\,x^{\frac{i}{2}}\right]-i\,\text{Log}[x]\right)\right]\right)$$

Problem 305: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}\left[a+2\,\text{Log}\left[c\,x^{-\frac{i}{2}}\right]\right]^3 dx$$

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

$$\frac{2\,i\,e^{3\,i\,a}\,\left(c\,x^{-\frac{i}{2}}\right)^{6\,i}\,x}{\left(1-e^{2\,i\,a}\,\left(c\,x^{-\frac{i}{2}}\right)^{4\,i}\right)^2}$$

Result (type 3, 137 leaves):

$$-\frac{1}{2\,x^2}\text{Csc}\left[a+2\,\text{Log}\left[c\,x^{-\frac{i}{2}}\right]\right]^2\,\left(\left(-1+2\,x^2\right)\,\text{Cos}\left[a+2\,\text{Log}\left[c\,x^{-\frac{i}{2}}\right]+i\,\text{Log}[x]\right]+i\,\left(1+2\,x^2\right)\,\text{Sin}\left[a+2\,\text{Log}\left[c\,x^{-\frac{i}{2}}\right]+i\,\text{Log}[x]\right]\right)\\ \left(i\,\text{Cos}\left[2\,\left(a+2\,\text{Log}\left[c\,x^{-\frac{i}{2}}\right]+i\,\text{Log}[x]\right)\right]+\text{Sin}\left[2\,\left(a+2\,\text{Log}\left[c\,x^{-\frac{i}{2}}\right]+i\,\text{Log}[x]\right)\right]\right)$$

Problem 310: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{3/2} dx$$

Optimal (type 5, 109 leaves, 3 steps):

$$\frac{1}{2+3\,i\,b\,n}2\,x\,\left(1-e^{2\,i\,a}\,\left(c\,x^n\right)^{2\,i\,b}\right)^{3/2}\,\text{Csc}\left[a+b\,\text{Log}\left[c\,x^n\right]\right]^{3/2}\,\text{Hypergeometric2F1}\left[\frac{3}{2},\,\frac{1}{4}\,\left(3-\frac{2\,i}{b\,n}\right),\,\frac{1}{4}\,\left(7-\frac{2\,i}{b\,n}\right),\,e^{2\,i\,a}\,\left(c\,x^n\right)^{2\,i\,b}\right]$$

Result (type 5, 846 leaves):

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

$$\left((2 i+b n)\left(-1+e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))} x^{2 i b n}\right)+\left(2 i+b n+e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))}(-2 i+b n)\right)\right.$$

$$\left.\left.\sqrt{1-e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))} x^{2 i b n}}\, \text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{3}{4}-\frac{i}{2 b n},e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))} x^{2 i b n}\right]\right)\right)\Big/$$

$$\left(b n\left(4+b^2 n^2\right)\left(b n \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]+2 \text{Sin}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]\right)\right)+$$

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

$$\left((2 i+b n)\left(-1+e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))} x^{2 i b n}\right)+\left(2 i+b n+e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))}(-2 i+b n)\right)\right.$$

$$\left.\left.\sqrt{1-e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))} x^{2 i b n}}\, \text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{3}{4}-\frac{i}{2 b n},e^{2 i (a+b(-n \text{Log}[x]+\text{Log}[c x^n]))} x^{2 i b n}\right]\right)\right)\Big/$$

$$\left(\left(4+b^2 n^2\right)\left(b n \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]+2 \text{Sin}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]\right)\right)+$$

$$\sqrt{\text{Csc}\left[a+b n \text{Log}[x]+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]}$$

$$\left(-\frac{2 x \text{Cos}[b n \text{Log}[x]]}{b n \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]+2 \text{Sin}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]}+\right.$$

$$\left.\frac{4 x \text{Sin}[b n \text{Log}[x]]}{b n\left(b n \text{Cos}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]+2 \text{Sin}\left[a+b\left(-n \text{Log}[x]+\text{Log}[c x^n]\right)\right]\right)}\right)$$

Problem 314: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{\text{Csc}[a+b \text{Log}[c x^n]]}}\, dx$$

Optimal (type 5, 110 leaves, 3 steps):

$$\frac{2 x \text{Hypergeometric2F1}\left[-\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{1}{4}\left(3-\frac{2 i}{b n}\right),e^{2 i a}\left(c x^n\right)^{2 i b}\right]}{(2-i b n)\sqrt{1-e^{2 i a}\left(c x^n\right)^{2 i b}}\sqrt{\text{Csc}[a+b \text{Log}[c x^n]]}}$$

Result (type 5, 367 leaves):

$$2x\left(-\left(\left(i\sqrt{2}\,b\,e^{-i a}\,n\,\left(c\,x^n\right)^{-i b}\sqrt{\frac{i\,e^{i a}\left(c\,x^n\right)^{i b}}{-1+e^{2 i a}\left(c\,x^n\right)^{2 i b}}}\right.\right.\right.$$
$$\left(\left(2 i+b n\right)\left(-1+e^{2 i a}\left(c\,x^n\right)^{2 i b}\right)+\sqrt{1-e^{2 i a}\left(c\,x^n\right)^{2 i b}}\left(2 i+b n+e^{2 i a}\left(-2 i+b n\right)x^{-2 i b n}\left(c\,x^n\right)^{2 i b}\right)\right.$$
$$\left.\left.\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2 i+b n}{4 b n},\frac{3}{4}-\frac{i}{2 b n},e^{2 i a}\left(c\,x^n\right)^{2 i b}\right]\right)\right)\Big/\left(\left(4+b^2 n^2\right)\left(-2+i b n+e^{2 i a}\left(2+i b n\right)x^{-2 i b n}\left(c\,x^n\right)^{2 i b}\right)\right)+$$
$$\left.\frac{\text{Sin}[a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n]]}{\sqrt{\text{Csc}[a+b\,\text{Log}[c\,x^n]]}\left(b\,n\,\text{Cos}[a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n]]+2\,\text{Sin}[a-b\,n\,\text{Log}[x]+b\,\text{Log}[c\,x^n]]\right)}\right)$$

Problem 318: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\text{Csc}[a+b\,\text{Log}[c\,x^n]]^{5/2}}\,dx$$

Optimal (type 5, 110 leaves, 3 steps):

$$\frac{2\,x\,\text{Hypergeometric2F1}\left[-\frac{5}{2},\frac{1}{4}\left(-5-\frac{2 i}{b n}\right),-\frac{2 i+b n}{4 b n},e^{2 i a}\left(c\,x^n\right)^{2 i b}\right]}{\left(2-5 i b n\right)\left(1-e^{2 i a}\left(c\,x^n\right)^{2 i b}\right)^{5/2}\text{Csc}[a+b\,\text{Log}[c\,x^n]]^{5/2}}$$

Result (type 5, 862 leaves):

$$-\left(\left(30\,i\,\sqrt{2}\,b^3\,e^{-i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,n^3\,x^{1-i\,b\,n}\,\sqrt{\frac{i\,e^{i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{i\,b\,n}}{-1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}}\right.\right.$$
$$\left((2\,i+b\,n)\left(-1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right)+\left(2\,i+b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,(-2\,i+b\,n)\right)\right.$$
$$\left.\left.\sqrt{1-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+b\,n}{4\,b\,n},\frac{3}{4}-\frac{i}{2\,b\,n},e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\right)\Big/$$
$$\left.\left((-2+5\,i\,b\,n)\,(-2\,i+5\,b\,n)\,(4+b^2\,n^2)\left(2\,i+b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,(-2\,i+b\,n)\right)\right)\right)+$$
$$\sqrt{\text{Csc}[a+b\,n\,\text{Log}[x]+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]}\,\Big(-\Big(\big(x\,\text{Cos}[b\,n\,\text{Log}[x]]\,\big(-12-55\,b^2\,n^2+12\,\text{Cos}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+$$
$$65\,b^2\,n^2\,\text{Cos}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+4\,b\,n\,\text{Sin}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]\big)\big)\Big/$$
$$\left(4\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n)\,(b\,n\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+2\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])])\right)\Big)+$$
$$\big(x\,\text{Sin}[b\,n\,\text{Log}[x]]\,\big(16\,b\,n-4\,b\,n\,\text{Cos}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+12\,\text{Sin}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+$$
$$65\,b^2\,n^2\,\text{Sin}[2\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]\big)\big)\Big/$$
$$\left(4\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n)\,(b\,n\,\text{Cos}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])]+2\,\text{Sin}[a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n])])\right)+$$
$$\big(x\,\text{Cos}[3\,b\,n\,\text{Log}[x]]\,\big(5\,b\,n\,\text{Cos}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]-2\,\text{Sin}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]\big)\big)\Big/$$
$$(2\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n))-$$
$$\big(x\,\text{Sin}[3\,b\,n\,\text{Log}[x]]\,\big(2\,\text{Cos}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]+5\,b\,n\,\text{Sin}[3\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))]\big)\big)\Big/$$
$$(2\,(-2\,i+5\,b\,n)\,(2\,i+5\,b\,n))\Big)$$

Problem 320: Result more than twice size of optimal antiderivative.

$$\int (e\,x)^m\,\text{Csc}[d\,(a+b\,\text{Log}[c\,x^n])]^3\,dx$$

Optimal (type 5, 122 leaves, 3 steps):

$$-\frac{8\,e^{3\,i\,a\,d}\,(e\,x)^{1+m}\,(c\,x^n)^{3\,i\,b\,d}\,\text{Hypergeometric2F1}\left[3,-\frac{i\,(1+m)-3\,b\,d\,n}{2\,b\,d\,n},-\frac{i\,(1+m)-5\,b\,d\,n}{2\,b\,d\,n},e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right]}{e\,(i\,(1+m)-3\,b\,d\,n)}$$

Result (type 5, 367 leaves):

$$\frac{1}{8 b^2 d^2 n^2} x\,(e\,x)^m \Big(-b\,d\,n\,\mathrm{Csc}\left[\frac{1}{2} d\,(a+b\,\mathrm{Log}[c\,x^n])\right]^2 - 4\,(1+m)\,\mathrm{Csc}[d\,(a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n])] + b\,d\,n\,\mathrm{Sec}\left[\frac{1}{2} d\,(a+b\,\mathrm{Log}[c\,x^n])\right]^2 + 2\,(1+m)\,\mathrm{Csc}\left[\frac{1}{2} d\,(a+b\,\mathrm{Log}[c\,x^n])\right]\mathrm{Csc}\left[\frac{1}{2} d\,(a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n])\right]\mathrm{Sin}\left[\frac{1}{2} b\,d\,n\,\mathrm{Log}[x]\right] - 2\,(1+m)\,\mathrm{Sec}\left[\frac{1}{2} d\,(a+b\,\mathrm{Log}[c\,x^n])\right]\mathrm{Sec}\left[\frac{1}{2} d\,(a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n])\right]\mathrm{Sin}\left[\frac{1}{2} b\,d\,n\,\mathrm{Log}[x]\right] + 8\,(1+m-i\,b\,d\,n)\,x^{i\,b\,d\,n}\,\mathrm{Hypergeometric2F1}\left[1, \frac{-i-i\,m+b\,d\,n}{2\,b\,d\,n}, -\frac{i\,(1+m+3\,i\,b\,d\,n)}{2\,b\,d\,n}, x^{2\,i\,b\,d\,n}\,(\mathrm{Cos}[2\,d\,(a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n])] + i\,\mathrm{Sin}[2\,d\,(a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n])])\right] (-i\,\mathrm{Cos}[d\,(a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n])] + \mathrm{Sin}[d\,(a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n])])\Big)$$

Problem 324: Result more than twice size of optimal antiderivative.

$$\int x^m\,\mathrm{Csc}[a+b\,\mathrm{Log}[c\,x^n]]^{3/2}\,dx$$

Optimal (type 5, 130 leaves, 3 steps):

$$\frac{1}{2+2\,m+3\,i\,b\,n} 2\,x^{1+m}\,\left(1-e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\right)^{3/2}\,\mathrm{Csc}[a+b\,\mathrm{Log}[c\,x^n]]^{3/2}\,\mathrm{Hypergeometric2F1}\left[\frac{3}{2}, -\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n}, -\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n}, e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\right]$$

Result (type 5, 466 leaves):

$$\Bigg(x^{1+m-i\,b\,n}\Bigg((4+8\,m+4\,m^2+b^2\,n^2)\,x^{2\,i\,b\,n}\,\sqrt{2-2\,e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}}\,\sqrt{\frac{i\,e^{i\,a}\,(c\,x^n)^{i\,b}}{-1+e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}}}\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}, -\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n}, -\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n}, e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\right] + (-2\,i-2\,i\,m+3\,b\,n)\Bigg((-2\,i-2\,i\,m+b\,n)\,\sqrt{2-2\,e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}}\,\sqrt{\frac{i\,e^{i\,a}\,(c\,x^n)^{i\,b}}{-1+e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}}}\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}, -\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n}, -\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n}, e^{2\,i\,a}\,(c\,x^n)^{2\,i\,b}\right] - 2\,x^{i\,b\,n}\,\sqrt{\mathrm{Csc}[a+b\,\mathrm{Log}[c\,x^n]]}\,(b\,n\,\mathrm{Cos}[b\,n\,\mathrm{Log}[x]] - 2\,(1+m)\,\mathrm{Sin}[b\,n\,\mathrm{Log}[x]])\Bigg)\Bigg)\Bigg) \Big/ \left(b\,n\,(-2\,i-2\,i\,m+3\,b\,n)\,(b\,n\,\mathrm{Cos}[a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n]] + 2\,(1+m)\,\mathrm{Sin}[a-b\,n\,\mathrm{Log}[x]+b\,\mathrm{Log}[c\,x^n]])\right)$$

Problem 326: Result more than twice size of optimal antiderivative.

$$\int \frac{x^m}{\sqrt{\text{Csc}[a+b\,\text{Log}[c\,x^n]]}}\,dx$$

Optimal (type 5, 129 leaves, 3 steps):

$$\frac{2\,x^{1+m}\,\text{Hypergeometric2F1}\left[-\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]}{\left(2+2\,m-i\,b\,n\right)\sqrt{1-e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}}\,\sqrt{\text{Csc}[a+b\,\text{Log}[c\,x^n]]}}$$

Result (type 5, 637 leaves):

$$\left(2\sqrt{2}\,b\,e^{i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,n\,x^{1+m-i\,b\,n}\sqrt{1-e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}\sqrt{\frac{i\,e^{i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{i\,b\,n}}{-1+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}}}\right.$$
$$\left(\left(2+2\,m-i\,b\,n\right)x^{2\,i\,b\,n}\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-7\,b\,n}{4\,b\,n},e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]-\right.$$
$$\left.\left.\left(2+2\,m+3\,i\,b\,n\right)\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{2\,i+2\,i\,m+b\,n}{4\,b\,n},-\frac{2\,i+2\,i\,m-3\,b\,n}{4\,b\,n},e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\,x^{2\,i\,b\,n}\right]\right)\right)\Big/$$
$$\left(\left(2+2\,m-i\,b\,n\right)\left(2+2\,m+3\,i\,b\,n\right)\left(-2-2\,m+i\,b\,n+e^{2\,i\,(a+b\,(-n\,\text{Log}[x]+\text{Log}[c\,x^n]))}\left(2+2\,m+i\,b\,n\right)\right)\right)+$$
$$\sqrt{\text{Csc}\left[a+b\,n\,\text{Log}[x]+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]}\left(\left(2\,x^{1+m}\,\text{Cos}[b\,n\,\text{Log}[x]]\,\text{Sin}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]^2\right)\Big/\right.$$
$$\left(b\,n\,\text{Cos}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+2\,\text{Sin}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+2\,m\,\text{Sin}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]\right)+$$
$$\left(x^{1+m}\,\text{Sin}[b\,n\,\text{Log}[x]]\,\text{Sin}\left[2\left(a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right)\right]\right)\Big/$$
$$\left.\left(b\,n\,\text{Cos}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+2\,\text{Sin}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]+2\,m\,\text{Sin}\left[a+b\left(-n\,\text{Log}[x]+\text{Log}[c\,x^n]\right)\right]\right)\right)$$

Test results for the 142 problems in "4.7.6 f^(a+b x+c x^2) trig(d+e x+f x^2)^n.m"

Problem 1: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Sin}[d+e\,x]^n\,dx$$

Optimal (type 5, 107 leaves, 2 steps):

$$-\frac{1}{i\,e\,n-b\,c\,\text{Log}[F]}\left(1-e^{2\,i\,(d+e\,x)}\right)^{-n}F^{c\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[-n,-\frac{e\,n+i\,b\,c\,\text{Log}[F]}{2\,e},\frac{1}{2}\left(2-n-\frac{i\,b\,c\,\text{Log}[F]}{e}\right),e^{2\,i\,(d+e\,x)}\right]\text{Sin}[d+e\,x]^n$$

Result (type 8, 20 leaves):

$$\int F^{c\,(a+b\,x)}\,\text{Sin}[d+e\,x]^n\,dx$$

Problem 7: Result more than twice size of optimal antiderivative.

$$\int F^{c\,(a+b\,x)}\,\text{Csc}[d+e\,x]^3\,dx$$

Optimal (type 5, 137 leaves, 2 steps):

$$-\frac{F^{c\,(a+b\,x)}\,\text{Cot}[d+e\,x]\,\text{Csc}[d+e\,x]}{2\,e}-\frac{b\,c\,F^{c\,(a+b\,x)}\,\text{Csc}[d+e\,x]\,\text{Log}[F]}{2\,e^2}-\frac{e^{i\,(d+e\,x)}\,F^{c\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[1,\frac{e-i\,b\,c\,\text{Log}[F]}{2\,e},\frac{1}{2}\left(3-\frac{i\,b\,c\,\text{Log}[F]}{e}\right),e^{2\,i\,(d+e\,x)}\right]\,\left(e+i\,b\,c\,\text{Log}[F]\right)}{e^2}$$

Result (type 5, 450 leaves):

$$-\frac{F^{a\,c+b\,c\,x}\,\text{Csc}\left[\frac{d}{2}+\frac{e\,x}{2}\right]^2}{8\,e}-\frac{b\,c\,F^{a\,c+b\,c\,x}\,\text{Csc}[d]\,\text{Log}[F]}{2\,e^2}+\frac{F^{c\,(a+b\,x)}\,\text{Csc}[d]\,\left(e^2+b^2\,c^2\,\text{Log}[F]^2\right)}{2\,b\,c\,e^2\,\text{Log}[F]}+\frac{F^{a\,c+b\,c\,x}\,\text{Sec}\left[\frac{d}{2}+\frac{e\,x}{2}\right]^2}{8\,e}-\left(i\,F^{c\,(a+b\,x)}\,\left(e^2+b^2\,c^2\,\text{Log}[F]^2\right)\right.$$
$$\left.\left(1+\text{Hypergeometric2F1}\left[1,-\frac{i\,b\,c\,\text{Log}[F]}{e},1-\frac{i\,b\,c\,\text{Log}[F]}{e},\text{Cos}[d+e\,x]+i\,\text{Sin}[d+e\,x]\right]\,\left(-1+\text{Cos}[d]+i\,\text{Sin}[d]\right)\right)\right)\Big/$$
$$\left(2\,b\,c\,e^2\,\text{Log}[F]\,\left(-1+\text{Cos}[d]+i\,\text{Sin}[d]\right)\right)-\left(i\,F^{c\,(a+b\,x)}\,\left(e^2+b^2\,c^2\,\text{Log}[F]^2\right)\right.$$
$$\left.\left(1-\text{Hypergeometric2F1}\left[1,-\frac{i\,b\,c\,\text{Log}[F]}{e},1-\frac{i\,b\,c\,\text{Log}[F]}{e},-\text{Cos}[d+e\,x]-i\,\text{Sin}[d+e\,x]\right]\,\left(1+\text{Cos}[d]+i\,\text{Sin}[d]\right)\right)\right)\Big/$$
$$\left(2\,b\,c\,e^2\,\text{Log}[F]\,\left(1+\text{Cos}[d]+i\,\text{Sin}[d]\right)\right)+\frac{b\,c\,F^{a\,c+b\,c\,x}\,\text{Csc}\left[\frac{d}{2}\right]\,\text{Csc}\left[\frac{d}{2}+\frac{e\,x}{2}\right]\,\text{Log}[F]\,\text{Sin}\left[\frac{e\,x}{2}\right]}{4\,e^2}-\frac{b\,c\,F^{a\,c+b\,c\,x}\,\text{Log}[F]\,\text{Sec}\left[\frac{d}{2}\right]\,\text{Sec}\left[\frac{d}{2}+\frac{e\,x}{2}\right]\,\text{Sin}\left[\frac{e\,x}{2}\right]}{4\,e^2}$$

Problem 10: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Cos}[d+e\,x]^n\,dx$$

Optimal (type 5, 107 leaves, 2 steps):

$$-\frac{1}{i\,e\,n-b\,c\,\text{Log}[F]}\left(1+e^{2\,i\,(d+e\,x)}\right)^{-n}\,F^{c\,(a+b\,x)}\,\text{Cos}[d+e\,x]^n\,\text{Hypergeometric2F1}\left[-n,-\frac{e\,n+i\,b\,c\,\text{Log}[F]}{2\,e},\frac{1}{2}\left(2-n-\frac{i\,b\,c\,\text{Log}[F]}{e}\right),-e^{2\,i\,(d+e\,x)}\right]$$

Result (type 8, 20 leaves):

$$\int F^{c\,(a+b\,x)}\,\text{Cos}[d+e\,x]^n\,dx$$

Problem 14: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Sec}[d+e\,x]\,dx$$

Optimal (type 5, 84 leaves, 1 step):

$$\frac{2\,e^{i\,(d+e\,x)}\,F^{c\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[1,\,\frac{e-i\,b\,c\,\text{Log}[F]}{2\,e},\,\frac{1}{2}\left(3-\frac{i\,b\,c\,\text{Log}[F]}{e}\right),\,-e^{2\,i\,(d+e\,x)}\right]}{i\,e+b\,c\,\text{Log}[F]}$$

Result (type 8, 18 leaves):

$$\int F^{c\,(a+b\,x)}\,\text{Sec}[d+e\,x]\,dx$$

Problem 16: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Sec}[d+e\,x]^3\,dx$$

Optimal (type 5, 141 leaves, 2 steps):

$$-\frac{e^{i\,(d+e\,x)}\,F^{c\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[1,\,\frac{e-i\,b\,c\,\text{Log}[F]}{2\,e},\,\frac{1}{2}\left(3-\frac{i\,b\,c\,\text{Log}[F]}{e}\right),\,-e^{2\,i\,(d+e\,x)}\right]\,(i\,e-b\,c\,\text{Log}[F])}{e^2}-\frac{b\,c\,F^{c\,(a+b\,x)}\,\text{Log}[F]\,\text{Sec}[d+e\,x]}{2\,e^2}+\frac{F^{c\,(a+b\,x)}\,\text{Sec}[d+e\,x]\,\text{Tan}[d+e\,x]}{2\,e}$$

Result (type 8, 20 leaves):

$$\int F^{c\,(a+b\,x)}\,\text{Sec}[d+e\,x]^3\,dx$$

Problem 21: Result more than twice size of optimal antiderivative.

$$\int e^{c\,(a+b\,x)}\,\text{Tan}[d+e\,x]\,dx$$

Optimal (type 5, 78 leaves, 4 steps):

$$-\frac{i\,e^{c\,(a+b\,x)}}{b\,c}+\frac{2\,i\,e^{c\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[1,\,-\frac{i\,b\,c}{2\,e},\,1-\frac{i\,b\,c}{2\,e},\,-e^{2\,i\,(d+e\,x)}\right]}{b\,c}$$

Result (type 5, 166 leaves):

$$\frac{1}{b\,c\,(\mathrm{i}\,b\,c-2\,e)\,\left(1+e^{2\,\mathrm{i}\,d}\right)}e^{c\,(a+b\,x)}\left(2\,b\,c\,e^{2\,\mathrm{i}\,(d+e\,x)}\,\text{Hypergeometric2F1}\left[1,1-\frac{\mathrm{i}\,b\,c}{2\,e},2-\frac{\mathrm{i}\,b\,c}{2\,e},-e^{2\,\mathrm{i}\,(d+e\,x)}\right]-\right.$$
$$\left.(b\,c+2\,\mathrm{i}\,e)\left(1-e^{2\,\mathrm{i}\,d}+2\,e^{2\,\mathrm{i}\,d}\,\text{Hypergeometric2F1}\left[1,-\frac{\mathrm{i}\,b\,c}{2\,e},1-\frac{\mathrm{i}\,b\,c}{2\,e},-e^{2\,\mathrm{i}\,(d+e\,x)}\right]\right)\right)$$

Problem 22: Result more than twice size of optimal antiderivative.

$$\int e^{c\,(a+b\,x)}\,\text{Cot}[d+e\,x]\,dx$$

Optimal (type 5, 76 leaves, 4 steps):

$$\frac{\mathrm{i}\,e^{c\,(a+b\,x)}}{b\,c}-\frac{2\,\mathrm{i}\,e^{c\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[1,-\frac{\mathrm{i}\,b\,c}{2\,e},1-\frac{\mathrm{i}\,b\,c}{2\,e},e^{2\,\mathrm{i}\,(d+e\,x)}\right]}{b\,c}$$

Result (type 5, 163 leaves):

$$\left(e^{c\,(a+b\,x)}\left(2\,\mathrm{i}\,b\,c\,e^{2\,\mathrm{i}\,(d+e\,x)}\,\text{Hypergeometric2F1}\left[1,1-\frac{\mathrm{i}\,b\,c}{2\,e},2-\frac{\mathrm{i}\,b\,c}{2\,e},e^{2\,\mathrm{i}\,(d+e\,x)}\right]+\right.\right.$$
$$\left.\left.\mathrm{i}\,(b\,c+2\,\mathrm{i}\,e)\left(1+e^{2\,\mathrm{i}\,d}-2\,e^{2\,\mathrm{i}\,d}\,\text{Hypergeometric2F1}\left[1,-\frac{\mathrm{i}\,b\,c}{2\,e},1-\frac{\mathrm{i}\,b\,c}{2\,e},e^{2\,\mathrm{i}\,(d+e\,x)}\right]\right)\right)\right)\Big/\left(b\,c\,(b\,c+2\,\mathrm{i}\,e)\left(-1+e^{2\,\mathrm{i}\,d}\right)\right)$$

Problem 26: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Sec}[d+e\,x]^n\,dx$$

Optimal (type 5, 100 leaves, 2 steps):

$$\frac{1}{\mathrm{i}\,e\,n+b\,c\,\text{Log}[F]}\left(1+e^{2\,\mathrm{i}\,(d+e\,x)}\right)^n F^{a\,c+b\,c\,x}\,\text{Hypergeometric2F1}\left[n,\frac{e\,n-\mathrm{i}\,b\,c\,\text{Log}[F]}{2\,e},\frac{1}{2}\left(2+n-\frac{\mathrm{i}\,b\,c\,\text{Log}[F]}{e}\right),-e^{2\,\mathrm{i}\,(d+e\,x)}\right]\text{Sec}[d+e\,x]^n$$

Result (type 8, 20 leaves):

$$\int F^{c\,(a+b\,x)}\,\text{Sec}[d+e\,x]^n\,dx$$

Problem 27: Unable to integrate problem.

$$\int F^{c\,(a+b\,x)}\,\text{Csc}[d+e\,x]^n\,dx$$

Optimal (type 5, 102 leaves, 2 steps):

$$-\frac{1}{\text{i}\, e\, n-b\, c\, \text{Log}[F]}\left(1-e^{-2\,\text{i}\,(d+e\,x)}\right)^n F^{a\,c+b\,c\,x}\, \text{Csc}[d+e\,x]^n\, \text{Hypergeometric2F1}\left[n,\ \frac{e\,n+\text{i}\,b\,c\,\text{Log}[F]}{2\,e},\ \frac{1}{2}\left(2+n+\frac{\text{i}\,b\,c\,\text{Log}[F]}{e}\right),\ e^{-2\,\text{i}\,(d+e\,x)}\right]$$

Result (type 8, 20 leaves):

$$\int F^{c\,(a+b\,x)}\, \text{Csc}[d+e\,x]^n\, dx$$

Problem 63: Result more than twice size of optimal antiderivative.

$$\int e^x\, \text{Csc}\left[e^x\right]\, \text{Sec}\left[e^x\right]\, dx$$

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

$$\text{Log}\left[\text{Tan}\left[e^x\right]\right]$$

Result (type 3, 21 leaves):

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

Problem 70: Result more than twice size of optimal antiderivative.

$$\int e^x\, \text{Sec}\left[e^x\right]\, dx$$

Optimal (type 3, 5 leaves, 2 steps):

$$\text{ArcTanh}\left[\text{Sin}\left[e^x\right]\right]$$

Result (type 3, 41 leaves):

$$-\text{Log}\left[\text{Cos}\left[\frac{e^x}{2}\right]-\text{Sin}\left[\frac{e^x}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{e^x}{2}\right]+\text{Sin}\left[\frac{e^x}{2}\right]\right]$$

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

$$\int f^{a+c\,x^2}\, \text{Sin}\left[d+e\,x+f\,x^2\right]^3\, dx$$

Optimal (type 4, 377 leaves, 14 steps):

$$\frac{3\,i\,e^{-i\,d-\frac{e^2}{4\,i\,f-4\,c\,\mathrm{Log}[f]}}\,f^a\,\sqrt{\pi}\,\mathrm{Erf}\left[\frac{i\,e+2\,x\,(i\,f-c\,\mathrm{Log}[f])}{2\,\sqrt{i\,f-c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{i\,f-c\,\mathrm{Log}[f]}}-\frac{i\,e^{-3\,i\,d-\frac{9\,e^2}{4\,(3\,i\,f-c\,\mathrm{Log}[f])}}\,f^a\,\sqrt{\pi}\,\mathrm{Erf}\left[\frac{3\,i\,e+2\,x\,(3\,i\,f-c\,\mathrm{Log}[f])}{2\,\sqrt{3\,i\,f-c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{3\,i\,f-c\,\mathrm{Log}[f]}}-$$

$$\frac{3\,i\,e^{i\,d+\frac{e^2}{4\,i\,f+4\,c\,\mathrm{Log}[f]}}\,f^a\,\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{i\,e+2\,x\,(i\,f+c\,\mathrm{Log}[f])}{2\,\sqrt{i\,f+c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{i\,f+c\,\mathrm{Log}[f]}}+\frac{i\,e^{3\,i\,d+\frac{9\,e^2}{4\,(3\,i\,f+c\,\mathrm{Log}[f])}}\,f^a\,\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{3\,i\,e+2\,x\,(3\,i\,f+c\,\mathrm{Log}[f])}{2\,\sqrt{3\,i\,f+c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{3\,i\,f+c\,\mathrm{Log}[f]}}$$

Result (type 4, 3003 leaves):

$$\Bigg(f^a\,\sqrt{\pi}\,\Bigg(-27\,(-1)^{3/4}\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,+$$

$$27\,(-1)^{1/4}\,c\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{1/4}\,c^3\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{3/4}\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,-$$

$$(-1)^{1/4}\,c\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,-$$

$$(-1)^{1/4}\,c^3\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,+$$

$$27\,(-1)^{1/4}\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,-$$

$$27\,(-1)^{3/4}\,c\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{3/4} c^3 e^{\frac{i e^2}{4 (f+i c \text{Log}[f])}} \text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4} (e+2 f x+2 i c x \text{Log}[f])}{2 \sqrt{f+i c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{f+i c \text{Log}[f]}\;-$$

$$3\,(-1)^{1/4} e^{\frac{9 i e^2}{4 (3 f+i c \text{Log}[f])}} f^3 \text{Cos}[3 d]\,\text{Erfi}\left[\frac{(-1)^{3/4} (3 e+6 f x+2 i c x \text{Log}[f])}{2 \sqrt{3 f+i c \text{Log}[f]}}\right] \sqrt{3 f+i c \text{Log}[f]}\;+$$

$$(-1)^{3/4} c\, e^{\frac{9 i e^2}{4 (3 f+i c \text{Log}[f])}} f^2 \text{Cos}[3 d]\,\text{Erfi}\left[\frac{(-1)^{3/4} (3 e+6 f x+2 i c x \text{Log}[f])}{2 \sqrt{3 f+i c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{3 f+i c \text{Log}[f]}\;-$$

$$3\,(-1)^{1/4} c^2 e^{\frac{9 i e^2}{4 (3 f+i c \text{Log}[f])}} f\, \text{Cos}[3 d]\,\text{Erfi}\left[\frac{(-1)^{3/4} (3 e+6 f x+2 i c x \text{Log}[f])}{2 \sqrt{3 f+i c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{3 f+i c \text{Log}[f]}\;+$$

$$(-1)^{3/4} c^3 e^{\frac{9 i e^2}{4 (3 f+i c \text{Log}[f])}} \text{Cos}[3 d]\,\text{Erfi}\left[\frac{(-1)^{3/4} (3 e+6 f x+2 i c x \text{Log}[f])}{2 \sqrt{3 f+i c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{3 f+i c \text{Log}[f]}\;+$$

$$27\,(-1)^{1/4} e^{-\frac{i e^2}{4 (f-i c \text{Log}[f])}} f^3 \text{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-2 i c x \text{Log}[f])}{2 \sqrt{f-i c \text{Log}[f]}}\right] \sqrt{f-i c \text{Log}[f]}\, \text{Sin}[d]\;+$$

$$27\,(-1)^{3/4} c\, e^{-\frac{i e^2}{4 (f-i c \text{Log}[f])}} f^2 \text{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-2 i c x \text{Log}[f])}{2 \sqrt{f-i c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{f-i c \text{Log}[f]}\, \text{Sin}[d]\;+$$

$$3\,(-1)^{1/4} c^2 e^{-\frac{i e^2}{4 (f-i c \text{Log}[f])}} f\, \text{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-2 i c x \text{Log}[f])}{2 \sqrt{f-i c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{f-i c \text{Log}[f]}\, \text{Sin}[d]\;+$$

$$3\,(-1)^{3/4} c^3 e^{-\frac{i e^2}{4 (f-i c \text{Log}[f])}} \text{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-2 i c x \text{Log}[f])}{2 \sqrt{f-i c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{f-i c \text{Log}[f]}\, \text{Sin}[d]\;-$$

$$27\,(-1)^{3/4} e^{\frac{i e^2}{4 (f+i c \text{Log}[f])}} f^3 \text{Erfi}\left[\frac{(-1)^{3/4} (e+2 f x+2 i c x \text{Log}[f])}{2 \sqrt{f+i c \text{Log}[f]}}\right] \sqrt{f+i c \text{Log}[f]}\, \text{Sin}[d]\;-$$

$$27\,(-1)^{1/4} c\, e^{\frac{i e^2}{4 (f+i c \text{Log}[f])}} f^2 \text{Erfi}\left[\frac{(-1)^{3/4} (e+2 f x+2 i c x \text{Log}[f])}{2 \sqrt{f+i c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{f+i c \text{Log}[f]}\, \text{Sin}[d]\;-$$

$$3\,(-1)^{3/4} c^2 e^{\frac{i e^2}{4 (f+i c \text{Log}[f])}} f\, \text{Erfi}\left[\frac{(-1)^{3/4} (e+2 f x+2 i c x \text{Log}[f])}{2 \sqrt{f+i c \text{Log}[f]}}\right] \text{Log}[f]^2 \sqrt{f+i c \text{Log}[f]}\, \text{Sin}[d]\;-$$

$$3\,(-1)^{1/4} c^3 e^{\frac{i e^2}{4 (f+i c \text{Log}[f])}} \text{Erfi}\left[\frac{(-1)^{3/4} (e+2 f x+2 i c x \text{Log}[f])}{2 \sqrt{f+i c \text{Log}[f]}}\right] \text{Log}[f]^3 \sqrt{f+i c \text{Log}[f]}\, \text{Sin}[d]\;-$$

$$3\,(-1)^{1/4} e^{-\frac{9 i e^2}{4 (3 f-i c \text{Log}[f])}} f^3 \text{Erfi}\left[\frac{(-1)^{1/4} (3 e+6 f x-2 i c x \text{Log}[f])}{2 \sqrt{3 f-i c \text{Log}[f]}}\right] \sqrt{3 f-i c \text{Log}[f]}\, \text{Sin}[3 d]\;-$$

$$(-1)^{3/4} c\, e^{-\frac{9 i e^2}{4 (3 f-i c \text{Log}[f])}} f^2 \text{Erfi}\left[\frac{(-1)^{1/4} (3 e+6 f x-2 i c x \text{Log}[f])}{2 \sqrt{3 f-i c \text{Log}[f]}}\right] \text{Log}[f] \sqrt{3 f-i c \text{Log}[f]}\, \text{Sin}[3 d]\;-$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,Log[f])}}\,f\,Erfi\Big[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{3\,f-i\,c\,Log[f]}\,Sin[3\,d]\,-$$

$$(-1)^{3/4}\,c^3\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,Log[f])}}\,Erfi\Big[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{3\,f-i\,c\,Log[f]}\,Sin[3\,d]\,+$$

$$3\,(-1)^{3/4}\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,f^3\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]\,+$$

$$(-1)^{1/4}\,c\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,f^2\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]\,+$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,f\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]\,+$$

$$(-1)^{1/4}\,c^3\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]\Big)\Big)\Big/$$

$$\big(16\,(i\,f-c\,Log[f])\,(f-i\,c\,Log[f])\,(3\,f-i\,c\,Log[f])\,(3\,f+i\,c\,Log[f])\big)$$

Problem 99: Result more than twice size of optimal antiderivative.

$$\int f^{a+b\,x+c\,x^2}\,Sin\big[d+f\,x^2\big]^3\,dx$$

Optimal (type 4, 386 leaves, 14 steps):

$$-\frac{3\,i\,e^{-i\,d+\frac{b^2\,Log[f]^2}{4\,i\,f-4\,c\,Log[f]}}\,f^a\,\sqrt{\pi}\,Erf\Big[\frac{b\,Log[f]-2\,x\,(i\,f-c\,Log[f])}{2\,\sqrt{i\,f-c\,Log[f]}}\Big]}{16\,\sqrt{i\,f-c\,Log[f]}}+\frac{i\,e^{-3\,i\,d+\frac{b^2\,Log[f]^2}{12\,i\,f-4\,c\,Log[f]}}\,f^a\,\sqrt{\pi}\,Erf\Big[\frac{b\,Log[f]-2\,x\,(3\,i\,f-c\,Log[f])}{2\,\sqrt{3\,i\,f-c\,Log[f]}}\Big]}{16\,\sqrt{3\,i\,f-c\,Log[f]}}-$$

$$\frac{3\,i\,e^{i\,d-\frac{b^2\,Log[f]^2}{4\,i\,f+4\,c\,Log[f]}}\,f^a\,\sqrt{\pi}\,Erfi\Big[\frac{b\,Log[f]+2\,x\,(i\,f+c\,Log[f])}{2\,\sqrt{i\,f+c\,Log[f]}}\Big]}{16\,\sqrt{i\,f+c\,Log[f]}}+\frac{i\,e^{3\,i\,d-\frac{b^2\,Log[f]^2}{4\,(3\,i\,f+c\,Log[f])}}\,f^a\,\sqrt{\pi}\,Erfi\Big[\frac{b\,Log[f]+2\,x\,(3\,i\,f+c\,Log[f])}{2\,\sqrt{3\,i\,f+c\,Log[f]}}\Big]}{16\,\sqrt{3\,i\,f+c\,Log[f]}}$$

Result (type 4, 3291 leaves):

$$\Big(f^a\,\sqrt{\pi}\,\Big(-27\,(-1)^{3/4}\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(f-i\,c\,Log[f])}}\,f^3\,Cos[d]\,Erfi\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{f-i\,c\,Log[f]}}\Big]\,\sqrt{f-i\,c\,Log[f]}\,+$$

$$27\,(-1)^{1/4}\,c\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(f-i\,c\,Log[f])}}\,f^2\,Cos[d]\,Erfi\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{f-i\,c\,Log[f]}}\Big]\,Log[f]\,\sqrt{f-i\,c\,Log[f]}\,-$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[d]\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{1/4}\,c^3\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[d]\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{3/4}\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,-$$

$$(-1)^{1/4}\,c\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,-$$

$$(-1)^{1/4}\,c^3\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,+$$

$$27\,(-1)^{1/4}\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,-$$

$$27\,(-1)^{3/4}\,c\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{3/4}\,c^3\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{1/4}\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,+$$

$$(-1)^{3/4}\,c\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,+$$

$$(-1)^{3/4}\,c^3\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,+$$

$$27\,(-1)^{1/4}\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\Big]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]\,+$$

$$27\,(-1)^{3/4}\,c\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]+$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]+$$

$$3\,(-1)^{3/4}\,c^3\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]-$$

$$27\,(-1)^{3/4}\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]-$$

$$27\,(-1)^{1/4}\,c\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]-$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]-$$

$$3\,(-1)^{1/4}\,c^3\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(f+i\,c\,\mathrm{Log}[f])}}\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]-$$

$$3\,(-1)^{1/4}\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]-$$

$$(-1)^{3/4}\,c\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]-$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]-$$

$$(-1)^{3/4}\,c^3\,e^{\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]+$$

$$3\,(-1)^{3/4}\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]+$$

$$(-1)^{1/4}\,c\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]+$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]+$$

$$(-1)^{1/4}\,c^3\,e^{-\frac{i\,b^2\,\mathrm{Log}[f]^2}{4\,(3\,f+i\,c\,\mathrm{Log}[f])}}\,\mathrm{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\Big]\,\mathrm{Log}[f]^3\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[3\,d]\Big)\Big)\Big/$$

$$\big(16\,(i\,f-c\,\mathrm{Log}[f])\,(f-i\,c\,\mathrm{Log}[f])\,(3\,f-i\,c\,\mathrm{Log}[f])\,(3\,f+i\,c\,\mathrm{Log}[f])\big)$$

Problem 101: Result more than twice size of optimal antiderivative.

$$\int f^{a+b x+c x^2}\,\mathrm{Sin}\left[d+e x+f x^2\right]^2\,dx$$

Optimal (type 4, 268 leaves, 10 steps):

$$\frac{f^{a-\frac{b^2}{4c}}\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{(b+2cx)\sqrt{\mathrm{Log}[f]}}{2\sqrt{c}}\right]}{4\sqrt{c}\,\sqrt{\mathrm{Log}[f]}}-\frac{e^{-2id-\frac{(2e+ib\,\mathrm{Log}[f])^2}{8if-4c\,\mathrm{Log}[f]}}\,f^a\sqrt{\pi}\,\mathrm{Erf}\left[\frac{2ie-b\,\mathrm{Log}[f]+2x\,(2if-c\,\mathrm{Log}[f])}{2\sqrt{2if-c\,\mathrm{Log}[f]}}\right]}{8\sqrt{2if-c\,\mathrm{Log}[f]}}-\frac{e^{2id+\frac{(2e-ib\,\mathrm{Log}[f])^2}{8if+4c\,\mathrm{Log}[f]}}\,f^a\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{2ie+b\,\mathrm{Log}[f]+2x\,(2if+c\,\mathrm{Log}[f])}{2\sqrt{2if+c\,\mathrm{Log}[f]}}\right]}{8\sqrt{2if+c\,\mathrm{Log}[f]}}$$

Result (type 4, 1120 leaves):

$$\frac{1}{8c\,\mathrm{Log}[f]\,(2f-ic\,\mathrm{Log}[f])\,(2f+ic\,\mathrm{Log}[f])}$$

$$f^a\sqrt{\pi}\left(8\sqrt{c}\,f^{2-\frac{b^2}{4c}}\,\mathrm{Erfi}\left[\frac{(b+2cx)\sqrt{\mathrm{Log}[f]}}{2\sqrt{c}}\right]\sqrt{\mathrm{Log}[f]}+2c^{5/2}f^{-\frac{b^2}{4c}}\,\mathrm{Erfi}\left[\frac{(b+2cx)\sqrt{\mathrm{Log}[f]}}{2\sqrt{c}}\right]\mathrm{Log}[f]^{5/2}+\right.$$

$$2(-1)^{1/4}c\,e^{\frac{i\left(-4e^2+4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f-ic\,\mathrm{Log}[f])}}f\,\mathrm{Cos}[2d]\,\mathrm{Erf}\left[\frac{(-1)^{3/4}(2e+4fx-ib\,\mathrm{Log}[f]-2icx\,\mathrm{Log}[f])}{2\sqrt{2f-ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]\sqrt{2f-ic\,\mathrm{Log}[f]}+$$

$$(-1)^{3/4}c^2\,e^{\frac{i\left(-4e^2+4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f-ic\,\mathrm{Log}[f])}}\mathrm{Cos}[2d]\,\mathrm{Erf}\left[\frac{(-1)^{3/4}(2e+4fx-ib\,\mathrm{Log}[f]-2icx\,\mathrm{Log}[f])}{2\sqrt{2f-ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]^2\sqrt{2f-ic\,\mathrm{Log}[f]}+$$

$$2(-1)^{3/4}c\,e^{-\frac{i\left(-4e^2-4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f+ic\,\mathrm{Log}[f])}}f\,\mathrm{Cos}[2d]\,\mathrm{Erf}\left[\frac{(-1)^{1/4}(2e+4fx+ib\,\mathrm{Log}[f]+2icx\,\mathrm{Log}[f])}{2\sqrt{2f+ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]\sqrt{2f+ic\,\mathrm{Log}[f]}+$$

$$(-1)^{1/4}c^2\,e^{-\frac{i\left(-4e^2-4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f+ic\,\mathrm{Log}[f])}}\mathrm{Cos}[2d]\,\mathrm{Erf}\left[\frac{(-1)^{1/4}(2e+4fx+ib\,\mathrm{Log}[f]+2icx\,\mathrm{Log}[f])}{2\sqrt{2f+ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]^2\sqrt{2f+ic\,\mathrm{Log}[f]}+$$

$$2(-1)^{3/4}c\,e^{\frac{i\left(-4e^2+4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f-ic\,\mathrm{Log}[f])}}f\,\mathrm{Erf}\left[\frac{(-1)^{3/4}(2e+4fx-ib\,\mathrm{Log}[f]-2icx\,\mathrm{Log}[f])}{2\sqrt{2f-ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]\sqrt{2f-ic\,\mathrm{Log}[f]}\,\mathrm{Sin}[2d]-$$

$$(-1)^{1/4}c^2\,e^{\frac{i\left(-4e^2+4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f-ic\,\mathrm{Log}[f])}}\mathrm{Erf}\left[\frac{(-1)^{3/4}(2e+4fx-ib\,\mathrm{Log}[f]-2icx\,\mathrm{Log}[f])}{2\sqrt{2f-ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]^2\sqrt{2f-ic\,\mathrm{Log}[f]}\,\mathrm{Sin}[2d]+$$

$$2(-1)^{1/4}c\,e^{-\frac{i\left(-4e^2-4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f+ic\,\mathrm{Log}[f])}}f\,\mathrm{Erf}\left[\frac{(-1)^{1/4}(2e+4fx+ib\,\mathrm{Log}[f]+2icx\,\mathrm{Log}[f])}{2\sqrt{2f+ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]\sqrt{2f+ic\,\mathrm{Log}[f]}\,\mathrm{Sin}[2d]-$$

$$\left.(-1)^{3/4}c^2\,e^{-\frac{i\left(-4e^2-4ibe\,\mathrm{Log}[f]+b^2\mathrm{Log}[f]^2\right)}{4(2f+ic\,\mathrm{Log}[f])}}\mathrm{Erf}\left[\frac{(-1)^{1/4}(2e+4fx+ib\,\mathrm{Log}[f]+2icx\,\mathrm{Log}[f])}{2\sqrt{2f+ic\,\mathrm{Log}[f]}}\right]\mathrm{Log}[f]^2\sqrt{2f+ic\,\mathrm{Log}[f]}\,\mathrm{Sin}[2d]\right)$$

Problem 102: Result more than twice size of optimal antiderivative.

$$\int f^{a+b x+c x^2} \operatorname{Sin}\left[d+e x+f x^2\right]^3 \, dx$$

Optimal (type 4, 430 leaves, 14 steps):

$$\frac{3\, i\, e^{-i d-\frac{(e+i b \operatorname{Log}[f])^2}{4 i f-4 c \operatorname{Log}[f]}} f^a \sqrt{\pi}\, \operatorname{Erf}\left[\frac{i e-b \operatorname{Log}[f]+2 x (i f-c \operatorname{Log}[f])}{2 \sqrt{i f-c \operatorname{Log}[f]}}\right]}{16 \sqrt{i f-c \operatorname{Log}[f]}}-\frac{i\, e^{-3 i d-\frac{(3 e+i b \operatorname{Log}[f])^2}{4 (3 i f-c \operatorname{Log}[f])}} f^a \sqrt{\pi}\, \operatorname{Erf}\left[\frac{3 i e-b \operatorname{Log}[f]+2 x (3 i f-c \operatorname{Log}[f])}{2 \sqrt{3 i f-c \operatorname{Log}[f]}}\right]}{16 \sqrt{3 i f-c \operatorname{Log}[f]}}-$$

$$\frac{3\, i\, e^{i d+\frac{(e-i b \operatorname{Log}[f])^2}{4 i f+4 c \operatorname{Log}[f]}} f^a \sqrt{\pi}\, \operatorname{Erfi}\left[\frac{i e+b \operatorname{Log}[f]+2 x (i f+c \operatorname{Log}[f])}{2 \sqrt{i f+c \operatorname{Log}[f]}}\right]}{16 \sqrt{i f+c \operatorname{Log}[f]}}+\frac{i\, e^{3 i d-\frac{(3 i e+b \operatorname{Log}[f])^2}{4 (3 i f+c \operatorname{Log}[f])}} f^a \sqrt{\pi}\, \operatorname{Erfi}\left[\frac{3 i e+b \operatorname{Log}[f]+2 x (3 i f+c \operatorname{Log}[f])}{2 \sqrt{3 i f+c \operatorname{Log}[f]}}\right]}{16 \sqrt{3 i f+c \operatorname{Log}[f]}}$$

Result (type 4, 3835 leaves):

$$\Bigg(f^a \sqrt{\pi} \Bigg(-27 (-1)^{3/4} e^{\frac{i \left(-e^2+2 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (f-i c \operatorname{Log}[f])}} f^3 \operatorname{Cos}[d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{f-i c \operatorname{Log}[f]}}\right] \sqrt{f-i c \operatorname{Log}[f]}+$$

$$27 (-1)^{1/4} c\, e^{\frac{i \left(-e^2+2 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (f-i c \operatorname{Log}[f])}} f^2 \operatorname{Cos}[d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{f-i c \operatorname{Log}[f]}-$$

$$3 (-1)^{3/4} c^2 e^{\frac{i \left(-e^2+2 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (f-i c \operatorname{Log}[f])}} f \operatorname{Cos}[d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{f-i c \operatorname{Log}[f]}+$$

$$3 (-1)^{1/4} c^3 e^{\frac{i \left(-e^2+2 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (f-i c \operatorname{Log}[f])}} \operatorname{Cos}[d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (e+2 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^3 \sqrt{f-i c \operatorname{Log}[f]}+$$

$$3 (-1)^{3/4} e^{\frac{i \left(-9 e^2+6 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (3 f-i c \operatorname{Log}[f])}} f^3 \operatorname{Cos}[3 d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (3 e+6 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{3 f-i c \operatorname{Log}[f]}}\right] \sqrt{3 f-i c \operatorname{Log}[f]}-$$

$$(-1)^{1/4} c\, e^{\frac{i \left(-9 e^2+6 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (3 f-i c \operatorname{Log}[f])}} f^2 \operatorname{Cos}[3 d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (3 e+6 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{3 f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{3 f-i c \operatorname{Log}[f]}+$$

$$3 (-1)^{3/4} c^2 e^{\frac{i \left(-9 e^2+6 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (3 f-i c \operatorname{Log}[f])}} f \operatorname{Cos}[3 d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (3 e+6 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{3 f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{3 f-i c \operatorname{Log}[f]}-$$

$$(-1)^{1/4} c^3 e^{\frac{i \left(-9 e^2+6 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (3 f-i c \operatorname{Log}[f])}} \operatorname{Cos}[3 d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (3 e+6 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{3 f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^3 \sqrt{3 f-i c \operatorname{Log}[f]}+$$

$$27\,(-1)^{1/4}\,e^{-\frac{i\left(-e^2-2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f+i\,c\,\mathrm{Log}[f]\right)}}\,f^3\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(e+2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\;-$$

$$27\,(-1)^{3/4}\,c\,e^{-\frac{i\left(-e^2-2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f+i\,c\,\mathrm{Log}[f]\right)}}\,f^2\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(e+2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\;+$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\left(-e^2-2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f+i\,c\,\mathrm{Log}[f]\right)}}\,f\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(e+2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\;-$$

$$3\,(-1)^{3/4}\,c^3\,e^{-\frac{i\left(-e^2-2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f+i\,c\,\mathrm{Log}[f]\right)}}\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(e+2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\;-$$

$$3\,(-1)^{1/4}\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\mathrm{Log}[f]\right)}}\,f^3\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\;+$$

$$(-1)^{3/4}\,c\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\mathrm{Log}[f]\right)}}\,f^2\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\;-$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\mathrm{Log}[f]\right)}}\,f\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\;+$$

$$(-1)^{3/4}\,c^3\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\mathrm{Log}[f]\right)}}\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{3\,f+i\,c\,\mathrm{Log}[f]}\;+$$

$$27\,(-1)^{1/4}\,e^{\frac{i\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f-i\,c\,\mathrm{Log}[f]\right)}}\,f^3\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\left(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]\;+$$

$$27\,(-1)^{3/4}\,c\,e^{\frac{i\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f-i\,c\,\mathrm{Log}[f]\right)}}\,f^2\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\left(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]\;+$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f-i\,c\,\mathrm{Log}[f]\right)}}\,f\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\left(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]\;+$$

$$3\,(-1)^{3/4}\,c^3\,e^{\frac{i\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f-i\,c\,\mathrm{Log}[f]\right)}}\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\left(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]\;-$$

$$27\,(-1)^{3/4}\,e^{-\frac{i\left(-e^2-2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f+i\,c\,\mathrm{Log}[f]\right)}}\,f^3\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(e+2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]\;-$$

$$27\,(-1)^{1/4}\,c\,e^{-\frac{i\left(-e^2-2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\left(f+i\,c\,\mathrm{Log}[f]\right)}}\,f^2\,\mathrm{Erfi}\left[\frac{(-1)^{3/4}\left(e+2\,f\,x+i\,b\,\mathrm{Log}[f]+2\,i\,c\,x\,\mathrm{Log}[f]\right)}{2\,\sqrt{f+i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f+i\,c\,\mathrm{Log}[f]}\,\mathrm{Sin}[d]\;-$$

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

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

$$3\,(-1)^{1/4}\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f-i\,c\,\text{Log}[f]\right)}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{1/4}\left(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\,-$$

$$(-1)^{3/4}\,c\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f-i\,c\,\text{Log}[f]\right)}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{1/4}\left(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\,-$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f-i\,c\,\text{Log}[f]\right)}}\,f\,\text{Erfi}\left[\frac{(-1)^{1/4}\left(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\,-$$

$$(-1)^{3/4}\,c^3\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f-i\,c\,\text{Log}[f]\right)}}\,\text{Erfi}\left[\frac{(-1)^{1/4}\left(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\,+$$

$$3\,(-1)^{3/4}\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\text{Log}[f]\right)}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\,+$$

$$(-1)^{1/4}\,c\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\text{Log}[f]\right)}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\,+$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\text{Log}[f]\right)}}\,f\,\text{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\,+$$

$$(-1)^{1/4}\,c^3\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\left(3\,f+i\,c\,\text{Log}[f]\right)}}\,\text{Erfi}\left[\frac{(-1)^{3/4}\left(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f]\right)}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\Bigg)\Bigg)\Bigg/$$

$$\left(16\,\left(i\,f-c\,\text{Log}[f]\right)\,\left(f-i\,c\,\text{Log}[f]\right)\,\left(3\,f-i\,c\,\text{Log}[f]\right)\,\left(3\,f+i\,c\,\text{Log}[f]\right)\right)$$

Problem 124: Result more than twice size of optimal antiderivative.

$$\int f^{a+c\,x^2}\,\text{Cos}\left[d+e\,x+f\,x^2\right]^3\,dx$$

Optimal (type 4, 369 leaves, 14 steps):

$$\frac{3\,e^{-i\,d-\frac{e^2}{4\,i\,f-4\,c\,\text{Log}[f]}}\,f^a\,\sqrt{\pi}\,\text{Erf}\left[\frac{i\,e+2\,x\,(i\,f-c\,\text{Log}[f])}{2\,\sqrt{i\,f-c\,\text{Log}[f]}}\right]}{16\,\sqrt{i\,f-c\,\text{Log}[f]}}+\frac{e^{-3\,i\,d-\frac{9\,e^2}{4\,(3\,i\,f-c\,\text{Log}[f])}}\,f^a\,\sqrt{\pi}\,\text{Erf}\left[\frac{3\,i\,e+2\,x\,(3\,i\,f-c\,\text{Log}[f])}{2\,\sqrt{3\,i\,f-c\,\text{Log}[f]}}\right]}{16\,\sqrt{3\,i\,f-c\,\text{Log}[f]}}+$$

$$\frac{3\,e^{i\,d+\frac{e^2}{4\,i\,f+4\,c\,\text{Log}[f]}}\,f^a\,\sqrt{\pi}\,\text{Erfi}\left[\frac{i\,e+2\,x\,(i\,f+c\,\text{Log}[f])}{2\,\sqrt{i\,f+c\,\text{Log}[f]}}\right]}{16\,\sqrt{i\,f+c\,\text{Log}[f]}}+\frac{e^{3\,i\,d+\frac{9\,e^2}{4\,(3\,i\,f+c\,\text{Log}[f])}}\,f^a\,\sqrt{\pi}\,\text{Erfi}\left[\frac{3\,i\,e+2\,x\,(3\,i\,f+c\,\text{Log}[f])}{2\,\sqrt{3\,i\,f+c\,\text{Log}[f]}}\right]}{16\,\sqrt{3\,i\,f+c\,\text{Log}[f]}}$$

Result (type 4, 2997 leaves) :

$$\Bigg(f^a\,\sqrt{\pi}\,\Bigg(-27\,(-1)^{3/4}\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\text{Log}[f])}}\,f^3\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\,\sqrt{f-i\,c\,\text{Log}[f]}\,+$$

$$27\,(-1)^{1/4}\,c\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f-i\,c\,\text{Log}[f]}\,-$$

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

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

$$3\,(-1)^{3/4}\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^3\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,+$$

$$(-1)^{1/4}\,c\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,-$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,+$$

$$(-1)^{1/4}\,c^3\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,-$$

$$27\,(-1)^{1/4}\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\,\sqrt{f+i\,c\,\text{Log}[f]}\,+$$

$$27\,(-1)^{3/4}\,c\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f+i\,c\,\text{Log}[f]}\,-$$

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

$$3\,(-1)^{3/4}\,c^3\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\text{Log}[f])}}\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{f+i\,c\,\text{Log}[f]}\;-$$

$$3\,(-1)^{1/4}\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\;+$$

$$(-1)^{3/4}\,c\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\;-$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\;+$$

$$(-1)^{3/4}\,c^3\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\;+$$

$$27\,(-1)^{1/4}\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$27\,(-1)^{3/4}\,c\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$3\,(-1)^{3/4}\,c^3\,e^{-\frac{i\,e^2}{4\,(f-i\,c\,\text{Log}[f])}}\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$27\,(-1)^{3/4}\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$27\,(-1)^{1/4}\,c\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$3\,(-1)^{1/4}\,c^3\,e^{\frac{i\,e^2}{4\,(f+i\,c\,\text{Log}[f])}}\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$3\,(-1)^{1/4}\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\;+$$

$$(-1)^{3/4}\,c\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\;+$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,Log[f])}}\,f\,Erfi\Big[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{3\,f-i\,c\,Log[f]}\,Sin[3\,d]+$$
$$(-1)^{3/4}\,c^3\,e^{-\frac{9\,i\,e^2}{4\,(3\,f-i\,c\,Log[f])}}\,Erfi\Big[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{3\,f-i\,c\,Log[f]}\,Sin[3\,d]+$$
$$3\,(-1)^{3/4}\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,f^3\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]+$$
$$(-1)^{1/4}\,c\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,f^2\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]+$$
$$3\,(-1)^{3/4}\,c^2\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,f\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]+$$
$$(-1)^{1/4}\,c^3\,e^{\frac{9\,i\,e^2}{4\,(3\,f+i\,c\,Log[f])}}\,Erfi\Big[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{3\,f+i\,c\,Log[f]}\,Sin[3\,d]\Big)\Big)\Big/$$
$$(16\,(f-i\,c\,Log[f])\,(3\,f-i\,c\,Log[f])\,(f+i\,c\,Log[f])\,(3\,f+i\,c\,Log[f]))$$

Problem 130: Result more than twice size of optimal antiderivative.

$$\int f^{a+b\,x+c\,x^2}\,Cos\big[d+f\,x^2\big]^3\,dx$$

Optimal (type 4, 378 leaves, 14 steps):

$$-\frac{3\,e^{-i\,d+\frac{b^2\,Log[f]^2}{4\,i\,f-4\,c\,Log[f]}}\,f^a\,\sqrt{\pi}\,Erf\Big[\frac{b\,Log[f]-2\,x\,(i\,f-c\,Log[f])}{2\,\sqrt{i\,f-c\,Log[f]}}\Big]}{16\,\sqrt{i\,f-c\,Log[f]}}-\frac{e^{-3\,i\,d+\frac{b^2\,Log[f]^2}{12\,i\,f-4\,c\,Log[f]}}\,f^a\,\sqrt{\pi}\,Erf\Big[\frac{b\,Log[f]-2\,x\,(3\,i\,f-c\,Log[f])}{2\,\sqrt{3\,i\,f-c\,Log[f]}}\Big]}{16\,\sqrt{3\,i\,f-c\,Log[f]}}+$$
$$\frac{3\,e^{i\,d-\frac{b^2\,Log[f]^2}{4\,i\,f+4\,c\,Log[f]}}\,f^a\,\sqrt{\pi}\,Erfi\Big[\frac{b\,Log[f]+2\,x\,(i\,f+c\,Log[f])}{2\,\sqrt{i\,f+c\,Log[f]}}\Big]}{16\,\sqrt{i\,f+c\,Log[f]}}+\frac{e^{3\,i\,d-\frac{b^2\,Log[f]^2}{4\,(3\,i\,f+c\,Log[f])}}\,f^a\,\sqrt{\pi}\,Erfi\Big[\frac{b\,Log[f]+2\,x\,(3\,i\,f+c\,Log[f])}{2\,\sqrt{3\,i\,f+c\,Log[f]}}\Big]}{16\,\sqrt{3\,i\,f+c\,Log[f]}}$$

Result (type 4, 3285 leaves):

$$\Big(f^a\,\sqrt{\pi}\,\Big(-27\,(-1)^{3/4}\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(f-i\,c\,Log[f])}}\,f^3\,Cos[d]\,Erfi\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{f-i\,c\,Log[f]}}\Big]\,\sqrt{f-i\,c\,Log[f]}+$$
$$27\,(-1)^{1/4}\,c\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(f-i\,c\,Log[f])}}\,f^2\,Cos[d]\,Erfi\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{f-i\,c\,Log[f]}}\Big]\,Log[f]\,\sqrt{f-i\,c\,Log[f]}-$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(f-i\,c\,Log[f])}}\,f\,Cos[d]\,Erfi\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{f-i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{f-i\,c\,Log[f]}\,+$$

$$3\,(-1)^{1/4}\,c^3\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(f-i\,c\,Log[f])}}\,Cos[d]\,Erfi\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{f-i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{f-i\,c\,Log[f]}\,-$$

$$3\,(-1)^{3/4}\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(3\,f-i\,c\,Log[f])}}\,f^3\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,\sqrt{3\,f-i\,c\,Log[f]}\,+$$

$$(-1)^{1/4}\,c\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(3\,f-i\,c\,Log[f])}}\,f^2\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,Log[f]\,\sqrt{3\,f-i\,c\,Log[f]}\,-$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(3\,f-i\,c\,Log[f])}}\,f\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{3\,f-i\,c\,Log[f]}\,+$$

$$(-1)^{1/4}\,c^3\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(3\,f-i\,c\,Log[f])}}\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f-i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{3\,f-i\,c\,Log[f]}\,-$$

$$27\,(-1)^{1/4}\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(f+i\,c\,Log[f])}}\,f^3\,Cos[d]\,Erfi\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{f+i\,c\,Log[f]}}\Big]\,\sqrt{f+i\,c\,Log[f]}\,+$$

$$27\,(-1)^{3/4}\,c\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(f+i\,c\,Log[f])}}\,f^2\,Cos[d]\,Erfi\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{f+i\,c\,Log[f]}}\Big]\,Log[f]\,\sqrt{f+i\,c\,Log[f]}\,-$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(f+i\,c\,Log[f])}}\,f\,Cos[d]\,Erfi\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{f+i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{f+i\,c\,Log[f]}\,+$$

$$3\,(-1)^{3/4}\,c^3\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(f+i\,c\,Log[f])}}\,Cos[d]\,Erfi\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{f+i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{f+i\,c\,Log[f]}\,-$$

$$3\,(-1)^{1/4}\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(3\,f+i\,c\,Log[f])}}\,f^3\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,\sqrt{3\,f+i\,c\,Log[f]}\,+$$

$$(-1)^{3/4}\,c\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(3\,f+i\,c\,Log[f])}}\,f^2\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]\,\sqrt{3\,f+i\,c\,Log[f]}\,-$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(3\,f+i\,c\,Log[f])}}\,f\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]^2\,\sqrt{3\,f+i\,c\,Log[f]}\,+$$

$$(-1)^{3/4}\,c^3\,e^{-\frac{i\,b^2\,Log[f]^2}{4\,(3\,f+i\,c\,Log[f])}}\,Cos[3\,d]\,Erfi\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,Log[f]+2\,i\,c\,x\,Log[f])}{2\,\sqrt{3\,f+i\,c\,Log[f]}}\Big]\,Log[f]^3\,\sqrt{3\,f+i\,c\,Log[f]}\,+$$

$$27\,(-1)^{1/4}\,e^{\frac{i\,b^2\,Log[f]^2}{4\,(f-i\,c\,Log[f])}}\,f^3\,Erfi\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,Log[f]-2\,i\,c\,x\,Log[f])}{2\,\sqrt{f-i\,c\,Log[f]}}\Big]\,\sqrt{f-i\,c\,Log[f]}\,Sin[d]\,+$$

$$27\,(-1)^{3/4}\,c\,e^{\frac{i\,b^2\,\text{Log}[f]^2}{4\,(f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]+$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\,b^2\,\text{Log}[f]^2}{4\,(f-i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^2\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]+$$

$$3\,(-1)^{3/4}\,c^3\,e^{\frac{i\,b^2\,\text{Log}[f]^2}{4\,(f-i\,c\,\text{Log}[f])}}\,\text{Erfi}\Big[\frac{(-1)^{1/4}\,(2\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^3\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]+$$

$$27\,(-1)^{3/4}\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\Big]\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]+$$

$$27\,(-1)^{1/4}\,c\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]+$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(f+i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^2\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]+$$

$$3\,(-1)^{1/4}\,c^3\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(f+i\,c\,\text{Log}[f])}}\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^3\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]+$$

$$3\,(-1)^{1/4}\,e^{\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\Big]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{3/4}\,c\,e^{\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{3/4}\,c^3\,e^{\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,\text{Erfi}\Big[\frac{(-1)^{1/4}\,(6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^3\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$3\,(-1)^{3/4}\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\Big]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{1/4}\,c\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{1/4}\,c^3\,e^{-\frac{i\,b^2\,\text{Log}[f]^2}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,\text{Erfi}\Big[\frac{(-1)^{3/4}\,(6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\Big]\,\text{Log}[f]^3\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\Big)\Big)\Big/$$

$$\big(16\,(f-i\,c\,\text{Log}[f])\,(3\,f-i\,c\,\text{Log}[f])\,(f+i\,c\,\text{Log}[f])\,(3\,f+i\,c\,\text{Log}[f])\big)$$

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

$$\int f^{a+b x+c x^2} \operatorname{Cos}\left[d+e x+f x^2\right]^2 \, dx$$

Optimal (type 4, 268 leaves, 10 steps):

$$\frac{f^{a-\frac{b^2}{4 c}} \sqrt{\pi}\, \operatorname{Erfi}\left[\frac{(b+2 c x) \sqrt{\operatorname{Log}[f]}}{2 \sqrt{c}}\right]}{4 \sqrt{c} \sqrt{\operatorname{Log}[f]}}+\frac{e^{-2 i d-\frac{(2 e+i b \operatorname{Log}[f])^2}{8 i f-4 c \operatorname{Log}[f]}} f^a \sqrt{\pi}\, \operatorname{Erf}\left[\frac{2 i e-b \operatorname{Log}[f]+2 x (2 i f-c \operatorname{Log}[f])}{2 \sqrt{2 i f-c \operatorname{Log}[f]}}\right]}{8 \sqrt{2 i f-c \operatorname{Log}[f]}}+\frac{e^{2 i d+\frac{(2 e-i b \operatorname{Log}[f])^2}{8 i f+4 c \operatorname{Log}[f]}} f^a \sqrt{\pi}\, \operatorname{Erfi}\left[\frac{2 i e+b \operatorname{Log}[f]+2 x (2 i f+c \operatorname{Log}[f])}{2 \sqrt{2 i f+c \operatorname{Log}[f]}}\right]}{8 \sqrt{2 i f+c \operatorname{Log}[f]}}$$

Result (type 4, 1118 leaves):

$$\frac{1}{8 c \operatorname{Log}[f] (2 f-i c \operatorname{Log}[f]) (2 f+i c \operatorname{Log}[f])}$$
$$f^a \sqrt{\pi} \left(8 \sqrt{c}\, f^{2-\frac{b^2}{4 c}} \operatorname{Erfi}\left[\frac{(b+2 c x) \sqrt{\operatorname{Log}[f]}}{2 \sqrt{c}}\right] \sqrt{\operatorname{Log}[f]}+2 c^{5/2} f^{-\frac{b^2}{4 c}} \operatorname{Erfi}\left[\frac{(b+2 c x) \sqrt{\operatorname{Log}[f]}}{2 \sqrt{c}}\right] \operatorname{Log}[f]^{5/2}-\right.$$
$$2 (-1)^{3/4} c\, e^{\frac{i \left(-4 e^2+4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f-i c \operatorname{Log}[f])}} f \operatorname{Cos}[2 d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (2 e+4 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{2 f-i c \operatorname{Log}[f]}+$$
$$(-1)^{1/4} c^2\, e^{\frac{i \left(-4 e^2+4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f-i c \operatorname{Log}[f])}} \operatorname{Cos}[2 d] \operatorname{Erfi}\left[\frac{(-1)^{1/4} (2 e+4 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{2 f-i c \operatorname{Log}[f]}-$$
$$2 (-1)^{1/4} c\, e^{-\frac{i \left(-4 e^2-4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f+i c \operatorname{Log}[f])}} f \operatorname{Cos}[2 d] \operatorname{Erfi}\left[\frac{(-1)^{3/4} (2 e+4 f x+i b \operatorname{Log}[f]+2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f+i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{2 f+i c \operatorname{Log}[f]}+$$
$$(-1)^{3/4} c^2\, e^{-\frac{i \left(-4 e^2-4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f+i c \operatorname{Log}[f])}} \operatorname{Cos}[2 d] \operatorname{Erfi}\left[\frac{(-1)^{3/4} (2 e+4 f x+i b \operatorname{Log}[f]+2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f+i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{2 f+i c \operatorname{Log}[f]}+$$
$$2 (-1)^{1/4} c\, e^{\frac{i \left(-4 e^2+4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f-i c \operatorname{Log}[f])}} f \operatorname{Erfi}\left[\frac{(-1)^{1/4} (2 e+4 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{2 f-i c \operatorname{Log}[f]} \operatorname{Sin}[2 d]+$$
$$(-1)^{3/4} c^2\, e^{\frac{i \left(-4 e^2+4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f-i c \operatorname{Log}[f])}} \operatorname{Erfi}\left[\frac{(-1)^{1/4} (2 e+4 f x-i b \operatorname{Log}[f]-2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f-i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{2 f-i c \operatorname{Log}[f]} \operatorname{Sin}[2 d]+$$
$$2 (-1)^{3/4} c\, e^{-\frac{i \left(-4 e^2-4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f+i c \operatorname{Log}[f])}} f \operatorname{Erfi}\left[\frac{(-1)^{3/4} (2 e+4 f x+i b \operatorname{Log}[f]+2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f+i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f] \sqrt{2 f+i c \operatorname{Log}[f]} \operatorname{Sin}[2 d]+$$
$$\left.(-1)^{1/4} c^2\, e^{-\frac{i \left(-4 e^2-4 i b e \operatorname{Log}[f]+b^2 \operatorname{Log}[f]^2\right)}{4 (2 f+i c \operatorname{Log}[f])}} \operatorname{Erfi}\left[\frac{(-1)^{3/4} (2 e+4 f x+i b \operatorname{Log}[f]+2 i c x \operatorname{Log}[f])}{2 \sqrt{2 f+i c \operatorname{Log}[f]}}\right] \operatorname{Log}[f]^2 \sqrt{2 f+i c \operatorname{Log}[f]} \operatorname{Sin}[2 d]\right)$$

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

$$\int f^{a+b\,x+c\,x^2}\,\mathrm{Cos}\left[d+e\,x+f\,x^2\right]^3\,dx$$

Optimal (type 4, 422 leaves, 14 steps):

$$\frac{3\,e^{-i\,d-\frac{(e+i\,b\,\mathrm{Log}[f])^2}{4\,i\,f-4\,c\,\mathrm{Log}[f]}}\,f^a\,\sqrt{\pi}\,\mathrm{Erf}\left[\frac{i\,e-b\,\mathrm{Log}[f]+2\,x\,(i\,f-c\,\mathrm{Log}[f])}{2\,\sqrt{i\,f-c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{i\,f-c\,\mathrm{Log}[f]}}+\frac{e^{-3\,i\,d-\frac{(3\,e+i\,b\,\mathrm{Log}[f])^2}{4\,(3\,i\,f-c\,\mathrm{Log}[f])}}\,f^a\,\sqrt{\pi}\,\mathrm{Erf}\left[\frac{3\,i\,e-b\,\mathrm{Log}[f]+2\,x\,(3\,i\,f-c\,\mathrm{Log}[f])}{2\,\sqrt{3\,i\,f-c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{3\,i\,f-c\,\mathrm{Log}[f]}}+$$

$$\frac{3\,e^{i\,d+\frac{(e-i\,b\,\mathrm{Log}[f])^2}{4\,i\,f+4\,c\,\mathrm{Log}[f]}}\,f^a\,\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{i\,e+b\,\mathrm{Log}[f]+2\,x\,(i\,f+c\,\mathrm{Log}[f])}{2\,\sqrt{i\,f+c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{i\,f+c\,\mathrm{Log}[f]}}+\frac{e^{3\,i\,d-\frac{(3\,i\,e+b\,\mathrm{Log}[f])^2}{4\,(3\,i\,f+c\,\mathrm{Log}[f])}}\,f^a\,\sqrt{\pi}\,\mathrm{Erfi}\left[\frac{3\,i\,e+b\,\mathrm{Log}[f]+2\,x\,(3\,i\,f+c\,\mathrm{Log}[f])}{2\,\sqrt{3\,i\,f+c\,\mathrm{Log}[f]}}\right]}{16\,\sqrt{3\,i\,f+c\,\mathrm{Log}[f]}}$$

Result (type 4, 3829 leaves):

$$\left(f^a\,\sqrt{\pi}\,\left(-27\,(-1)^{3/4}\,e^{\frac{i\,\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,+\right.\right.$$

$$27\,(-1)^{1/4}\,c\,e^{\frac{i\,\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{i\,\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,+$$

$$3\,(-1)^{1/4}\,c^3\,e^{\frac{i\,\left(-e^2+2\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{f-i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{3/4}\,e^{\frac{i\,\left(-9\,e^2+6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^3\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,+$$

$$(-1)^{1/4}\,c\,e^{\frac{i\,\left(-9\,e^2+6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f^2\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,-$$

$$3\,(-1)^{3/4}\,c^2\,e^{\frac{i\,\left(-9\,e^2+6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,f\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,+$$

$$(-1)^{1/4}\,c^3\,e^{\frac{i\,\left(-9\,e^2+6\,i\,b\,e\,\mathrm{Log}[f]+b^2\,\mathrm{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\mathrm{Log}[f])}}\,\mathrm{Cos}[3\,d]\,\mathrm{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\mathrm{Log}[f]-2\,i\,c\,x\,\mathrm{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}}\right]\,\mathrm{Log}[f]^3\,\sqrt{3\,f-i\,c\,\mathrm{Log}[f]}\,-$$

$$27\,(-1)^{1/4}\,e^{-\frac{i\,(-e^2-2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\sqrt{f+i\,c\,\text{Log}[f]}\;+$$

$$27\,(-1)^{3/4}\,c\,e^{-\frac{i\,(-e^2-2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\text{Log}[f]\,\sqrt{f+i\,c\,\text{Log}[f]}\;-$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\,(-e^2-2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f+i\,c\,\text{Log}[f])}}\,f\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\text{Log}[f]^2\,\sqrt{f+i\,c\,\text{Log}[f]}\;+$$

$$3\,(-1)^{3/4}\,c^3\,e^{-\frac{i\,(-e^2-2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f+i\,c\,\text{Log}[f])}}\,\text{Cos}[d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\text{Log}[f]^3\,\sqrt{f+i\,c\,\text{Log}[f]}\;-$$

$$3\,(-1)^{1/4}\,e^{-\frac{i\,(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\sqrt{3\,f+i\,c\,\text{Log}[f]}\;+$$

$$(-1)^{3/4}\,c\,e^{-\frac{i\,(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\text{Log}[f]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\;-$$

$$3\,(-1)^{1/4}\,c^2\,e^{-\frac{i\,(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\text{Log}[f]^2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\;+$$

$$(-1)^{3/4}\,c^3\,e^{-\frac{i\,(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,\text{Cos}[3\,d]\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\text{Log}[f]^3\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\;+$$

$$27\,(-1)^{1/4}\,e^{\frac{i\,(-e^2+2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f-i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$27\,(-1)^{3/4}\,c\,e^{\frac{i\,(-e^2+2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\text{Log}[f]\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\,(-e^2+2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f-i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\text{Log}[f]^2\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$3\,(-1)^{3/4}\,c^3\,e^{\frac{i\,(-e^2+2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f-i\,c\,\text{Log}[f])}}\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(e+2\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f-i\,c\,\text{Log}[f]}}\right]\text{Log}[f]^3\,\sqrt{f-i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$27\,(-1)^{3/4}\,e^{-\frac{i\,(-e^2-2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

$$27\,(-1)^{1/4}\,c\,e^{-\frac{i\,(-e^2-2\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2)}{4\,(f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(e+2\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{f+i\,c\,\text{Log}[f]}}\right]\text{Log}[f]\,\sqrt{f+i\,c\,\text{Log}[f]}\,\text{Sin}[d]\;+$$

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

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

$$3\,(-1)^{1/4}\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{3/4}\,c\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$3\,(-1)^{1/4}\,c^2\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{3/4}\,c^3\,e^{\frac{i\left(-9\,e^2+6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f-i\,c\,\text{Log}[f])}}\,\text{Erfi}\left[\frac{(-1)^{1/4}\,(3\,e+6\,f\,x-i\,b\,\text{Log}[f]-2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f-i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f-i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$3\,(-1)^{3/4}\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^3\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{1/4}\,c\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f^2\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$3\,(-1)^{3/4}\,c^2\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,f\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]+$$

$$(-1)^{1/4}\,c^3\,e^{-\frac{i\left(-9\,e^2-6\,i\,b\,e\,\text{Log}[f]+b^2\,\text{Log}[f]^2\right)}{4\,(3\,f+i\,c\,\text{Log}[f])}}\,\text{Erfi}\left[\frac{(-1)^{3/4}\,(3\,e+6\,f\,x+i\,b\,\text{Log}[f]+2\,i\,c\,x\,\text{Log}[f])}{2\,\sqrt{3\,f+i\,c\,\text{Log}[f]}}\right]\,\text{Log}[f]^3\,\sqrt{3\,f+i\,c\,\text{Log}[f]}\,\text{Sin}[3\,d]\Bigg)\Bigg)\Bigg/$$

$$\left(16\,(f-i\,c\,\text{Log}[f])\,(3\,f-i\,c\,\text{Log}[f])\,(f+i\,c\,\text{Log}[f])\,(3\,f+i\,c\,\text{Log}[f])\right)$$

Problem 141: Result more than twice size of optimal antiderivative.

$$\int \frac{F^{c\,(a+b\,x)}}{f+f\,\text{Cos}[d+e\,x]}\,dx$$

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

$$\frac{2\,e^{i\,(d+e\,x)}\,F^{c\,(a+b\,x)}\,\text{Hypergeometric2F1}\left[2,\,1-\frac{i\,b\,c\,\text{Log}[F]}{e},\,2-\frac{i\,b\,c\,\text{Log}[F]}{e},\,-e^{i\,(d+e\,x)}\right]}{f\,(i\,e+b\,c\,\text{Log}[F])}$$

Result (type 5, 248 leaves):

$$\frac{1}{e\, f\, (1+\text{Cos}[d+e\,x])\, (e-i\, b\, c\, \text{Log}[F])}$$
$$2\, F^{-\frac{b\,c\,d}{e}}\, \text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]\, \Bigg(b\, c\, e^{\frac{(d+e\,x)\,(i\,e+b\,c\,\text{Log}[F])}{e}}\, F^{a\,c}\, \text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]\, \text{Hypergeometric2F1}\left[1,\, 1-\frac{i\, b\, c\, \text{Log}[F]}{e},\, 2-\frac{i\, b\, c\, \text{Log}[F]}{e},\, -e^{i\,(d+e\,x)}\right]\, \text{Log}[F]\, -$$
$$i\, F^{c\,\left(a+b\,\left(\frac{d}{e}+x\right)\right)}\, \text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]\, \text{Hypergeometric2F1}\left[1,\, -\frac{i\, b\, c\, \text{Log}[F]}{e},\, 1-\frac{i\, b\, c\, \text{Log}[F]}{e},\, -e^{i\,(d+e\,x)}\right]\, (e-i\, b\, c\, \text{Log}[F])\, +$$
$$F^{c\,\left(a+b\,\left(\frac{d}{e}+x\right)\right)}\, (e-i\, b\, c\, \text{Log}[F])\, \text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\Bigg)$$

Problem 142: Result more than twice size of optimal antiderivative.

$$\int \frac{F^{c\,(a+b\,x)}}{(f+f\,\text{Cos}[d+e\,x])^2}\, dx$$

Optimal (type 5, 169 leaves, 3 steps):

$$-\frac{2\, e^{i\,(d+e\,x)}\, F^{c\,(a+b\,x)}\, \text{Hypergeometric2F1}\left[2,\, 1-\frac{i\,b\,c\,\text{Log}[F]}{e},\, 2-\frac{i\,b\,c\,\text{Log}[F]}{e},\, -e^{i\,(d+e\,x)}\right]\, (i\, e-b\, c\, \text{Log}[F])}{3\, e^2\, f^2}\, -$$
$$\frac{b\, c\, F^{c\,(a+b\,x)}\, \text{Log}[F]\, \text{Sec}\left[\frac{d}{2}+\frac{e\,x}{2}\right]^2}{6\, e^2\, f^2}+\frac{F^{c\,(a+b\,x)}\, \text{Sec}\left[\frac{d}{2}+\frac{e\,x}{2}\right]^2\, \text{Tan}\left[\frac{d}{2}+\frac{e\,x}{2}\right]}{6\, e\, f^2}$$

Result (type 5, 749 leaves):

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

$$(-i\,e+b\,c\,\text{Log}[F])\,(i\,e+b\,c\,\text{Log}[F])\,\left(-\frac{e\,F^{a\,c-\frac{b\,c\,d}{e}-\frac{c\,(-b\,d+a\,e)}{e}+\frac{2\,b\,c\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}{e}}\,\text{Hypergeometric2F1}\left[1,-\frac{i\,b\,c\,\text{Log}[F]}{e},1-\frac{i\,b\,c\,\text{Log}[F]}{e},-e^{2\,i\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}\right]}{2\,b\,c\,\text{Log}[F]}-\right.$$

$$\frac{1}{2\,(e-i\,b\,c\,\text{Log}[F])}\,i\,e\,e^{\left(\frac{d}{2}+\frac{e\,x}{2}\right)\left(2\,i+\frac{\left(a\,c-\frac{b\,c\,d}{e}-\frac{c\,(-b\,d+a\,e)}{e}+\frac{2\,b\,c\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}{e}\right)\text{Log}[F]}{\frac{d}{2}+\frac{e\,x}{2}}\right)}\,\left(e^{2\,i\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}\right)^{1-\frac{i\,\left(a\,c-\frac{b\,c\,d}{e}-\frac{c\,(-b\,d+a\,e)}{e}+\frac{2\,b\,c\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}{e}\right)\text{Log}[F]}{2\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}+\frac{1}{2}\,i\,\left(2\,i+\frac{\left(a\,c-\frac{b\,c\,d}{e}-\frac{c\,(-b\,d+a\,e)}{e}+\frac{2\,b\,c\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}{e}\right)\text{Log}[F]}{\frac{d}{2}+\frac{e\,x}{2}}\right)}$$

$$\left.\text{Hypergeometric2F1}\left[1,\frac{e-i\,b\,c\,\text{Log}[F]}{e},1+\frac{e-i\,b\,c\,\text{Log}[F]}{e},-e^{2\,i\,\left(\frac{d}{2}+\frac{e\,x}{2}\right)}\right]\right)+$$

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

Test results for the 950 problems in "4.7.7 Trig functions.m"

Problem 31: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sin}[a+b\,x]}{c+d\,x^2}\,dx$$

Optimal (type 4, 213 leaves, 8 steps):

$$-\frac{\text{CosIntegral}\left[\frac{b\sqrt{-c}}{\sqrt{d}}+b\,x\right]\,\text{Sin}\left[a-\frac{b\sqrt{-c}}{\sqrt{d}}\right]}{2\sqrt{-c}\,\sqrt{d}}+\frac{\text{CosIntegral}\left[\frac{b\sqrt{-c}}{\sqrt{d}}-b\,x\right]\,\text{Sin}\left[a+\frac{b\sqrt{-c}}{\sqrt{d}}\right]}{2\sqrt{-c}\,\sqrt{d}}-\frac{\text{Cos}\left[a+\frac{b\sqrt{-c}}{\sqrt{d}}\right]\,\text{SinIntegral}\left[\frac{b\sqrt{-c}}{\sqrt{d}}-b\,x\right]}{2\sqrt{-c}\,\sqrt{d}}-\frac{\text{Cos}\left[a-\frac{b\sqrt{-c}}{\sqrt{d}}\right]\,\text{SinIntegral}\left[\frac{b\sqrt{-c}}{\sqrt{d}}+b\,x\right]}{2\sqrt{-c}\,\sqrt{d}}$$

Result (type 4, 172 leaves):

$$\frac{1}{2\sqrt{c}\,\sqrt{d}}\,\text{i}\,\left(\text{CosIntegral}\left[b\left(\frac{\text{i}\sqrt{c}}{\sqrt{d}}+x\right)\right]\,\text{Sin}\left[a-\frac{\text{i}\,b\sqrt{c}}{\sqrt{d}}\right]-\text{CosIntegral}\left[b\left(-\frac{\text{i}\sqrt{c}}{\sqrt{d}}+x\right)\right]\,\text{Sin}\left[a+\frac{\text{i}\,b\sqrt{c}}{\sqrt{d}}\right]+\text{Cos}\left[a-\frac{\text{i}\,b\sqrt{c}}{\sqrt{d}}\right]\,\text{SinIntegral}\left[b\left(\frac{\text{i}\sqrt{c}}{\sqrt{d}}+x\right)\right]+\text{Cos}\left[a+\frac{\text{i}\,b\sqrt{c}}{\sqrt{d}}\right]\,\text{SinIntegral}\left[\frac{\text{i}\,b\sqrt{c}}{\sqrt{d}}-b\,x\right]\right)$$

Problem 34: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{b-\frac{a}{x^2}}\;\text{Sin}[x]}{\sqrt{a-b\,x^2}}\,dx$$

Optimal (type 4, 28 leaves, 3 steps):

$$\frac{\sqrt{b-\frac{a}{x^2}}\;x\,\text{SinIntegral}[x]}{\sqrt{a-b\,x^2}}$$

Result (type 4, 46 leaves):

$$\frac{\text{i}\,\sqrt{b-\frac{a}{x^2}}\;x\,\left(\text{ExpIntegralEi}[-\text{i}\,x]-\text{ExpIntegralEi}[\text{i}\,x]\right)}{2\sqrt{a-b\,x^2}}$$

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

$$\int\frac{1}{x\,\left(1+\text{Sin}[\text{Log}[x]]\right)}\,dx$$

Optimal (type 3, 12 leaves, 2 steps):

$$-\frac{\text{Cos}[\text{Log}[x]]}{1+\text{Sin}[\text{Log}[x]]}$$

Result (type 3, 26 leaves):

$$\frac{2\,\mathrm{Sin}\left[\frac{\mathrm{Log}[x]}{2}\right]}{\mathrm{Cos}\left[\frac{\mathrm{Log}[x]}{2}\right]+\mathrm{Sin}\left[\frac{\mathrm{Log}[x]}{2}\right]}$$

Problem 36: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \mathrm{Sin}\left[\frac{a+b\,x}{c+d\,x}\right]dx$$

Optimal (type 4, 100 leaves, 5 steps):

$$\frac{(b\,c-a\,d)\,\mathrm{Cos}\left[\frac{b}{d}\right]\,\mathrm{CosIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]}{d^2}+\frac{(c+d\,x)\,\mathrm{Sin}\left[\frac{a+b\,x}{c+d\,x}\right]}{d}+\frac{(b\,c-a\,d)\,\mathrm{Sin}\left[\frac{b}{d}\right]\,\mathrm{SinIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]}{d^2}$$

Result (type 4, 918 leaves):

$$\frac{(b\,c^2-a\,c\,d)\left(\frac{i\,e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(1+e^{\frac{2\,i\,b}{d}}\right)\left(-e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}-\frac{i\,e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(-1+e^{\frac{2\,i\,b}{d}}\right)\left(e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}\right)}{2\,d}-$$

$$\frac{(-b\,c^2+a\,c\,d)\left(\frac{i\,e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(1+e^{\frac{2\,i\,b}{d}}\right)\left(-e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}-\frac{i\,e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(-1+e^{\frac{2\,i\,b}{d}}\right)\left(e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}\right)}{2\,d}-$$

$$\frac{i\,(b\,c^2-a\,c\,d)\left(\frac{e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(-1+e^{\frac{2\,i\,b}{d}}\right)\left(-e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}-\frac{e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(1+e^{\frac{2\,i\,b}{d}}\right)\left(e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}\right)}{2\,d}-$$

$$\frac{i\,(-b\,c^2+a\,c\,d)\left(\frac{e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(-1+e^{\frac{2\,i\,b}{d}}\right)\left(-e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}-\frac{e^{-\frac{i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(1+e^{\frac{2\,i\,b}{d}}\right)\left(e^{\frac{2\,i\,a}{c+d\,x}}+e^{\frac{2\,i\,b\,c}{d\,(c+d\,x)}}\right)}{4\,(b\,c-a\,d)}\right)}{2\,d}+x\,\mathrm{Cos}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]\,\mathrm{Sin}\left[\frac{b}{d}\right]+$$

$$x\,\mathrm{Cos}\left[\frac{b}{d}\right]\,\mathrm{Sin}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]-\frac{(-b\,c+a\,d)\left(\mathrm{Cos}\left[\frac{b}{d}\right]\,\mathrm{CosIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]-\mathrm{Sin}\left[\frac{b}{d}\right]\,\mathrm{SinIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]\right)}{d^2}$$

Problem 37: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \mathrm{Sin}\left[\frac{a+b x}{c+d x}\right]^2 \, dx$$

Optimal (type 4, 107 leaves, 6 steps):

$$\frac{(b c-a d)\, \mathrm{CosIntegral}\left[\frac{2 (b c-a d)}{d (c+d x)}\right] \mathrm{Sin}\left[\frac{2 b}{d}\right]}{d^2}+\frac{(c+d x)\, \mathrm{Sin}\left[\frac{a+b x}{c+d x}\right]^2}{d}-\frac{(b c-a d)\, \mathrm{Cos}\left[\frac{2 b}{d}\right] \mathrm{SinIntegral}\left[\frac{2 (b c-a d)}{d (c+d x)}\right]}{d^2}$$

Result (type 4, 401 leaves):

$$-\frac{\left(-b c^2+a c d\right)\left(\frac{e^{-\frac{2 i (2 b c+a d+b d x)}{d (c+d x)}}\left(-1+e^{\frac{4 i b}{d}}\right)\left(-e^{\frac{4 i a}{c+d x}}+e^{\frac{4 i b c}{d (c+d x)}}\right)}{8 (b c-a d)}-\frac{e^{-\frac{2 i (2 b c+a d+b d x)}{d (c+d x)}}\left(1+e^{\frac{4 i b}{d}}\right)\left(e^{\frac{4 i a}{c+d x}}+e^{\frac{4 i b c}{d (c+d x)}}\right)}{8 (b c-a d)}\right)}{d}-$$

$$\frac{1}{2} x \,\mathrm{Cos}\left[\frac{2 b}{d}\right] \mathrm{Cos}\left[\frac{2 (-b c+a d)}{d (c+d x)}\right]+\frac{1}{2} x \,\mathrm{Sin}\left[\frac{2 b}{d}\right] \mathrm{Sin}\left[\frac{2 (-b c+a d)}{d (c+d x)}\right]+\frac{1}{2 d^2}\left(d^2 x+2 b c \,\mathrm{CosIntegral}\left[\frac{2 (-b c+a d)}{d (c+d x)}\right] \mathrm{Sin}\left[\frac{2 b}{d}\right]-\right.$$

$$\left.2 a d \,\mathrm{CosIntegral}\left[\frac{2 (-b c+a d)}{d (c+d x)}\right] \mathrm{Sin}\left[\frac{2 b}{d}\right]+2 b c \,\mathrm{Cos}\left[\frac{2 b}{d}\right] \mathrm{SinIntegral}\left[\frac{2 (-b c+a d)}{d (c+d x)}\right]-2 a d \,\mathrm{Cos}\left[\frac{2 b}{d}\right] \mathrm{SinIntegral}\left[\frac{2 (-b c+a d)}{d (c+d x)}\right]\right)$$

Problem 38: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \mathrm{Sin}\left[\frac{a+b x}{c+d x}\right]^3 \, dx$$

Optimal (type 4, 194 leaves, 9 steps):

$$\frac{3 (b c-a d)\, \mathrm{Cos}\left[\frac{b}{d}\right] \mathrm{CosIntegral}\left[\frac{b c-a d}{d (c+d x)}\right]}{4 d^2}-\frac{3 (b c-a d)\, \mathrm{Cos}\left[\frac{3 b}{d}\right] \mathrm{CosIntegral}\left[\frac{3 (b c-a d)}{d (c+d x)}\right]}{4 d^2}+$$

$$\frac{(c+d x)\, \mathrm{Sin}\left[\frac{a+b x}{c+d x}\right]^3}{d}+\frac{3 (b c-a d)\, \mathrm{Sin}\left[\frac{b}{d}\right] \mathrm{SinIntegral}\left[\frac{b c-a d}{d (c+d x)}\right]}{4 d^2}-\frac{3 (b c-a d)\, \mathrm{Sin}\left[\frac{3 b}{d}\right] \mathrm{SinIntegral}\left[\frac{3 (b c-a d)}{d (c+d x)}\right]}{4 d^2}$$

Result (type 4, 657 leaves):

$$-\frac{3\left(-b c^2+a c d\right)\left(\frac{i e^{-\frac{i(2 b c+a d+b d x)}{d(c+d x)}}\left(1+e^{\frac{2 i b}{d}}\right)\left(-e^{\frac{2 i a}{c+d x}}+e^{\frac{2 i b c}{d(c+d x)}}\right)}{4(b c-a d)}-\frac{i e^{-\frac{i(2 b c+a d+b d x)}{d(c+d x)}}\left(-1+e^{\frac{2 i b}{d}}\right)\left(e^{\frac{2 i a}{c+d x}}+e^{\frac{2 i b c}{d(c+d x)}}\right)}{4(b c-a d)}\right)}{4 d}+$$

$$\frac{3\left(-b c^2+a c d\right)\left(\frac{i e^{-\frac{3 i(2 b c+a d+b d x)}{d(c+d x)}}\left(1+e^{\frac{6 i b}{d}}\right)\left(-e^{\frac{6 i a}{c+d x}}+e^{\frac{6 i b c}{d(c+d x)}}\right)}{12(b c-a d)}-\frac{i e^{-\frac{3 i(2 b c+a d+b d x)}{d(c+d x)}}\left(-1+e^{\frac{6 i b}{d}}\right)\left(e^{\frac{6 i a}{c+d x}}+e^{\frac{6 i b c}{d(c+d x)}}\right)}{12(b c-a d)}\right)}{4 d}+$$

$$\frac{3}{4} x \operatorname{Cos}\left[\frac{-b c+a d}{d(c+d x)}\right] \operatorname{Sin}\left[\frac{b}{d}\right]-\frac{1}{4} x \operatorname{Cos}\left[\frac{3(-b c+a d)}{d(c+d x)}\right] \operatorname{Sin}\left[\frac{3 b}{d}\right]+\frac{3}{4} x \operatorname{Cos}\left[\frac{b}{d}\right] \operatorname{Sin}\left[\frac{-b c+a d}{d(c+d x)}\right]-$$
$$\frac{1}{4} x \operatorname{Cos}\left[\frac{3 b}{d}\right] \operatorname{Sin}\left[\frac{3(-b c+a d)}{d(c+d x)}\right]+\frac{1}{4 d^2} 3(-b c+a d)\left(-\operatorname{Cos}\left[\frac{b}{d}\right] \operatorname{CosIntegral}\left[\frac{-b c+a d}{d(c+d x)}\right]+\right.$$
$$\left.\operatorname{Cos}\left[\frac{3 b}{d}\right] \operatorname{CosIntegral}\left[\frac{3(-b c+a d)}{d(c+d x)}\right]+\operatorname{Sin}\left[\frac{b}{d}\right] \operatorname{SinIntegral}\left[\frac{-b c+a d}{d(c+d x)}\right]-\operatorname{Sin}\left[\frac{3 b}{d}\right] \operatorname{SinIntegral}\left[\frac{3(-b c+a d)}{d(c+d x)}\right]\right)$$

Problem 46: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Cos}[a+b x]}{c+d x^2} \, dx$$

Optimal (type 4, 213 leaves, 8 steps):

$$\frac{\operatorname{Cos}\left[a+\frac{b \sqrt{-c}}{\sqrt{d}}\right] \operatorname{CosIntegral}\left[\frac{b \sqrt{-c}}{\sqrt{d}}-b x\right]}{2 \sqrt{-c} \sqrt{d}}-\frac{\operatorname{Cos}\left[a-\frac{b \sqrt{-c}}{\sqrt{d}}\right] \operatorname{CosIntegral}\left[\frac{b \sqrt{-c}}{\sqrt{d}}+b x\right]}{2 \sqrt{-c} \sqrt{d}}+$$
$$\frac{\operatorname{Sin}\left[a+\frac{b \sqrt{-c}}{\sqrt{d}}\right] \operatorname{SinIntegral}\left[\frac{b \sqrt{-c}}{\sqrt{d}}-b x\right]}{2 \sqrt{-c} \sqrt{d}}+\frac{\operatorname{Sin}\left[a-\frac{b \sqrt{-c}}{\sqrt{d}}\right] \operatorname{SinIntegral}\left[\frac{b \sqrt{-c}}{\sqrt{d}}+b x\right]}{2 \sqrt{-c} \sqrt{d}}$$

Result (type 4, 172 leaves):

$$-\frac{1}{2 \sqrt{c} \sqrt{d}} i \left(\operatorname{Cos}\left[a+\frac{i b \sqrt{c}}{\sqrt{d}}\right] \operatorname{CosIntegral}\left[b\left(-\frac{i \sqrt{c}}{\sqrt{d}}+x\right)\right]-\operatorname{Cos}\left[a-\frac{i b \sqrt{c}}{\sqrt{d}}\right] \operatorname{CosIntegral}\left[b\left(\frac{i \sqrt{c}}{\sqrt{d}}+x\right)\right]+\right.$$
$$\left.\operatorname{Sin}\left[a-\frac{i b \sqrt{c}}{\sqrt{d}}\right] \operatorname{SinIntegral}\left[b\left(\frac{i \sqrt{c}}{\sqrt{d}}+x\right)\right]+\operatorname{Sin}\left[a+\frac{i b \sqrt{c}}{\sqrt{d}}\right] \operatorname{SinIntegral}\left[\frac{i b \sqrt{c}}{\sqrt{d}}-b x\right]\right)$$

Problem 51: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}\left[\frac{a+b\,x}{c+d\,x}\right]\,dx$$

Optimal (type 4, 101 leaves, 5 steps):

$$\frac{(c+d\,x)\,\text{Cos}\left[\frac{a+b\,x}{c+d\,x}\right]}{d}-\frac{(b\,c-a\,d)\,\text{CosIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]\,\text{Sin}\left[\frac{b}{d}\right]}{d^2}+\frac{(b\,c-a\,d)\,\text{Cos}\left[\frac{b}{d}\right]\,\text{SinIntegral}\left[\frac{b\,c-a\,d}{d\,(c+d\,x)}\right]}{d^2}$$

Result (type 4, 317 leaves):

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

$$x\,\text{Sin}\left[\frac{b}{d}\right]\,\text{Sin}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]+\frac{(-b\,c+a\,d)\left(\text{CosIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]\,\text{Sin}\left[\frac{b}{d}\right]+\text{Cos}\left[\frac{b}{d}\right]\,\text{SinIntegral}\left[\frac{-b\,c+a\,d}{d\,(c+d\,x)}\right]\right)}{d^2}$$

Problem 52: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}\left[\frac{a+b\,x}{c+d\,x}\right]^2\,dx$$

Optimal (type 4, 107 leaves, 6 steps):

$$\frac{(c+d\,x)\,\text{Cos}\left[\frac{a+b\,x}{c+d\,x}\right]^2}{d}-\frac{(b\,c-a\,d)\,\text{CosIntegral}\left[\frac{2\,(b\,c-a\,d)}{d\,(c+d\,x)}\right]\,\text{Sin}\left[\frac{2\,b}{d}\right]}{d^2}+\frac{(b\,c-a\,d)\,\text{Cos}\left[\frac{2\,b}{d}\right]\,\text{SinIntegral}\left[\frac{2\,(b\,c-a\,d)}{d\,(c+d\,x)}\right]}{d^2}$$

Result (type 4, 400 leaves):

$$\frac{\left(-b\,c^2+a\,c\,d\right)\left(\frac{e^{-\frac{2\,i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(-1+e^{\frac{4\,i\,b}{d}}\right)\left(-e^{\frac{4\,i\,a}{c+d\,x}}+e^{\frac{4\,i\,b\,c}{d\,(c+d\,x)}}\right)}{8\,(b\,c-a\,d)}-\frac{e^{-\frac{2\,i\,(2\,b\,c+a\,d+b\,d\,x)}{d\,(c+d\,x)}}\left(1+e^{\frac{4\,i\,b}{d}}\right)\left(e^{\frac{4\,i\,a}{c+d\,x}}+e^{\frac{4\,i\,b\,c}{d\,(c+d\,x)}}\right)}{8\,(b\,c-a\,d)}\right)}{d}+$$

$$\frac{1}{2}\,x\,\text{Cos}\left[\frac{2\,b}{d}\right]\,\text{Cos}\left[\frac{2\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]-\frac{1}{2}\,x\,\text{Sin}\left[\frac{2\,b}{d}\right]\,\text{Sin}\left[\frac{2\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]+\frac{1}{2\,d^2}\left(d^2\,x-2\,b\,c\,\text{CosIntegral}\left[\frac{2\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]\,\text{Sin}\left[\frac{2\,b}{d}\right]+\right.$$

$$\left.2\,a\,d\,\text{CosIntegral}\left[\frac{2\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]\,\text{Sin}\left[\frac{2\,b}{d}\right]-2\,b\,c\,\text{Cos}\left[\frac{2\,b}{d}\right]\,\text{SinIntegral}\left[\frac{2\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]+2\,a\,d\,\text{Cos}\left[\frac{2\,b}{d}\right]\,\text{SinIntegral}\left[\frac{2\,(-b\,c+a\,d)}{d\,(c+d\,x)}\right]\right)$$

Problem 63: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b\,\text{Sec}[c+d\,x]}}{1+\text{Cos}[c+d\,x]}\,dx$$

Optimal (type 4, 92 leaves, 2 steps):

$$\frac{\text{EllipticE}\left[\text{ArcSin}\left[\frac{\text{Tan}[c+d\,x]}{1+\text{Sec}[c+d\,x]}\right],\frac{a-b}{a+b}\right]\sqrt{\frac{1}{1+\text{Sec}[c+d\,x]}}\sqrt{a+b\,\text{Sec}[c+d\,x]}}{d\sqrt{\frac{a+b\,\text{Sec}[c+d\,x]}{(a+b)\,(1+\text{Sec}[c+d\,x])}}}$$

Result (type 4, 1979 leaves):

$$\frac{\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\sqrt{a+b\,\text{Sec}[c+d\,x]}\left(-2\,\text{Sin}[c+d\,x]+2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{d\,(1+\text{Cos}[c+d\,x])}+\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^5\right.$$

$$\left(\frac{b}{\sqrt{b+a\,\text{Cos}[c+d\,x]}\sqrt{\text{Sec}[c+d\,x]}}+\frac{a\sqrt{\text{Sec}[c+d\,x]}}{\sqrt{b+a\,\text{Cos}[c+d\,x]}}+\frac{b\sqrt{\text{Sec}[c+d\,x]}}{\sqrt{b+a\,\text{Cos}[c+d\,x]}}+\frac{a\,\text{Cos}[2\,(c+d\,x)]\sqrt{\text{Sec}[c+d\,x]}}{\sqrt{b+a\,\text{Cos}[c+d\,x]}}\right)$$

$$\sqrt{1+\text{Sec}[c+d\,x]}\sqrt{a+b\,\text{Sec}[c+d\,x]}\left(2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{\text{Cos}[c+d\,x]}{1+\text{Cos}[c+d\,x]}}\,\text{EllipticE}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right],\frac{a-b}{a+b}\right]+\right.$$

$$\left.\left.\sqrt{\frac{b+a\,\text{Cos}[c+d\,x]}{(a+b)\,(1+\text{Cos}[c+d\,x])}}\left(-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]\right)\right)\right)\Bigg/\left(4\,d\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\sqrt{\frac{b+a\,\text{Cos}[c+d\,x]}{(a+b)\,(1+\text{Cos}[c+d\,x])}}\sqrt{\text{Sec}[c+d\,x]}\right.$$

$$\left(-\left(\left(a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^5\sqrt{1+\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\left(2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{\text{Cos}[c+d\,x]}{1+\text{Cos}[c+d\,x]}}\,\text{EllipticE}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right],\frac{a-b}{a+b}\right]+\right.\right.\right.\right.$$

$$\left.\left.\sqrt{\frac{b+a\,\text{Cos}[c+d\,x]}{(a+b)\,(1+\text{Cos}[c+d\,x])}}\left(-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]\right)\right)\right)\Bigg/$$

$$\left(8\left(\frac{1}{1+\text{Cos}[c+d x]}\right)^{3/2}\sqrt{b+a\,\text{Cos}[c+d x]}\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}\right)\Bigg)-\Bigg(3\sqrt{b+a\,\text{Cos}[c+d x]}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^5$$

$$\sqrt{1+\text{Sec}[c+d x]}\,\text{Sin}[c+d x]\left(2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{\text{Cos}[c+d x]}{1+\text{Cos}[c+d x]}}\,\text{EllipticE}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right],\frac{a-b}{a+b}\right]+\right.$$

$$\left.\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}\left(-\text{Sin}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{3}{2}(c+d x)\right]\right)\right)\Bigg)\Bigg/\left(8\sqrt{\frac{1}{1+\text{Cos}[c+d x]}}\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}\right)-$$

$$\Bigg(\sqrt{b+a\,\text{Cos}[c+d x]}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^5\sqrt{1+\text{Sec}[c+d x]}\left(-\frac{a\,\text{Sin}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}+\frac{(b+a\,\text{Cos}[c+d x])\,\text{Sin}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])^2}\right)$$

$$\left(2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{\text{Cos}[c+d x]}{1+\text{Cos}[c+d x]}}\,\text{EllipticE}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right],\frac{a-b}{a+b}\right]+\right.$$

$$\left.\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}\left(-\text{Sin}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{3}{2}(c+d x)\right]\right)\right)\Bigg)\Bigg/\left(8\left(\frac{1}{1+\text{Cos}[c+d x]}\right)^{3/2}\left(\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}\right)^{3/2}\right)+$$

$$\Bigg(5\sqrt{b+a\,\text{Cos}[c+d x]}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^5\sqrt{1+\text{Sec}[c+d x]}\left(2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{\text{Cos}[c+d x]}{1+\text{Cos}[c+d x]}}\,\text{EllipticE}\right[$$

$$\left.\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right],\frac{a-b}{a+b}\right]+\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}\left(-\text{Sin}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{3}{2}(c+d x)\right]\right)\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg/$$

$$\left(8\left(\frac{1}{1+\text{Cos}[c+d x]}\right)^{3/2}\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}\right)+\frac{1}{4\left(\frac{1}{1+\text{Cos}[c+d x]}\right)^{3/2}\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}}$$

$$\sqrt{b+a\,\text{Cos}[c+d x]}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^5\sqrt{1+\text{Sec}[c+d x]}\left(\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)\,(1+\text{Cos}[c+d x])}}\left(-\frac{1}{2}\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\frac{3}{2}\text{Cos}\left[\frac{3}{2}(c+d x)\right]\right)-\right.$$

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

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

$$\frac{\left(-\frac{a\,\text{Sin}[c+d x]}{(a+b)(1+\text{Cos}[c+d x])}+\frac{(b+a\,\text{Cos}[c+d x])\,\text{Sin}[c+d x]}{(a+b)(1+\text{Cos}[c+d x])^2}\right)\left(-\text{Sin}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{3}{2}(c+d x)\right]\right)}{2\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)(1+\text{Cos}[c+d x])}}}+$$

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

$$\left(\sqrt{b+a\,\text{Cos}[c+d x]}\ \text{Sec}\left[\frac{1}{2}(c+d x)\right]^5\text{Sec}[c+d x]\left(2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{\text{Cos}[c+d x]}{1+\text{Cos}[c+d x]}}\ \text{EllipticE}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right],\frac{a-b}{a+b}\right]+\right.\right.$$

$$\left.\left.\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)(1+\text{Cos}[c+d x])}}\left(-\text{Sin}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{3}{2}(c+d x)\right]\right)\right)\text{Tan}[c+d x]\right)\Big/$$

$$\left.\left.\left(8\left(\frac{1}{1+\text{Cos}[c+d x]}\right)^{3/2}\sqrt{\frac{b+a\,\text{Cos}[c+d x]}{(a+b)(1+\text{Cos}[c+d x])}}\ \sqrt{1+\text{Sec}[c+d x]}\right)\right)\right)$$

Problem 64: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[a+b x]\ \text{Sec}[2 a+2 b x]\,dx$$

Optimal (type 3, 35 leaves, 4 steps):

$$-\frac{\text{ArcTanh}[\text{Sin}[a+b x]]}{b}+\frac{\sqrt{2}\ \text{ArcTanh}\left[\sqrt{2}\ \text{Sin}[a+b x]\right]}{b}$$

Result (type 3, 331 leaves) :

$$\frac{1}{4 b}\left(\frac{(2+2 \mathrm{i})\left((-1-\mathrm{i})+\sqrt{2}\right) \text{ArcTan}\left[\frac{\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\left(-1+\sqrt{2}\right) \text{Sin}\left[\frac{1}{2}(a+b x)\right]}{\left(1+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]}\right]}{(-1+\mathrm{i})+\sqrt{2}}-2 \mathrm{i} \sqrt{2}\ \text{ArcTan}\left[\frac{\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\left(1+\sqrt{2}\right) \text{Sin}\left[\frac{1}{2}(a+b x)\right]}{\left(-1+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]}\right]+4 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]-4 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]+2 \sqrt{2}\ \text{Log}\left[\sqrt{2}+2 \text{Sin}[a+b x]\right]-\sqrt{2}\ \text{Log}\left[2-\sqrt{2}\ \text{Cos}[a+b x]-\sqrt{2}\ \text{Sin}[a+b x]\right]+\frac{(1-\mathrm{i})\left((-1-\mathrm{i})+\sqrt{2}\right) \text{Log}\left[2+\sqrt{2}\ \text{Cos}[a+b x]-\sqrt{2}\ \text{Sin}[a+b x]\right]}{(-1+\mathrm{i})+\sqrt{2}}\right)$$

Problem 65: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[a+b x]\ \text{Sec}[2(a+b x)]\, dx$$

Optimal (type 3, 35 leaves, 4 steps) :

$$-\frac{\text{ArcTanh}[\text{Sin}[a+b x]]}{b}+\frac{\sqrt{2}\ \text{ArcTanh}\left[\sqrt{2}\ \text{Sin}[a+b x]\right]}{b}$$

Result (type 3, 331 leaves) :

$$\frac{1}{4 b}\left(\frac{(2+2 \mathrm{i})\left((-1-\mathrm{i})+\sqrt{2}\right) \text{ArcTan}\left[\frac{\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\left(-1+\sqrt{2}\right) \text{Sin}\left[\frac{1}{2}(a+b x)\right]}{\left(1+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]}\right]}{(-1+\mathrm{i})+\sqrt{2}}-2 \mathrm{i} \sqrt{2}\ \text{ArcTan}\left[\frac{\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\left(1+\sqrt{2}\right) \text{Sin}\left[\frac{1}{2}(a+b x)\right]}{\left(-1+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]}\right]+4 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]-\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]-4 \text{Log}\left[\text{Cos}\left[\frac{1}{2}(a+b x)\right]+\text{Sin}\left[\frac{1}{2}(a+b x)\right]\right]+2 \sqrt{2}\ \text{Log}\left[\sqrt{2}+2 \text{Sin}[a+b x]\right]-\sqrt{2}\ \text{Log}\left[2-\sqrt{2}\ \text{Cos}[a+b x]-\sqrt{2}\ \text{Sin}[a+b x]\right]+\frac{(1-\mathrm{i})\left((-1-\mathrm{i})+\sqrt{2}\right) \text{Log}\left[2+\sqrt{2}\ \text{Cos}[a+b x]-\sqrt{2}\ \text{Sin}[a+b x]\right]}{(-1+\mathrm{i})+\sqrt{2}}\right)$$

Problem 74: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sin}[x]\, \text{Tan}[2\, x]\, dx$$

Optimal (type 3, 20 leaves, 4 steps):

$$\frac{\text{ArcTanh}\left[\sqrt{2}\ \text{Sin}[x]\right]}{\sqrt{2}} - \text{Sin}[x]$$

Result (type 3, 179 leaves):

$$-\frac{1}{4\sqrt{2}}\left(2\, i\, \text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right] - \left(-1+\sqrt{2}\right) \text{Sin}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right) \text{Cos}\left[\frac{x}{2}\right] - \text{Sin}\left[\frac{x}{2}\right]}\right] + 2\, i\, \text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right] - \left(1+\sqrt{2}\right) \text{Sin}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right) \text{Cos}\left[\frac{x}{2}\right] - \text{Sin}\left[\frac{x}{2}\right]}\right] - 2\, \text{Log}\left[\sqrt{2} + 2\, \text{Sin}[x]\right] + \text{Log}\left[2 - \sqrt{2}\ \text{Cos}[x] - \sqrt{2}\ \text{Sin}[x]\right] + \text{Log}\left[2 + \sqrt{2}\ \text{Cos}[x] - \sqrt{2}\ \text{Sin}[x]\right] + 4\sqrt{2}\ \text{Sin}[x]\right)$$

Problem 76: Result is not expressed in closed-form.

$$\int \text{Sin}[x]\, \text{Tan}[4\, x]\, dx$$

Optimal (type 3, 71 leaves, 5 steps):

$$\frac{1}{4}\sqrt{2-\sqrt{2}}\ \text{ArcTanh}\left[\frac{2\, \text{Sin}[x]}{\sqrt{2-\sqrt{2}}}\right] + \frac{1}{4}\sqrt{2+\sqrt{2}}\ \text{ArcTanh}\left[\frac{2\, \text{Sin}[x]}{\sqrt{2+\sqrt{2}}}\right] - \text{Sin}[x]$$

Result (type 7, 96 leaves):

$$\frac{1}{16}\text{RootSum}\left[1 + \#1^8\ \&,\ \frac{1}{\#1^7}\left(2\, \text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x] - \#1}\right] - i\, \text{Log}\left[1 - 2\, \text{Cos}[x]\, \#1 + \#1^2\right] + 2\, \text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x] - \#1}\right] \#1^6 - i\, \text{Log}\left[1 - 2\, \text{Cos}[x]\, \#1 + \#1^2\right] \#1^6\right)\ \&\right] - \text{Sin}[x]$$

Problem 77: Result is not expressed in closed-form.

$$\int \text{Sin}[x]\, \text{Tan}[5\, x]\, dx$$

Optimal (type 3, 112 leaves, 10 steps):

$$\frac{1}{5}\text{ArcTanh}[\text{Sin}[x]]-\frac{1}{20}\left(1-\sqrt{5}\right)\text{Log}\left[1-\sqrt{5}-4\,\text{Sin}[x]\right]-\frac{1}{20}\left(1+\sqrt{5}\right)\text{Log}\left[1+\sqrt{5}-4\,\text{Sin}[x]\right]+\frac{1}{20}\left(1-\sqrt{5}\right)\text{Log}\left[1-\sqrt{5}+4\,\text{Sin}[x]\right]+\frac{1}{20}\left(1+\sqrt{5}\right)\text{Log}\left[1+\sqrt{5}+4\,\text{Sin}[x]\right]-\text{Sin}[x]$$

Result (type 7, 248 leaves):

$$\frac{1}{20}\Bigg(\text{RootSum}\Big[1-\#1^2+\#1^4-\#1^6+\#1^8\,\&,\ \Big(6\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]-3\,i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]-2\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]\#1^2+i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]\#1^2-2\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]\#1^4+i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]\#1^4+6\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]\#1^6-3\,i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]\#1^6\Big)\Big/\left(-\#1+2\,\#1^3-3\,\#1^5+4\,\#1^7\right)\,\&\Big]-4\left(\text{Log}\Big[\text{Cos}\Big[\frac{x}{2}\Big]-\text{Sin}\Big[\frac{x}{2}\Big]\Big]-\text{Log}\Big[\text{Cos}\Big[\frac{x}{2}\Big]+\text{Sin}\Big[\frac{x}{2}\Big]\Big]+5\,\text{Sin}[x]\right)\Bigg)$$

Problem 78: Result is not expressed in closed-form.

$$\int \text{Sin}[x]\,\text{Tan}[6\,x]\,dx$$

Optimal (type 3, 89 leaves, 10 steps):

$$\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Sin}[x]\right]}{3\sqrt{2}}+\frac{1}{6}\sqrt{2-\sqrt{3}}\,\text{ArcTanh}\Big[\frac{2\,\text{Sin}[x]}{\sqrt{2-\sqrt{3}}}\Big]+\frac{1}{6}\sqrt{2+\sqrt{3}}\,\text{ArcTanh}\Big[\frac{2\,\text{Sin}[x]}{\sqrt{2+\sqrt{3}}}\Big]-\text{Sin}[x]$$

Result (type 7, 366 leaves):

$$\frac{1}{24}\Bigg(\text{RootSum}\Big[1-\#1^4+\#1^8\,\&,\ \frac{1}{-\#1^3+2\,\#1^7}\Big(4\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]-2\,i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]-2\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]\#1^2+i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]\#1^2-2\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]\#1^4+i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]\#1^4+4\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\Big]\#1^6-2\,i\,\text{Log}\big[1-2\,\text{Cos}[x]\,\#1+\#1^2\big]\#1^6\Big)\,\&\Big]-\sqrt{2}\left(2\,i\,\text{ArcTan}\Big[\frac{\text{Cos}\big[\frac{x}{2}\big]-\left(-1+\sqrt{2}\right)\text{Sin}\big[\frac{x}{2}\big]}{\left(1+\sqrt{2}\right)\text{Cos}\big[\frac{x}{2}\big]-\text{Sin}\big[\frac{x}{2}\big]}\Big]+2\,i\,\text{ArcTan}\Big[\frac{\text{Cos}\big[\frac{x}{2}\big]-\left(1+\sqrt{2}\right)\text{Sin}\big[\frac{x}{2}\big]}{\left(-1+\sqrt{2}\right)\text{Cos}\big[\frac{x}{2}\big]-\text{Sin}\big[\frac{x}{2}\big]}\Big]-2\,\text{Log}\left[\sqrt{2}+2\,\text{Sin}[x]\right]+\text{Log}\left[2-\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]+\text{Log}\left[2+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]+12\sqrt{2}\,\text{Sin}[x]\right)\Bigg)$$

Problem 80: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[2x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 10 leaves, 3 steps):

$$-\frac{1}{2}\,\text{ArcTanh}[\text{Sin}[x]]+\text{Sin}[x]$$

Result (type 3, 41 leaves):

$$\frac{1}{2}\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-\frac{1}{2}\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Sin}[x]$$

Problem 82: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cot}[4x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 28 leaves, 6 steps):

$$-\frac{1}{4}\,\text{ArcTanh}[\text{Sin}[x]]-\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Sin}[x]\right]}{2\sqrt{2}}+\text{Sin}[x]$$

Result (type 3, 223 leaves):

$$\frac{1}{8\sqrt{2}}\left(2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]+2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]+2\sqrt{2}\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-\right.$$
$$\left.2\sqrt{2}\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]-2\,\text{Log}\left[\sqrt{2}+2\,\text{Sin}[x]\right]+\text{Log}\left[2-\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]+\text{Log}\left[2+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]+8\sqrt{2}\,\text{Sin}[x]\right)$$

Problem 83: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[5x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 82 leaves, 6 steps):

$$-\frac{1}{5}\sqrt{\frac{1}{2}\left(5+\sqrt{5}\right)}\,\text{ArcTanh}\left[2\sqrt{\frac{2}{5+\sqrt{5}}}\,\text{Sin}[x]\right]-\frac{1}{5}\sqrt{\frac{1}{2}\left(5-\sqrt{5}\right)}\,\text{ArcTanh}\left[\sqrt{\frac{2}{5}\left(5+\sqrt{5}\right)}\,\text{Sin}[x]\right]+\text{Sin}[x]$$

Result (type 3, 201 leaves):

$$\frac{\left(-1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{\left(-3+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{10-2\sqrt{5}}}\right]}{\sqrt{50-10\sqrt{5}}}-\frac{\left(-1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{\left(5+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{10-2\sqrt{5}}}\right]}{\sqrt{50-10\sqrt{5}}}+\frac{\left(1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{\left(-5+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2\left(5+\sqrt{5}\right)}}\right]}{\sqrt{10\left(5+\sqrt{5}\right)}}-\frac{\left(1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{\left(3+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2\left(5+\sqrt{5}\right)}}\right]}{\sqrt{10\left(5+\sqrt{5}\right)}}+\text{Sin}[x]$$

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

$$\int \text{Cot}[6x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 38 leaves, 7 steps):

$$-\frac{1}{6}\text{ArcTanh}[\text{Sin}[x]]-\frac{1}{6}\text{ArcTanh}[2\,\text{Sin}[x]]-\frac{\text{ArcTanh}\left[\frac{2\,\text{Sin}[x]}{\sqrt{3}}\right]}{2\sqrt{3}}+\text{Sin}[x]$$

Result (type 3, 99 leaves):

$$\frac{1}{12}\left(-2\sqrt{3}\,\text{ArcTanh}\left[\frac{\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-2\sqrt{3}\,\text{ArcTanh}\left[\sqrt{3}\,\text{Tan}\left[\frac{x}{2}\right]\right]+2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}[1-2\,\text{Sin}[x]]-\text{Log}[1+2\,\text{Sin}[x]]+12\,\text{Sin}[x]\right)$$

Problem 85: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[2x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cos}[x]\right]}{\sqrt{2}}$$

Result (type 3, 174 leaves):

$$\frac{1}{4\sqrt{2}}\left(2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]-2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]+\right.$$
$$\left.4\,\text{ArcTanh}\left[\sqrt{2}+\text{Tan}\left[\frac{x}{2}\right]\right]-\text{Log}\left[2-\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]+\text{Log}\left[2+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]\right)$$

Problem 87: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[4\,x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 71 leaves, 4 steps):

$$-\frac{\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2-\sqrt{2}}}\right]}{2\sqrt{2\left(2-\sqrt{2}\right)}}+\frac{\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2+\sqrt{2}}}\right]}{2\sqrt{2\left(2+\sqrt{2}\right)}}$$

Result (type 3, 5090 leaves):

$$\left(\left(-2\,(-1)^{3/8}\left(1+\sqrt{2}\right)x-\frac{2\,(-1)^{1/4}\left(-2-(1-i)\,(-1)^{5/8}+(-1)^{5/8}\sqrt{2}\right)\text{ArcTan}\left[\frac{-\text{Cos}[x]+\left(1+\sqrt{2}\right)\text{Sin}[x]}{2\,(-1)^{3/8}+\text{Cos}[x]-\sqrt{2}\,\text{Cos}[x]+\text{Sin}[x]}\right]}{(-1+i)+2\,(-1)^{3/8}+\sqrt{2}}-\right.\right.$$
$$\left(2\,(1-i)^{3/2}\,2^{1/4}\left((-3-i)+2\,(-1)^{5/8}+(2+i)\sqrt{2}-(2+2\,i)\,(-1)^{3/8}\sqrt{2}+2\,(-1)^{5/8}\sqrt{2}\right)\right.$$
$$\left.\text{ArcTan}\left[\frac{(1+i)+i\sqrt{2}+\left((-1+i)+2\,(-1)^{3/8}+\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{1-i}\;2^{3/4}}\right]\right)\Big/\left((-1+i)+2\,(-1)^{3/8}+\sqrt{2}\right)+$$
$$2\,(-1)^{3/8}\,\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\left((-1)^{3/4}\left(-2-(1-i)\,(-1)^{5/8}+(-1)^{5/8}\sqrt{2}\right)\text{Log}\left[-\text{Sec}\left[\frac{x}{2}\right]^4\right.\right.$$
$$\left.\left.\left.\left(-2+(1-i)\sqrt{2}+2\,(-1)^{3/8}\left(-1+\sqrt{2}\right)\text{Cos}[x]+\sqrt{2}\,\text{Cos}[2\,x]-2\,(-1)^{3/8}\,\text{Sin}[x]+\sqrt{2}\,\text{Sin}[2\,x]\right)\right]\right)\Big/\left((-1+i)+2\,(-1)^{3/8}+\sqrt{2}\right)\right)$$
$$\left(-\left(\left(\frac{1}{2}+\frac{i}{2}\right)\Big/\left(\left((-1+i)+\sqrt{1-i}\,\sqrt{1+i}\right)\left(-(-1-i)^{3/2}\,(1-i)^{1/4}\,(1+i)^{1/4}-(1+i)\,\text{Cos}[x]+i\,\sqrt{1-i}\,\sqrt{1+i}\,\text{Cos}[x]+\right.\right.\right.\right.$$
$$\left.\left.\left.\left.(1-i)\,\text{Sin}[x]+\sqrt{1-i}\,\sqrt{1+i}\,\text{Sin}[x]\right)\right)\right)-\text{Sin}[x]\Big/\left(\sqrt{-1-i}\,(1-i)^{1/4}\,(1+i)^{1/4}\left((-1+i)+\sqrt{1-i}\,\sqrt{1+i}\right)\right.$$

$$\left(-(-1-\mathrm{i})^{3/2}(1-\mathrm{i})^{1/4}(1+\mathrm{i})^{1/4}-(1+\mathrm{i})\,\mathrm{Cos}[x]+\mathrm{i}\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Cos}[x]+(1-\mathrm{i})\,\mathrm{Sin}[x]+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Sin}[x]\right)\Big)-$$

$$\Big(\mathrm{i}\sqrt{-1-\mathrm{i}}\,(1-\mathrm{i})^{1/4}(1+\mathrm{i})^{1/4}\,\mathrm{Sin}[x]\Big)\Big/\Big(2\,\Big((-1+\mathrm{i})+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\Big)$$

$$\left(-(-1-\mathrm{i})^{3/2}(1-\mathrm{i})^{1/4}(1+\mathrm{i})^{1/4}-(1+\mathrm{i})\,\mathrm{Cos}[x]+\mathrm{i}\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Cos}[x]+(1-\mathrm{i})\,\mathrm{Sin}[x]+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Sin}[x]\right)\Big)\Big)\Big/$$

$$\Bigg(-2\,(-1)^{3/8}\left(1+\sqrt{2}\right)-\Bigg(2\,(-1)^{1/4}\left(-2-(1-\mathrm{i})\,(-1)^{5/8}+(-1)^{5/8}\sqrt{2}\right)\left(\frac{\left(1+\sqrt{2}\right)\mathrm{Cos}[x]+\mathrm{Sin}[x]}{2\,(-1)^{3/8}+\mathrm{Cos}[x]-\sqrt{2}\,\mathrm{Cos}[x]+\mathrm{Sin}[x]}-\right.$$

$$\left.\frac{\left(\mathrm{Cos}[x]-\mathrm{Sin}[x]+\sqrt{2}\,\mathrm{Sin}[x]\right)\left(-\mathrm{Cos}[x]+\left(1+\sqrt{2}\right)\mathrm{Sin}[x]\right)}{\left(2\,(-1)^{3/8}+\mathrm{Cos}[x]-\sqrt{2}\,\mathrm{Cos}[x]+\mathrm{Sin}[x]\right)^2}\right)\Bigg)\Big/$$

$$\left(\left((-1+\mathrm{i})+2\,(-1)^{3/8}+\sqrt{2}\right)\left(1+\frac{\left(-\mathrm{Cos}[x]+\left(1+\sqrt{2}\right)\mathrm{Sin}[x]\right)^2}{\left(2\,(-1)^{3/8}+\mathrm{Cos}[x]-\sqrt{2}\,\mathrm{Cos}[x]+\mathrm{Sin}[x]\right)^2}\right)\right)+2\,(-1)^{3/8}\,\mathrm{Tan}\left[\frac{x}{2}\right]-$$

$$\left((-1)^{3/4}\left(-2-(1-\mathrm{i})\,(-1)^{5/8}+(-1)^{5/8}\sqrt{2}\right)\mathrm{Cos}\left[\frac{x}{2}\right]^4\right.$$

$$\left(-\mathrm{Sec}\left[\frac{x}{2}\right]^4\left(-2\,(-1)^{3/8}\,\mathrm{Cos}[x]+2\sqrt{2}\,\mathrm{Cos}[2\,x]-2\,(-1)^{3/8}\left(-1+\sqrt{2}\right)\mathrm{Sin}[x]-2\sqrt{2}\,\mathrm{Sin}[2\,x]\right)-\right.$$

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

$$\Bigg(\left(\left((-1+\mathrm{i})+2\,(-1)^{3/8}+\sqrt{2}\right)\left(-2+(1-\mathrm{i})\sqrt{2}+2\,(-1)^{3/8}\left(-1+\sqrt{2}\right)\mathrm{Cos}[x]+\sqrt{2}\,\mathrm{Cos}[2\,x]-2\,(-1)^{3/8}\,\mathrm{Sin}[x]+\sqrt{2}\,\mathrm{Sin}[2\,x]\right)\right)-$$

$$\left.\frac{(1-\mathrm{i})\left((-3-\mathrm{i})+2\,(-1)^{5/8}+(2+\mathrm{i})\sqrt{2}-(2+2\,\mathrm{i})\,(-1)^{3/8}\sqrt{2}+2\,(-1)^{5/8}\sqrt{2}\right)\mathrm{Sec}\left[\frac{x}{2}\right]^2}{\sqrt{2}\left(1+\frac{\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\left((1+\mathrm{i})+\mathrm{i}\sqrt{2}+\left((-1+\mathrm{i})+2\,(-1)^{3/8}+\sqrt{2}\right)\mathrm{Tan}\left[\frac{x}{2}\right]\right)^2}{\sqrt{2}}\right)}\right)+$$

$$\Bigg(\Bigg((-2-2\,\mathrm{i})\left((1-\mathrm{i})+\sqrt{2}+(-1)^{7/8}\sqrt{2}\right)x+(2+2\,\mathrm{i})\,(-1)^{3/8}\left(2-(1-\mathrm{i})\,(-1)^{5/8}+(1-\mathrm{i})\,(-1)^{7/8}-\sqrt{2}\right)$$

$$\mathrm{ArcTan}\left[\frac{\mathrm{Sin}[x]}{-(-1)^{5/8}\sqrt{2}+\mathrm{Cos}[x]-(-1)^{1/4}\,\mathrm{Cos}[x]+(-1)^{3/4}\,\mathrm{Sin}[x]}\right]+$$

$$(4-4\,\mathrm{i})\left((1+3\,\mathrm{i})+(1-\mathrm{i})\,(-1)^{1/8}+(1+2\,\mathrm{i})\,(-1)^{3/8}-(2+2\,\mathrm{i})\,(-1)^{5/8}+(2+\mathrm{i})\,(-1)^{7/8}-(1+2\,\mathrm{i})\sqrt{2}\right)$$

$$\mathrm{ArcTan}\left[\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)(-1)^{5/8}\left(\mathrm{i}+(-1)^{3/4}+\left(-1+(-1)^{1/4}-(-1)^{5/8}\sqrt{2}\right)\mathrm{Tan}\left[\frac{x}{2}\right]\right)\right]+2\,(-1)^{7/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)$$

$$\left(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\right)\mathrm{Log}\left[\mathrm{Sec}\left[\frac{x}{2}\right]^2\right]+(-1)^{7/8}\left(\left((-2-2\,i)+2\,(-1)^{5/8}-2\,(-1)^{7/8}+(1+i)\sqrt{2}\right)\mathrm{Log}\left[\mathrm{Sec}\left[\frac{x}{2}\right]^4\right.\right.$$

$$\left.\left.\left(1-3\,(-1)^{1/4}+2\,(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\mathrm{Cos}[x]-\left(-i+(-1)^{1/4}\right)\mathrm{Cos}[2\,x]+2\,(-1)^{3/8}\sqrt{2}\,\mathrm{Sin}[x]+\mathrm{Sin}[2\,x]+(-1)^{3/4}\,\mathrm{Sin}[2\,x]\right)\right]\right)$$

$$\left(i\Big/\left(\sqrt{1-i}\left((-1+i)+\sqrt{1-i}\sqrt{1+i}\right)^2\left(\sqrt{-1-i}\,(1-i)^{3/4}(1+i)^{1/4}+\sqrt{1-i}\,\mathrm{Cos}[x]-\sqrt{1+i}\,\mathrm{Cos}[x]+\right.\right.\right.$$

$$\left.\left.i\sqrt{1-i}\,\mathrm{Sin}[x]+i\sqrt{1+i}\,\mathrm{Sin}[x]\right)\right)+1\Big/\left(\sqrt{1+i}\left((-1+i)+\sqrt{1-i}\sqrt{1+i}\right)^2\right.$$

$$\left.\left(\sqrt{-1-i}\,(1-i)^{3/4}(1+i)^{1/4}+\sqrt{1-i}\,\mathrm{Cos}[x]-\sqrt{1+i}\,\mathrm{Cos}[x]+i\sqrt{1-i}\,\mathrm{Sin}[x]+i\sqrt{1+i}\,\mathrm{Sin}[x]\right)\right)-$$

$$\left(2\,\mathrm{Sin}[x]\right)\Big/\left(\sqrt{-1-i}\,(1-i)^{1/4}(1+i)^{3/4}\left((-1+i)+\sqrt{1-i}\sqrt{1+i}\right)^2\right.$$

$$\left.\left.\left(\sqrt{-1-i}\,(1-i)^{3/4}(1+i)^{1/4}+\sqrt{1-i}\,\mathrm{Cos}[x]-\sqrt{1+i}\,\mathrm{Cos}[x]+i\sqrt{1-i}\,\mathrm{Sin}[x]+i\sqrt{1+i}\,\mathrm{Sin}[x]\right)\right)\right)\Big/$$

$$\left((-2-2\,i)\left((1-i)+\sqrt{2}+(-1)^{7/8}\sqrt{2}\right)+\left((2+2\,i)\,(-1)^{3/8}\left(2-(1-i)\,(-1)^{5/8}+(1-i)\,(-1)^{7/8}-\sqrt{2}\right)\right.\right.$$

$$\left.\left(-\frac{\mathrm{Sin}[x]\left((-1)^{3/4}\,\mathrm{Cos}[x]-\mathrm{Sin}[x]+(-1)^{1/4}\,\mathrm{Sin}[x]\right)}{\left(-(-1)^{5/8}\sqrt{2}+\mathrm{Cos}[x]-(-1)^{1/4}\,\mathrm{Cos}[x]+(-1)^{3/4}\,\mathrm{Sin}[x]\right)^2}+\frac{\mathrm{Cos}[x]}{-(-1)^{5/8}\sqrt{2}+\mathrm{Cos}[x]-(-1)^{1/4}\,\mathrm{Cos}[x]+(-1)^{3/4}\,\mathrm{Sin}[x]}\right)\right)\Big/$$

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

$$\left((-1)^{7/8}\left((-2-2\,i)+2\,(-1)^{5/8}-2\,(-1)^{7/8}+(1+i)\sqrt{2}\right)\mathrm{Cos}\left[\frac{x}{2}\right]^4\right.$$

$$\left(\mathrm{Sec}\left[\frac{x}{2}\right]^4\left(2\,(-1)^{3/8}\sqrt{2}\,\mathrm{Cos}[x]+2\,\mathrm{Cos}[2\,x]+2\,(-1)^{3/4}\,\mathrm{Cos}[2\,x]-2\,(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\mathrm{Sin}[x]+2\left(-i+(-1)^{1/4}\right)\mathrm{Sin}[2\,x]\right)+\right.$$

$$2\,\mathrm{Sec}\left[\frac{x}{2}\right]^4\left(1-3\,(-1)^{1/4}+2\,(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\mathrm{Cos}[x]-\right.$$

$$\left.\left.\left.\left(-i+(-1)^{1/4}\right)\mathrm{Cos}[2\,x]+2\,(-1)^{3/8}\sqrt{2}\,\mathrm{Sin}[x]+\mathrm{Sin}[2\,x]+(-1)^{3/4}\,\mathrm{Sin}[2\,x]\right)\mathrm{Tan}\left[\frac{x}{2}\right]\right)\right)\Big/$$

$$\left(1-3\,(-1)^{1/4}+2\,(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\mathrm{Cos}[x]-\left(-i+(-1)^{1/4}\right)\mathrm{Cos}[2\,x]+2\,(-1)^{3/8}\sqrt{2}\,\mathrm{Sin}[x]+\mathrm{Sin}[2\,x]+(-1)^{3/4}\,\mathrm{Sin}[2\,x]\right)+$$

$$\left(2\,(-1)^{5/8}\left((1+3\,i)+(1-i)\,(-1)^{1/8}+(1+2\,i)\,(-1)^{3/8}-(2+2\,i)\,(-1)^{5/8}+(2+i)\,(-1)^{7/8}-(1+2\,i)\sqrt{2}\right)\right.$$

$$\left.\left(-1+(-1)^{1/4}-(-1)^{5/8}\sqrt{2}\right)\mathrm{Sec}\left[\frac{x}{2}\right]^2\right)\Big/\left(1-\frac{1}{2}\,(-1)^{3/4}\left(i+(-1)^{3/4}+\left(-1+(-1)^{1/4}-(-1)^{5/8}\sqrt{2}\right)\mathrm{Tan}\left[\frac{x}{2}\right]\right)^2\right)+$$

$$\Big(\Big(2\,(-1)^{1/8}\,(1+(-1)^{1/4})\,(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})\,x-2\,(-1)^{3/8}\,(2-\sqrt{2}-(-1)^{3/8}\sqrt{2}+(-1)^{5/8}\sqrt{2})$$

$$\mathrm{ArcTan}\Big[\frac{\mathrm{Sin}[x]}{(-1+(-1)^{1/4})\,\mathrm{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\mathrm{Sin}[x])}\Big]-$$

$$4\,((3-i)-2\,(-1)^{1/8}+2\,(-1)^{3/8}-(2-i)\,\sqrt{2}+(-1)^{1/8}\sqrt{2}-(2+i)\,(-1)^{3/8}\sqrt{2}+(-1)^{5/8}\sqrt{2})$$

$$\mathrm{ArcTan}\Big[\Big(\frac{1}{2}+\frac{i}{2}\Big)\,(-1)^{5/8}\,\Big(i+(-1)^{3/4}+(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})\,\mathrm{Tan}\Big[\frac{x}{2}\Big]\Big)\Big]-$$

$$2\,(-1)^{7/8}\,(1+(-1)^{3/4})\,(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})\,\mathrm{Log}\Big[\mathrm{Sec}\Big[\frac{x}{2}\Big]^2\Big]+(-1)^{7/8}\,(2-\sqrt{2}-(-1)^{3/8}\sqrt{2}+(-1)^{5/8}\sqrt{2})\,\mathrm{Log}\Big[-\mathrm{Sec}\Big[\frac{x}{2}\Big]^4$$

$$(-1+3\,(-1)^{1/4}-2\,(-1)^{5/8}\sqrt{2}\,(-1+(-1)^{1/4})\,\mathrm{Cos}[x]+(-i+(-1)^{1/4})\,\mathrm{Cos}[2\,x]+2\,(-1)^{3/8}\sqrt{2}\,\mathrm{Sin}[x]+\mathrm{Sin}[2\,x]+(-1)^{3/4}\,\mathrm{Sin}[2\,x])\Big]\Big)$$

$$\Big(1\Big/\Big(\sqrt{1-i}\,((-1-i)+\sqrt{1-i}\,\sqrt{1+i})^2\,(-\sqrt{-1+i}\,(1-i)^{1/4}\,(1+i)^{3/4}+\sqrt{1-i}\,\mathrm{Cos}[x]-\sqrt{1+i}\,\mathrm{Cos}[x]-$$

$$i\,\sqrt{1-i}\,\mathrm{Sin}[x]-i\,\sqrt{1+i}\,\mathrm{Sin}[x])\Big)-i\Big/\Big(\sqrt{1+i}\,((-1-i)+\sqrt{1-i}\,\sqrt{1+i})^2$$

$$(-\sqrt{-1+i}\,(1-i)^{1/4}\,(1+i)^{3/4}+\sqrt{1-i}\,\mathrm{Cos}[x]-\sqrt{1+i}\,\mathrm{Cos}[x]-i\,\sqrt{1-i}\,\mathrm{Sin}[x]-i\,\sqrt{1+i}\,\mathrm{Sin}[x])\Big)+$$

$$(2\,\mathrm{Sin}[x])\Big/\Big(\sqrt{-1+i}\,(1-i)^{3/4}\,(1+i)^{1/4}\,((-1-i)+\sqrt{1-i}\,\sqrt{1+i})^2$$

$$(-\sqrt{-1+i}\,(1-i)^{1/4}\,(1+i)^{3/4}+\sqrt{1-i}\,\mathrm{Cos}[x]-\sqrt{1+i}\,\mathrm{Cos}[x]-i\,\sqrt{1-i}\,\mathrm{Sin}[x]-i\,\sqrt{1+i}\,\mathrm{Sin}[x])\Big)\Big)\Big)\Big/$$

$$\Big(2\,(-1)^{1/8}\,(1+(-1)^{1/4})\,(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})-\Big(2\,(-1)^{3/8}\,(2-\sqrt{2}-(-1)^{3/8}\sqrt{2}+(-1)^{5/8}\sqrt{2})$$

$$\Big(-\frac{\mathrm{Sin}[x]\,((-1)^{3/4}\,\mathrm{Cos}[x]-(-1+(-1)^{1/4})\,\mathrm{Sin}[x])}{((-1+(-1)^{1/4})\,\mathrm{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\mathrm{Sin}[x]))^2}+\frac{\mathrm{Cos}[x]}{(-1+(-1)^{1/4})\,\mathrm{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\mathrm{Sin}[x])}\Big)\Big)\Big/$$

$$\Big(1+\frac{\mathrm{Sin}[x]^2}{((-1+(-1)^{1/4})\,\mathrm{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\mathrm{Sin}[x]))^2}\Big)-2\,(-1)^{7/8}\,(1+(-1)^{3/4})\,(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})\,\mathrm{Tan}\Big[\frac{x}{2}\Big]-$$

$$\Big((-1)^{7/8}\,(2-\sqrt{2}-(-1)^{3/8}\sqrt{2}+(-1)^{5/8}\sqrt{2})\,\mathrm{Cos}\Big[\frac{x}{2}\Big]^4$$

$$\Big(-\mathrm{Sec}\Big[\frac{x}{2}\Big]^4\,(2\,(-1)^{3/8}\sqrt{2}\,\mathrm{Cos}[x]+2\,\mathrm{Cos}[2\,x]+2\,(-1)^{3/4}\,\mathrm{Cos}[2\,x]+2\,(-1)^{5/8}\sqrt{2}\,(-1+(-1)^{1/4})\,\mathrm{Sin}[x]-2\,(-i+(-1)^{1/4})\,\mathrm{Sin}[2\,x])-$$

$$2\,\mathrm{Sec}\Big[\frac{x}{2}\Big]^4\,(-1+3\,(-1)^{1/4}-2\,(-1)^{5/8}\sqrt{2}\,(-1+(-1)^{1/4})\,\mathrm{Cos}[x]+$$

$$\left(-i+(-1)^{1/4}\right)\text{Cos}[2x]+2(-1)^{3/8}\sqrt{2}\,\text{Sin}[x]+\text{Sin}[2x]+(-1)^{3/4}\text{Sin}[2x]\Big)\,\text{Tan}\left[\frac{x}{2}\right]\Big]\Big)\Big)\Big/$$

$$\Big(-1+3(-1)^{1/4}-2(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\text{Cos}[x]+\left(-i+(-1)^{1/4}\right)\text{Cos}[2x]+2(-1)^{3/8}\sqrt{2}\,\text{Sin}[x]+\text{Sin}[2x]+(-1)^{3/4}\text{Sin}[2x]\Big)-$$

$$\Big(\Big((1+i)(-1)^{5/8}\left(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\right)\Big((3-i)-2(-1)^{1/8}+2(-1)^{3/8}-(2-i)\sqrt{2}+(-1)^{1/8}\sqrt{2}-(2+i)(-1)^{3/8}\sqrt{2}+(-1)^{5/8}\sqrt{2}\Big)$$

$$\text{Sec}\left[\frac{x}{2}\right]^2\Big)\Big/\left(1-\frac{1}{2}(-1)^{3/4}\left(i+(-1)^{3/4}+\left(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]\right)^2\right)\Big)+$$

$$\Bigg(\Bigg(-4\sqrt{-1-i}\left(-1+\sqrt{2}\right)\text{ArcTanh}\left[\frac{-i\left((1+i)+\sqrt{2}\right)+\left((1+i)+2(-1)^{5/8}-\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{-1-i}\;2^{3/4}}\right]+$$

$$(-1)^{1/8}2^{1/4}\Bigg(2\,\text{ArcTan}\left[\frac{\text{Cos}[x]+\left(1+\sqrt{2}\right)\text{Sin}[x]}{2(-1)^{5/8}+\left(-1+\sqrt{2}\right)\text{Cos}[x]+\text{Sin}[x]}\right]-i\Bigg(2\left(1+\sqrt{2}\right)x+2\,\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]-$$

$$\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^4\left(2-(1+i)\sqrt{2}+2(-1)^{5/8}\left(-1+\sqrt{2}\right)\text{Cos}[x]-\sqrt{2}\,\text{Cos}[2x]+2(-1)^{5/8}\text{Sin}[x]+\sqrt{2}\,\text{Sin}[2x]\right)\right]\Bigg)\Bigg)\Bigg)$$

$$\Bigg(\left(\frac{1}{2}+\frac{i}{2}\right)\Big/\Bigg(\left((-1-i)+\sqrt{1-i}\sqrt{1+i}\right)\Bigg(-\frac{2(1-i)^{1/4}(1+i)^{1/4}}{\sqrt{-1+i}}-(1+i)\text{Cos}[x]+\sqrt{1-i}\sqrt{1+i}\,\text{Cos}[x]+(1-i)\text{Sin}[x]-$$

$$i\sqrt{1-i}\sqrt{1+i}\,\text{Sin}[x]\Bigg)\Bigg)-(2\,\text{Sin}[x])\Big/\Bigg((-1+i)^{5/2}(1-i)^{1/4}(1+i)^{1/4}\left((-1-i)+\sqrt{1-i}\sqrt{1+i}\right)$$

$$\left(-\frac{2(1-i)^{1/4}(1+i)^{1/4}}{\sqrt{-1+i}}-(1+i)\text{Cos}[x]+\sqrt{1-i}\sqrt{1+i}\,\text{Cos}[x]+(1-i)\text{Sin}[x]-i\sqrt{1-i}\sqrt{1+i}\,\text{Sin}[x]\right)\Bigg)+$$

$$\left(i(1-i)^{1/4}(1+i)^{1/4}\text{Sin}[x]\right)\Big/\Bigg((-1+i)^{3/2}\left((-1-i)+\sqrt{1-i}\sqrt{1+i}\right)$$

$$\left(-\frac{2(1-i)^{1/4}(1+i)^{1/4}}{\sqrt{-1+i}}-(1+i)\text{Cos}[x]+\sqrt{1-i}\sqrt{1+i}\,\text{Cos}[x]+(1-i)\text{Sin}[x]-i\sqrt{1-i}\sqrt{1+i}\,\text{Sin}[x]\right)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(-\frac{2^{1/4}\left((1+i)+2(-1)^{5/8}-\sqrt{2}\right)\left(-1+\sqrt{2}\right)\text{Sec}\left[\frac{x}{2}\right]^2}{1+\frac{\left(\frac{1}{4}-\frac{i}{4}\right)\left(-i\left((1+i)+\sqrt{2}\right)+\left((1+i)+2(-1)^{5/8}-\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]\right)^2}{\sqrt{2}}}+(-1)^{1/8}2^{1/4}\left(\frac{2\left(\frac{\left(1+\sqrt{2}\right)\text{Cos}[x]-\text{Sin}[x]}{2(-1)^{5/8}+\left(-1+\sqrt{2}\right)\text{Cos}[x]+\text{Sin}[x]}-\frac{\left(\text{Cos}[x]-\left(-1+\sqrt{2}\right)\text{Sin}[x]\right)\left(\text{Cos}[x]+\left(1+\sqrt{2}\right)\text{Sin}[x]\right)}{\left(2(-1)^{5/8}+\left(-1+\sqrt{2}\right)\text{Cos}[x]+\text{Sin}[x]\right)^2}\right)}{1+\frac{\left(\text{Cos}[x]+\left(1+\sqrt{2}\right)\text{Sin}[x]\right)^2}{\left(2(-1)^{5/8}+\left(-1+\sqrt{2}\right)\text{Cos}[x]+\text{Sin}[x]\right)^2}}-\right.$$

$$i\Bigg(2\left(1+\sqrt{2}\right)+2\,\text{Tan}\left[\frac{x}{2}\right]-\Bigg(\text{Cos}\left[\frac{x}{2}\right]^4\Bigg(\text{Sec}\left[\frac{x}{2}\right]^4\left(2(-1)^{5/8}\text{Cos}[x]+2\sqrt{2}\,\text{Cos}[2x]-2(-1)^{5/8}\left(-1+\sqrt{2}\right)\text{Sin}[x]+2\sqrt{2}\,\text{Sin}[2x]\right)+2$$

$$\text{Sec}\left[\frac{x}{2}\right]^4 \left(2-(1+i)\sqrt{2}+2(-1)^{5/8}\left(-1+\sqrt{2}\right)\text{Cos}[x]-\sqrt{2}\,\text{Cos}[2x]+2(-1)^{5/8}\,\text{Sin}[x]+\sqrt{2}\,\text{Sin}[2x]\right)\text{Tan}\left[\frac{x}{2}\right]\Big)\Big)\Big/$$

$$\left(2-(1+i)\sqrt{2}+2(-1)^{5/8}\left(-1+\sqrt{2}\right)\text{Cos}[x]-\sqrt{2}\,\text{Cos}[2x]+2(-1)^{5/8}\,\text{Sin}[x]+\sqrt{2}\,\text{Sin}[2x]\right)\Big)\Big)$$

Problem 89: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[6x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 85 leaves, 7 steps):

$$-\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cos}[x]\right]}{3\sqrt{2}}+\frac{\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2-\sqrt{3}}}\right]}{6\sqrt{2-\sqrt{3}}}+\frac{\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2+\sqrt{3}}}\right]}{6\sqrt{2+\sqrt{3}}}$$

Result (type 3, 678 leaves):

$$\left(\frac{1}{6}+\frac{i}{6}\right)(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\,\text{Sec}\left[\frac{x}{2}\right]\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)\right]-\left(\frac{1}{6}+\frac{i}{6}\right)(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{x}{2}\right]\left(\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right)\right]+$$

$$\frac{1}{12\left(2+\sqrt{2}\right)}\left(1+\sqrt{2}\right)\left(x+2\sqrt{3}\,\text{ArcTanh}\left[\frac{2+\left(2+\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{6}}\right]-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[-\text{Sec}\left[\frac{x}{2}\right]^2\left(\sqrt{2}-2\,\text{Cos}[x]+2\,\text{Sin}[x]\right)\right]\right)-$$

$$\frac{x-2\sqrt{3}\,\text{ArcTanh}\left[\frac{\sqrt{2}+\left(-1+\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\left(1+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right)\right]}{12\sqrt{2}}+$$

$$\left(\left(2\left(\sqrt{2}+\sqrt{3}\right)\text{ArcTanh}\left[\frac{2+\left(2+\sqrt{6}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]+\left(3+\sqrt{6}\right)\left(x-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[-\text{Sec}\left[\frac{x}{2}\right]^2\left(\sqrt{6}-2\,\text{Cos}[x]+2\,\text{Sin}[x]\right)\right]\right)\right)\right.$$

$$\left.\left(1+\sqrt{6}\,\text{Sin}[x]\right)\left(3+\sqrt{6}-\left(2+\sqrt{6}\right)\text{Cos}[x]+\left(2+\sqrt{6}\right)\text{Sin}[x]\right)\right)\Big/$$

$$\left(12\left(\left(12+5\sqrt{6}\right)\text{Cos}[2x]+2\,\text{Cos}[x]\left(5+2\sqrt{6}+5\sqrt{6}\,\text{Sin}[x]\right)-2\left(12+5\sqrt{6}+4\left(5+2\sqrt{6}\right)\text{Sin}[x]-6\,\text{Sin}[2x]\right)\right)\right)+$$

$$\left(\left(-2\left(-2+\sqrt{6}\right)\text{ArcTanh}\left[\sqrt{2}+\left(\sqrt{2}-\sqrt{3}\right)\text{Tan}\left[\frac{x}{2}\right]\right]+\left(3\sqrt{2}-2\sqrt{3}\right)\left(x-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[-\text{Sec}\left[\frac{x}{2}\right]^2\left(\sqrt{3}+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right)\right]\right)\right)\right.$$

$$\left.\left(\sqrt{2}-2\sqrt{3}\,\text{Sin}[x]\right)\left(-3+\sqrt{6}-\left(-2+\sqrt{6}\right)\text{Cos}[x]+\left(-2+\sqrt{6}\right)\text{Sin}[x]\right)\right)\Big/$$

$$\left(24\left(\left(-12+5\sqrt{6}\right)\text{Cos}[2x]+2\,\text{Cos}[x]\left(-5+2\sqrt{6}+5\sqrt{6}\,\text{Sin}[x]\right)-2\left(-12+5\sqrt{6}+4\left(-5+2\sqrt{6}\right)\text{Sin}[x]+6\,\text{Sin}[2x]\right)\right)\right)$$

Problem 90: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[2x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 7 leaves, 2 steps):

$$\frac{1}{2}\,\text{ArcTanh}[\text{Sin}[x]]$$

Result (type 3, 37 leaves):

$$\frac{1}{2}\left(-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 92: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Csc}[4x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 26 leaves, 4 steps):

$$-\frac{1}{4}\text{ArcTanh}[\text{Sin}[x]]+\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Sin}[x]\right]}{2\sqrt{2}}$$

Result (type 3, 218 leaves):

$$\frac{1}{8\sqrt{2}}\left(-2\,\text{i}\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]-2\,\text{i}\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]+2\sqrt{2}\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-2\sqrt{2}\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+2\,\text{Log}\left[\sqrt{2}+2\,\text{Sin}[x]\right]-\text{Log}\left[2-\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]-\text{Log}\left[2+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]\right)$$

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

$$\int \text{Csc}[6x]\,\text{Sin}[x]\,dx$$

Optimal (type 3, 36 leaves, 7 steps):

$$\frac{1}{6}\text{ArcTanh}[\text{Sin}[x]]+\frac{1}{6}\text{ArcTanh}[2\,\text{Sin}[x]]-\frac{\text{ArcTanh}\left[\frac{2\,\text{Sin}[x]}{\sqrt{3}}\right]}{2\sqrt{3}}$$

Result (type 3, 95 leaves):

$$\frac{1}{12}\left(-2\sqrt{3}\,\text{ArcTanh}\left[\frac{\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-2\sqrt{3}\,\text{ArcTanh}\left[\sqrt{3}\,\text{Tan}\left[\frac{x}{2}\right]\right]-2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]-\text{Log}[1-2\,\text{Sin}[x]]+\text{Log}[1+2\,\text{Sin}[x]]\right)$$

Problem 105: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Tan}[2x]\,dx$$

Optimal (type 3, 20 leaves, 4 steps):

$$\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cos}[x]\right]}{\sqrt{2}}-\text{Cos}[x]$$

Result (type 3, 183 leaves):

$$\frac{1}{4\sqrt{2}}\left(2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]-2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]+\right.$$

$$\left.4\,\text{ArcTanh}\left[\sqrt{2}+\text{Tan}\left[\frac{x}{2}\right]\right]-4\sqrt{2}\,\text{Cos}[x]-\text{Log}\left[2-\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]+\text{Log}\left[2+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]\right)$$

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

$$\int \text{Cos}[x]\,\text{Tan}[3\,x]\,dx$$

Optimal (type 3, 21 leaves, 3 steps):

$$\frac{\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{3}}\right]}{\sqrt{3}}-\text{Cos}[x]$$

Result (type 3, 48 leaves):

$$-\frac{\text{ArcTanh}\left[\frac{-2+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]}{\sqrt{3}}+\frac{\text{ArcTanh}\left[\frac{2+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]}{\sqrt{3}}-\text{Cos}[x]$$

Problem 107: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Tan}[4\,x]\,dx$$

Optimal (type 3, 71 leaves, 6 steps):

$$\frac{1}{4}\sqrt{2-\sqrt{2}}\,\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2-\sqrt{2}}}\right]+\frac{1}{4}\sqrt{2+\sqrt{2}}\,\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2+\sqrt{2}}}\right]-\text{Cos}[x]$$

Result (type 3, 5854 leaves):

$$-\text{Cos}[x]+\left(\left(\left(2-2\,i\right)\left(-1\right)^{3/8}x+\right.\right.$$

$$\left(2\sqrt{2}\left(\left(2+2\,i\right)-\left(1+3\,i\right)\left(-1\right)^{3/8}-\left(1+i\right)\sqrt{2}+\left(1+2\,i\right)\left(-1\right)^{3/8}\sqrt{2}\right)\text{ArcTan}\left[\frac{\text{Cos}[x]+\left(1+\sqrt{2}\right)\text{Sin}[x]}{2\left(-1\right)^{5/8}+\left(-1+\sqrt{2}\right)\text{Cos}[x]+\text{Sin}[x]}\right]\right)\Big/$$

$$\Big(\big(-1-\mathrm{i}\big)-2\,(-1)^{5/8}+\sqrt{2}\Big)+\frac{4\times 2^{3/4}\Big(\big(-1+\mathrm{i}\big)+\sqrt{2}+\big(1-\mathrm{i}\big)\,(-1)^{5/8}\sqrt{2}\Big)\,\mathrm{ArcTanh}\Big[\frac{-\mathrm{i}\,\big((1+\mathrm{i})+\sqrt{2}\big)+\big((1+\mathrm{i})+2\,(-1)^{5/8}-\sqrt{2}\big)\,\mathrm{Tan}\big[\frac{x}{2}\big]}{\sqrt{-1-\mathrm{i}}\;2^{3/4}}\Big]}{\sqrt{-1-\mathrm{i}}\,\Big(\big(1+\mathrm{i}\big)+2\,(-1)^{5/8}-\sqrt{2}\Big)}-$$

$$\big(1-\mathrm{i}\big)\,(-1)^{3/8}\sqrt{2}\,\big(-2+\sqrt{2}\big)\,\mathrm{Log}\Big[\mathrm{Sec}\big[\frac{x}{2}\big]^{2}\Big]+\Big(\mathrm{i}\,\sqrt{2}\,\Big(\big(2+2\,\mathrm{i}\big)-\big(1+3\,\mathrm{i}\big)\,(-1)^{3/8}-\big(1+\mathrm{i}\big)\sqrt{2}+\big(1+2\,\mathrm{i}\big)\,(-1)^{3/8}\sqrt{2}\Big)\,\mathrm{Log}\Big[\mathrm{Sec}\big[\frac{x}{2}\big]^{4}$$

$$\Big(2-\big(1+\mathrm{i}\big)\sqrt{2}+2\,(-1)^{5/8}\big(-1+\sqrt{2}\big)\,\mathrm{Cos}[x]-\sqrt{2}\,\mathrm{Cos}[2\,x]+2\,(-1)^{5/8}\,\mathrm{Sin}[x]+\sqrt{2}\,\mathrm{Sin}[2\,x]\Big)\Big]\Big)\Big/\Big(\big(-1-\mathrm{i}\big)-2\,(-1)^{5/8}+\sqrt{2}\Big)\Bigg)$$

$$\Bigg(\Big(\frac{1}{2}+\frac{\mathrm{i}}{2}\Big)\Big/\Bigg(\Big(\big(-1-\mathrm{i}\big)+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\Big)\Bigg(-\frac{2\,(1-\mathrm{i})^{1/4}\,(1+\mathrm{i})^{1/4}}{\sqrt{-1+\mathrm{i}}}-\big(1+\mathrm{i}\big)\,\mathrm{Cos}[x]+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Cos}[x]+\big(1-\mathrm{i}\big)\,\mathrm{Sin}[x]-$$

$$\mathrm{i}\,\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Sin}[x]\Bigg)\Bigg)+\big(2\,\mathrm{Sin}[x]\big)\Big/\Bigg((-1+\mathrm{i})^{3/2}\,(1-\mathrm{i})^{3/4}\,(1+\mathrm{i})^{3/4}\,\Big(\big(-1-\mathrm{i}\big)+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\Big)$$

$$\Bigg(-\frac{2\,(1-\mathrm{i})^{1/4}\,(1+\mathrm{i})^{1/4}}{\sqrt{-1+\mathrm{i}}}-\big(1+\mathrm{i}\big)\,\mathrm{Cos}[x]+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Cos}[x]+\big(1-\mathrm{i}\big)\,\mathrm{Sin}[x]-\mathrm{i}\,\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Sin}[x]\Bigg)\Bigg)+$$

$$\big(2\,\mathrm{i}\,\mathrm{Sin}[x]\big)\Big/\Bigg((-1+\mathrm{i})^{3/2}\,(1-\mathrm{i})^{5/4}\,(1+\mathrm{i})^{1/4}\,\Big(\big(-1-\mathrm{i}\big)+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\Big)$$

$$\Bigg(-\frac{2\,(1-\mathrm{i})^{1/4}\,(1+\mathrm{i})^{1/4}}{\sqrt{-1+\mathrm{i}}}-\big(1+\mathrm{i}\big)\,\mathrm{Cos}[x]+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Cos}[x]+\big(1-\mathrm{i}\big)\,\mathrm{Sin}[x]-\mathrm{i}\,\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}}\,\mathrm{Sin}[x]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\big(2-2\,\mathrm{i}\big)\,(-1)^{3/8}+\Bigg(2\sqrt{2}\,\Big(\big(2+2\,\mathrm{i}\big)-\big(1+3\,\mathrm{i}\big)\,(-1)^{3/8}-\big(1+\mathrm{i}\big)\sqrt{2}+\big(1+2\,\mathrm{i}\big)\,(-1)^{3/8}\sqrt{2}\Big)$$

$$\Bigg(\frac{\big(1+\sqrt{2}\big)\,\mathrm{Cos}[x]-\mathrm{Sin}[x]}{2\,(-1)^{5/8}+\big(-1+\sqrt{2}\big)\,\mathrm{Cos}[x]+\mathrm{Sin}[x]}-\frac{\Big(\mathrm{Cos}[x]-\big(-1+\sqrt{2}\big)\,\mathrm{Sin}[x]\Big)\Big(\mathrm{Cos}[x]+\big(1+\sqrt{2}\big)\,\mathrm{Sin}[x]\Big)}{\Big(2\,(-1)^{5/8}+\big(-1+\sqrt{2}\big)\,\mathrm{Cos}[x]+\mathrm{Sin}[x]\Big)^{2}}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Big(\big(-1-\mathrm{i}\big)-2\,(-1)^{5/8}+\sqrt{2}\Big)\Bigg(1+\frac{\Big(\mathrm{Cos}[x]+\big(1+\sqrt{2}\big)\,\mathrm{Sin}[x]\Big)^{2}}{\Big(2\,(-1)^{5/8}+\big(-1+\sqrt{2}\big)\,\mathrm{Cos}[x]+\mathrm{Sin}[x]\Big)^{2}}\Bigg)\Bigg)-\big(1-\mathrm{i}\big)\,(-1)^{3/8}\sqrt{2}\,\big(-2+\sqrt{2}\big)\,\mathrm{Tan}\Big[\frac{x}{2}\Big]+$$

$$\Big(\mathrm{i}\,\sqrt{2}\,\Big(\big(2+2\,\mathrm{i}\big)-\big(1+3\,\mathrm{i}\big)\,(-1)^{3/8}-\big(1+\mathrm{i}\big)\sqrt{2}+\big(1+2\,\mathrm{i}\big)\,(-1)^{3/8}\sqrt{2}\Big)\,\mathrm{Cos}\Big[\frac{x}{2}\Big]^{4}$$

$$\Big(\mathrm{Sec}\Big[\frac{x}{2}\Big]^{4}\,\Big(2\,(-1)^{5/8}\,\mathrm{Cos}[x]+2\sqrt{2}\,\mathrm{Cos}[2\,x]-2\,(-1)^{5/8}\big(-1+\sqrt{2}\big)\,\mathrm{Sin}[x]+2\sqrt{2}\,\mathrm{Sin}[2\,x]\Big)+$$

$$2\,\mathrm{Sec}[\tfrac{x}{2}]^4\,(2-(1+i)\sqrt{2}+2(-1)^{5/8}(-1+\sqrt{2})\,\mathrm{Cos}[x]-\sqrt{2}\,\mathrm{Cos}[2x]+2(-1)^{5/8}\,\mathrm{Sin}[x]+\sqrt{2}\,\mathrm{Sin}[2x])\,\mathrm{Tan}[\tfrac{x}{2}])))\Big/$$

$$(((-1-i)-2(-1)^{5/8}+\sqrt{2})\,(2-(1+i)\sqrt{2}+2(-1)^{5/8}(-1+\sqrt{2})\,\mathrm{Cos}[x]-\sqrt{2}\,\mathrm{Cos}[2x]+2(-1)^{5/8}\,\mathrm{Sin}[x]+\sqrt{2}\,\mathrm{Sin}[2x])) -$$

$$\frac{(1-i)\,((-1+i)+\sqrt{2}+(1-i)(-1)^{5/8}\sqrt{2})\,\mathrm{Sec}[\frac{x}{2}]^2}{1+\frac{(\frac{1}{4}-\frac{i}{4})\,(-i\,((1+i)+\sqrt{2})+((1+i)+2(-1)^{5/8}-\sqrt{2})\,\mathrm{Tan}[\frac{x}{2}])^2}{\sqrt{2}}}\Bigg) +$$

$$(((-2+2i)(-1)^{5/8}x-(2\sqrt{2}\,((-2-2i)-(3+i)(-1)^{5/8}+(1+i)\sqrt{2}+(2+i)(-1)^{5/8}\sqrt{2})$$

$$\mathrm{ArcTan}[\frac{-\mathrm{Cos}[x]+(1+\sqrt{2})\,\mathrm{Sin}[x]}{2(-1)^{3/8}+\mathrm{Cos}[x]-\sqrt{2}\,\mathrm{Cos}[x]+\mathrm{Sin}[x]}])\Big/((-1+i)+2(-1)^{3/8}+\sqrt{2})+$$

$$\frac{2(1-i)^{3/2}\,2^{3/4}\,((1+i)-\sqrt{2}+(1+i)(-1)^{3/8}\sqrt{2})\,\mathrm{ArcTan}[\frac{(1+i)+i\sqrt{2}+((-1+i)+2(-1)^{3/8}+\sqrt{2})\,\mathrm{Tan}[\frac{x}{2}]}{\sqrt{1-i}\;2^{3/4}}]}{(-1+i)+2(-1)^{3/8}+\sqrt{2}}-$$

$$(1-i)(-1)^{5/8}\sqrt{2}\,(-2+\sqrt{2})\,\mathrm{Log}[\mathrm{Sec}[\tfrac{x}{2}]^2]+(i\sqrt{2}\,((-2-2i)-(3+i)(-1)^{5/8}+(1+i)\sqrt{2}+(2+i)(-1)^{5/8}\sqrt{2})\,\mathrm{Log}[-\mathrm{Sec}[\tfrac{x}{2}]^4$$

$$(-2+(1-i)\sqrt{2}+2(-1)^{3/8}(-1+\sqrt{2})\,\mathrm{Cos}[x]+\sqrt{2}\,\mathrm{Cos}[2x]-2(-1)^{3/8}\,\mathrm{Sin}[x]+\sqrt{2}\,\mathrm{Sin}[2x])])\Big/((-1+i)+2(-1)^{3/8}+\sqrt{2}))$$

$$(-((\frac{1}{2}+\frac{i}{2})\Big/(((-1+i)+\sqrt{1-i}\,\sqrt{1+i})\,(-(-1-i)^{3/2}(1-i)^{1/4}(1+i)^{1/4}-(1+i)\,\mathrm{Cos}[x]+i\sqrt{1-i}\,\sqrt{1+i}\,\mathrm{Cos}[x]+$$

$$(1-i)\,\mathrm{Sin}[x]+\sqrt{1-i}\,\sqrt{1+i}\,\mathrm{Sin}[x])))+(\sqrt{-1-i}\,\mathrm{Sin}[x])\Big/((1-i)^{3/4}(1+i)^{3/4}((-1+i)+\sqrt{1-i}\,\sqrt{1+i})$$

$$(-(-1-i)^{3/2}(1-i)^{1/4}(1+i)^{1/4}-(1+i)\,\mathrm{Cos}[x]+i\sqrt{1-i}\,\sqrt{1+i}\,\mathrm{Cos}[x]+(1-i)\,\mathrm{Sin}[x]+\sqrt{1-i}\,\sqrt{1+i}\,\mathrm{Sin}[x]))-$$

$$(i\sqrt{-1-i}\,(1-i)^{3/4}\,\mathrm{Sin}[x])\Big/(2(1+i)^{1/4}((-1+i)+\sqrt{1-i}\,\sqrt{1+i})$$

$$(-(-1-i)^{3/2}(1-i)^{1/4}(1+i)^{1/4}-(1+i)\,\mathrm{Cos}[x]+i\sqrt{1-i}\,\sqrt{1+i}\,\mathrm{Cos}[x]+(1-i)\,\mathrm{Sin}[x]+\sqrt{1-i}\,\sqrt{1+i}\,\mathrm{Sin}[x])))\Big/$$

$$((-2+2i)(-1)^{5/8}-(2\sqrt{2}\,((-2-2i)-(3+i)(-1)^{5/8}+(1+i)\sqrt{2}+(2+i)(-1)^{5/8}\sqrt{2})$$

$$\left(\frac{\left(1+\sqrt{2}\right)\text{Cos}[x]+\text{Sin}[x]}{2(-1)^{3/8}+\text{Cos}[x]-\sqrt{2}\,\text{Cos}[x]+\text{Sin}[x]}-\frac{\left(\text{Cos}[x]-\text{Sin}[x]+\sqrt{2}\,\text{Sin}[x]\right)\left(-\text{Cos}[x]+\left(1+\sqrt{2}\right)\text{Sin}[x]\right)}{\left(2(-1)^{3/8}+\text{Cos}[x]-\sqrt{2}\,\text{Cos}[x]+\text{Sin}[x]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\left((-1+\mathrm{i})+2(-1)^{3/8}+\sqrt{2}\right)\left(1+\frac{\left(-\text{Cos}[x]+\left(1+\sqrt{2}\right)\text{Sin}[x]\right)^2}{\left(2(-1)^{3/8}+\text{Cos}[x]-\sqrt{2}\,\text{Cos}[x]+\text{Sin}[x]\right)^2}\right)\Bigg)\Bigg)-(1-\mathrm{i})(-1)^{5/8}\sqrt{2}\left(-2+\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]-$$

$$\Bigg(\mathrm{i}\sqrt{2}\left((-2-2\,\mathrm{i})-(3+\mathrm{i})(-1)^{5/8}+(1+\mathrm{i})\sqrt{2}+(2+\mathrm{i})(-1)^{5/8}\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]^4$$

$$\Bigg(-\text{Sec}\left[\frac{x}{2}\right]^4\left(-2(-1)^{3/8}\text{Cos}[x]+2\sqrt{2}\,\text{Cos}[2x]-2(-1)^{3/8}\left(-1+\sqrt{2}\right)\text{Sin}[x]-2\sqrt{2}\,\text{Sin}[2x]\right)-$$

$$2\,\text{Sec}\left[\frac{x}{2}\right]^4\left(-2+(1-\mathrm{i})\sqrt{2}+2(-1)^{3/8}\left(-1+\sqrt{2}\right)\text{Cos}[x]+\sqrt{2}\,\text{Cos}[2x]-2(-1)^{3/8}\text{Sin}[x]+\sqrt{2}\,\text{Sin}[2x]\right)\text{Tan}\left[\frac{x}{2}\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left((-1+\mathrm{i})+2(-1)^{3/8}+\sqrt{2}\right)\left(-2+(1-\mathrm{i})\sqrt{2}+2(-1)^{3/8}\left(-1+\sqrt{2}\right)\text{Cos}[x]+\sqrt{2}\,\text{Cos}[2x]-2(-1)^{3/8}\text{Sin}[x]+\sqrt{2}\,\text{Sin}[2x]\right)\Bigg)+$$

$$\frac{(1-\mathrm{i})\left((1+\mathrm{i})-\sqrt{2}+(1+\mathrm{i})(-1)^{3/8}\sqrt{2}\right)\text{Sec}\left[\frac{x}{2}\right]^2}{1+\frac{\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\left((1+\mathrm{i})+\mathrm{i}\sqrt{2}+\left((-1+\mathrm{i})+2(-1)^{3/8}+\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]\right)^2}{\sqrt{2}}}\Bigg)+$$

$$\Bigg(\Bigg(-2(-1)^{3/8}\left(1+(-1)^{1/4}\right)\left(-2+\sqrt{2}\right)\left(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\right)x-$$

$$2(-1)^{3/8}\left((4+4\,\mathrm{i})-2(-1)^{5/8}+2(-1)^{7/8}-(3+3\,\mathrm{i})\sqrt{2}+2(-1)^{5/8}\sqrt{2}-2(-1)^{7/8}\sqrt{2}\right)$$

$$\text{ArcTan}\left[\frac{\text{Sin}[x]}{-(-1)^{5/8}\sqrt{2}+\text{Cos}[x]-(-1)^{1/4}\text{Cos}[x]+(-1)^{3/4}\text{Sin}[x]}\right]-$$

$$(4+4\,\mathrm{i})\left((-1+\mathrm{i})+(1+\mathrm{i})(-1)^{1/8}-(2+\mathrm{i})(-1)^{3/8}+(1+2\,\mathrm{i})(-1)^{7/8}+\sqrt{2}+(1-\mathrm{i})(-1)^{5/8}\sqrt{2}\right)$$

$$\text{ArcTan}\left[\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)(-1)^{5/8}\left(\mathrm{i}+(-1)^{3/4}+\left(-1+(-1)^{1/4}-(-1)^{5/8}\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]\right)\right]+$$

$$2(-1)^{7/8}\left((-3-\mathrm{i})+(2+\mathrm{i})\sqrt{2}\right)\left(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\right)\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+$$

$$(-1)^{7/8}\left((4+4\,\mathrm{i})-2(-1)^{5/8}+2(-1)^{7/8}-(3+3\,\mathrm{i})\sqrt{2}+2(-1)^{5/8}\sqrt{2}-2(-1)^{7/8}\sqrt{2}\right)\text{Log}\Big[\text{Sec}\left[\frac{x}{2}\right]^4$$

$$\left(1-3(-1)^{1/4}+2(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\text{Cos}[x]-\left(-\mathrm{i}+(-1)^{1/4}\right)\text{Cos}[2x]+2(-1)^{3/8}\sqrt{2}\,\text{Sin}[x]+\text{Sin}[2x]+(-1)^{3/4}\text{Sin}[2x]\right)\Big]\Bigg)$$

$$\Bigg(-\Bigg(\mathrm{i}\Big/\Big(\sqrt{1-\mathrm{i}}\left((-1+\mathrm{i})+\sqrt{1-\mathrm{i}}\sqrt{1+\mathrm{i}}\right)^2\left(-\sqrt{-1-\mathrm{i}}\,(1-\mathrm{i})^{3/4}(1+\mathrm{i})^{1/4}-\sqrt{1-\mathrm{i}}\,\text{Cos}[x]+\sqrt{1+\mathrm{i}}\,\text{Cos}[x]-\right.$$

$$\left.\mathrm{i}\sqrt{1-\mathrm{i}}\,\text{Sin}[x]-\mathrm{i}\sqrt{1+\mathrm{i}}\,\text{Sin}[x]\right)\Big)\Bigg)-1\Big/\Big(\sqrt{1+\mathrm{i}}\left((-1+\mathrm{i})+\sqrt{1-\mathrm{i}}\sqrt{1+\mathrm{i}}\right)^2$$

$$\left(-\sqrt{-1-\mathrm{i}}\,(1-\mathrm{i})^{3/4}(1+\mathrm{i})^{1/4}-\sqrt{1-\mathrm{i}}\,\text{Cos}[x]+\sqrt{1+\mathrm{i}}\,\text{Cos}[x]-\mathrm{i}\sqrt{1-\mathrm{i}}\,\text{Sin}[x]-\mathrm{i}\sqrt{1+\mathrm{i}}\,\text{Sin}[x]\right)\Big)-$$

$$(2\,\mathrm{Sin}[x]) \Big/ \Big(\sqrt{-1-i}\ (1-i)^{1/4}\ (1+i)^{3/4}\ \big((-1+i)+\sqrt{1-i}\ \sqrt{1+i}\big)^2\ \big(-\sqrt{-1-i}\ (1-i)^{3/4}\ (1+i)^{1/4}-\sqrt{1-i}\ \mathrm{Cos}[x]+$$

$$\sqrt{1+i}\ \mathrm{Cos}[x]-i\sqrt{1-i}\ \mathrm{Sin}[x]-i\sqrt{1+i}\ \mathrm{Sin}[x]\big)\Big)-\Big(2\,i\ (1+i)^{3/4}\,\mathrm{Sin}[x]\Big)\Big/\Big(\sqrt{-1-i}\ (1-i)^{3/4}\ \big((-1+i)+\sqrt{1-i}\ \sqrt{1+i}\big)^2$$

$$\big(-\sqrt{-1-i}\ (1-i)^{3/4}\ (1+i)^{1/4}-\sqrt{1-i}\ \mathrm{Cos}[x]+\sqrt{1+i}\ \mathrm{Cos}[x]-i\sqrt{1-i}\ \mathrm{Sin}[x]-i\sqrt{1+i}\ \mathrm{Sin}[x]\big)\Big)\Big)\Big) \Big/$$

$$\Big(-2\ (-1)^{3/8}\ \big(1+(-1)^{1/4}\big)\ \big(-2+\sqrt{2}\big)\ \big(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\big)-$$

$$\Big(2\ (-1)^{3/8}\ \Big(\big(4+4\,i\big)-2\ (-1)^{5/8}+2\ (-1)^{7/8}-\big(3+3\,i\big)\ \sqrt{2}+2\ (-1)^{5/8}\sqrt{2}-2\ (-1)^{7/8}\sqrt{2}\Big)$$

$$\Bigg(-\frac{\mathrm{Sin}[x]\ \big((-1)^{3/4}\,\mathrm{Cos}[x]-\mathrm{Sin}[x]+(-1)^{1/4}\,\mathrm{Sin}[x]\big)}{\big(-(-1)^{5/8}\sqrt{2}+\mathrm{Cos}[x]-(-1)^{1/4}\,\mathrm{Cos}[x]+(-1)^{3/4}\,\mathrm{Sin}[x]\big)^2}+\frac{\mathrm{Cos}[x]}{-(-1)^{5/8}\sqrt{2}+\mathrm{Cos}[x]-(-1)^{1/4}\,\mathrm{Cos}[x]+(-1)^{3/4}\,\mathrm{Sin}[x]}\Bigg)\Bigg)\Big/$$

$$\left(1+\frac{\mathrm{Sin}[x]^2}{\big(-(-1)^{5/8}\sqrt{2}+\mathrm{Cos}[x]-(-1)^{1/4}\,\mathrm{Cos}[x]+(-1)^{3/4}\,\mathrm{Sin}[x]\big)^2}\right)+$$

$$2\ (-1)^{7/8}\ \big((-3-i)+(2+i)\ \sqrt{2}\big)\ \big(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\big)\ \mathrm{Tan}\Big[\frac{x}{2}\Big]+$$

$$\Big((-1)^{7/8}\ \Big(\big(4+4\,i\big)-2\ (-1)^{5/8}+2\ (-1)^{7/8}-\big(3+3\,i\big)\ \sqrt{2}+2\ (-1)^{5/8}\sqrt{2}-2\ (-1)^{7/8}\sqrt{2}\Big)\ \mathrm{Cos}\Big[\frac{x}{2}\Big]^4$$

$$\Big(\mathrm{Sec}\Big[\frac{x}{2}\Big]^4\ \Big(2\ (-1)^{3/8}\sqrt{2}\ \mathrm{Cos}[x]+2\,\mathrm{Cos}[2\,x]+2\ (-1)^{3/4}\,\mathrm{Cos}[2\,x]-2\ (-1)^{5/8}\sqrt{2}\ \big(-1+(-1)^{1/4}\big)\ \mathrm{Sin}[x]+2\ \big(-i+(-1)^{1/4}\big)\ \mathrm{Sin}[2\,x]\Big)+$$

$$2\,\mathrm{Sec}\Big[\frac{x}{2}\Big]^4\ \Big(1-3\ (-1)^{1/4}+2\ (-1)^{5/8}\sqrt{2}\ \big(-1+(-1)^{1/4}\big)\ \mathrm{Cos}[x]-$$

$$\big(-i+(-1)^{1/4}\big)\ \mathrm{Cos}[2\,x]+2\ (-1)^{3/8}\sqrt{2}\ \mathrm{Sin}[x]+\mathrm{Sin}[2\,x]+(-1)^{3/4}\,\mathrm{Sin}[2\,x]\Big)\ \mathrm{Tan}\Big[\frac{x}{2}\Big]\Big)\Big)\Big/$$

$$\Big(1-3\ (-1)^{1/4}+2\ (-1)^{5/8}\sqrt{2}\ \big(-1+(-1)^{1/4}\big)\ \mathrm{Cos}[x]-\big(-i+(-1)^{1/4}\big)\ \mathrm{Cos}[2\,x]+2\ (-1)^{3/8}\sqrt{2}\ \mathrm{Sin}[x]+\mathrm{Sin}[2\,x]+(-1)^{3/4}\,\mathrm{Sin}[2\,x]\Big)+$$

$$\Big(2\ (-1)^{1/8}\ \big(-1+(-1)^{1/4}-(-1)^{5/8}\sqrt{2}\big)\ \Big((-1+i)+(1+i)\ (-1)^{1/8}-(2+i)\ (-1)^{3/8}+(1+2\,i)\ (-1)^{7/8}+\sqrt{2}+(1-i)\ (-1)^{5/8}\sqrt{2}\Big)\ \mathrm{Sec}\Big[\frac{x}{2}\Big]^2\Big)\Big/$$

$$\left(1-\frac{1}{2}\ (-1)^{3/4}\ \Big(i+(-1)^{3/4}+\big(-1+(-1)^{1/4}-(-1)^{5/8}\sqrt{2}\big)\ \mathrm{Tan}\Big[\frac{x}{2}\Big]\Big)^2\right)\Bigg)+$$

$$\Big(\Big(-2\ (-1)^{3/8}\ \big(1+(-1)^{1/4}\big)\ \big(-2+\sqrt{2}\big)\ \big(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\big)\ x+2\ (-1)^{3/8}\ \Big(\big(4+4\,i\big)-2\ (-1)^{5/8}+2\ (-1)^{7/8}-$$

$$((3+3\,\mathrm{i})\sqrt{2}+2\,(-1)^{5/8}\sqrt{2}-2\,(-1)^{7/8}\sqrt{2})\,\text{ArcTan}\Big[\frac{\text{Sin}[x]}{(-1+(-1)^{1/4})\,\text{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\text{Sin}[x])}\Big]+$$

$$(4+4\,\mathrm{i})\,((-1+\mathrm{i})+(1+\mathrm{i})\,(-1)^{1/8}-(2+\mathrm{i})\,(-1)^{3/8}+(1+2\,\mathrm{i})\,(-1)^{7/8}+\sqrt{2}+(1-\mathrm{i})\,(-1)^{5/8}\sqrt{2})$$

$$\text{ArcTan}\Big[\Big(\frac{1}{2}+\frac{\mathrm{i}}{2}\Big)\,(-1)^{5/8}\,\Big(\mathrm{i}+(-1)^{3/4}+(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})\,\text{Tan}\Big[\frac{x}{2}\Big]\Big)\Big]+$$

$$2\,(-1)^{7/8}\,((3+\mathrm{i})-(2+\mathrm{i})\sqrt{2})\,(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})\,\text{Log}\Big[\text{Sec}\Big[\frac{x}{2}\Big]^2\Big]-$$

$$(-1)^{7/8}\,((4+4\,\mathrm{i})-2\,(-1)^{5/8}+2\,(-1)^{7/8}-(3+3\,\mathrm{i})\sqrt{2}+2\,(-1)^{5/8}\sqrt{2}-2\,(-1)^{7/8}\sqrt{2})\,\text{Log}\Big[-\text{Sec}\Big[\frac{x}{2}\Big]^4$$

$$(-1+3\,(-1)^{1/4}-2\,(-1)^{5/8}\sqrt{2}\,(-1+(-1)^{1/4})\,\text{Cos}[x]+(-\mathrm{i}+(-1)^{1/4})\,\text{Cos}[2\,x]+2\,(-1)^{3/8}\sqrt{2}\,\text{Sin}[x]+\text{Sin}[2\,x]+(-1)^{3/4}\,\text{Sin}[2\,x])\Big]\Big)$$

$$\Big(-\Big(1\Big/\Big(\sqrt{1-\mathrm{i}}\,((-1-\mathrm{i})+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}})^2\,(\sqrt{-1+\mathrm{i}}\,(1-\mathrm{i})^{1/4}\,(1+\mathrm{i})^{3/4}-\sqrt{1-\mathrm{i}}\,\text{Cos}[x]+\sqrt{1+\mathrm{i}}\,\text{Cos}[x]+$$

$$\mathrm{i}\,\sqrt{1-\mathrm{i}}\,\text{Sin}[x]+\mathrm{i}\,\sqrt{1+\mathrm{i}}\,\text{Sin}[x])\Big)\Big)+\mathrm{i}\Big/\Big(\sqrt{1+\mathrm{i}}\,((-1-\mathrm{i})+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}})^2$$

$$(\sqrt{-1+\mathrm{i}}\,(1-\mathrm{i})^{1/4}\,(1+\mathrm{i})^{3/4}-\sqrt{1-\mathrm{i}}\,\text{Cos}[x]+\sqrt{1+\mathrm{i}}\,\text{Cos}[x]+\mathrm{i}\,\sqrt{1-\mathrm{i}}\,\text{Sin}[x]+\mathrm{i}\,\sqrt{1+\mathrm{i}}\,\text{Sin}[x])\Big)-$$

$$(2\,\mathrm{i}\,(1-\mathrm{i})^{3/4}\,\text{Sin}[x])\Big/\Big(\sqrt{-1+\mathrm{i}}\,(1+\mathrm{i})^{3/4}\,((-1-\mathrm{i})+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}})^2\,(\sqrt{-1+\mathrm{i}}\,(1-\mathrm{i})^{1/4}\,(1+\mathrm{i})^{3/4}-\sqrt{1-\mathrm{i}}\,\text{Cos}[x]+$$

$$\sqrt{1+\mathrm{i}}\,\text{Cos}[x]+\mathrm{i}\,\sqrt{1-\mathrm{i}}\,\text{Sin}[x]+\mathrm{i}\,\sqrt{1+\mathrm{i}}\,\text{Sin}[x])\Big)+(2\,\text{Sin}[x])\Big/\Big(\sqrt{-1+\mathrm{i}}\,(1-\mathrm{i})^{3/4}\,(1+\mathrm{i})^{1/4}\,((-1-\mathrm{i})+\sqrt{1-\mathrm{i}}\,\sqrt{1+\mathrm{i}})^2$$

$$(\sqrt{-1+\mathrm{i}}\,(1-\mathrm{i})^{1/4}\,(1+\mathrm{i})^{3/4}-\sqrt{1-\mathrm{i}}\,\text{Cos}[x]+\sqrt{1+\mathrm{i}}\,\text{Cos}[x]+\mathrm{i}\,\sqrt{1-\mathrm{i}}\,\text{Sin}[x]+\mathrm{i}\,\sqrt{1+\mathrm{i}}\,\text{Sin}[x])\Big)\Big)\Big)\Big/$$

$$\Big(-2\,(-1)^{3/8}\,(1+(-1)^{1/4})\,(-2+\sqrt{2})\,(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})+$$

$$\Big(2\,(-1)^{3/8}\,((4+4\,\mathrm{i})-2\,(-1)^{5/8}+2\,(-1)^{7/8}-(3+3\,\mathrm{i})\sqrt{2}+2\,(-1)^{5/8}\sqrt{2}-2\,(-1)^{7/8}\sqrt{2})$$

$$\Big(-\frac{\text{Sin}[x]\,((-1)^{3/4}\,\text{Cos}[x]-(-1+(-1)^{1/4})\,\text{Sin}[x])}{((-1+(-1)^{1/4})\,\text{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\text{Sin}[x]))^2}+\frac{\text{Cos}[x]}{(-1+(-1)^{1/4})\,\text{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\text{Sin}[x])}\Big)\Big)\Big/$$

$$\Big(1+\frac{\text{Sin}[x]^2}{((-1+(-1)^{1/4})\,\text{Cos}[x]+(-1)^{5/8}\,(\sqrt{2}+(-1)^{1/8}\,\text{Sin}[x]))^2}\Big)+$$

$$2\,(-1)^{7/8}\,((3+\mathrm{i})-(2+\mathrm{i})\sqrt{2})\,(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2})\,\text{Tan}\Big[\frac{x}{2}\Big]+$$

$$\left((-1)^{7/8}\left((4+4\,i)-2\,(-1)^{5/8}+2\,(-1)^{7/8}-(3+3\,i)\,\sqrt{2}+2\,(-1)^{5/8}\sqrt{2}-2\,(-1)^{7/8}\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]^4\right.$$
$$\left(-\text{Sec}\left[\frac{x}{2}\right]^4\left(2\,(-1)^{3/8}\sqrt{2}\,\text{Cos}[x]+2\,\text{Cos}[2\,x]+2\,(-1)^{3/4}\,\text{Cos}[2\,x]+2\,(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\text{Sin}[x]-2\left(-i+(-1)^{1/4}\right)\text{Sin}[2\,x]\right)-\right.$$
$$2\,\text{Sec}\left[\frac{x}{2}\right]^4\left(-1+3\,(-1)^{1/4}-2\,(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\text{Cos}[x]+\right.$$
$$\left.\left.\left.\left(-i+(-1)^{1/4}\right)\text{Cos}[2\,x]+2\,(-1)^{3/8}\sqrt{2}\,\text{Sin}[x]+\text{Sin}[2\,x]+(-1)^{3/4}\,\text{Sin}[2\,x]\right)\text{Tan}\left[\frac{x}{2}\right]\right)\right)\Big/$$
$$\left(-1+3\,(-1)^{1/4}-2\,(-1)^{5/8}\sqrt{2}\left(-1+(-1)^{1/4}\right)\text{Cos}[x]+\left(-i+(-1)^{1/4}\right)\text{Cos}[2\,x]+2\,(-1)^{3/8}\sqrt{2}\,\text{Sin}[x]+\text{Sin}[2\,x]+(-1)^{3/4}\,\text{Sin}[2\,x]\right)-$$
$$\left(2\,(-1)^{1/8}\left(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\right)\left((-1+i)+(1+i)\,(-1)^{1/8}-(2+i)\,(-1)^{3/8}+(1+2\,i)\,(-1)^{7/8}+\sqrt{2}+(1-i)\,(-1)^{5/8}\sqrt{2}\right)\text{Sec}\left[\frac{x}{2}\right]^2\right)\Big/$$
$$\left.\left(1-\frac{1}{2}\,(-1)^{3/4}\left(i+(-1)^{3/4}+\left(1-(-1)^{1/4}+(-1)^{5/8}\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]\right)^2\right)\right)$$

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

$$\int \text{Cos}[x]\,\text{Tan}[5\,x]\,dx$$

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

$$\frac{1}{5}\sqrt{\frac{1}{2}\left(5+\sqrt{5}\right)}\,\text{ArcTanh}\left[2\sqrt{\frac{2}{5+\sqrt{5}}}\,\text{Cos}[x]\right]+\frac{1}{5}\sqrt{\frac{1}{2}\left(5-\sqrt{5}\right)}\,\text{ArcTanh}\left[\sqrt{\frac{2}{5}\left(5+\sqrt{5}\right)}\,\text{Cos}[x]\right]-\text{Cos}[x]$$

Result (type 3, 215 leaves):

$$\frac{\left(1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{4-\left(-1+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2\left(5+\sqrt{5}\right)}}\right]}{\sqrt{10\left(5+\sqrt{5}\right)}}+\frac{\left(1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{4+\left(-1+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2\left(5+\sqrt{5}\right)}}\right]}{\sqrt{10\left(5+\sqrt{5}\right)}}+$$
$$\frac{\left(-1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{4-\left(1+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{10-2\sqrt{5}}}\right]}{\sqrt{50-10\sqrt{5}}}+\frac{\left(-1+\sqrt{5}\right)\text{ArcTanh}\left[\frac{4+\left(1+\sqrt{5}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{10-2\sqrt{5}}}\right]}{\sqrt{50-10\sqrt{5}}}-\text{Cos}[x]$$

Problem 109: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Tan}[6\,x]\,dx$$

Optimal (type 3, 89 leaves, 10 steps):

$$\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cos}[x]\right]}{3\sqrt{2}}+\frac{1}{6}\sqrt{2-\sqrt{3}}\,\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2-\sqrt{3}}}\right]+\frac{1}{6}\sqrt{2+\sqrt{3}}\,\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{2+\sqrt{3}}}\right]-\text{Cos}[x]$$

Result (type 3, 776 leaves):

$$\left(-\frac{1}{6}-\frac{i}{6}\right)(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\,\text{Sec}\left[\frac{x}{2}\right]\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)\right]+\left(\frac{1}{6}+\frac{i}{6}\right)(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{x}{2}\right]\left(\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right)\right]-$$

$$\text{Cos}[x]+\frac{x+2\sqrt{3}\,\text{ArcTanh}\left[\frac{\sqrt{2}+\left(-1+\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\left(1+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right)\right]}{12\sqrt{2}}+$$

$$\left(\left(1+\sqrt{2}\right)\left(x-2\sqrt{3}\,\text{ArcTanh}\left[\frac{2+\left(2+\sqrt{2}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{6}}\right]-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[-\text{Sec}\left[\frac{x}{2}\right]^2\left(\sqrt{2}-2\,\text{Cos}[x]+2\,\text{Sin}[x]\right)\right]\right)\right.$$

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

$$\left(12\left(-12-9\sqrt{2}+4\left(3+2\sqrt{2}\right)\text{Cos}[x]+\left(4+3\sqrt{2}\right)\text{Cos}[2x]-18\,\text{Sin}[x]-12\sqrt{2}\,\text{Sin}[x]+4\,\text{Sin}[2x]+3\sqrt{2}\,\text{Sin}[2x]\right)\right)-$$

$$\left(\left(2\left(-2+\sqrt{6}\right)\text{ArcTanh}\left[\sqrt{2}+\left(\sqrt{2}-\sqrt{3}\right)\text{Tan}\left[\frac{x}{2}\right]\right]+\left(3\sqrt{2}-2\sqrt{3}\right)\left(x-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[-\text{Sec}\left[\frac{x}{2}\right]^2\left(\sqrt{3}+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right)\right]\right)\right)\right.$$

$$\left.\left(\sqrt{2}-\sqrt{3}\,\text{Sin}[x]\right)\left(-3+\sqrt{6}-\left(-2+\sqrt{6}\right)\text{Cos}[x]+\left(-2+\sqrt{6}\right)\text{Sin}[x]\right)\right)\Big/$$

$$\left(12\left(-36+15\sqrt{6}+\left(20-8\sqrt{6}\right)\text{Cos}[x]+\left(12-5\sqrt{6}\right)\text{Cos}[2x]-50\,\text{Sin}[x]+20\sqrt{6}\,\text{Sin}[x]+12\,\text{Sin}[2x]-5\sqrt{6}\,\text{Sin}[2x]\right)\right)+$$

$$\left(\left(-2\left(\sqrt{2}+\sqrt{3}\right)\text{ArcTanh}\left[\frac{2+\left(2+\sqrt{6}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]+\left(3+\sqrt{6}\right)\left(x-\text{Log}\left[\text{Sec}\left[\frac{x}{2}\right]^2\right]+\text{Log}\left[-\text{Sec}\left[\frac{x}{2}\right]^2\left(\sqrt{6}-2\,\text{Cos}[x]+2\,\text{Sin}[x]\right)\right]\right)\right)\right.$$

$$\left.\left(2+\sqrt{6}\,\text{Sin}[x]\right)\left(3+\sqrt{6}-\left(2+\sqrt{6}\right)\text{Cos}[x]+\left(2+\sqrt{6}\right)\text{Sin}[x]\right)\right)\Big/$$

$$\left(12\left(-36-15\sqrt{6}+4\left(5+2\sqrt{6}\right)\text{Cos}[x]+\left(12+5\sqrt{6}\right)\text{Cos}[2x]-50\,\text{Sin}[x]-20\sqrt{6}\,\text{Sin}[x]+12\,\text{Sin}[2x]+5\sqrt{6}\,\text{Sin}[2x]\right)\right)$$

Problem 110: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Cot}[2x]\,dx$$

Optimal (type 3, 10 leaves, 4 steps):

$$-\frac{1}{2}\,\text{ArcTanh}[\text{Cos}[x]]+\text{Cos}[x]$$

Result (type 3, 25 leaves):

$$\text{Cos}[x]-\frac{1}{2}\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\frac{1}{2}\,\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 112: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Cot}[4\,x]\,dx$$

Optimal (type 3, 28 leaves, 6 steps):

$$-\frac{1}{4}\,\text{ArcTanh}[\text{Cos}[x]]-\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cos}[x]\right]}{2\,\sqrt{2}}+\text{Cos}[x]$$

Result (type 3, 73 leaves):

$$\frac{1}{4}\left((-1-i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\frac{-1+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]-(1-i)\,(-1)^{1/4}\,\text{ArcTanh}\left[\frac{1+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]+4\,\text{Cos}[x]-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 114: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Cot}[6\,x]\,dx$$

Optimal (type 3, 38 leaves, 7 steps):

$$-\frac{1}{6}\,\text{ArcTanh}[\text{Cos}[x]]-\frac{1}{6}\,\text{ArcTanh}[2\,\text{Cos}[x]]-\frac{\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{3}}\right]}{2\,\sqrt{3}}+\text{Cos}[x]$$

Result (type 3, 87 leaves):

$$\frac{1}{12}\left(2\,\sqrt{3}\,\text{ArcTanh}\left[\frac{-2+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-2\,\sqrt{3}\,\text{ArcTanh}\left[\frac{2+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]+12\,\text{Cos}[x]-2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}[1-2\,\text{Cos}[x]]-\text{Log}[1+2\,\text{Cos}[x]]+2\,\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 116: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Sec}[2\,x]\,dx$$

Optimal (type 3, 15 leaves, 2 steps):

$$\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Sin}[x]\right]}{\sqrt{2}}$$

Result (type 3, 174 leaves):

$$\frac{1}{4\sqrt{2}}\left(-2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]-2\,i\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]+\right.$$
$$\left.2\,\text{Log}\left[\sqrt{2}+2\,\text{Sin}[x]\right]-\text{Log}\left[2-\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]-\text{Log}\left[2+\sqrt{2}\,\text{Cos}[x]-\sqrt{2}\,\text{Sin}[x]\right]\right)$$

Problem 118: Result is not expressed in closed-form.

$$\int \text{Cos}[x]\,\text{Sec}[4\,x]\,dx$$

Optimal (type 3, 71 leaves, 4 steps):

$$\frac{\text{ArcTanh}\left[\frac{2\,\text{Sin}[x]}{\sqrt{2-\sqrt{2}}}\right]}{2\sqrt{2\left(2-\sqrt{2}\right)}}-\frac{\text{ArcTanh}\left[\frac{2\,\text{Sin}[x]}{\sqrt{2+\sqrt{2}}}\right]}{2\sqrt{2\left(2+\sqrt{2}\right)}}$$

Result (type 7, 91 leaves):

$$\frac{1}{16}\,\text{RootSum}\left[1+\#1^8\,\&,\ \frac{1}{\#1^5}\left(2\,\text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\right]-i\,\text{Log}\left[1-2\,\text{Cos}[x]\,\#1+\#1^2\right]+2\,\text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\right]\#1^2-i\,\text{Log}\left[1-2\,\text{Cos}[x]\,\#1+\#1^2\right]\#1^2\right)\&\right]$$

Problem 120: Result is not expressed in closed-form.

$$\int \text{Cos}[x]\,\text{Sec}[6\,x]\,dx$$

Optimal (type 3, 85 leaves, 7 steps):

$$-\frac{\text{ArcTanh}\left[\sqrt{2}\ \text{Sin}[x]\right]}{3\sqrt{2}}+\frac{\text{ArcTanh}\left[\frac{2\,\text{Sin}[x]}{\sqrt{2-\sqrt{3}}}\right]}{6\sqrt{2-\sqrt{3}}}+\frac{\text{ArcTanh}\left[\frac{2\,\text{Sin}[x]}{\sqrt{2+\sqrt{3}}}\right]}{6\sqrt{2+\sqrt{3}}}$$

Result (type 7, 356 leaves) :

$$\frac{1}{24}\left(\sqrt{2}\left(2\,\text{i}\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]+2\,\text{i}\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{2}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{2}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}\right]-\right.\right.$$

$$\left.2\,\text{Log}\left[\sqrt{2}+2\,\text{Sin}[x]\right]+\text{Log}\left[2-\sqrt{2}\ \text{Cos}[x]-\sqrt{2}\ \text{Sin}[x]\right]+\text{Log}\left[2+\sqrt{2}\ \text{Cos}[x]-\sqrt{2}\ \text{Sin}[x]\right]\right)+\text{RootSum}\left[1-\#1^4+\#1^8\ \&,\right.$$

$$\frac{1}{-\#1^3+2\,\#1^7}\left(2\,\text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\right]-\text{i}\,\text{Log}\left[1-2\,\text{Cos}[x]\,\#1+\#1^2\right]+2\,\text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\right]\#1^2-\text{i}\,\text{Log}\left[1-2\,\text{Cos}[x]\,\#1+\#1^2\right]\#1^2+\right.$$

$$\left.\left.2\,\text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\right]\#1^4-\text{i}\,\text{Log}\left[1-2\,\text{Cos}[x]\,\#1+\#1^2\right]\#1^4+2\,\text{ArcTan}\left[\frac{\text{Sin}[x]}{\text{Cos}[x]-\#1}\right]\#1^6-\text{i}\,\text{Log}\left[1-2\,\text{Cos}[x]\,\#1+\#1^2\right]\#1^6\right)\ \&\right]\right)$$

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

$$\int \text{Cos}[2\,x]\ \text{Sec}[x]\ dx$$

Optimal (type 3, 10 leaves, 3 steps) :

$$-\text{ArcTanh}[\text{Sin}[x]]+2\,\text{Sin}[x]$$

Result (type 3, 37 leaves) :

$$\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+2\,\text{Sin}[x]$$

Problem 123: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\ \text{Csc}[2\,x]\ dx$$

Optimal (type 3, 7 leaves, 2 steps) :

$$-\frac{1}{2}\,\text{ArcTanh}[\text{Cos}[x]]$$

Result (type 3, 21 leaves) :

$$\frac{1}{2}\left(-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 125: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Csc}[4\,x]\,dx$$

Optimal (type 3, 26 leaves, 4 steps):

$$-\frac{1}{4}\,\text{ArcTanh}[\text{Cos}[x]]+\frac{\text{ArcTanh}\left[\sqrt{2}\,\text{Cos}[x]\right]}{2\,\sqrt{2}}$$

Result (type 3, 66 leaves):

$$\frac{1}{4}\left((1+i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\frac{-1+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]+\sqrt{2}\,\text{ArcTanh}\left[\frac{1+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 127: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Csc}[6\,x]\,dx$$

Optimal (type 3, 36 leaves, 7 steps):

$$-\frac{1}{6}\,\text{ArcTanh}[\text{Cos}[x]]-\frac{1}{6}\,\text{ArcTanh}[2\,\text{Cos}[x]]+\frac{\text{ArcTanh}\left[\frac{2\,\text{Cos}[x]}{\sqrt{3}}\right]}{2\,\sqrt{3}}$$

Result (type 3, 83 leaves):

$$\frac{1}{12}\left(-2\,\sqrt{3}\,\text{ArcTanh}\left[\frac{-2+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]+2\,\sqrt{3}\,\text{ArcTanh}\left[\frac{2+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{3}}\right]-2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}[1-2\,\text{Cos}[x]]-\text{Log}[1+2\,\text{Cos}[x]]+2\,\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 174: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 186 leaves, 11 steps):

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

Result (type 4, 150 leaves) :

$$\frac{1}{2\sqrt{2}\left(1+e^{2 i (e+f x)}\right)}c\,e^{-i (e-f x)}\sqrt{-i\,c\,e^{-i (e+f x)}\left(i+e^{i (e+f x)}\right)^2}\left(2 e^{i e}\,\text{ExpIntegralEi}[-i f x]+2 e^{3 i e}\,\text{ExpIntegralEi}[i f x]+i\left(\text{ExpIntegralEi}[-2 i f x]-e^{4 i e}\,\text{ExpIntegralEi}[2 i f x]\right)\right)\sqrt{a-a\,\text{Sin}[e+f x]}$$

Problem 175: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 273 leaves, 13 steps) :

$$-\frac{c\sqrt{a-a\,\text{Sin}[e+f x]}\,\sqrt{c+c\,\text{Sin}[e+f x]}}{x}+c\,f\,\text{Cos}[2 e]\,\text{CosIntegral}[2 f x]\,\text{Sec}[e+f x]\,\sqrt{a-a\,\text{Sin}[e+f x]}\,\sqrt{c+c\,\text{Sin}[e+f x]}-c\,f\,\text{CosIntegral}[f x]\,\text{Sec}[e+f x]\,\text{Sin}[e]\,\sqrt{a-a\,\text{Sin}[e+f x]}\,\sqrt{c+c\,\text{Sin}[e+f x]}-\frac{c\,\text{Sec}[e+f x]\,\sqrt{a-a\,\text{Sin}[e+f x]}\,\sqrt{c+c\,\text{Sin}[e+f x]}\,\text{Sin}[2 e+2 f x]}{2 x}-c\,f\,\text{Cos}[e]\,\text{Sec}[e+f x]\,\sqrt{a-a\,\text{Sin}[e+f x]}\,\sqrt{c+c\,\text{Sin}[e+f x]}\,\text{SinIntegral}[f x]-c\,f\,\text{Sec}[e+f x]\,\text{Sin}[2 e]\,\sqrt{a-a\,\text{Sin}[e+f x]}\,\sqrt{c+c\,\text{Sin}[e+f x]}\,\text{SinIntegral}[2 f x]$$

Result (type 4, 231 leaves) :

$$\frac{1}{2\sqrt{2}\left(1+e^{2 i (e+f x)}\right)x}c\,e^{-i (e+f x)}\sqrt{-i\,c\,e^{-i (e+f x)}\left(i+e^{i (e+f x)}\right)^2}\left(-i-2 e^{i (e+f x)}-2 e^{3 i (e+f x)}+i\,e^{4 i (e+f x)}-2 i\,e^{i (e+2 f x)}\,f\,x\,\text{ExpIntegralEi}[-i f x]+2 i\,e^{3 i e+2 i f x}\,f\,x\,\text{ExpIntegralEi}[i f x]+2 e^{2 i f x}\,f\,x\,\text{ExpIntegralEi}[-2 i f x]+2 e^{2 i (2 e+f x)}\,f\,x\,\text{ExpIntegralEi}[2 i f x]\right)\sqrt{a-a\,\text{Sin}[e+f x]}$$

Problem 176: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 4, 385 leaves, 15 steps):

$$-\frac{c\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}{2\,x^2}-\frac{c\,f\,\mathrm{Cos}[2\,e+2\,f\,x]\ \mathrm{Sec}[e+f\,x]\ \sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}{2\,x}-$$
$$\frac{1}{2}\,c\,f^2\,\mathrm{Cos}[e]\ \mathrm{CosIntegral}[f\,x]\ \mathrm{Sec}[e+f\,x]\ \sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}\ -$$
$$c\,f^2\,\mathrm{CosIntegral}[2\,f\,x]\ \mathrm{Sec}[e+f\,x]\ \mathrm{Sin}[2\,e]\ \sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}\ -$$
$$\frac{c\,\mathrm{Sec}[e+f\,x]\ \sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}\ \mathrm{Sin}[2\,e+2\,f\,x]}{4\,x^2}+$$
$$\frac{1}{2}\,c\,f^2\,\mathrm{Sec}[e+f\,x]\ \mathrm{Sin}[e]\ \sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}\ \mathrm{SinIntegral}[f\,x]\ -$$
$$c\,f^2\,\mathrm{Cos}[2\,e]\ \mathrm{Sec}[e+f\,x]\ \sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}\ \mathrm{SinIntegral}[2\,f\,x]+\frac{c\,f\,\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}\ \mathrm{Tan}[e+f\,x]}{2\,x}$$

Result (type 4, 317 leaves):

$$\frac{1}{4\sqrt{2}\,\left(-i+e^{i\,(e+f\,x)}\right)\sqrt{-i\,c\,e^{-i\,(e+f\,x)}\left(i+e^{i\,(e+f\,x)}\right)^2}\ x^2}\,c^2\,e^{-2\,i\,(e+f\,x)}\,\left(i+e^{i\,(e+f\,x)}\right)$$
$$\Big(-1+2\,i\,e^{i\,(e+f\,x)}+2\,i\,e^{3\,i\,(e+f\,x)}+e^{4\,i\,(e+f\,x)}+2\,i\,f\,x+2\,e^{i\,(e+f\,x)}\,f\,x-2\,e^{3\,i\,(e+f\,x)}\,f\,x+2\,i\,e^{4\,i\,(e+f\,x)}\,f\,x+2\,i\,e^{i\,(e+2\,f\,x)}\,f^2\,x^2\,\mathrm{ExpIntegralEi}[-i\,f\,x]+$$
$$2\,i\,e^{3\,i\,e+2\,i\,f\,x}\,f^2\,x^2\,\mathrm{ExpIntegralEi}[i\,f\,x]-4\,e^{2\,i\,f\,x}\,f^2\,x^2\,\mathrm{ExpIntegralEi}[-2\,i\,f\,x]+4\,e^{2\,i\,(2\,e+f\,x)}\,f^2\,x^2\,\mathrm{ExpIntegralEi}[2\,i\,f\,x]\Big)\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}$$

Problem 182: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 280 leaves, 34 steps):

$$-\frac{2\,a\,x}{c\,f^2\,\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}+\frac{2\,a\,\mathrm{ArcTanh}[\mathrm{Sin}[e+f\,x]]\ \mathrm{Cos}[e+f\,x]}{c\,f^3\,\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}+\frac{2\,a\,\mathrm{Cos}[e+f\,x]\ \mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{c\,f^3\,\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}-$$
$$\frac{a\,x^2\,\mathrm{Sec}[e+f\,x]}{c\,f\,\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}+\frac{2\,a\,x\,\mathrm{Sin}[e+f\,x]}{c\,f^2\,\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}+\frac{a\,x^2\,\mathrm{Tan}[e+f\,x]}{c\,f\,\sqrt{a-a\,\mathrm{Sin}[e+f\,x]}\ \sqrt{c+c\,\mathrm{Sin}[e+f\,x]}}$$

Result (type 3, 178 leaves):

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

Problem 185: Result more than twice size of optimal antiderivative.

$$\int (a + a \operatorname{Cos}[x]) (A + B \operatorname{Sec}[x]) \, dx$$

Optimal (type 3, 18 leaves, 5 steps):

$$a (A + B) x + a B \operatorname{ArcTanh}[\operatorname{Sin}[x]] + a A \operatorname{Sin}[x]$$

Result (type 3, 51 leaves):

$$a A x + a B x - a B \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] - \operatorname{Sin}\left[\frac{x}{2}\right]\right] + a B \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] + \operatorname{Sin}\left[\frac{x}{2}\right]\right] + a A \operatorname{Sin}[x]$$

Problem 189: Result more than twice size of optimal antiderivative.

$$\int \frac{A + B \operatorname{Sec}[x]}{a + a \operatorname{Cos}[x]} \, dx$$

Optimal (type 3, 25 leaves, 4 steps):

$$\frac{B \operatorname{ArcTanh}[\operatorname{Sin}[x]]}{a} + \frac{(A - B) \operatorname{Sin}[x]}{a + a \operatorname{Cos}[x]}$$

Result (type 3, 71 leaves):

$$-\frac{2 \operatorname{Cos}\left[\frac{x}{2}\right] \left(B \operatorname{Cos}\left[\frac{x}{2}\right] \left(\operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] - \operatorname{Sin}\left[\frac{x}{2}\right]\right] - \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] + \operatorname{Sin}\left[\frac{x}{2}\right]\right]\right) + (-A + B) \operatorname{Sin}\left[\frac{x}{2}\right]\right)}{a (1 + \operatorname{Cos}[x])}$$

Problem 193: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (a + a \operatorname{Cos}[x])^{5/2} (A + B \operatorname{Sec}[x]) \, dx$$

Optimal (type 3, 98 leaves, 6 steps):

$$2 a^{5/2} B \operatorname{ArcTanh}\left[\frac{\sqrt{a} \operatorname{Sin}[x]}{\sqrt{a + a \operatorname{Cos}[x]}}\right] + \frac{2 a^3 (32 A + 35 B) \operatorname{Sin}[x]}{15 \sqrt{a + a \operatorname{Cos}[x]}} + \frac{2}{15} a^2 (8 A + 5 B) \sqrt{a + a \operatorname{Cos}[x]} \operatorname{Sin}[x] + \frac{2}{5} a A (a + a \operatorname{Cos}[x])^{3/2} \operatorname{Sin}[x]$$

Result (type 3, 283 leaves):

$$\frac{1}{60} a^2 \sqrt{a\,(1+\text{Cos}[x])}\ \text{Sec}\left[\frac{x}{2}\right] \left(-30\,i\,\sqrt{2}\ B\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right] - 30\,i\,\sqrt{2}\ B\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right] + 30\sqrt{2}\ B\,\text{Log}\left[\sqrt{2}+2\,\text{Sin}\left[\frac{x}{2}\right]\right] - 15\sqrt{2}\ B\,\text{Log}\left[2-\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right] - 15\sqrt{2}\ B\,\text{Log}\left[2+\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right] + 300\,A\,\text{Sin}\left[\frac{x}{2}\right] + 300\,B\,\text{Sin}\left[\frac{x}{2}\right] + 50\,A\,\text{Sin}\left[\frac{3x}{2}\right] + 20\,B\,\text{Sin}\left[\frac{3x}{2}\right] + 6\,A\,\text{Sin}\left[\frac{5x}{2}\right]\right)$$

Problem 194: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (a+a\,\text{Cos}[x])^{3/2}\,(A+B\,\text{Sec}[x])\,dx$$

Optimal (type 3, 72 leaves, 5 steps):

$$2\,a^{3/2}\,B\,\text{ArcTanh}\left[\frac{\sqrt{a}\ \text{Sin}[x]}{\sqrt{a+a\,\text{Cos}[x]}}\right] + \frac{2\,a^2\,(4\,A+3\,B)\,\text{Sin}[x]}{3\sqrt{a+a\,\text{Cos}[x]}} + \frac{2}{3}\,a\,A\,\sqrt{a+a\,\text{Cos}[x]}\ \text{Sin}[x]$$

Result (type 3, 263 leaves):

$$\frac{1}{12}\,a\,\sqrt{a\,(1+\text{Cos}[x])}\ \text{Sec}\left[\frac{x}{2}\right] \left(-6\,i\,\sqrt{2}\ B\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right] - 6\,i\,\sqrt{2}\ B\,\text{ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right] + 6\sqrt{2}\ B\,\text{Log}\left[\sqrt{2}+2\,\text{Sin}\left[\frac{x}{2}\right]\right] - 3\sqrt{2}\ B\,\text{Log}\left[2-\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right] - 3\sqrt{2}\ B\,\text{Log}\left[2+\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right] + 36\,A\,\text{Sin}\left[\frac{x}{2}\right] + 24\,B\,\text{Sin}\left[\frac{x}{2}\right] + 4\,A\,\text{Sin}\left[\frac{3x}{2}\right]\right)$$

Problem 195: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \sqrt{a+a\,\text{Cos}[x]}\ (A+B\,\text{Sec}[x])\,dx$$

Optimal (type 3, 44 leaves, 4 steps):

$$2\sqrt{a}\ B\,\text{ArcTanh}\left[\frac{\sqrt{a}\ \text{Sin}[x]}{\sqrt{a+a\,\text{Cos}[x]}}\right] + \frac{2\,a\,A\,\text{Sin}[x]}{\sqrt{a+a\,\text{Cos}[x]}}$$

Result (type 3, 244 leaves):

$$\frac{1}{4}\sqrt{a\left(1+\text{Cos}[x]\right)}\ \text{Sec}\left[\frac{x}{2}\right]\left(-2\,\mathrm{i}\,\sqrt{2}\ \text{B ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right]-2\,\mathrm{i}\,\sqrt{2}\ \text{B ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right]+\right.$$
$$\left.2\sqrt{2}\ \text{B Log}\left[\sqrt{2}+2\,\text{Sin}\left[\frac{x}{2}\right]\right]-\sqrt{2}\ \text{B Log}\left[2-\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right]-\sqrt{2}\ \text{B Log}\left[2+\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right]+8\,\text{A Sin}\left[\frac{x}{2}\right]\right)$$

Problem 196: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{A+B\,\text{Sec}[x]}{\sqrt{a+a\,\text{Cos}[x]}}\,dx$$

Optimal (type 3, 68 leaves, 6 steps):

$$\frac{2\,\text{B ArcTanh}\left[\frac{\sqrt{a}\ \text{Sin}[x]}{\sqrt{a+a\,\text{Cos}[x]}}\right]}{\sqrt{a}}+\frac{\sqrt{2}\ (A-B)\ \text{ArcTanh}\left[\frac{\sqrt{a}\ \text{Sin}[x]}{\sqrt{2}\ \sqrt{a+a\,\text{Cos}[x]}}\right]}{\sqrt{a}}$$

Result (type 3, 307 leaves):

$$\frac{1}{2\sqrt{a\left(1+\text{Cos}[x]\right)}}$$
$$\text{Cos}\left[\frac{x}{2}\right]\left(-2\,\mathrm{i}\,\sqrt{2}\ \text{B ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(-1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right]-2\,\mathrm{i}\,\sqrt{2}\ \text{B ArcTan}\left[\frac{\text{Cos}\left[\frac{x}{4}\right]-\left(1+\sqrt{2}\right)\text{Sin}\left[\frac{x}{4}\right]}{\left(-1+\sqrt{2}\right)\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]}\right]-4\,\text{A Log}\left[\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]\right]+\right.$$
$$4\,\text{B Log}\left[\text{Cos}\left[\frac{x}{4}\right]-\text{Sin}\left[\frac{x}{4}\right]\right]+4\,\text{A Log}\left[\text{Cos}\left[\frac{x}{4}\right]+\text{Sin}\left[\frac{x}{4}\right]\right]-4\,\text{B Log}\left[\text{Cos}\left[\frac{x}{4}\right]+\text{Sin}\left[\frac{x}{4}\right]\right]+$$
$$\left.2\sqrt{2}\ \text{B Log}\left[\sqrt{2}+2\,\text{Sin}\left[\frac{x}{2}\right]\right]-\sqrt{2}\ \text{B Log}\left[2-\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right]-\sqrt{2}\ \text{B Log}\left[2+\sqrt{2}\ \text{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\ \text{Sin}\left[\frac{x}{2}\right]\right]\right)$$

Problem 197: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{A+B\,\text{Sec}[x]}{\left(a+a\,\text{Cos}[x]\right)^{3/2}}\,dx$$

Optimal (type 3, 92 leaves, 7 steps):

$$\frac{2\,\text{B ArcTanh}\left[\frac{\sqrt{a}\ \text{Sin}[x]}{\sqrt{a+a\,\text{Cos}[x]}}\right]}{a^{3/2}}+\frac{(A-5\,B)\ \text{ArcTanh}\left[\frac{\sqrt{a}\ \text{Sin}[x]}{\sqrt{2}\ \sqrt{a+a\,\text{Cos}[x]}}\right]}{2\sqrt{2}\ a^{3/2}}+\frac{(A-B)\ \text{Sin}[x]}{2\left(a+a\,\text{Cos}[x]\right)^{3/2}}$$

Result (type 3, 524 leaves):

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

$$\left(-4\,i\,\sqrt{2}\,B\,\mathrm{ArcTan}\left[\frac{\mathrm{Cos}\left[\frac{x}{4}\right]-\left(-1+\sqrt{2}\right)\mathrm{Sin}\left[\frac{x}{4}\right]}{\left(1+\sqrt{2}\right)\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]}\right]\mathrm{Cos}\left[\frac{x}{2}\right]^2-4\,i\,\sqrt{2}\,B\,\mathrm{ArcTan}\left[\frac{\mathrm{Cos}\left[\frac{x}{4}\right]-\left(1+\sqrt{2}\right)\mathrm{Sin}\left[\frac{x}{4}\right]}{\left(-1+\sqrt{2}\right)\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]}\right]\mathrm{Cos}\left[\frac{x}{2}\right]^2-A\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]\right]+\right.$$

$$5\,B\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]\right]-A\,\mathrm{Cos}[x]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]\right]+5\,B\,\mathrm{Cos}[x]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]\right]+A\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]+\mathrm{Sin}\left[\frac{x}{4}\right]\right]-$$

$$5\,B\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]+\mathrm{Sin}\left[\frac{x}{4}\right]\right]+A\,\mathrm{Cos}[x]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]+\mathrm{Sin}\left[\frac{x}{4}\right]\right]-5\,B\,\mathrm{Cos}[x]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]+\mathrm{Sin}\left[\frac{x}{4}\right]\right]+2\sqrt{2}\,B\,\mathrm{Log}\left[\sqrt{2}+2\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]+$$

$$2\sqrt{2}\,B\,\mathrm{Cos}[x]\,\mathrm{Log}\left[\sqrt{2}+2\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]-\sqrt{2}\,B\,\mathrm{Log}\left[2-\sqrt{2}\,\mathrm{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]-\sqrt{2}\,B\,\mathrm{Cos}[x]\,\mathrm{Log}\left[2-\sqrt{2}\,\mathrm{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]-$$

$$\left.\sqrt{2}\,B\,\mathrm{Log}\left[2+\sqrt{2}\,\mathrm{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]-\sqrt{2}\,B\,\mathrm{Cos}[x]\,\mathrm{Log}\left[2+\sqrt{2}\,\mathrm{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]+2\,A\,\mathrm{Sin}\left[\frac{x}{2}\right]-2\,B\,\mathrm{Sin}\left[\frac{x}{2}\right]\right)$$

Problem 198: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{A+B\,\mathrm{Sec}[x]}{(a+a\,\mathrm{Cos}[x])^{5/2}}\,dx$$

Optimal (type 3, 120 leaves, 8 steps):

$$\frac{2\,B\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Sin}[x]}{\sqrt{a+a\,\mathrm{Cos}[x]}}\right]}{a^{5/2}}+\frac{(3\,A-43\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Sin}[x]}{\sqrt{2}\,\sqrt{a+a\,\mathrm{Cos}[x]}}\right]}{16\sqrt{2}\,a^{5/2}}+\frac{(A-B)\,\mathrm{Sin}[x]}{4\,(a+a\,\mathrm{Cos}[x])^{5/2}}+\frac{(3\,A-11\,B)\,\mathrm{Sin}[x]}{16\,a\,(a+a\,\mathrm{Cos}[x])^{3/2}}$$

Result (type 3, 393 leaves):

$$\frac{1}{8\,(a\,(1+\mathrm{Cos}[x]))^{5/2}\,(B+A\,\mathrm{Cos}[x])}\mathrm{Cos}\left[\frac{x}{2}\right]^5\mathrm{Cos}[x]\,(A+B\,\mathrm{Sec}[x])$$

$$\left(-32\,i\,\sqrt{2}\,B\,\mathrm{ArcTan}\left[\frac{\mathrm{Cos}\left[\frac{x}{4}\right]-\left(-1+\sqrt{2}\right)\mathrm{Sin}\left[\frac{x}{4}\right]}{\left(1+\sqrt{2}\right)\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]}\right]-32\,i\,\sqrt{2}\,B\,\mathrm{ArcTan}\left[\frac{\mathrm{Cos}\left[\frac{x}{4}\right]-\left(1+\sqrt{2}\right)\mathrm{Sin}\left[\frac{x}{4}\right]}{\left(-1+\sqrt{2}\right)\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]}\right]+2\,(-3\,A+43\,B)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]\right]+\right.$$

$$2\,(3\,A-43\,B)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{4}\right]+\mathrm{Sin}\left[\frac{x}{4}\right]\right]+32\sqrt{2}\,B\,\mathrm{Log}\left[\sqrt{2}+2\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]-16\sqrt{2}\,B\,\mathrm{Log}\left[2-\sqrt{2}\,\mathrm{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]-$$

$$\left.16\sqrt{2}\,B\,\mathrm{Log}\left[2+\sqrt{2}\,\mathrm{Cos}\left[\frac{x}{2}\right]-\sqrt{2}\,\mathrm{Sin}\left[\frac{x}{2}\right]\right]+\frac{A-B}{\left(\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]\right)^4}+\frac{3\,A-11\,B}{\left(\mathrm{Cos}\left[\frac{x}{4}\right]-\mathrm{Sin}\left[\frac{x}{4}\right]\right)^2}+\frac{-A+B}{\left(\mathrm{Cos}\left[\frac{x}{4}\right]+\mathrm{Sin}\left[\frac{x}{4}\right]\right)^4}+\frac{-3\,A+11\,B}{\left(\mathrm{Cos}\left[\frac{x}{4}\right]+\mathrm{Sin}\left[\frac{x}{4}\right]\right)^2}\right)$$

Problem 228: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 103 leaves, 3 steps):

$$-\frac{\operatorname{ArcTanh}\left[\frac{b \operatorname{Cos}[c+d x]-a \operatorname{Sin}[c+d x]}{\sqrt{a^2+b^2}}\right]}{2 \left(a^2+b^2\right)^{3/2} d}-\frac{b \operatorname{Cos}[c+d x]-a \operatorname{Sin}[c+d x]}{2 \left(a^2+b^2\right) d \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2}$$

Result (type 3, 132 leaves):

$$\left(\left(a^2+b^2\right) \left(-b \operatorname{Cos}[c+d x]+a \operatorname{Sin}[c+d x]\right)+2 \sqrt{a^2+b^2} \operatorname{ArcTanh}\left[\frac{-b+a \operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}\right] \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2\right) \Big/ \left(2 (a-\mathrm{i} b)^2 (a+\mathrm{i} b)^2 d \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2\right)$$

Problem 232: Result unnecessarily involves higher level functions.

$$\int (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^{7/2} \, dx$$

Optimal (type 4, 186 leaves, 4 steps):

$$-\frac{10 \left(a^2+b^2\right) \left(b \operatorname{Cos}[c+d x]-a \operatorname{Sin}[c+d x]\right) \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}{21 d}-\frac{2 \left(b \operatorname{Cos}[c+d x]-a \operatorname{Sin}[c+d x]\right) \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^{5/2}}{7 d}+\frac{10 \left(a^2+b^2\right)^2 \operatorname{EllipticF}\left[\frac{1}{2} (c+d x-\operatorname{ArcTan}[a, b]), 2\right] \sqrt{\frac{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}{\sqrt{a^2+b^2}}}}{21 d \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}$$

Result (type 5, 205 leaves):

$$\frac{1}{42\,d}\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right.$$
$$\left(-23\,b\,(a^2+b^2)\,\text{Cos}[c+d\,x]+\left(-9\,a^2\,b+3\,b^3\right)\text{Cos}[3\,(c+d\,x)]+2\,a\,\left(13\,a^2+7\,b^2+3\,(a^2-3\,b^2)\,\text{Cos}[2\,(c+d\,x)]\right)\text{Sin}[c+d\,x]\right)+$$
$$\left(20\,(a^2+b^2)^2\sqrt{\text{Cos}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2}\,\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2\right]\text{Tan}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]\right)\Big/$$
$$\left.\left(\sqrt{\sqrt{1+\frac{a^2}{b^2}}\;b\,\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]}\right)\right)$$

Problem 233: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 131 leaves, 3 steps):

$$-\frac{2\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}{5\,d}+$$
$$\frac{6\,(a^2+b^2)\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x-\text{ArcTan}[a,b]),2\right]\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}{5\,d\,\sqrt{\frac{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}}}$$

Result (type 5, 256 leaves):

$$\frac{1}{5\,b\,d}\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\left(6\,a\,\left(a^2+b^2\right)-2\,a\,b^2\,\text{Cos}\left[2\,(c+d\,x)\right]+b\,\left(a^2-b^2\right)\,\text{Sin}\left[2\,(c+d\,x)\right]\right)-\right.$$

$$\left(3\,\left(a^2+b^2\right)^2\,\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]\,\left(b\,\text{HypergeometricPFQ}\left[\left\{-\frac{1}{2},-\frac{1}{4}\right\},\left\{\frac{3}{4}\right\},\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]^2\right]\,\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]+\right.\right.$$

$$\left.\left.\left.\sqrt{\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]^2}\,\left(2\,a\,\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]-b\,\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]\right)\right)\right)\right/$$

$$\left(\left(a\,\sqrt{1+\frac{b^2}{a^2}}\,\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]\right)^{3/2}\,\sqrt{\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{b}{a}\right]\right]^2}\right)\right)$$

Problem 234: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 131 leaves, 3 steps):

$$-\frac{2\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}{3\,d}+\frac{2\,\left(a^2+b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\,(c+d\,x-\text{ArcTan}[a,b]),2\right]\,\sqrt{\frac{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}}}{3\,d\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

Result (type 5, 143 leaves):

$$\frac{1}{3\,d}2\left((-b\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x])\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}+\right.$$

$$\left(\left(a^2+b^2\right)\,\sqrt{\text{Cos}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2}\,\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2\right]\,\text{Tan}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]\right)\Big/$$

$$\left.\left(\sqrt{\sqrt{1+\frac{a^2}{b^2}}\,b\,\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]}\right)\right)$$

Problem 235: Result unnecessarily involves higher level functions and more than twice size of optimal

antiderivative.

$$\int \sqrt{a \cos[c + d x] + b \sin[c + d x]}\, dx$$

Optimal (type 4, 75 leaves, 2 steps):

$$\frac{2\, \text{EllipticE}\left[\frac{1}{2}\left(c + d x - \text{ArcTan}[a, b]\right), 2\right] \sqrt{a \cos[c + d x] + b \sin[c + d x]}}{d \sqrt{\frac{a \cos[c+d x]+b \sin[c+d x]}{\sqrt{a^2+b^2}}}}$$

Result (type 5, 268 leaves):

$$\left(\cos\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right] \left(-b\left(a^2 + b^2\right) \text{HypergeometricPFQ}\left[\left\{-\frac{1}{2}, -\frac{1}{4}\right\}, \left\{\frac{3}{4}\right\}, \cos\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right]^2\right] \sin\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right] + \sqrt{\sin\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right]^2} \left(-2 a \left(a^2 + b^2\right) \cos\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right] + 2 a^2 \sqrt{1 + \frac{b^2}{a^2}} \sqrt{a \sqrt{1 + \frac{b^2}{a^2}} \cos\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right]} \sqrt{a \cos[c + d x] + b \sin[c + d x]} + b\left(a^2 + b^2\right) \sin\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right]\right)\right)\right) \Big/ \left(b d \left(a \sqrt{1 + \frac{b^2}{a^2}} \cos\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right]\right)^{3/2} \sqrt{\sin\left[c + d x - \text{ArcTan}\left[\frac{b}{a}\right]\right]^2}\right)$$

Problem 236: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a \cos[c + d x] + b \sin[c + d x]}}\, dx$$

Optimal (type 4, 75 leaves, 2 steps):

$$\frac{2\, \text{EllipticF}\left[\frac{1}{2}\left(c + d x - \text{ArcTan}[a, b]\right), 2\right] \sqrt{\frac{a \cos[c+d x]+b \sin[c+d x]}{\sqrt{a^2+b^2}}}}{d \sqrt{a \cos[c + d x] + b \sin[c + d x]}}$$

Result (type 5, 92 leaves):

$$\left(2\sqrt{\text{Cos}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2}\ \text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2\right]\ \text{Tan}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]\right)\Big/$$
$$\left(d\sqrt{\sqrt{1+\frac{a^2}{b^2}}\ b\,\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]}\right)$$

Problem 237: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 4, 138 leaves, 3 steps):

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

Result (type 5, 322 leaves):

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

$$\left(-\left(\left(b\,\mathrm{HypergeometricPFQ}\left[\left\{-\frac{1}{2},-\frac{1}{4}\right\},\left\{\frac{3}{4}\right\},\mathrm{Cos}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]^2\right]\mathrm{Sin}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]\right)\middle/\left(a\sqrt{1+\frac{b^2}{a^2}}\sqrt{1-\mathrm{Cos}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]}\right.\right.\right.$$

$$\left.\left.\sqrt{a\sqrt{\frac{a^2+b^2}{a^2}}\,\mathrm{Cos}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]}\sqrt{1+\mathrm{Cos}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]}\right)\right)-\frac{\frac{2\,a^2\sqrt{1+\frac{b^2}{a^2}}\,\mathrm{Cos}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]}{a^2+b^2}-\frac{b\,\mathrm{Sin}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]}{a\sqrt{1+\frac{b^2}{a^2}}}}{\sqrt{a\sqrt{1+\frac{b^2}{a^2}}\,\mathrm{Cos}\left[c+d\,x-\mathrm{ArcTan}\left[\frac{b}{a}\right]\right]}}\right)$$

Problem 238: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 4, 142 leaves, 3 steps):

$$-\frac{2\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])}{3\,(a^2+b^2)\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}+\frac{2\,\mathrm{EllipticF}\left[\frac{1}{2}\,(c+d\,x-\mathrm{ArcTan}[a,b]),2\right]\sqrt{\frac{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}}}{3\,(a^2+b^2)\,d\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}$$

Result (type 5, 145 leaves):

$$\frac{1}{3\left(a^2+b^2\right)d}2\left(\frac{-b\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x]}{\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}}+\right.$$

$$\left(\sqrt{\text{Cos}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2}\,\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]^2\right]\text{Tan}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]\right)\Big/$$

$$\left.\left(\sqrt{\sqrt{1+\frac{a^2}{b^2}}\,b\,\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{a}{b}\right]\right]}\right)\right)$$

Problem 239: Result unnecessarily involves higher level functions.

$$\int\frac{1}{\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{7/2}}\,dx$$

Optimal (type 4, 197 leaves, 4 steps):

$$-\frac{2\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)}{5\left(a^2+b^2\right)d\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{5/2}}-\frac{6\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)}{5\left(a^2+b^2\right)^2d\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{6\,\text{EllipticE}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}[a,b]\right),2\right]\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}{5\left(a^2+b^2\right)^2d\sqrt{\frac{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}}}$$

Result (type 5, 277 leaves):

$$\frac{1}{5 b \left(a^2+b^2\right) d}\left(-\left(\left(2 \left(3 a^2 \operatorname{Cos}[c+d x]^3-a b \operatorname{Sin}[c+d x]+6 a b \operatorname{Cos}[c+d x]^2 \operatorname{Sin}[c+d x]+b^2 \operatorname{Cos}[c+d x] \left(1+3 \operatorname{Sin}[c+d x]^2\right)\right)\right) \Big/ \left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^{5/2}\right)+\left(\operatorname{Cos}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right] \left(3 b \operatorname{HypergeometricPFQ}\left[\left\{-\frac{1}{2},-\frac{1}{4}\right\},\left\{\frac{3}{4}\right\},\operatorname{Cos}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right]^2\right] \operatorname{Sin}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right]-3 \sqrt{\operatorname{Sin}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right]^2} \left(-2 a \operatorname{Cos}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right]+b \operatorname{Sin}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right]\right)\right)\right) \Big/ \left(\left(a \sqrt{1+\frac{b^2}{a^2}} \operatorname{Cos}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right]\right)^{3/2} \sqrt{\operatorname{Sin}\left[c+d x-\operatorname{ArcTan}\left[\frac{b}{a}\right]\right]^2}\right)\right)$$

Problem 240: Result unnecessarily involves higher level functions.

$$\int (2 \operatorname{Cos}[c+d x]+3 \operatorname{Sin}[c+d x])^{7/2}\, dx$$

Optimal (type 4, 120 leaves, 4 steps):

$$\frac{130\times 13^{3/4} \operatorname{EllipticF}\left[\frac{1}{2} \left(c+d x-\operatorname{ArcTan}\left[\frac{3}{2}\right]\right),2\right]}{21 d}-\frac{130 \left(3 \operatorname{Cos}[c+d x]-2 \operatorname{Sin}[c+d x]\right) \sqrt{2 \operatorname{Cos}[c+d x]+3 \operatorname{Sin}[c+d x]}}{21 d}-\frac{2 \left(3 \operatorname{Cos}[c+d x]-2 \operatorname{Sin}[c+d x]\right) \left(2 \operatorname{Cos}[c+d x]+3 \operatorname{Sin}[c+d x]\right)^{5/2}}{7 d}$$

Result (type 5, 153 leaves):

$$\frac{1}{42 d}\left(-\sqrt{2 \operatorname{Cos}[c+d x]+3 \operatorname{Sin}[c+d x]} \left(897 \operatorname{Cos}[c+d x]+27 \operatorname{Cos}[3 (c+d x)]-598 \operatorname{Sin}[c+d x]+138 \operatorname{Sin}[3 (c+d x)]\right)+260\times 13^{3/4} \operatorname{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\operatorname{Sin}\left[c+d x+\operatorname{ArcTan}\left[\frac{2}{3}\right]\right]^2\right] \operatorname{Sec}\left[c+d x+\operatorname{ArcTan}\left[\frac{2}{3}\right]\right] \sqrt{-\left(-1+\operatorname{Sin}\left[c+d x+\operatorname{ArcTan}\left[\frac{2}{3}\right]\right]\right) \operatorname{Sin}\left[c+d x+\operatorname{ArcTan}\left[\frac{2}{3}\right]\right]} \sqrt{1+\operatorname{Sin}\left[c+d x+\operatorname{ArcTan}\left[\frac{2}{3}\right]\right]}\right)$$

Problem 241: Result unnecessarily involves higher level functions and more than twice size of optimal

antiderivative.

$$\int (2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{5/2}\,dx$$

Optimal (type 4, 75 leaves, 3 steps):

$$\frac{78\times 13^{1/4}\,\text{EllipticE}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right),2\right]}{5\,d}-\frac{2\,(3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x])\,(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{3/2}}{5\,d}$$

Result (type 5, 199 leaves):

$$\frac{1}{5\,d}\left(\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}\,(52-12\,\text{Cos}[2\,(c+d\,x)]-5\,\text{Sin}[2\,(c+d\,x)])-\frac{13\times 13^{1/4}\left(4\,\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]-3\,\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]\right)}{\sqrt{\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}-\frac{39\times 13^{1/4}\,\text{HypergeometricPFQ}\left[\left\{-\frac{1}{2},-\frac{1}{4}\right\},\left\{\frac{3}{4}\right\},\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]^2\right]\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}{\sqrt{-\left(-1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]\right)\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}\,\sqrt{1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}\right)$$

Problem 242: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 75 leaves, 3 steps):

$$\frac{2\times 13^{3/4}\,\text{EllipticF}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right),2\right]}{3\,d}-\frac{2\,(3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x])\,\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}}{3\,d}$$

Result (type 5, 133 leaves):

$$\frac{1}{3\,d}\left(2\,(-3\,\text{Cos}[c+d\,x]+2\,\text{Sin}[c+d\,x])\,\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}+2\times 13^{3/4}\,\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]^2\right]\right.$$
$$\left.\text{Sec}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]\sqrt{-\left(-1+\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]\right)\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]}\,\sqrt{1+\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]}\right)$$

Problem 243: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 4, 27 leaves, 2 steps):

$$\frac{2\times 13^{1/4}\,\text{EllipticE}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right),2\right]}{d}$$

Result (type 5, 184 leaves):

$$\frac{1}{3\,d}\left(-4\times 13^{1/4}\sqrt{\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}+4\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}+\frac{3\times 13^{1/4}\,\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}{\sqrt{\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}-\right.$$
$$\left.\frac{3\times 13^{1/4}\,\text{HypergeometricPFQ}\left[\left\{-\frac{1}{2},-\frac{1}{4}\right\},\left\{\frac{3}{4}\right\},\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]^2\right]\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}{\sqrt{-\left(-1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]\right)\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}\,\sqrt{1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}\right)$$

Problem 244: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 4, 27 leaves, 2 steps):

$$\frac{2\,\text{EllipticF}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right),\,2\right]}{13^{1/4}\,d}$$

Result (type 5, 88 leaves):

$$\frac{1}{13^{1/4}\,d}2\,\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\,\frac{1}{2}\right\},\,\left\{\frac{5}{4}\right\},\,\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]^2\right]\,\text{Sec}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]$$
$$\sqrt{-\left(-1+\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]\right)\,\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]}\,\sqrt{1+\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]}$$

Problem 245: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 4, 73 leaves, 3 steps):

$$-\frac{2\,\text{EllipticE}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right),\,2\right]}{13^{3/4}\,d}-\frac{2\,\left(3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x]\right)}{13\,d\,\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}}$$

Result (type 5, 190 leaves):

$$\frac{1}{3\,d}\left(\frac{4\,\sqrt{\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}{13^{3/4}}-\frac{2\,\text{Cos}[c+d\,x]}{\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}}-\frac{3\,\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}{13^{3/4}\,\sqrt{\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}+\right.$$
$$\left.\frac{3\,\text{HypergeometricPFQ}\left[\left\{-\frac{1}{2},\,-\frac{1}{4}\right\},\,\left\{\frac{3}{4}\right\},\,\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]^2\right]\,\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}{13^{3/4}\,\sqrt{-\left(-1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]\right)\,\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}\,\sqrt{1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}\right)$$

Problem 246: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 4, 75 leaves, 3 steps):

$$\frac{2\,\text{EllipticF}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right),\,2\right]}{39\times 13^{1/4}\,d}-\frac{2\,(3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x])}{39\,d\,(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{3/2}}$$

Result (type 5, 157 leaves):

$$\left(-78\,\text{Cos}[c+d\,x]+52\,\text{Sin}[c+d\,x]+\sqrt{2}\;13^{3/4}\,\text{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]^2\right]\text{Sec}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]\,(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{3/2}\sqrt{1+\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]}\sqrt{-1+\text{Cos}\left[2\left(c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right)\right]+2\,\text{Sin}\left[c+d\,x+\text{ArcTan}\left[\frac{2}{3}\right]\right]}\right)\Big/\left(507\,d\,(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{3/2}\right)$$

Problem 247: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{7/2}}\,dx$$

Optimal (type 4, 120 leaves, 4 steps):

$$-\frac{6\,\text{EllipticE}\left[\frac{1}{2}\left(c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right),\,2\right]}{65\times 13^{3/4}\,d}-\frac{2\,(3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x])}{65\,d\,(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{5/2}}-\frac{6\,(3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x])}{845\,d\,\sqrt{2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x]}}$$

Result (type 5, 224 leaves):

$$\frac{1}{65\,d}\left(\frac{4\sqrt{\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}{13^{3/4}}+\frac{-33\,\text{Cos}[c+d\,x]+5\,\text{Cos}[3\,(c+d\,x)]-4\,(\text{Sin}[c+d\,x]+3\,\text{Sin}[3\,(c+d\,x)])}{2\,(2\,\text{Cos}[c+d\,x]+3\,\text{Sin}[c+d\,x])^{5/2}}-\frac{3\,\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}{13^{3/4}\sqrt{\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}+\frac{3\,\text{HypergeometricPFQ}\left[\left\{-\frac{1}{2},-\frac{1}{4}\right\},\left\{\frac{3}{4}\right\},\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]^2\right]\text{Sin}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}{13^{3/4}\sqrt{-\left(-1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]\right)\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}\sqrt{1+\text{Cos}\left[c+d\,x-\text{ArcTan}\left[\frac{3}{2}\right]\right]}}\right)$$

Problem 267: Result more than twice size of optimal antiderivative.

$$\int (a \operatorname{Sec}[x] + b \operatorname{Tan}[x]) \, dx$$

Optimal (type 3, 12 leaves, 3 steps):

$$a \operatorname{ArcTanh}[\operatorname{Sin}[x]] - b \operatorname{Log}[\operatorname{Cos}[x]]$$

Result (type 3, 42 leaves):

$$-b \operatorname{Log}[\operatorname{Cos}[x]] - a \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] - \operatorname{Sin}\left[\frac{x}{2}\right]\right] + a \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] + \operatorname{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 274: Result more than twice size of optimal antiderivative.

$$\int (\operatorname{Sec}[x] + \operatorname{Tan}[x])^4 \, dx$$

Optimal (type 3, 30 leaves, 5 steps):

$$x + \frac{2 \operatorname{Cos}[x]^3}{3 (1 - \operatorname{Sin}[x])^3} - \frac{2 \operatorname{Cos}[x]}{1 - \operatorname{Sin}[x]}$$

Result (type 3, 64 leaves):

$$-\frac{-3 (8 + 3 x) \operatorname{Cos}\left[\frac{x}{2}\right] + (16 + 3 x) \operatorname{Cos}\left[\frac{3 x}{2}\right] + 6 (4 + 2 x + x \operatorname{Cos}[x]) \operatorname{Sin}\left[\frac{x}{2}\right]}{6 \left(\operatorname{Cos}\left[\frac{x}{2}\right] - \operatorname{Sin}\left[\frac{x}{2}\right]\right)^3}$$

Problem 275: Result more than twice size of optimal antiderivative.

$$\int (\operatorname{Sec}[x] + \operatorname{Tan}[x])^3 \, dx$$

Optimal (type 3, 18 leaves, 4 steps):

$$\operatorname{Log}[1 - \operatorname{Sin}[x]] + \frac{2}{1 - \operatorname{Sin}[x]}$$

Result (type 3, 38 leaves):

$$2 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] - \operatorname{Sin}\left[\frac{x}{2}\right]\right] + \frac{2}{\left(\operatorname{Cos}\left[\frac{x}{2}\right] - \operatorname{Sin}\left[\frac{x}{2}\right]\right)^2}$$

Problem 277: Result more than twice size of optimal antiderivative.

$$\int (\text{Sec}[x] + \text{Tan}[x]) \, dx$$

Optimal (type 3, 13 leaves, 3 steps):

$$-2 \,\text{Log}\left[\text{Cos}\left[\frac{1}{4} (\pi + 2 x)\right]\right]$$

Result (type 3, 38 leaves):

$$-\text{Log}[\text{Cos}[x]] - \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] - \text{Sin}\left[\frac{x}{2}\right]\right] + \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 278: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\text{Sec}[x] + \text{Tan}[x]} \, dx$$

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

$$\text{Log}[1 + \text{Sin}[x]]$$

Result (type 3, 16 leaves):

$$2 \,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 280: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(\text{Sec}[x] + \text{Tan}[x])^3} \, dx$$

Optimal (type 3, 16 leaves, 4 steps):

$$-\text{Log}[1 + \text{Sin}[x]] - \frac{2}{1 + \text{Sin}[x]}$$

Result (type 3, 34 leaves):

$$-2 \,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right] - \frac{2}{\left(\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right)^2}$$

Problem 281: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(\mathrm{Sec}[x] + \mathrm{Tan}[x])^4}\, dx$$

Optimal (type 3, 26 leaves, 4 steps):

$$x - \frac{2\,\mathrm{Cos}[x]^3}{3\,(1 + \mathrm{Sin}[x])^3} + \frac{2\,\mathrm{Cos}[x]}{1 + \mathrm{Sin}[x]}$$

Result (type 3, 62 leaves):

$$\frac{3\,(-8 + 3\,x)\,\mathrm{Cos}\left[\frac{x}{2}\right] + (16 - 3\,x)\,\mathrm{Cos}\left[\frac{3\,x}{2}\right] + 6\,(-4 + 2\,x + x\,\mathrm{Cos}[x])\,\mathrm{Sin}\left[\frac{x}{2}\right]}{6\left(\mathrm{Cos}\left[\frac{x}{2}\right] + \mathrm{Sin}\left[\frac{x}{2}\right]\right)^3}$$

Problem 287: Result more than twice size of optimal antiderivative.

$$\int (a\,\mathrm{Cot}[x] + b\,\mathrm{Csc}[x])\, dx$$

Optimal (type 3, 12 leaves, 3 steps):

$$-b\,\mathrm{ArcTanh}[\mathrm{Cos}[x]] + a\,\mathrm{Log}[\mathrm{Sin}[x]]$$

Result (type 3, 25 leaves):

$$-b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{2}\right]\right] + b\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{x}{2}\right]\right] + a\,\mathrm{Log}[\mathrm{Sin}[x]]$$

Problem 297: Result more than twice size of optimal antiderivative.

$$\int (\mathrm{Cot}[x] + \mathrm{Csc}[x])\, dx$$

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

$$-\mathrm{ArcTanh}[\mathrm{Cos}[x]] + \mathrm{Log}[\mathrm{Sin}[x]]$$

Result (type 3, 20 leaves):

$$-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{2}\right]\right] + \mathrm{Log}\left[\mathrm{Sin}\left[\frac{x}{2}\right]\right] + \mathrm{Log}[\mathrm{Sin}[x]]$$

Problem 306: Result more than twice size of optimal antiderivative.

$$\int (\text{Csc}[x] - \text{Sin}[x])\, dx$$

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

$$-\text{ArcTanh}[\text{Cos}[x]] + \text{Cos}[x]$$

Result (type 3, 19 leaves):

$$\text{Cos}[x] - \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right] + \text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 310: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(\text{Csc}[x] - \text{Sin}[x])^4}\, dx$$

Optimal (type 3, 17 leaves, 2 steps):

$$\frac{\text{Tan}[x]^5}{5} + \frac{\text{Tan}[x]^7}{7}$$

Result (type 3, 37 leaves):

$$\frac{2\,\text{Tan}[x]}{35} + \frac{1}{35}\text{Sec}[x]^2\,\text{Tan}[x] - \frac{8}{35}\text{Sec}[x]^4\,\text{Tan}[x] + \frac{1}{7}\text{Sec}[x]^6\,\text{Tan}[x]$$

Problem 312: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(\text{Csc}[x] - \text{Sin}[x])^6}\, dx$$

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

$$\frac{\text{Tan}[x]^7}{7} + \frac{2\,\text{Tan}[x]^9}{9} + \frac{\text{Tan}[x]^{11}}{11}$$

Result (type 3, 57 leaves):

$$-\frac{8\,\text{Tan}[x]}{693} - \frac{4}{693}\text{Sec}[x]^2\,\text{Tan}[x] - \frac{1}{231}\text{Sec}[x]^4\,\text{Tan}[x] + \frac{113}{693}\text{Sec}[x]^6\,\text{Tan}[x] - \frac{23}{99}\text{Sec}[x]^8\,\text{Tan}[x] + \frac{1}{11}\text{Sec}[x]^{10}\,\text{Tan}[x]$$

Problem 318: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{\text{Csc}[x] - \text{Sin}[x]}} \, dx$$

Optimal (type 3, 60 leaves, 8 steps):

$$\frac{\text{ArcTan}\left[\sqrt{-\text{Sin}[x]}\right] \text{Cos}[x]}{\sqrt{\text{Cos}[x] \text{Cot}[x]} \sqrt{-\text{Sin}[x]}} - \frac{\text{ArcTanh}\left[\sqrt{-\text{Sin}[x]}\right] \text{Cos}[x]}{\sqrt{\text{Cos}[x] \text{Cot}[x]} \sqrt{-\text{Sin}[x]}}$$

Result (type 5, 37 leaves):

$$2 \sqrt{\text{Cos}[x] \text{Cot}[x]} \text{ Hypergeometric2F1}\left[\frac{1}{4}, \frac{1}{4}, \frac{5}{4}, \text{Sec}[x]^2\right] \text{Sec}[x] \left(-\text{Tan}[x]^2\right)^{1/4}$$

Problem 319: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(\text{Csc}[x] - \text{Sin}[x]\right)^{3/2}} \, dx$$

Optimal (type 3, 80 leaves, 9 steps):

$$\frac{\text{Sec}[x]}{2 \sqrt{\text{Cos}[x] \text{Cot}[x]}} + \frac{\text{ArcTan}\left[\sqrt{-\text{Sin}[x]}\right] \text{Cot}[x] \sqrt{-\text{Sin}[x]}}{4 \sqrt{\text{Cos}[x] \text{Cot}[x]}} + \frac{\text{ArcTanh}\left[\sqrt{-\text{Sin}[x]}\right] \text{Cot}[x] \sqrt{-\text{Sin}[x]}}{4 \sqrt{\text{Cos}[x] \text{Cot}[x]}}$$

Result (type 5, 42 leaves):

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

Problem 320: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(\text{Csc}[x] - \text{Sin}[x]\right)^{5/2}} \, dx$$

Optimal (type 3, 99 leaves, 10 steps):

$$-\frac{3 \text{ ArcTan}\left[\sqrt{-\text{Sin}[x]}\right] \text{Cos}[x]}{32 \sqrt{\text{Cos}[x] \text{Cot}[x]} \sqrt{-\text{Sin}[x]}} + \frac{3 \text{ ArcTanh}\left[\sqrt{-\text{Sin}[x]}\right] \text{Cos}[x]}{32 \sqrt{\text{Cos}[x] \text{Cot}[x]} \sqrt{-\text{Sin}[x]}} - \frac{3 \text{ Tan}[x]}{16 \sqrt{\text{Cos}[x] \text{Cot}[x]}} + \frac{\text{Sec}[x]^2 \text{Tan}[x]}{4 \sqrt{\text{Cos}[x] \text{Cot}[x]}}$$

Result (type 5, 57 leaves):

$$\frac{(5-3\,\text{Cos}[2\,x])\,\text{Sec}[x]^2\,\text{Tan}[x]-6\,\text{Cot}[x]\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\text{Sec}[x]^2\right]\left(-\text{Tan}[x]^2\right)^{1/4}}{32\,\sqrt{\text{Cos}[x]\,\text{Cot}[x]}}$$

Problem 321: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(\text{Csc}[x]-\text{Sin}[x])^{7/2}}\,dx$$

Optimal (type 3, 118 leaves, 11 steps):

$$\frac{5\,\text{Sec}[x]}{192\,\sqrt{\text{Cos}[x]\,\text{Cot}[x]}}-\frac{5\,\text{Sec}[x]^3}{48\,\sqrt{\text{Cos}[x]\,\text{Cot}[x]}}-\frac{5\,\text{ArcTan}\left[\sqrt{-\text{Sin}[x]}\right]\text{Cot}[x]\,\sqrt{-\text{Sin}[x]}}{128\,\sqrt{\text{Cos}[x]\,\text{Cot}[x]}}-\frac{5\,\text{ArcTanh}\left[\sqrt{-\text{Sin}[x]}\right]\text{Cot}[x]\,\sqrt{-\text{Sin}[x]}}{128\,\sqrt{\text{Cos}[x]\,\text{Cot}[x]}}+\frac{\text{Sec}[x]^3\,\text{Tan}[x]^2}{6\,\sqrt{\text{Cos}[x]\,\text{Cot}[x]}}$$

Result (type 5, 63 leaves):

$$\frac{1}{192}\sqrt{\text{Cos}[x]\,\text{Cot}[x]}\,\text{Csc}[x]\,\text{Sec}[x]\left(-5+57\,\text{Sec}[x]^2-84\,\text{Sec}[x]^4+32\,\text{Sec}[x]^6+5\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Sec}[x]^2\right]\left(-\text{Tan}[x]^2\right)^{3/4}\right)$$

Problem 323: Result more than twice size of optimal antiderivative.

$$\int (-\text{Cos}[x]+\text{Sec}[x])^3\,dx$$

Optimal (type 3, 34 leaves, 6 steps):

$$-\frac{5}{2}\,\text{ArcTanh}[\text{Sin}[x]]+\frac{5\,\text{Sin}[x]}{2}+\frac{5\,\text{Sin}[x]^3}{6}+\frac{1}{2}\,\text{Sin}[x]^3\,\text{Tan}[x]^2$$

Result (type 3, 85 leaves):

$$\frac{1}{12}\left(30\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-30\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+\frac{3}{\left(\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right)^2}-\frac{3}{\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)^2}+27\,\text{Sin}[x]-\text{Sin}[3\,x]\right)$$

Problem 325: Result more than twice size of optimal antiderivative.

$$\int (-\text{Cos}[x]+\text{Sec}[x])\,dx$$

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

$$\text{ArcTanh}[\text{Sin}[x]]-\text{Sin}[x]$$

Result (type 3, 37 leaves):

$$-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]-\text{Sin}[x]$$

Problem 328: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(-\text{Cos}[x]+\text{Sec}[x])^3}\,dx$$

Optimal (type 3, 17 leaves, 4 steps):

$$\frac{\text{Csc}[x]^3}{3}-\frac{\text{Csc}[x]^5}{5}$$

Result (type 3, 93 leaves):

$$\frac{11}{240}\text{Cot}\left[\frac{x}{2}\right]+\frac{11}{480}\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^2-\frac{1}{160}\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^4+\frac{11}{240}\text{Tan}\left[\frac{x}{2}\right]+\frac{11}{480}\text{Sec}\left[\frac{x}{2}\right]^2\text{Tan}\left[\frac{x}{2}\right]-\frac{1}{160}\text{Sec}\left[\frac{x}{2}\right]^4\text{Tan}\left[\frac{x}{2}\right]$$

Problem 329: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(-\text{Cos}[x]+\text{Sec}[x])^4}\,dx$$

Optimal (type 3, 17 leaves, 2 steps):

$$-\frac{1}{5}\text{Cot}[x]^5-\frac{\text{Cot}[x]^7}{7}$$

Result (type 3, 37 leaves):

$$-\frac{2\,\text{Cot}[x]}{35}-\frac{1}{35}\text{Cot}[x]\,\text{Csc}[x]^2+\frac{8}{35}\text{Cot}[x]\,\text{Csc}[x]^4-\frac{1}{7}\text{Cot}[x]\,\text{Csc}[x]^6$$

Problem 330: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(-\text{Cos}[x]+\text{Sec}[x])^5}\,dx$$

Optimal (type 3, 25 leaves, 4 steps):

$$-\frac{1}{5}\text{Csc}[x]^5+\frac{2\,\text{Csc}[x]^7}{7}-\frac{\text{Csc}[x]^9}{9}$$

Result (type 3, 165 leaves):

$$-\frac{649\,\text{Cot}\left[\frac{x}{2}\right]}{80640}-\frac{649\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^2}{161280}-\frac{31\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^4}{53760}+\frac{37\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^6}{32256}-\frac{\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^8}{4608}-\frac{649\,\text{Tan}\left[\frac{x}{2}\right]}{80640}-\frac{649\,\text{Sec}\left[\frac{x}{2}\right]^2\text{Tan}\left[\frac{x}{2}\right]}{161280}-\frac{31\,\text{Sec}\left[\frac{x}{2}\right]^4\text{Tan}\left[\frac{x}{2}\right]}{53760}+\frac{37\,\text{Sec}\left[\frac{x}{2}\right]^6\text{Tan}\left[\frac{x}{2}\right]}{32256}-\frac{\text{Sec}\left[\frac{x}{2}\right]^8\text{Tan}\left[\frac{x}{2}\right]}{4608}$$

Problem 331: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(-\text{Cos}[x]+\text{Sec}[x])^6}\,dx$$

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

$$-\frac{1}{7}\text{Cot}[x]^7-\frac{2\,\text{Cot}[x]^9}{9}-\frac{\text{Cot}[x]^{11}}{11}$$

Result (type 3, 57 leaves):

$$\frac{8\,\text{Cot}[x]}{693}+\frac{4}{693}\text{Cot}[x]\,\text{Csc}[x]^2+\frac{1}{231}\text{Cot}[x]\,\text{Csc}[x]^4-\frac{113}{693}\text{Cot}[x]\,\text{Csc}[x]^6+\frac{23}{99}\text{Cot}[x]\,\text{Csc}[x]^8-\frac{1}{11}\text{Cot}[x]\,\text{Csc}[x]^{10}$$

Problem 332: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(-\text{Cos}[x]+\text{Sec}[x])^7}\,dx$$

Optimal (type 3, 33 leaves, 4 steps):

$$\frac{\text{Csc}[x]^7}{7}-\frac{\text{Csc}[x]^9}{3}+\frac{3\,\text{Csc}[x]^{11}}{11}-\frac{\text{Csc}[x]^{13}}{13}$$

Result (type 3, 237 leaves):

$$\frac{10027\,\text{Cot}\left[\frac{x}{2}\right]}{6150144}+\frac{10027\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^2}{12300288}+\frac{755\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^4}{4100096}-\frac{101\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^6}{768768}-\frac{101\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^8}{878592}+\frac{79\,\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^{10}}{1171456}-\frac{\text{Cot}\left[\frac{x}{2}\right]\text{Csc}\left[\frac{x}{2}\right]^{12}}{106496}+\frac{10027\,\text{Tan}\left[\frac{x}{2}\right]}{6150144}+\frac{10027\,\text{Sec}\left[\frac{x}{2}\right]^2\text{Tan}\left[\frac{x}{2}\right]}{12300288}+\frac{755\,\text{Sec}\left[\frac{x}{2}\right]^4\text{Tan}\left[\frac{x}{2}\right]}{4100096}-\frac{101\,\text{Sec}\left[\frac{x}{2}\right]^6\text{Tan}\left[\frac{x}{2}\right]}{768768}-\frac{101\,\text{Sec}\left[\frac{x}{2}\right]^8\text{Tan}\left[\frac{x}{2}\right]}{878592}+\frac{79\,\text{Sec}\left[\frac{x}{2}\right]^{10}\text{Tan}\left[\frac{x}{2}\right]}{1171456}-\frac{\text{Sec}\left[\frac{x}{2}\right]^{12}\text{Tan}\left[\frac{x}{2}\right]}{106496}$$

Problem 337: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{-\text{Cos}[x]+\text{Sec}[x]}}\,dx$$

Optimal (type 3, 52 leaves, 8 steps):

$$\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[x]}\right]\text{Sin}[x]}{\sqrt{\text{Cos}[x]}\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}-\frac{\text{ArcTanh}\left[\sqrt{\text{Cos}[x]}\right]\text{Sin}[x]}{\sqrt{\text{Cos}[x]}\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}$$

Result (type 5, 37 leaves):

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

Problem 338: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(-\text{Cos}[x]+\text{Sec}[x]\right)^{3/2}}\,dx$$

Optimal (type 3, 72 leaves, 9 steps):

$$-\frac{\text{Csc}[x]}{2\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[x]}\right]\text{Sin}[x]}{4\sqrt{\text{Cos}[x]}\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}+\frac{\text{ArcTanh}\left[\sqrt{\text{Cos}[x]}\right]\text{Sin}[x]}{4\sqrt{\text{Cos}[x]}\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}$$

Result (type 5, 49 leaves):

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

Problem 339: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(-\text{Cos}[x]+\text{Sec}[x]\right)^{5/2}}\,dx$$

Optimal (type 3, 91 leaves, 10 steps):

$$\frac{3\,\text{Cot}[x]}{16\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}-\frac{\text{Cot}[x]\,\text{Csc}[x]^2}{4\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}-\frac{3\,\text{ArcTan}\left[\sqrt{\text{Cos}[x]}\right]\text{Sin}[x]}{32\sqrt{\text{Cos}[x]}\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}+\frac{3\,\text{ArcTanh}\left[\sqrt{\text{Cos}[x]}\right]\text{Sin}[x]}{32\sqrt{\text{Cos}[x]}\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}$$

Result (type 5, 53 leaves):

$$\frac{\text{Csc}[x]\left(-5-3\,\text{Cos}[2\,x]+\frac{6\,\text{Cos}[x]^2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\text{Csc}[x]^2\right]}{\left(-\text{Cot}[x]^2\right)^{7/4}}\right)}{32\,\left(\text{Sin}[x]\,\text{Tan}[x]\right)^{3/2}}$$

Problem 340: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(-\text{Cos}[x]+\text{Sec}[x]\right)^{7/2}}\,dx$$

Optimal (type 3, 110 leaves, 11 steps):

$$-\frac{5\,\text{Csc}[x]}{192\,\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}+\frac{5\,\text{Csc}[x]^3}{48\,\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}-\frac{\text{Cot}[x]^2\,\text{Csc}[x]^3}{6\,\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}-\frac{5\,\text{ArcTan}\left[\sqrt{\text{Cos}[x]}\right]\,\text{Sin}[x]}{128\,\sqrt{\text{Cos}[x]}\,\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}-\frac{5\,\text{ArcTanh}\left[\sqrt{\text{Cos}[x]}\right]\,\text{Sin}[x]}{128\,\sqrt{\text{Cos}[x]}\,\sqrt{\text{Sin}[x]\,\text{Tan}[x]}}$$

Result (type 5, 63 leaves):

$$-\frac{1}{192}\,\text{Csc}[x]\,\left(-5+57\,\text{Csc}[x]^2-84\,\text{Csc}[x]^4+32\,\text{Csc}[x]^6+5\,\left(-\text{Cot}[x]^2\right)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Csc}[x]^2\right]\right)\,\text{Sec}[x]\,\sqrt{\text{Sin}[x]\,\text{Tan}[x]}$$

Problem 341: Result more than twice size of optimal antiderivative.

$$\int \left(\text{Sin}[x]+\text{Tan}[x]\right)^4\,dx$$

Optimal (type 3, 55 leaves, 18 steps):

$$-\frac{61\,x}{8}-2\,\text{ArcTanh}[\text{Sin}[x]]+\frac{19}{8}\,\text{Cos}[x]\,\text{Sin}[x]+\frac{1}{4}\,\text{Cos}[x]^3\,\text{Sin}[x]-\frac{4\,\text{Sin}[x]^3}{3}+5\,\text{Tan}[x]+2\,\text{Sec}[x]\,\text{Tan}[x]+\frac{\text{Tan}[x]^3}{3}$$

Result (type 3, 129 leaves):

$$\frac{1}{768}\,\text{Sec}[x]^3\,\left(-72\,\text{Cos}[x]\,\left(61\,x-16\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+16\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]\right)-\right.$$
$$24\,\text{Cos}[3\,x]\,\left(61\,x-16\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+16\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]\right)+$$
$$\left.1395\,\text{Sin}[x]+672\,\text{Sin}[2\,x]+1265\,\text{Sin}[3\,x]+129\,\text{Sin}[5\,x]+32\,\text{Sin}[6\,x]+3\,\text{Sin}[7\,x]\right)$$

Problem 343: Result more than twice size of optimal antiderivative.

$$\int \left(\text{Sin}[x]+\text{Tan}[x]\right)^2\,dx$$

Optimal (type 3, 25 leaves, 9 steps):

$$-\frac{x}{2}+2\,\text{ArcTanh}[\text{Sin}[x]]-2\,\text{Sin}[x]-\frac{1}{2}\,\text{Cos}[x]\,\text{Sin}[x]+\text{Tan}[x]$$

Result (type 3, 60 leaves):

$$-\frac{x}{2}-2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]-2\,\text{Sin}[x]-\frac{1}{8}\,\text{Sec}[x]\,\text{Sin}[3\,x]+\frac{7\,\text{Tan}[x]}{8}$$

Problem 351: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{A+C\,\text{Sin}[x]}{(b\,\text{Cos}[x]+c\,\text{Sin}[x])^3}\,dx$$

Optimal (type 3, 116 leaves, 4 steps):

$$-\frac{A\,\text{ArcTanh}\left[\frac{c\,\text{Cos}[x]-b\,\text{Sin}[x]}{\sqrt{b^2+c^2}}\right]}{2\,(b^2+c^2)^{3/2}}+\frac{b\,C-A\,c\,\text{Cos}[x]+A\,b\,\text{Sin}[x]}{2\,(b^2+c^2)\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])^2}-\frac{c^2\,C\,\text{Cos}[x]-b\,c\,C\,\text{Sin}[x]}{(b^2+c^2)^2\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])}$$

Result (type 3, 132 leaves):

$$\left(2\,A\,b\,\sqrt{b^2+c^2}\,\text{ArcTanh}\left[\frac{-c+b\,\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{b^2+c^2}}\right]\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])^2+(b^2+c^2)\,\left(-A\,b\,c\,\text{Cos}[x]+A\,b^2\,\text{Sin}[x]+2\,c^2\,C\,\text{Sin}[x]^2+b\,C\,(b+c\,\text{Sin}[2\,x])\right)\right)\Big/$$
$$\left(2\,b\,(b-i\,c)^2\,(b+i\,c)^2\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])^2\right)$$

Problem 354: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{A+B\,\text{Cos}[x]}{(b\,\text{Cos}[x]+c\,\text{Sin}[x])^3}\,dx$$

Optimal (type 3, 116 leaves, 4 steps):

$$-\frac{A\,\text{ArcTanh}\left[\frac{c\,\text{Cos}[x]-b\,\text{Sin}[x]}{\sqrt{b^2+c^2}}\right]}{2\,(b^2+c^2)^{3/2}}-\frac{B\,c+A\,c\,\text{Cos}[x]-A\,b\,\text{Sin}[x]}{2\,(b^2+c^2)\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])^2}-\frac{b\,B\,c\,\text{Cos}[x]-b^2\,B\,\text{Sin}[x]}{(b^2+c^2)^2\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])}$$

Result (type 3, 118 leaves):

$$\left(2\,A\,\sqrt{b^2+c^2}\,\text{ArcTanh}\left[\frac{-c+b\,\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{b^2+c^2}}\right]\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])^2+(b^2+c^2)\,\left(-A\,c\,\text{Cos}[x]-B\,c\,\text{Cos}[2\,x]+b\,(A+2\,B\,\text{Cos}[x])\,\text{Sin}[x]\right)\right)\Big/$$
$$\left(2\,(b-i\,c)^2\,(b+i\,c)^2\,(b\,\text{Cos}[x]+c\,\text{Sin}[x])^2\right)$$

Problem 355: Result unnecessarily involves imaginary or complex numbers.

$$\int \left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^4 dx$$

Optimal (type 3, 246 leaves, 6 steps):

$$\frac{35}{8}\left(b^2+c^2\right)^2 x-\frac{35\,c\left(b^2+c^2\right)^{3/2}\text{Cos}[d+e\,x]}{8\,e}+\frac{35\,b\left(b^2+c^2\right)^{3/2}\text{Sin}[d+e\,x]}{8\,e}-\frac{35\left(b^2+c^2\right)\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)}{24\,e}-\frac{7\sqrt{b^2+c^2}\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}{12\,e}-\frac{\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3}{4\,e}$$

Result (type 3, 238 leaves):

$$\frac{1}{96\,e}\left(420\left(b^2+c^2\right)^2(d+e\,x)-672\,(b-i\,c)\,(b+i\,c)\,c\sqrt{b^2+c^2}\,\text{Cos}[d+e\,x]-336\,b\,c\left(b^2+c^2\right)\text{Cos}[2\,(d+e\,x)]+32\,c\left(-3\,b^2+c^2\right)\sqrt{b^2+c^2}\,\text{Cos}[3\,(d+e\,x)]-12\,b\,c\left(b^2-c^2\right)\text{Cos}[4\,(d+e\,x)]+672\,b\,(b-i\,c)\,(b+i\,c)\sqrt{b^2+c^2}\,\text{Sin}[d+e\,x]+168\left(b^4-c^4\right)\text{Sin}[2\,(d+e\,x)]+32\,b\left(b^2-3\,c^2\right)\sqrt{b^2+c^2}\,\text{Sin}[3\,(d+e\,x)]+3\left(b^4-6\,b^2\,c^2+c^4\right)\text{Sin}[4\,(d+e\,x)]\right)$$

Problem 356: Result unnecessarily involves imaginary or complex numbers.

$$\int \left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3 dx$$

Optimal (type 3, 178 leaves, 5 steps):

$$\frac{5}{2}\left(b^2+c^2\right)^{3/2} x-\frac{5\,c\left(b^2+c^2\right)\text{Cos}[d+e\,x]}{2\,e}+\frac{5\,b\left(b^2+c^2\right)\text{Sin}[d+e\,x]}{2\,e}-\frac{5\sqrt{b^2+c^2}\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)}{6\,e}-\frac{\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}{3\,e}$$

Result (type 3, 163 leaves):

$$\frac{1}{12\,e}\Big(30\,(b-\mathrm{i}\,c)\,(b+\mathrm{i}\,c)\,\sqrt{b^2+c^2}\,(d+e\,x)-45\,c\,(b^2+c^2)\,\mathrm{Cos}[d+e\,x]-18\,b\,c\,\sqrt{b^2+c^2}\,\mathrm{Cos}[2\,(d+e\,x)]+c\,(-3\,b^2+c^2)\,\mathrm{Cos}[3\,(d+e\,x)]+45\,b\,(b^2+c^2)\,\mathrm{Sin}[d+e\,x]+9\,(b^2-c^2)\,\sqrt{b^2+c^2}\,\mathrm{Sin}[2\,(d+e\,x)]+b\,(b^2-3\,c^2)\,\mathrm{Sin}[3\,(d+e\,x)]\Big)$$

Problem 361: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^3}\,\mathrm{d}x$$

Optimal (type 3, 191 leaves, 3 steps):

$$-\frac{c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x]}{5\,\sqrt{b^2+c^2}\,e\,\left(\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^3}-\frac{2\,(c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x])}{15\,(b^2+c^2)\,e\,\left(\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^2}-\frac{2\,\left(c-\sqrt{b^2+c^2}\,\mathrm{Sin}[d+e\,x]\right)}{15\,c\,(b^2+c^2)\,e\,(c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x])}$$

Result (type 3, 420 leaves):

$$\frac{1}{120\,c\,(b^2+c^2)\,e\,(c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x])^5}\Big(-76\,b^4\,c-152\,b^2\,c^3-76\,c^5+90\,b\,c\,(b^2+c^2)^{3/2}\,\mathrm{Cos}[d+e\,x]+20\,c\,(-b^4+c^4)\,\mathrm{Cos}[2\,(d+e\,x)]+10\,b^3\,c\,\sqrt{b^2+c^2}\,\mathrm{Cos}[3\,(d+e\,x)]+10\,b\,c^3\,\sqrt{b^2+c^2}\,\mathrm{Cos}[3\,(d+e\,x)]-4\,b^3\,c\,\sqrt{b^2+c^2}\,\mathrm{Cos}[5\,(d+e\,x)]+4\,b\,c^3\,\sqrt{b^2+c^2}\,\mathrm{Cos}[5\,(d+e\,x)]+10\,b^4\,\sqrt{b^2+c^2}\,\mathrm{Sin}[d+e\,x]+110\,b^2\,c^2\,\sqrt{b^2+c^2}\,\mathrm{Sin}[d+e\,x]+100\,c^4\,\sqrt{b^2+c^2}\,\mathrm{Sin}[d+e\,x]-40\,b^3\,c^2\,\mathrm{Sin}[2\,(d+e\,x)]-40\,b\,c^4\,\mathrm{Sin}[2\,(d+e\,x)]-5\,b^4\,\sqrt{b^2+c^2}\,\mathrm{Sin}[3\,(d+e\,x)]+5\,c^4\,\sqrt{b^2+c^2}\,\mathrm{Sin}[3\,(d+e\,x)]+b^4\,\sqrt{b^2+c^2}\,\mathrm{Sin}[5\,(d+e\,x)]-6\,b^2\,c^2\,\sqrt{b^2+c^2}\,\mathrm{Sin}[5\,(d+e\,x)]+c^4\,\sqrt{b^2+c^2}\,\mathrm{Sin}[5\,(d+e\,x)]\Big)$$

Problem 362: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^4}\,\mathrm{d}x$$

Optimal (type 3, 259 leaves, 4 steps):

$$-\frac{c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]}{7\sqrt{b^2+c^2}\,e\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^4}-\frac{3\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}{35\left(b^2+c^2\right)e\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3}-$$

$$\frac{2\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}{35\left(b^2+c^2\right)^{3/2}e\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}-\frac{2\left(c-\sqrt{b^2+c^2}\,\text{Sin}[d+e\,x]\right)}{35\,c\left(b^2+c^2\right)^{3/2}e\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}$$

Result (type 3, 533 leaves):

$$\frac{1}{1120\,c\left(b^2+c^2\right)e\left(-c\,\text{Cos}[d+e\,x]+b\,\text{Sin}[d+e\,x]\right)^7}$$
$$\left(832\,b^4\,c\sqrt{b^2+c^2}+1664\,b^2\,c^3\sqrt{b^2+c^2}+832\,c^5\sqrt{b^2+c^2}-1190\,b\,c\left(b^2+c^2\right)^2\text{Cos}[d+e\,x]+448\,c\sqrt{b^2+c^2}\left(b^4-c^4\right)\text{Cos}[2\,(d+e\,x)]-\right.$$
$$112\,b^5\,c\,\text{Cos}[3\,(d+e\,x)]+56\,b^3\,c^3\,\text{Cos}[3\,(d+e\,x)]+168\,b\,c^5\,\text{Cos}[3\,(d+e\,x)]+28\,b^5\,c\,\text{Cos}[5\,(d+e\,x)]-28\,b\,c^5\,\text{Cos}[5\,(d+e\,x)]-$$
$$6\,b^5\,c\,\text{Cos}[7\,(d+e\,x)]+20\,b^3\,c^3\,\text{Cos}[7\,(d+e\,x)]-6\,b\,c^5\,\text{Cos}[7\,(d+e\,x)]-35\,b^6\,\text{Sin}[d+e\,x]-1295\,b^4\,c^2\,\text{Sin}[d+e\,x]-2485\,b^2\,c^4\,\text{Sin}[d+e\,x]-$$
$$1225\,c^6\,\text{Sin}[d+e\,x]+896\,b^3\,c^2\sqrt{b^2+c^2}\,\text{Sin}[2\,(d+e\,x)]+896\,b\,c^4\sqrt{b^2+c^2}\,\text{Sin}[2\,(d+e\,x)]+21\,b^6\,\text{Sin}[3\,(d+e\,x)]-$$
$$189\,b^4\,c^2\,\text{Sin}[3\,(d+e\,x)]-161\,b^2\,c^4\,\text{Sin}[3\,(d+e\,x)]+49\,c^6\,\text{Sin}[3\,(d+e\,x)]-7\,b^6\,\text{Sin}[5\,(d+e\,x)]+35\,b^4\,c^2\,\text{Sin}[5\,(d+e\,x)]+$$
$$\left.35\,b^2\,c^4\,\text{Sin}[5\,(d+e\,x)]-7\,c^6\,\text{Sin}[5\,(d+e\,x)]+b^6\,\text{Sin}[7\,(d+e\,x)]-15\,b^4\,c^2\,\text{Sin}[7\,(d+e\,x)]+15\,b^2\,c^4\,\text{Sin}[7\,(d+e\,x)]-c^6\,\text{Sin}[7\,(d+e\,x)]\right)$$

Problem 366: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{2\,a+2\,a\,\text{Cos}[d+e\,x]+2\,c\,\text{Sin}[d+e\,x]}\,dx$$

Optimal (type 3, 25 leaves, 2 steps):

$$\frac{\text{Log}\left[a+c\,\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right]}{2\,c\,e}$$

Result (type 3, 57 leaves):

$$\frac{1}{2}\left(-\frac{\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]\right]}{c\,e}+\frac{\text{Log}\left[a\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+c\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]}{c\,e}\right)$$

Problem 369: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(2\,a+2\,a\,\text{Cos}[d+e\,x]+2\,c\,\text{Sin}[d+e\,x]\right)^4}\,dx$$

Optimal (type 3, 207 leaves, 5 steps):

$$-\frac{a\left(5a^2+3c^2\right)\text{Log}\left[a+c\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right]}{32\,c^7\,e}-\frac{c\,\text{Cos}[d+e\,x]-a\,\text{Sin}[d+e\,x]}{48\,c^2\,e\,\left(a+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3}+\frac{5\left(a\,c\,\text{Cos}[d+e\,x]-a^2\,\text{Sin}[d+e\,x]\right)}{96\,c^4\,e\,\left(a+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}-\frac{c\left(15a^2+4c^2\right)\text{Cos}[d+e\,x]-a\left(15a^2+4c^2\right)\text{Sin}[d+e\,x]}{96\,c^6\,e\,\left(a+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)}$$

Result (type 3, 492 leaves):

$$\frac{1}{384\,c^7\,e\,\left(a+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^4}\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]\left(a\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+c\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)$$
$$\left(192\left(5a^3+3a\,c^2\right)\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]\right]\left(a\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+c\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)^3-\right.$$
$$192\left(5a^3+3a\,c^2\right)\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]^3\text{Log}\left[a\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+c\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right]\left(a\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+c\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)^3+$$
$$\frac{1}{a}c\left(150a^5c+130a^3c^3+24a\,c^5+3a\,c\left(25a^4+25a^2c^2-4c^4\right)\text{Cos}[d+e\,x]-6\left(25a^5c+15a^3c^3+4a\,c^5\right)\text{Cos}[2(d+e\,x)]-\right.$$
$$75a^5c\,\text{Cos}[3(d+e\,x)]-35a^3c^3\,\text{Cos}[3(d+e\,x)]-4a\,c^5\,\text{Cos}[3(d+e\,x)]+150a^6\,\text{Sin}[d+e\,x]+255a^4c^2\,\text{Sin}[d+e\,x]+$$
$$129a^2c^4\,\text{Sin}[d+e\,x]+12c^6\,\text{Sin}[d+e\,x]+120a^6\,\text{Sin}[2(d+e\,x)]+72a^4c^2\,\text{Sin}[2(d+e\,x)]+36a^2c^4\,\text{Sin}[2(d+e\,x)]+$$
$$\left.\left.30a^6\,\text{Sin}[3(d+e\,x)]-37a^4c^2\,\text{Sin}[3(d+e\,x)]-27a^2c^4\,\text{Sin}[3(d+e\,x)]-4c^6\,\text{Sin}[3(d+e\,x)]\right)\right)$$

Problem 370: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{2a+2a\,\text{Cos}[d+e\,x]+2a\,\text{Sin}[d+e\,x]}\,dx$$

Optimal (type 3, 23 leaves, 2 steps):

$$\frac{\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right]}{2\,a\,e}$$

Result (type 3, 50 leaves):

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

Problem 378: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(2a-2a\,\text{Cos}[d+e\,x]+2c\,\text{Sin}[d+e\,x]\right)^2}\,dx$$

Optimal (type 3, 75 leaves, 4 steps):

$$\frac{a\,\text{Log}\left[a+c\,\text{Cot}\left[\frac{1}{2}\,(d+e\,x)\right]\right]}{4\,c^3\,e}-\frac{c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{4\,c^2\,e\,\left(a-a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)}$$

Result (type 3, 229 leaves):

$$-\frac{1}{4\,c^3\,e\,\left(a-a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\,\left(c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)$$
$$\left(\text{Cos}[d+e\,x]\,\left(a^2+2\,c^2-2\,a^2\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]+2\,a^2\,\text{Log}\left[c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]\right)+\right.$$
$$a\,\left(a\,\left(-1+2\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]-2\,\text{Log}\left[c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]\right)+\right.$$
$$\left.\left.c\,\left(1+2\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]-2\,\text{Log}\left[c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]\right)\,\text{Sin}[d+e\,x]\right)\right)$$

Problem 379: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(2\,a-2\,a\,\text{Cos}[d+e\,x]+2\,c\,\text{Sin}[d+e\,x]\right)^3}\,dx$$

Optimal (type 3, 134 leaves, 4 steps):

$$-\frac{\left(3\,a^2+c^2\right)\,\text{Log}\left[a+c\,\text{Cot}\left[\frac{1}{2}\,(d+e\,x)\right]\right]}{16\,c^5\,e}-\frac{c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{16\,c^2\,e\,\left(a-a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}+\frac{3\,\left(a\,c\,\text{Cos}[d+e\,x]+a^2\,\text{Sin}[d+e\,x]\right)}{16\,c^4\,e\,\left(a-a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)}$$

Result (type 3, 350 leaves):

$$\frac{1}{8\,c^5\,e\,\left(a-a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3}\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\,\left(c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)$$
$$\left(c^2\,(-i\,a+c)\,(i\,a+c)\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]^2-6\,a\,\left(a^2+c^2\right)\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]^3\,\left(c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)-\right.$$
$$c^2\,\left(c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2+4\,\left(3\,a^2+c^2\right)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]^2\,\left(c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2-$$
$$4\,\left(3\,a^2+c^2\right)\,\text{Log}\left[c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right]\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]^2\,\left(c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2+$$
$$\left.3\,a\,c\,\left(c\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+a\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\,\text{Sin}[d+e\,x]\right)$$

Problem 380: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(2\,a - 2\,a\,\text{Cos}[d + e\,x] + 2\,c\,\text{Sin}[d + e\,x])^4}\,dx$$

Optimal (type 3, 207 leaves, 5 steps):

$$\frac{a\,(5\,a^2 + 3\,c^2)\,\text{Log}\left[a + c\,\text{Cot}\left[\frac{1}{2}\,(d + e\,x)\right]\right]}{32\,c^7\,e} - \frac{c\,\text{Cos}[d + e\,x] + a\,\text{Sin}[d + e\,x]}{48\,c^2\,e\,(a - a\,\text{Cos}[d + e\,x] + c\,\text{Sin}[d + e\,x])^3} + \frac{5\,(a\,c\,\text{Cos}[d + e\,x] + a^2\,\text{Sin}[d + e\,x])}{96\,c^4\,e\,(a - a\,\text{Cos}[d + e\,x] + c\,\text{Sin}[d + e\,x])^2} - \frac{c\,(15\,a^2 + 4\,c^2)\,\text{Cos}[d + e\,x] + a\,(15\,a^2 + 4\,c^2)\,\text{Sin}[d + e\,x]}{96\,c^6\,e\,(a - a\,\text{Cos}[d + e\,x] + c\,\text{Sin}[d + e\,x])}$$

Result (type 3, 494 leaves):

$$\frac{1}{384\,c^7\,e\,(a - a\,\text{Cos}[d + e\,x] + c\,\text{Sin}[d + e\,x])^4}\,\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]\left(c\,\text{Cos}\left[\frac{1}{2}\,(d + e\,x)\right] + a\,\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]\right)$$
$$\Bigg(150\,a^6 + 130\,a^4\,c^2 + 24\,a^2\,c^4 - 225\,a^6\,\text{Cos}[d + e\,x] - 255\,a^4\,c^2\,\text{Cos}[d + e\,x] - 42\,a^2\,c^4\,\text{Cos}[d + e\,x] - 24\,c^6\,\text{Cos}[d + e\,x] +$$
$$90\,a^6\,\text{Cos}[2\,(d + e\,x)] + 174\,a^4\,c^2\,\text{Cos}[2\,(d + e\,x)] - 15\,a^6\,\text{Cos}[3\,(d + e\,x)] - 49\,a^4\,c^2\,\text{Cos}[3\,(d + e\,x)] + 18\,a^2\,c^4\,\text{Cos}[3\,(d + e\,x)] +$$
$$8\,c^6\,\text{Cos}[3\,(d + e\,x)] - 192\,(5\,a^3 + 3\,a\,c^2)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]\right]\,\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]^3\left(c\,\text{Cos}\left[\frac{1}{2}\,(d + e\,x)\right] + a\,\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]\right)^3 +$$
$$192\,(5\,a^3 + 3\,a\,c^2)\,\text{Log}\left[c\,\text{Cos}\left[\frac{1}{2}\,(d + e\,x)\right] + a\,\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]\right]\,\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]^3\left(c\,\text{Cos}\left[\frac{1}{2}\,(d + e\,x)\right] + a\,\text{Sin}\left[\frac{1}{2}\,(d + e\,x)\right]\right)^3 +$$
$$75\,a^5\,c\,\text{Sin}[d + e\,x] + 75\,a^3\,c^3\,\text{Sin}[d + e\,x] - 12\,a\,c^5\,\text{Sin}[d + e\,x] - 60\,a^5\,c\,\text{Sin}[2\,(d + e\,x)] - 156\,a^3\,c^3\,\text{Sin}[2\,(d + e\,x)] -$$
$$12\,a\,c^5\,\text{Sin}[2\,(d + e\,x)] + 15\,a^5\,c\,\text{Sin}[3\,(d + e\,x)] + 79\,a^3\,c^3\,\text{Sin}[3\,(d + e\,x)] + 20\,a\,c^5\,\text{Sin}[3\,(d + e\,x)]\Bigg)$$

Problem 384: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{2\,a + 2\,b\,\text{Cos}[d + e\,x] + 2\,a\,\text{Sin}[d + e\,x]}\,dx$$

Optimal (type 3, 33 leaves, 2 steps):

$$-\frac{\text{Log}\left[a + b\,\text{Cot}\left[\frac{d}{2} + \frac{\pi}{4} + \frac{e\,x}{2}\right]\right]}{2\,b\,e}$$

Result (type 3, 93 leaves):

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

Problem 387: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(2 a+2 b \text{Cos}[d+e x]+2 a \text{Sin}[d+e x])^4} \, dx$$

Optimal (type 3, 215 leaves, 5 steps):

$$\frac{a\left(5 a^2+3 b^2\right) \text{Log}\left[a+b \text{Cot}\left[\frac{d}{2}+\frac{\pi}{4}+\frac{e x}{2}\right]\right]}{32 b^7 e}-\frac{a \text{Cos}[d+e x]-b \text{Sin}[d+e x]}{48 b^2 e (a+b \text{Cos}[d+e x]+a \text{Sin}[d+e x])^3}+\frac{5\left(a^2 \text{Cos}[d+e x]-a b \text{Sin}[d+e x]\right)}{96 b^4 e (a+b \text{Cos}[d+e x]+a \text{Sin}[d+e x])^2}-\frac{a\left(15 a^2+4 b^2\right) \text{Cos}[d+e x]-b\left(15 a^2+4 b^2\right) \text{Sin}[d+e x]}{96 b^6 e (a+b \text{Cos}[d+e x]+a \text{Sin}[d+e x])}$$

Result (type 3, 632 leaves):

$$\frac{1}{384 b^7 e}\left(-12 a\left(5 a^2+3 b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2}(d+e x)\right]+\text{Sin}\left[\frac{1}{2}(d+e x)\right]\right]+12 a\left(5 a^2+3 b^2\right) \text{Log}\left[(a+b) \text{Cos}\left[\frac{1}{2}(d+e x)\right]+(a-b) \text{Sin}\left[\frac{1}{2}(d+e x)\right]\right]+\right.$$
$$\left(b\left(150 a^6+130 a^4 b^2+24 a^2 b^4-3 a^2\left(25 a^4-50 a^3 b+5 a^2 b^2-30 a b^3+4 b^4\right) \text{Cos}[d+e x]-6 a^2\left(15 a^4+20 a^3 b+9 a^2 b^2+2 a b^3-2 b^4\right)\right.\right.$$
$$\text{Cos}[2(d+e x)]+15 a^6 \text{Cos}[3(d+e x)]-30 a^5 b \text{Cos}[3(d+e x)]-41 a^4 b^2 \text{Cos}[3(d+e x)]-38 a^3 b^3 \text{Cos}[3(d+e x)]-$$
$$12 a^2 b^4 \text{Cos}[3(d+e x)]-8 a b^5 \text{Cos}[3(d+e x)]+225 a^6 \text{Sin}[d+e x]+75 a^5 b \text{Sin}[d+e x]+180 a^4 b^2 \text{Sin}[d+e x]+15 a^3 b^3 \text{Sin}[d+e x]+$$
$$27 a^2 b^4 \text{Sin}[d+e x]+12 a b^5 \text{Sin}[d+e x]+12 b^6 \text{Sin}[d+e x]-60 a^6 \text{Sin}[2(d+e x)]+120 a^5 b \text{Sin}[2(d+e x)]+54 a^4 b^2 \text{Sin}[2(d+e x)]+$$
$$102 a^3 b^3 \text{Sin}[2(d+e x)]+6 a^2 b^4 \text{Sin}[2(d+e x)]+6 a b^5 \text{Sin}[2(d+e x)]-15 a^6 \text{Sin}[3(d+e x)]-45 a^5 b \text{Sin}[3(d+e x)]-$$
$$\left.\left.4 a^4 b^2 \text{Sin}[3(d+e x)]+3 a^3 b^3 \text{Sin}[3(d+e x)]+15 a^2 b^4 \text{Sin}[3(d+e x)]+4 a b^5 \text{Sin}[3(d+e x)]+4 b^6 \text{Sin}[3(d+e x)]\right)\right) \Big/$$
$$\left.\left((a+b)\left(\text{Cos}\left[\frac{1}{2}(d+e x)\right]+\text{Sin}\left[\frac{1}{2}(d+e x)\right]\right)^3\left((a+b) \text{Cos}\left[\frac{1}{2}(d+e x)\right]+(a-b) \text{Sin}\left[\frac{1}{2}(d+e x)\right]\right)^3\right)\right)$$

Problem 391: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{2 a+2 b \text{Cos}[d+e x]-2 a \text{Sin}[d+e x]} \, dx$$

Optimal (type 3, 33 leaves, 2 steps):

$$\frac{\text{Log}\left[a+b \text{Tan}\left[\frac{d}{2}+\frac{\pi}{4}+\frac{e x}{2}\right]\right]}{2 b e}$$

Result (type 3, 96 leaves):

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

Problem 394: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(2 a+2 b \text{Cos}[d+e x]-2 a \text{Sin}[d+e x])^4} \, dx$$

Optimal (type 3, 215 leaves, 5 steps):

$$-\frac{a\left(5 a^2+3 b^2\right) \text{Log}\left[a+b \text{Tan}\left[\frac{d}{2}+\frac{\pi}{4}+\frac{e x}{2}\right]\right]}{32 b^7 e}+\frac{a \text{Cos}[d+e x]+b \text{Sin}[d+e x]}{48 b^2 e (a+b \text{Cos}[d+e x]-a \text{Sin}[d+e x])^3}-\frac{5\left(a^2 \text{Cos}[d+e x]+a b \text{Sin}[d+e x]\right)}{96 b^4 e (a+b \text{Cos}[d+e x]-a \text{Sin}[d+e x])^2}+\frac{a\left(15 a^2+4 b^2\right) \text{Cos}[d+e x]+b\left(15 a^2+4 b^2\right) \text{Sin}[d+e x]}{96 b^6 e (a+b \text{Cos}[d+e x]-a \text{Sin}[d+e x])}$$

Result (type 3, 636 leaves):

$$\frac{1}{384 b^7 e}\left(12 a\left(5 a^2+3 b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2}(d+e x)\right]-\text{Sin}\left[\frac{1}{2}(d+e x)\right]\right]-12 a\left(5 a^2+3 b^2\right) \text{Log}\left[(a+b) \text{Cos}\left[\frac{1}{2}(d+e x)\right]+(-a+b) \text{Sin}\left[\frac{1}{2}(d+e x)\right]\right]+\right.$$
$$\left(b\left(-150 a^6-130 a^4 b^2-24 a^2 b^4+3 a^2\left(25 a^4-50 a^3 b+5 a^2 b^2-30 a b^3+4 b^4\right) \text{Cos}[d+e x]+6 a^2\left(15 a^4+20 a^3 b+9 a^2 b^2+2 a b^3-2 b^4\right)\right.\right.$$
$$\text{Cos}[2(d+e x)]-15 a^6 \text{Cos}[3(d+e x)]+30 a^5 b \text{Cos}[3(d+e x)]+41 a^4 b^2 \text{Cos}[3(d+e x)]+38 a^3 b^3 \text{Cos}[3(d+e x)]+$$
$$12 a^2 b^4 \text{Cos}[3(d+e x)]+8 a b^5 \text{Cos}[3(d+e x)]+225 a^6 \text{Sin}[d+e x]+75 a^5 b \text{Sin}[d+e x]+180 a^4 b^2 \text{Sin}[d+e x]+15 a^3 b^3 \text{Sin}[d+e x]+$$
$$27 a^2 b^4 \text{Sin}[d+e x]+12 a b^5 \text{Sin}[d+e x]+12 b^6 \text{Sin}[d+e x]-60 a^6 \text{Sin}[2(d+e x)]+120 a^5 b \text{Sin}[2(d+e x)]+54 a^4 b^2 \text{Sin}[2(d+e x)]+$$
$$102 a^3 b^3 \text{Sin}[2(d+e x)]+6 a^2 b^4 \text{Sin}[2(d+e x)]+6 a b^5 \text{Sin}[2(d+e x)]-15 a^6 \text{Sin}[3(d+e x)]-45 a^5 b \text{Sin}[3(d+e x)]-$$
$$\left.4 a^4 b^2 \text{Sin}[3(d+e x)]+3 a^3 b^3 \text{Sin}[3(d+e x)]+15 a^2 b^4 \text{Sin}[3(d+e x)]+4 a b^5 \text{Sin}[3(d+e x)]+4 b^6 \text{Sin}[3(d+e x)]\right)\right) \Big/$$
$$\left.\left((a+b)\left(\text{Cos}\left[\frac{1}{2}(d+e x)\right]-\text{Sin}\left[\frac{1}{2}(d+e x)\right]\right)^3\left((a+b) \text{Cos}\left[\frac{1}{2}(d+e x)\right]+(-a+b) \text{Sin}\left[\frac{1}{2}(d+e x)\right]\right)^3\right)\right)$$

Problem 402: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+b \text{Cos}[d+e x]+c \text{Sin}[d+e x])^4} \, dx$$

Optimal (type 3, 292 leaves, 6 steps):

$$\frac{a\left(2a^2+3\left(b^2+c^2\right)\right)\text{ArcTan}\left[\frac{c+(a-b)\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]}{\sqrt{a^2-b^2-c^2}}\right]}{\left(a^2-b^2-c^2\right)^{7/2}e}+\frac{c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]}{3\left(a^2-b^2-c^2\right)e\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3}+$$
$$\frac{5\left(a\,c\,\text{Cos}[d+e\,x]-a\,b\,\text{Sin}[d+e\,x]\right)}{6\left(a^2-b^2-c^2\right)^2e\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}+\frac{c\left(11a^2+4\left(b^2+c^2\right)\right)\text{Cos}[d+e\,x]-b\left(11a^2+4\left(b^2+c^2\right)\right)\text{Sin}[d+e\,x]}{6\left(a^2-b^2-c^2\right)^3e\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)}$$

Result (type 3, 606 leaves):

$$\frac{1}{24\,e}\left(\frac{24\,a\left(2a^2+3\left(b^2+c^2\right)\right)\text{ArcTanh}\left[\frac{c+(a-b)\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]}{\sqrt{-a^2+b^2+c^2}}\right]}{\left(-a^2+b^2+c^2\right)^{7/2}}+\frac{1}{b\left(-a^2+b^2+c^2\right)^3\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3}\right.$$
$$\left(44a^5c+82a^3b^2c+24ab^4c+82a^3c^3+48ab^2c^3+24ac^5+30a^2bc\left(2a^2+3\left(b^2+c^2\right)\right)\text{Cos}[d+e\,x]-\right.$$
$$6ac\left(-2b^4+2b^2c^2+4c^4+a^2\left(7b^2+11c^2\right)\right)\text{Cos}[2(d+e\,x)]-22a^2b^3c\,\text{Cos}[3(d+e\,x)]-8b^5c\,\text{Cos}[3(d+e\,x)]-22a^2bc^3\,\text{Cos}[3(d+e\,x)]-$$
$$16b^3c^3\,\text{Cos}[3(d+e\,x)]-8bc^5\,\text{Cos}[3(d+e\,x)]+72a^4b^2\,\text{Sin}[d+e\,x]-9a^2b^4\,\text{Sin}[d+e\,x]+12b^6\,\text{Sin}[d+e\,x]+132a^4c^2\,\text{Sin}[d+e\,x]+$$
$$72a^2b^2c^2\,\text{Sin}[d+e\,x]+36b^4c^2\,\text{Sin}[d+e\,x]+81a^2c^4\,\text{Sin}[d+e\,x]+36b^2c^4\,\text{Sin}[d+e\,x]+12c^6\,\text{Sin}[d+e\,x]+54a^3b^3\,\text{Sin}[2(d+e\,x)]+$$
$$6ab^5\,\text{Sin}[2(d+e\,x)]+78a^3bc^2\,\text{Sin}[2(d+e\,x)]+48ab^3c^2\,\text{Sin}[2(d+e\,x)]+42abc^4\,\text{Sin}[2(d+e\,x)]+11a^2b^4\,\text{Sin}[3(d+e\,x)]+$$
$$\left.\left.4b^6\,\text{Sin}[3(d+e\,x)]+4b^4c^2\,\text{Sin}[3(d+e\,x)]-11a^2c^4\,\text{Sin}[3(d+e\,x)]-4b^2c^4\,\text{Sin}[3(d+e\,x)]-4c^6\,\text{Sin}[3(d+e\,x)]\right)\right)$$

Problem 403: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]\right)^{5/2}dx$$

Optimal (type 4, 185 leaves, 7 steps):

$$\frac{796\sqrt{2+\sqrt{34}}\;\text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\frac{2}{15}\left(17-\sqrt{34}\right)\right]}{15\,e}+\frac{64\,\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\frac{2}{15}\left(17-\sqrt{34}\right)\right]}{\sqrt{2+\sqrt{34}}\;e}-$$
$$\frac{32\left(5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x]\right)\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}}{15\,e}-\frac{2\left(5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x]\right)\left(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]\right)^{3/2}}{5\,e}$$

Result (type 6, 536 leaves):

$$\frac{1}{e}\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}\,\left(\frac{796}{25}-\frac{44}{3}\,\text{Cos}[d+e\,x]-6\,\text{Cos}[2\,(d+e\,x)]+\frac{44}{5}\,\text{Sin}[d+e\,x]-\frac{16}{5}\,\text{Sin}[2\,(d+e\,x)]\right)+$$

$$\frac{1}{15\,e}1276\,\sqrt{\frac{34}{17+\sqrt{34}}}\,\text{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{2+\sqrt{34}\,\text{Sin}\big[d+e\,x+\text{ArcTan}\big[\frac{3}{5}\big]\big]}{\sqrt{34}\,\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\,\text{Sin}\big[d+e\,x+\text{ArcTan}\big[\frac{3}{5}\big]\big]}{\sqrt{34}\,\left(-1-\sqrt{\frac{2}{17}}\right)}\Big]$$

$$\text{Sec}\Big[d+e\,x+\text{ArcTan}\Big[\frac{3}{5}\Big]\Big]\,\sqrt{1-\text{Sin}\Big[d+e\,x+\text{ArcTan}\Big[\frac{3}{5}\Big]\Big]}\,\sqrt{-\frac{1+\text{Sin}\big[d+e\,x+\text{ArcTan}\big[\frac{3}{5}\big]\big]}{-17+\sqrt{34}}}\,\sqrt{2+\sqrt{34}\,\text{Sin}\Big[d+e\,x+\text{ArcTan}\Big[\frac{3}{5}\Big]\Big]}+\frac{1}{75\,e}$$

$$13\,532\,\Bigg(-\Bigg(\Bigg(5\,\sqrt{\frac{1}{34}\,\left(17+\sqrt{34}\right)}\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{2+\sqrt{34}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{5}{3}\big]\big]}{\sqrt{34}\,\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{5}{3}\big]\big]}{\sqrt{34}\,\left(-1-\sqrt{\frac{2}{17}}\right)}\Big]$$

$$\text{Sin}\Big[d+e\,x-\text{ArcTan}\Big[\frac{5}{3}\Big]\Big]\Bigg)\Bigg/\Bigg(17\,\sqrt{1-\text{Cos}\Big[d+e\,x-\text{ArcTan}\Big[\frac{5}{3}\Big]\Big]}\,\sqrt{-\frac{1+\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{5}{3}\big]\big]}{-17+\sqrt{34}}}$$

$$\sqrt{2+\sqrt{34}\,\text{Cos}\Big[d+e\,x-\text{ArcTan}\Big[\frac{5}{3}\Big]\Big]}\Bigg)\Bigg)-\frac{\frac{3}{17}\,\left(2+\sqrt{34}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{5}{3}\big]\big]\right)-\frac{5\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}}}{\sqrt{2+\sqrt{34}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{5}{3}\big]\big]}}\Bigg)$$

Problem 404: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])^{3/2}\,dx$$

Optimal (type 4, 139 leaves, 6 steps):

$$\frac{16\sqrt{2+\sqrt{34}}\ \text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\ \frac{2}{15}\left(17-\sqrt{34}\right)\right]}{3\,e}+$$

$$\frac{20\,\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\ \frac{2}{15}\left(17-\sqrt{34}\right)\right]}{\sqrt{2+\sqrt{34}}\ e}-\frac{2\left(5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x]\right)\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}}{3\,e}$$

Result (type 6, 512 leaves) :

$$\frac{\left(\frac{16}{5}-\frac{10}{3}\,\text{Cos}[d+e\,x]+2\,\text{Sin}[d+e\,x]\right)\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}}{e}+\frac{1}{3\,e}$$

$$46\sqrt{\frac{34}{17+\sqrt{34}}}\ \text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\left(-1-\sqrt{\frac{2}{17}}\right)}\right]$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]\sqrt{1-\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}\sqrt{-\frac{1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{-17+\sqrt{34}}}\sqrt{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}+\frac{1}{15\,e}$$

$$272\left(-\left(\left(5\sqrt{\frac{1}{34}\left(17+\sqrt{34}\right)}\ \text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\left(-1-\sqrt{\frac{2}{17}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)\Big/\left(17\sqrt{1-\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\sqrt{-\frac{1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{-17+\sqrt{34}}}\right.$$

$$\left.\left.\left.\sqrt{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\right)\right)-\frac{\frac{3}{17}\left(2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)-\frac{5\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}}}{\sqrt{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}}\right)$$

Problem 405: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}\,dx$$

Optimal (type 4, 45 leaves, 2 steps):

$$\frac{2\sqrt{2+\sqrt{34}}\;\text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\frac{2}{15}\left(17-\sqrt{34}\right)\right]}{e}$$

Result (type 6, 326 leaves):

$$\frac{1}{15\,e\,\sqrt{2+\sqrt{34}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\,\sqrt{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]^2}}$$
$$\left(-15\sqrt{30}\;\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},\frac{\sqrt{34}+17\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{-17+\sqrt{34}},\frac{\sqrt{34}+17\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{17+\sqrt{34}}\right]\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]+\right.$$
$$\left(-75\,\text{Cos}[d+e\,x]+45\,\text{Sin}[d+e\,x]+\right.$$
$$2\sqrt{30}\;\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},\frac{\sqrt{34}+17\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{-17+\sqrt{34}},\frac{\sqrt{34}+17\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{17+\sqrt{34}}\right]\sqrt{\text{Cos}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]^2}$$
$$\left.\left.\sqrt{2+\sqrt{34}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\;\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]\sqrt{2+\sqrt{34}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}\right)\sqrt{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]^2}\right)$$

Problem 406: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}}\,dx$$

Optimal (type 4, 45 leaves, 2 steps):

$$\frac{2\,\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\frac{2}{15}\left(17-\sqrt{34}\right)\right]}{\sqrt{2+\sqrt{34}}\;e}$$

Result (type 6, 128 leaves):

$$\frac{1}{e}\sqrt{\frac{2}{15}}\;\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},\frac{\sqrt{34}+17\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{-17+\sqrt{34}},\frac{\sqrt{34}+17\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{17+\sqrt{34}}\right]$$
$$\sqrt{\text{Cos}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]^2}\;\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]\sqrt{2+\sqrt{34}\;\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}$$

Problem 407: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]\right)^{3/2}}\,dx$$

Optimal (type 4, 94 leaves, 3 steps):

$$-\frac{\sqrt{2+\sqrt{34}}\;\text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\frac{2}{15}\left(17-\sqrt{34}\right)\right]}{15\,e}-\frac{5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x]}{15\,e\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}}$$

Result (type 6, 528 leaves):

$$\frac{\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}\,\left(-\frac{34}{225}+\frac{2\,(5+17\,\text{Sin}[d+e\,x])}{45\,(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])}\right)}{e}-\frac{1}{15\,e}$$

$$\sqrt{\frac{34}{17+\sqrt{34}}}\ \text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\,\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\,\left(-1-\sqrt{\frac{2}{17}}\right)}\right]$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]\sqrt{1-\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}\ \sqrt{-\frac{1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{-17+\sqrt{34}}}\ \sqrt{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}-\frac{1}{75\,e}$$

$$17\left(-\left(\left(5\sqrt{\frac{1}{34}\left(17+\sqrt{34}\right)}\ \text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\,\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\,\left(-1-\sqrt{\frac{2}{17}}\right)}\right]\right.\right.\right.$$

$$\left.\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)\Big/\left(17\sqrt{1-\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\ \sqrt{-\frac{1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{-17+\sqrt{34}}}\right.\right.$$

$$\left.\left.\left.\sqrt{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\right)\right)-\frac{\frac{3}{17}\left(2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)-\frac{5\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}}}{\sqrt{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}}\right)$$

Problem 408: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])^{5/2}}\,dx$$

Optimal (type 4, 187 leaves, 7 steps):

$$\frac{4\sqrt{2+\sqrt{34}}\ \text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\ \frac{2}{15}\left(17-\sqrt{34}\right)\right]}{675\,e}+\frac{\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\ \frac{2}{15}\left(17-\sqrt{34}\right)\right]}{45\sqrt{2+\sqrt{34}}\ e}-$$

$$\frac{5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x]}{45\,e\left(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]\right)^{3/2}}+\frac{4\left(5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x]\right)}{675\,e\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}}$$

Result (type 6, 564 leaves):

$$\frac{\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}\left(\frac{136}{10125}+\frac{-115-136\,\text{Sin}[d+e\,x]}{2025\,(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])}+\frac{2\,(5+17\,\text{Sin}[d+e\,x])}{135\,(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])^2}\right)}{e}+\frac{1}{675\,e}$$

$$23\sqrt{\frac{17}{2\left(17+\sqrt{34}\right)}}\ \text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\left(-1-\sqrt{\frac{2}{17}}\right)}\right]$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]\sqrt{1-\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}\sqrt{-\frac{1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{-17+\sqrt{34}}}\sqrt{2+\sqrt{34}\ \text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}+\frac{1}{3375\,e}$$

$$68\left(-\left(\left(5\sqrt{\frac{1}{34}\left(17+\sqrt{34}\right)}\ \text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\left(-1-\sqrt{\frac{2}{17}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)\Bigg/\left(17\sqrt{1-\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\sqrt{-\frac{1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{-17+\sqrt{34}}}\right.$$

$$\left.\left.\sqrt{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\right)\right)-\frac{\frac{3}{17}\left(2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)-\frac{5\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}}}{\sqrt{2+\sqrt{34}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}}\Bigg)$$

Problem 409: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])^{7/2}}\,dx$$

Optimal (type 4, 233 leaves, 8 steps):

$$-\frac{199\sqrt{2+\sqrt{34}}\ \text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\frac{2}{15}\left(17-\sqrt{34}\right)\right]}{101\,250\,e}-\frac{8\,\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right),\frac{2}{15}\left(17-\sqrt{34}\right)\right]}{3375\sqrt{2+\sqrt{34}}\ e}-$$

$$\frac{5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x]}{75\,e\,(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])^{5/2}}+\frac{8\,(5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x])}{3375\,e\,(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x])^{3/2}}-\frac{199\,(5\,\text{Cos}[d+e\,x]-3\,\text{Sin}[d+e\,x])}{101\,250\,e\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}}$$

Result (type 6, 598 leaves):

$$\frac{1}{e}\sqrt{2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]}$$

$$\left(-\frac{3383}{759375}+\frac{-305-272\,\text{Sin}[d+e\,x]}{10125\,\left(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]\right)^2}+\frac{2\,\left(5+17\,\text{Sin}[d+e\,x]\right)}{225\,\left(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]\right)^3}+\frac{1595+3383\,\text{Sin}[d+e\,x]}{151875\,\left(2+3\,\text{Cos}[d+e\,x]+5\,\text{Sin}[d+e\,x]\right)}\right)-$$

$$\frac{1}{50625\,e}319\,\sqrt{\frac{17}{2\,\left(17+\sqrt{34}\right)}}\;\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{2+\sqrt{34}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\,\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{\sqrt{34}\,\left(-1-\sqrt{\frac{2}{17}}\right)}\right]$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]\sqrt{1-\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}\;\sqrt{-\frac{1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}{-17+\sqrt{34}}}\;\sqrt{2+\sqrt{34}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{3}{5}\right]\right]}-\frac{1}{506250\,e}$$

$$3383\left(-\left(\left(5\sqrt{\frac{1}{34}\left(17+\sqrt{34}\right)}\;\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{2+\sqrt{34}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\,\left(1-\sqrt{\frac{2}{17}}\right)},-\frac{2+\sqrt{34}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}\,\left(-1-\sqrt{\frac{2}{17}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)\Big/\left(17\sqrt{1-\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\;\sqrt{-\frac{1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{-17+\sqrt{34}}}\right.$$

$$\left.\left.\sqrt{2+\sqrt{34}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}\right)\right)-\frac{\frac{3}{17}\left(2+\sqrt{34}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]\right)-\frac{5\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}{\sqrt{34}}}{\sqrt{2+\sqrt{34}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{5}{3}\right]\right]}}\right)$$

Problem 410: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 347 leaves, 7 steps):

$$-\frac{16\left(a c \operatorname{Cos}[d+e x]-a b \operatorname{Sin}[d+e x]\right) \sqrt{a+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}}{15 e}-$$

$$\frac{2\left(c \operatorname{Cos}[d+e x]-b \operatorname{Sin}[d+e x]\right)\left(a+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]\right)^{3/2}}{5 e}+$$

$$\left(2\left(23 a^2+9\left(b^2+c^2\right)\right) \operatorname{EllipticE}\left[\frac{1}{2}\left(d+e x-\operatorname{ArcTan}[b, c]\right), \frac{2 \sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right] \sqrt{a+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}\right) \Big/$$

$$\left(15 e \sqrt{\frac{a+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}{a+\sqrt{b^2+c^2}}}\right)-\frac{16 a\left(a^2-b^2-c^2\right) \operatorname{EllipticF}\left[\frac{1}{2}\left(d+e x-\operatorname{ArcTan}[b, c]\right), \frac{2 \sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right] \sqrt{\frac{a+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}{a+\sqrt{b^2+c^2}}}}{15 e \sqrt{a+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}}$$

Result (type 6, 3767 leaves):

$$\frac{1}{e}\sqrt{a+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}$$

$$\left(\frac{2 b\left(23 a^2+9 b^2+9 c^2\right)}{15 c}-\frac{22}{15} a c \operatorname{Cos}[d+e x]-\frac{2}{5} b c \operatorname{Cos}[2(d+e x)]+\frac{22}{15} a b \operatorname{Sin}[d+e x]+\frac{1}{5}\left(b^2-c^2\right) \operatorname{Sin}[2(d+e x)]\right)+\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\, c e}$$

$$2 a^3 \operatorname{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{a+\sqrt{1+\frac{b^2}{c^2}}\, c \operatorname{Sin}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}, -\frac{a+\sqrt{1+\frac{b^2}{c^2}}\, c \operatorname{Sin}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}\right] \operatorname{Sec}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c \sqrt{\frac{b^2+c^2}{c^2}}-c \sqrt{\frac{b^2+c^2}{c^2}} \operatorname{Sin}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c \sqrt{\frac{b^2+c^2}{c^2}}}} \sqrt{a+c \sqrt{\frac{b^2+c^2}{c^2}} \operatorname{Sin}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]} \sqrt{\frac{c \sqrt{\frac{b^2+c^2}{c^2}}+c \sqrt{\frac{b^2+c^2}{c^2}} \operatorname{Sin}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c \sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{15 \sqrt{1+\frac{b^2}{c^2}}\, c e} 34 a b^2 \operatorname{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{a+\sqrt{1+\frac{b^2}{c^2}}\, c \operatorname{Sin}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}, -\frac{a+\sqrt{1+\frac{b^2}{c^2}}\, c \operatorname{Sin}\left[d+e x+\operatorname{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}\right]$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}$$

$$\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{15\sqrt{1+\frac{b^2}{c^2}}\,e}$$

$$34\,a\,c\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

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

$$\frac{1}{15\,c\,e}23\,a^2\,b^2\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+\frac{1}{5\,c\,e}$$

$$3\,b^4\Bigg(-\Bigg(\Bigg(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]$$

$$\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+\frac{1}{15\,e}$$

$$23\,a^2\,c\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

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

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+\frac{1}{5\,e}$$

$$6\,b^2\,c\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

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

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\;\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+\frac{1}{5\,e}$$

$$3\,c^3\Bigg(-\Bigg(\Bigg(c\,\text{AppellF1}\Bigg[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Bigg]$$

$$\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\;\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)$$

Problem 411: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 283 leaves, 6 steps):

$$-\frac{2\left(c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x]\right)\sqrt{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}}{3\,e}+$$

$$\frac{8\,a\,\mathrm{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\mathrm{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}}{3\,e\sqrt{\frac{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}}-$$

$$\frac{2\left(a^2-b^2-c^2\right)\mathrm{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\mathrm{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{\frac{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}}{3\,e\sqrt{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}}$$

Result (type 6, 2190 leaves):

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

$$2\,a^2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{3\sqrt{1+\frac{b^2}{c^2}}\,c\,e}2\,b^2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]$$

$$\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\,\sqrt{\frac{b^2+c^2}{c^2}}-c\,\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\,\sqrt{\frac{b^2+c^2}{c^2}}}}$$

$$\sqrt{a+c\,\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}\,\sqrt{\frac{c\,\sqrt{\frac{b^2+c^2}{c^2}}+c\,\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\,\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{3\,\sqrt{1+\frac{b^2}{c^2}}\,e}$$

$$2\,c\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\,\sqrt{\frac{b^2+c^2}{c^2}}-c\,\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\,\sqrt{\frac{b^2+c^2}{c^2}}}}\,\sqrt{a+c\,\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}\,\sqrt{\frac{c\,\sqrt{\frac{b^2+c^2}{c^2}}+c\,\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\,\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{3\,c\,e}4\,a\,b^2\left(-\left(\left(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\,\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\,\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\,\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\,\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\,\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\,\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

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

$$4\,a\,c\Bigg(-\Bigg(\Bigg(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]$$

$$\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

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

Problem 412: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 108 leaves, 2 steps):

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

Result (type 6, 1408 leaves):

$$\frac{2\,b\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{c\,e}+\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\,c\,e}$$

$$2\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

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

$$\frac{1}{c\,e}b^2\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\middle/\left(b\,\sqrt{1+\frac{c^2}{b^2}}\,\sqrt{\frac{b\,\sqrt{\frac{b^2+c^2}{b^2}}-b\,\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\,\sqrt{\frac{b^2+c^2}{b^2}}}}\,\sqrt{a+b\,\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.\right.$$

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

$$c\,\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},\,-\frac{1}{2},\,-\frac{1}{2},\,\frac{1}{2},\,-\frac{a+b\,\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\,\sqrt{1+\frac{c^2}{b^2}}\,\left(1-\frac{a}{b\,\sqrt{1+\frac{c^2}{b^2}}}\right)},\,-\frac{a+b\,\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\,\sqrt{1+\frac{c^2}{b^2}}\,\left(-1-\frac{a}{b\,\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\middle/\left(b\,\sqrt{1+\frac{c^2}{b^2}}\,\sqrt{\frac{b\,\sqrt{\frac{b^2+c^2}{b^2}}-b\,\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\,\sqrt{\frac{b^2+c^2}{b^2}}}}\,\sqrt{a+b\,\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.\right.$$

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

Problem 413: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}}\,dx$$

Optimal (type 4, 108 leaves, 2 steps):

$$\frac{2\,\mathrm{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\mathrm{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{\frac{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}}{e\sqrt{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}}$$

Result (type 6, 285 leaves):

$$\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\,c\,e}2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a-\sqrt{1+\frac{b^2}{c^2}}\,c},\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+\sqrt{1+\frac{b^2}{c^2}}\,c}\right]\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{-\frac{\sqrt{1+\frac{b^2}{c^2}}\,c\left(-1+\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\right)}{a+\sqrt{1+\frac{b^2}{c^2}}\,c}}\sqrt{\frac{\sqrt{1+\frac{b^2}{c^2}}\,c\left(1+\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\right)}{-a+\sqrt{1+\frac{b^2}{c^2}}\,c}}\sqrt{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}$$

Problem 414: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{3/2}}\,dx$$

Optimal (type 4, 186 leaves, 3 steps):

$$\frac{2\left(c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x]\right)}{\left(a^2-b^2-c^2\right)e\sqrt{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}}+\frac{2\,\mathrm{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\mathrm{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}}{\left(a^2-b^2-c^2\right)e\sqrt{\frac{a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}}$$

Result (type 6, 1540 leaves):

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

$$\Bigg(2\,a\,\mathrm{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[d+e\,x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[d+e\,x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\Big]$$

$$\mathrm{Sec}\Big[d+e\,x+\mathrm{ArcTan}\Big[\frac{b}{c}\Big]\Big]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\big[d+e\,x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\Big[d+e\,x+\mathrm{ArcTan}\Big[\frac{b}{c}\Big]\Big]}$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\big[d+e\,x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\Bigg)\Bigg/\left(\sqrt{1+\frac{b^2}{c^2}}\,c\,(-a^2+b^2+c^2)\,e\right)-\frac{1}{c\,(-a^2+b^2+c^2)\,e}$$

$$b^2\Bigg(-\Bigg(\Bigg(c\,\mathrm{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\big[d+e\,x-\mathrm{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\big[d+e\,x-\mathrm{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Big]$$

$$\mathrm{Sin}\Big[d+e\,x-\mathrm{ArcTan}\Big[\frac{c}{b}\Big]\Big]\Bigg)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\big[d+e\,x-\mathrm{ArcTan}\big[\frac{c}{b}\big]\big]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\Big[d+e\,x-\mathrm{ArcTan}\Big[\frac{c}{b}\Big]\Big]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\;\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{\left(-a^2+b^2+c^2\right)e}$$

$$c\left(-\left(\left(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\;\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)$$

Problem 415: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(a+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{5/2}}\,dx$$

Optimal (type 4, 382 leaves, 7 steps):

$$\frac{2\,(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x])}{3\,(a^2-b^2-c^2)\,e\,(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^{3/2}}+\frac{8\,(a\,c\,\text{Cos}[d+e\,x]-a\,b\,\text{Sin}[d+e\,x])}{3\,(a^2-b^2-c^2)^2\,e\,\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}+$$

$$\frac{8\,a\,\text{EllipticE}\left[\frac{1}{2}\,(d+e\,x-\text{ArcTan}[b,c]),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{3\,(a^2-b^2-c^2)^2\,e\,\sqrt{\frac{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}}-$$

$$\frac{2\,\text{EllipticF}\left[\frac{1}{2}\,(d+e\,x-\text{ArcTan}[b,c]),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{\frac{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}}{3\,(a^2-b^2-c^2)\,e\,\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}$$

Result (type 6, 2408 leaves):

$$\frac{1}{e}\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

$$\left(\frac{8\,a\,(b^2+c^2)}{3\,b\,c\,(a^2-b^2-c^2)^2}+\frac{2\,(a\,c+b^2\,\text{Sin}[d+e\,x]+c^2\,\text{Sin}[d+e\,x])}{3\,b\,(-a^2+b^2+c^2)\,(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^2}-\frac{2\,(3\,a^2\,c+b^2\,c+c^3+4\,a\,b^2\,\text{Sin}[d+e\,x]+4\,a\,c^2\,\text{Sin}[d+e\,x])}{3\,b\,(-a^2+b^2+c^2)^2\,(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])}\right)+$$

$$\left(2\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\right.$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\;\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\right)\Big/\left(\sqrt{1+\frac{b^2}{c^2}}\,c\,\left(-a^2+b^2+c^2\right)^2 e\right)+$$

$$\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\right.$$

$$\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\,\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\right)\Big/\left(3\sqrt{1+\frac{b^2}{c^2}}\,c\,\left(-a^2+b^2+c^2\right)^2 e\right)+$$

$$\left(2\,c\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\right.$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\right)\Bigg/\left(3\sqrt{1+\frac{b^2}{c^2}}\left(-a^2+b^2+c^2\right)^2 e\right)+\frac{1}{3\,c\left(-a^2+b^2+c^2\right)^2 e}$$

$$4\,a\,b^2\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+\frac{1}{3\left(-a^2+b^2+c^2\right)^2 e}$$

$$4\,a\,c\,\Bigg(-\Bigg(\Bigg(c\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Big]$$

$$\text{Sin}\Big[d+e\,x-\text{ArcTan}\Big[\frac{c}{b}\Big]\Big]\Bigg)\Big/\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\Big[d+e\,x-\text{ArcTan}\Big[\frac{c}{b}\Big]\Big]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}}\Bigg)$$

Problem 416: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^{7/2}}\,dx$$

Optimal (type 4, 490 leaves, 8 steps) :

$$\frac{2\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}{5\left(a^2-b^2-c^2\right)e\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{5/2}}+\frac{16\left(a\,c\,\text{Cos}[d+e\,x]-a\,b\,\text{Sin}[d+e\,x]\right)}{15\left(a^2-b^2-c^2\right)^2e\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{3/2}}+$$

$$\left(2\left(23\,a^2+9\left(b^2+c^2\right)\right)\text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}\right)\Big/$$

$$\left(15\left(a^2-b^2-c^2\right)^3e\sqrt{\frac{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}\right)-\frac{16\,a\,\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{\frac{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{a+\sqrt{b^2+c^2}}}}{15\left(a^2-b^2-c^2\right)^2e\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}+$$

$$\frac{2\left(c\left(23\,a^2+9\left(b^2+c^2\right)\right)\text{Cos}[d+e\,x]-b\left(23\,a^2+9\left(b^2+c^2\right)\right)\text{Sin}[d+e\,x]\right)}{15\left(a^2-b^2-c^2\right)^3e\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}$$

Result (type 6, 4116 leaves) :

$$\frac{1}{e}\sqrt{a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}\left(-\frac{2\left(b^2+c^2\right)\left(23\,a^2+9\,b^2+9\,c^2\right)}{15\,b\,c\left(-a^2+b^2+c^2\right)^3}+\right.$$

$$\frac{2\left(a\,c+b^2\,\text{Sin}[d+e\,x]+c^2\,\text{Sin}[d+e\,x]\right)}{5\,b\left(-a^2+b^2+c^2\right)\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^3}-\frac{2\left(5\,a^2\,c+3\,b^2\,c+3\,c^3+8\,a\,b^2\,\text{Sin}[d+e\,x]+8\,a\,c^2\,\text{Sin}[d+e\,x]\right)}{15\,b\left(-a^2+b^2+c^2\right)^2\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^2}+$$

$$\left(2\left(15\,a^3\,c+17\,a\,b^2\,c+17\,a\,c^3+23\,a^2\,b^2\,\text{Sin}[d+e\,x]+9\,b^4\,\text{Sin}[d+e\,x]+23\,a^2\,c^2\,\text{Sin}[d+e\,x]+18\,b^2\,c^2\,\text{Sin}[d+e\,x]+9\,c^4\,\text{Sin}[d+e\,x]\right)\right)\Big/$$

$$\left.\left(15\,b\left(-a^2+b^2+c^2\right)^3\left(a+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)\right)\right)-$$

$$\left(2\,a^3\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\right.$$

$$\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\Bigg)\Bigg/\left(\sqrt{1+\frac{b^2}{c^2}}\;c\left(-a^2+b^2+c^2\right)^3 e\right)-$$

$$\Bigg(34\,a\,b^2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\;c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\;c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c}\right]$$

$$\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\Bigg)\Bigg/\left(15\sqrt{1+\frac{b^2}{c^2}}\;c\left(-a^2+b^2+c^2\right)^3 e\right)-$$

$$\Bigg(34\,a\,c\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\;c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\;c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c}\right]$$

$$\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\,\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\right)\Big/\left(15\sqrt{1+\frac{b^2}{c^2}}\,\left(-a^2+b^2+c^2\right)^3 e\right)-\frac{1}{15\,c\,\left(-a^2+b^2+c^2\right)^3 e}$$

$$23\,a^2 b^2\left(-\left(\left(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Big/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\,\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

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

$$3\,b^4\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{15\left(-a^2+b^2+c^2\right)^3 e}$$

$$23\,a^2\,c\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{5\left(-a^2+b^2+c^2\right)^3 e}$$

$$6\,b^2\,c\left(-\left(\left(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{5\left(-a^2+b^2+c^2\right)^3 e}$$

$$3\,c^3\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

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

Problem 420: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]}}\,dx$$

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

$$\frac{\sqrt{\frac{2}{5}}\,\text{ArcTanh}\left[\frac{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}{\sqrt{2}\,\sqrt{1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}}\right]}{e}$$

Result (type 3, 101 leaves):

$$-\left(\left(\left(\frac{2}{5}+\frac{6\,i}{5}\right)\sqrt{\frac{4}{5}+\frac{3\,i}{5}}\;\text{ArcTan}\left[\left(\frac{1}{10}+\frac{3\,i}{10}\right)\sqrt{\frac{4}{5}+\frac{3\,i}{5}}\left(-1+3\,\text{Tan}\left[\frac{1}{4}\,(d+e\,x)\right]\right)\right]\left(3\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\right)\Big/\left(e\,\sqrt{5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]}\right)\right)$$

Problem 421: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{(5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{3/2}}\,dx$$

Optimal (type 3, 96 leaves, 4 steps):

$$\frac{\text{ArcTanh}\left[\frac{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}{\sqrt{2}\,\sqrt{1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}}\right]}{10\,\sqrt{10}\,e}-\frac{3\,\text{Cos}[d+e\,x]-4\,\text{Sin}[d+e\,x]}{10\,e\,(5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{3/2}}$$

Result (type 3, 154 leaves):

$$-\left(\left(\left(\frac{1}{250}-\frac{i}{125}\right)\left(3\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left((5+10\,i)\left(\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]-3\,\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)-(1-i)\,\sqrt{20+15\,i}\;\text{ArcTan}\left[\left(\frac{1}{10}+\frac{3\,i}{10}\right)\sqrt{\frac{4}{5}+\frac{3\,i}{5}}\left(-1+3\,\text{Tan}\left[\frac{1}{4}\,(d+e\,x)\right]\right)\right]\left(3\,\text{Cos}\left[\frac{1}{2}\,(d+e\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\right)\right)\Big/\left(e\,(5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{3/2}\right)\right)$$

Problem 422: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{(5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{5/2}}\,dx$$

Optimal (type 3, 142 leaves, 5 steps):

$$\frac{3\,\text{ArcTanh}\left[\frac{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}{\sqrt{2}\,\sqrt{1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}}\right]}{400\,\sqrt{10}\,e}-\frac{3\,\text{Cos}[d+e\,x]-4\,\text{Sin}[d+e\,x]}{20\,e\,(5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{5/2}}-\frac{3\,(3\,\text{Cos}[d+e\,x]-4\,\text{Sin}[d+e\,x])}{400\,e\,(5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{3/2}}$$

Result (type 3, 180 leaves):

$$-\left(\left(\left(\frac{1}{20000}-\frac{i}{10000}\right)\left(3\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)\left((-6+6\,i)\sqrt{20+15\,i}\,\text{ArcTan}\left[\left(\frac{1}{10}+\frac{3\,i}{10}\right)\sqrt{\frac{4}{5}+\frac{3\,i}{5}}\left(-1+3\,\text{Tan}\left[\frac{1}{4}(d+e\,x)\right]\right)\right]\left(3\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)^4+(5+10\,i)\left(55\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+39\,\text{Cos}\left[\frac{3}{2}(d+e\,x)\right]-165\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]-27\,\text{Sin}\left[\frac{3}{2}(d+e\,x)\right]\right)\right)\right)\Big/\left(e\,(5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{5/2}\right)\right)$$

Problem 427: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]}}\,dx$$

Optimal (type 3, 49 leaves, 3 steps):

$$-\frac{\sqrt{\frac{2}{5}}\,\text{ArcTan}\left[\frac{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}{\sqrt{2}\,\sqrt{-1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}}\right]}{e}$$

Result (type 3, 99 leaves):

$$\left(\left(\frac{2}{5}+\frac{6\,i}{5}\right)\sqrt{-\frac{4}{5}-\frac{3\,i}{5}}\,\text{ArcTanh}\left[\left(\frac{1}{10}+\frac{3\,i}{10}\right)\sqrt{-\frac{4}{5}-\frac{3\,i}{5}}\left(3+\text{Tan}\left[\frac{1}{4}(d+e\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]-3\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)\right)\Big/\left(e\,\sqrt{-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]}\right)$$

Problem 428: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{(-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x])^{3/2}}\,dx$$

Optimal (type 3, 96 leaves, 4 steps):

$$\frac{\text{ArcTan}\left[\frac{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}{\sqrt{2}\,\sqrt{-1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}}\right]}{10\,\sqrt{10}\,e}+\frac{3\,\text{Cos}[d+e\,x]-4\,\text{Sin}[d+e\,x]}{10\,e\,\left(-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]\right)^{3/2}}$$

Result (type 3, 152 leaves):

$$\left(\left(\frac{1}{250}-\frac{i}{125}\right)\left(\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]-3\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)\right.$$
$$\left((-1+i)\,\sqrt{-20-15\,i}\,\text{ArcTanh}\left[\left(\frac{1}{10}+\frac{3\,i}{10}\right)\sqrt{-\frac{4}{5}-\frac{3\,i}{5}}\left(3+\text{Tan}\left[\frac{1}{4}(d+e\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]-3\,\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)^2+\right.$$
$$\left.\left.(5+10\,i)\left(3\,\text{Cos}\left[\frac{1}{2}(d+e\,x)\right]+\text{Sin}\left[\frac{1}{2}(d+e\,x)\right]\right)\right)\right)\Big/\left(e\left(-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]\right)^{3/2}\right)$$

Problem 429: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\left(-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 142 leaves, 5 steps):

$$-\frac{3\,\text{ArcTan}\left[\frac{\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}{\sqrt{2}\,\sqrt{-1+\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{3}{4}\right]\right]}}\right]}{400\,\sqrt{10}\,e}+\frac{3\,\text{Cos}[d+e\,x]-4\,\text{Sin}[d+e\,x]}{20\,e\,\left(-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]\right)^{5/2}}-\frac{3\left(3\,\text{Cos}[d+e\,x]-4\,\text{Sin}[d+e\,x]\right)}{400\,e\,\left(-5+4\,\text{Cos}[d+e\,x]+3\,\text{Sin}[d+e\,x]\right)^{3/2}}$$

Result (type 3, 178 leaves):

$$\left(\left(\frac{1}{10000}+\frac{i}{20000}\right)\left(\text{Cos}\left[\frac{1}{2}(d+e x)\right]-3\,\text{Sin}\left[\frac{1}{2}(d+e x)\right]\right)\right.$$

$$\left((6+6 i)\sqrt{-20-15 i}\;\text{ArcTanh}\left[\left(\frac{1}{10}+\frac{3 i}{10}\right)\sqrt{-\frac{4}{5}-\frac{3 i}{5}}\left(3+\text{Tan}\left[\frac{1}{4}(d+e x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(d+e x)\right]-3\,\text{Sin}\left[\frac{1}{2}(d+e x)\right]\right)^4+(10-5 i)\right.$$

$$\left.\left.\left(165\,\text{Cos}\left[\frac{1}{2}(d+e x)\right]-27\,\text{Cos}\left[\frac{3}{2}(d+e x)\right]+55\,\text{Sin}\left[\frac{1}{2}(d+e x)\right]-39\,\text{Sin}\left[\frac{3}{2}(d+e x)\right]\right)\right)\right)\Big/\left(e\,(-5+4\,\text{Cos}[d+e x]+3\,\text{Sin}[d+e x])^{5/2}\right)$$

Problem 430: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^{7/2}dx$$

Optimal (type 3, 258 leaves, 4 steps):

$$-\frac{256\left(b^2+c^2\right)^{3/2}(c\,\text{Cos}[d+e x]-b\,\text{Sin}[d+e x])}{35\,e\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}}-\frac{64\left(b^2+c^2\right)(c\,\text{Cos}[d+e x]-b\,\text{Sin}[d+e x])\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}}{35\,e}-$$

$$\frac{24\sqrt{b^2+c^2}\,(c\,\text{Cos}[d+e x]-b\,\text{Sin}[d+e x])\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^{3/2}}{35\,e}-$$

$$\frac{2\,(c\,\text{Cos}[d+e x]-b\,\text{Sin}[d+e x])\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^{5/2}}{7\,e}$$

Result (type 4, 11 888 leaves):

$$\frac{1}{e}\sqrt{b^2+c^2}\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}$$

$$\left(\frac{24\,b\left(b^2+c^2\right)}{5\,c}-\frac{2}{5}c\sqrt{b^2+c^2}\;\text{Cos}[d+e x]-\frac{6}{5}b\,c\,\text{Cos}[2(d+e x)]+\frac{2}{5}b\sqrt{b^2+c^2}\;\text{Sin}[d+e x]+\frac{3}{5}\left(b^2-c^2\right)\text{Sin}[2(d+e x)]\right)+$$

$$\frac{1}{e}\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}\left(\frac{88\,b\left(b^2+c^2\right)^{3/2}}{35\,c}-\frac{173}{70}c\left(b^2+c^2\right)\text{Cos}[d+e x]-\frac{2}{35}b\,c\sqrt{b^2+c^2}\;\text{Cos}[2(d+e x)]-\right.$$

$$\left.\frac{1}{14}c\left(3 b^2-c^2\right)\text{Cos}[3(d+e x)]+\frac{173}{70}b\left(b^2+c^2\right)\text{Sin}[d+e x]+\frac{1}{35}\left(b^2-c^2\right)\sqrt{b^2+c^2}\;\text{Sin}[2(d+e x)]+\frac{1}{14}b\left(b^2-3 c^2\right)\text{Sin}[3(d+e x)]\right)-$$

$$\Bigg(1024\,b\,(-\mathrm{i}\,b+c)\,(b^2+c^2)^2\,\Bigg(\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\sqrt{-\frac{\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]-$$

$$2\,\mathrm{EllipticPi}\Big[-1,\mathrm{ArcSin}\Big[\sqrt{-\frac{\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]\Bigg)\sqrt{\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}$$

$$\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{-\frac{\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(c+\left(-b+\sqrt{b^2+c^2}\right)\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(35\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)^2\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)e\,(1+\mathrm{Cos}[d+e\,x])\sqrt{\frac{\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}{(1+\mathrm{Cos}[d+e\,x])^2}}$$

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

$$\frac{1}{35\,c\,e\,(1+\mathrm{Cos}[d+e\,x])\sqrt{\frac{\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}{(1+\mathrm{Cos}[d+e\,x])^2}}}\,256\,(b^2+c^2)^{5/2}\sqrt{\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]}$$

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

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

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

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

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

$$\left(\left(2 c^2\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]+2 i\right.\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i+\frac{c}{b-\sqrt{b^2+c^2}}}{-i+\frac{c}{b-\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)$$

$$\left.\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/\left(\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(8 b^3\left(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b^5\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b\,c^2\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]\Bigg)$$

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

$$\Bigg(\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8\,b^2\,\sqrt{b^2+c^2}\,\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8\,b^4\,\sqrt{b^2+c^2}\,\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(c^2\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b\left(b^2+c^2\right)\Bigg(\left(-b+i\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+i\,c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b^3\left(b^2+c^2\right)\Bigg(\left(-b+i\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,i$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+i\,c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\;\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\left(c^2\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\left(8\,b^3\left(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\right)$$

$$\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\;\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\left(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\left(4\,b^5\left(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\right)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\left(c^2\left(-b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\Bigg(4\,b\,c^2\Bigg(\left(-b+\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\left(\left(-b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\Bigg(4\,b\,\left(b^2+c^2\right)\Bigg(\left(-b+\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b^3\left(b^2+c^2\right)\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(2 b^3\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)$$

$$\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\;\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/\left(c\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

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

$$\Bigg(2\,b\,c\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

$$\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\;\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/\left(\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

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

$$\Bigg(2\,b^2\sqrt{b^2+c^2}\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

$$\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\;\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/\left(c\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(b\,c\left(2\,\mathrm{i}\left(-\frac{1}{2}\,\mathrm{i}\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-\frac{1}{2\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$\mathrm{i}\left(\mathrm{i}\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)+\mathrm{i}\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]+$$

$$\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}}{-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}$$

$$\left.\left.\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)+\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\right)\right)\Big/$$

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

$$\left(c\sqrt{b^2+c^2}\left(2\,\mathrm{i}\left(-\frac{1}{2}\,\mathrm{i}\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-\frac{1}{2\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$\mathrm{i}\left(\mathrm{i}\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)+\mathrm{i}\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]+$$

$$\left.\frac{2\,c\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}}{-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right)$$

$$\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}$$

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

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

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

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

Problem 431: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^{5/2}dx$$

Optimal (type 3, 190 leaves, 3 steps):

$$-\frac{64(b^2+c^2)(c\,\text{Cos}[d+e x]-b\,\text{Sin}[d+e x])}{15e\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}}-\frac{16\sqrt{b^2+c^2}(c\,\text{Cos}[d+e x]-b\,\text{Sin}[d+e x])\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}}{15e}-$$

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

Result (type 4, 11 771 leaves):

$$\frac{\sqrt{b^2+c^2}\left(\frac{4b\sqrt{b^2+c^2}}{3c}-\frac{4}{3}c\,\text{Cos}[d+e x]+\frac{4}{3}b\,\text{Sin}[d+e x]\right)\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}}{e}+\frac{1}{e}\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}$$

$$\left(\frac{44b(b^2+c^2)}{15c}-\frac{2}{15}c\sqrt{b^2+c^2}\,\text{Cos}[d+e x]-\frac{2}{5}b\,c\,\text{Cos}[2(d+e x)]+\frac{2}{15}b\sqrt{b^2+c^2}\,\text{Sin}[d+e x]+\frac{1}{5}(b^2-c^2)\,\text{Sin}[2(d+e x)]\right)-$$

$$\left(256b(-\mathrm{i}b+c)(b^2+c^2)^{3/2}\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(-b-\mathrm{i}c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(-b+\mathrm{i}c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-\right.\right.$$

$$2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(-b+i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

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

$$\Bigg(15\left(b+i\,c-\sqrt{b^2+c^2}\right)^2\left(b+i\,c+\sqrt{b^2+c^2}\right)e\,(1+\text{Cos}[d+e\,x])\sqrt{\frac{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{(1+\text{Cos}[d+e\,x])^2}}$$

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

$$\frac{1}{15\,c\,e\,(1+\text{Cos}[d+e\,x])\sqrt{\frac{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{(1+\text{Cos}[d+e\,x])^2}}}\,64\left(b^2+c^2\right)^2\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

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

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

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

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

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

$$\left(\left(2 c^2\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]+2 i\right.\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{i+\frac{c}{b-\sqrt{b^2+c^2}}}{-i+\frac{c}{b-\sqrt{b^2+c^2}}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)$$

$$\left.\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/\left(\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(8 b^3\left(\left(-b+i c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b^5\Bigg(\left(-b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}\,c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b\,c^2\Bigg(\left(-b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}\,c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8 b^2\sqrt{b^2+c^2}\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8 b^4\sqrt{b^2+c^2}\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg) \Big/$$

$$\Bigg(c^2\left(b-\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b\left(b^2+c^2\right)\Bigg(\left(-b+\mathrm{i} c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2\mathrm{i} c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg) \Big/$$

$$\Bigg(\left(b-\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b^3\left(b^2+c^2\right)\Bigg(\left(-b+\mathrm{i} c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2\mathrm{i}$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8 b^3\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b^5\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\left(c^2\,\left(-b-i\,c-\sqrt{b^2+c^2}\right)\,\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\Bigg(4\,b\,c^2\,\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\,\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\left(\left(-b-i\,c-\sqrt{b^2+c^2}\right)\,\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\Bigg(4\,b\,\left(b^2+c^2\right)\,\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\,\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\left(\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2 c\tan\left[\frac{1}{2}(d+e x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)-$$

$$\Bigg(4 b^3\left(b^2+c^2\right)\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\left(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

$$\left.\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2 c\tan\left[\frac{1}{2}(d+e x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\Bigg(2 b^3\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)$$

$$\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/\Bigg(c\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)$$

$$\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2\,c\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)}\Bigg)\Bigg)+$$

$$\Bigg(2\,b\,c\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

$$\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/\Bigg(\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(2\,b^2\sqrt{b^2+c^2}\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

$$\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/\Bigg(c\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)$$

$$\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2\,c\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)}\Bigg)\Bigg)-$$

$$\left(b\,c\left(2\,i\left(-\frac{1}{2}\,i\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-\frac{1}{2\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$i\left(i\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)+i\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]+$$

$$\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{i+\frac{c}{b-\sqrt{b^2+c^2}}}{-i+\frac{c}{b-\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right)$$

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

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

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

$$\left(c\sqrt{b^2+c^2}\left(2\,\mathrm{i}\left(-\frac{1}{2}\,\mathrm{i}\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}}\,\right],1\right]-\frac{1}{2\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$\mathrm{i}\left(\mathrm{i}\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)+\mathrm{i}\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}}\,\right],1\right]+$$

$$\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}}{-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}}\,\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}}$$

$$\left.\left.\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)+\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)^2\right)\right)\Big/$$

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

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

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

Problem 432: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{3/2}dx$$

Optimal (type 3, 126 leaves, 2 steps):

$$-\frac{8\sqrt{b^2+c^2}\,\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}{3\,e\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}-\frac{2\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{3\,e}$$

Result (type 4, 11 679 leaves):

$$\frac{2\,b\sqrt{b^2+c^2}\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{c\,e}+$$

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

$$\left(32\,b\left(-i\,b+c\right)\left(b^2+c^2\right)\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(-b+i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-\right.\right.$$

$$\left.2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(-b+i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\right)\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

$$\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{-\frac{\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(-b+i\,c+\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(c+\left(-b+\sqrt{b^2+c^2}\right)\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(3\left(b+i\,c-\sqrt{b^2+c^2}\right)^2\left(b+i\,c+\sqrt{b^2+c^2}\right)e\,(1+\operatorname{Cos}[d+e\,x])\sqrt{\frac{\sqrt{b^2+c^2}+b\operatorname{Cos}[d+e\,x]+c\operatorname{Sin}[d+e\,x]}{(1+\operatorname{Cos}[d+e\,x])^2}}$$

$$\sqrt{\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(b+2\,c\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]-b\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2+\sqrt{b^2+c^2}\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)\right)}\Bigg)+$$

$$\frac{1}{3\,c\,e\,(1+\operatorname{Cos}[d+e\,x])\sqrt{\frac{\sqrt{b^2+c^2}+b\operatorname{Cos}[d+e\,x]+c\operatorname{Sin}[d+e\,x]}{(1+\operatorname{Cos}[d+e\,x])^2}}}\,8\left(b^2+c^2\right)^{3/2}\sqrt{\sqrt{b^2+c^2}+b\operatorname{Cos}[d+e\,x]+c\operatorname{Sin}[d+e\,x]}$$

$$\Bigg(\Bigg(\left(-b+c\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{b+\sqrt{b^2+c^2}+2\,c\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]-b\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2+\sqrt{b^2+c^2}\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2}$$

$$\sqrt{\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(b+2\,c\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]-b\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2+\sqrt{b^2+c^2}\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)\right)}\Bigg)\Bigg/$$

$$\left(\left(b^2+c^2\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\sqrt{b+2\,c\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]-b\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2+\sqrt{b^2+c^2}\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)}\right)-$$

$$\Bigg(\sqrt{\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2\,c\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]-b\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2+\sqrt{b^2+c^2}\operatorname{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)}$$

$$\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(b+2 c \tan\left[\frac{1}{2}(d+e x)\right]-b \tan\left[\frac{1}{2}(d+e x)\right]^2+\sqrt{b^2+c^2}\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)\right)}$$

$$\left(\left(2 c^2\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]+2 i\right.\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i+\frac{c}{b-\sqrt{b^2+c^2}}}{-i+\frac{c}{b-\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)$$

$$\left.\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/\left(\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2 c \tan\left[\frac{1}{2}(d+e x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\left(8 b^3\left(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/$$

$$\left(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\Bigg(4 b^5\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b c^2\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\left(8 b^2\sqrt{b^2+c^2}\left(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i\right.\right.$$

$$\left.c\,\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/$$

$$\left(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\left(8 b^4\sqrt{b^2+c^2}\left(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i\right.\right.$$

$$\left.c\,\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/$$

$$\left(c^2\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\Bigg(4\,b\left(b^2+c^2\right)\Bigg(\left(-b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b^3\left(b^2+c^2\right)\Bigg(\left(-b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8 b^3\Bigg(\left(-b+\mathrm{i} c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b^5\Bigg(\left(-b+\mathrm{i} c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-\mathrm{i} b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(\mathrm{i} b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-\mathrm{i} c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i} c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\left(4\,b\,c^2\left(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\right)$$

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

$$\left(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\left(4\,b\,\left(b^2+c^2\right)\left(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\right)$$

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

$$\left(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\Bigg(4 b^3\left(b^2+c^2\right)\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(2 b^3\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)$$

$$\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/\Bigg(c\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)$$

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

$$\left(2\,b\,c\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\right.$$

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

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

$$\left(2\,b^2\sqrt{b^2+c^2}\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\right.$$

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

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

$$\left(b\,c\left(2\,i\left(-\frac{1}{2}\,i\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-\frac{1}{2\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$i\left(i\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)+i\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]+$$

$$\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}}{-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}$$

$$\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)+\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)^2\Bigg)\Bigg)\Big/$$

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

$$\Bigg(c\sqrt{b^2+c^2}\,\Bigg(2\,\mathrm{i}\,\Bigg(-\frac{1}{2}\,\mathrm{i}\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-\frac{1}{2\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}$$

$$\mathrm{i}\left(\mathrm{i}\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)+\mathrm{i}\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]+$$

$$\frac{2\,c\,\text{EllipticPi}\left[\frac{i+\frac{c}{b-\sqrt{b^2+c^2}}}{-i+\frac{c}{b-\sqrt{b^2+c^2}}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)} \Bigg)$$

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

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

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

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

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

Problem 433: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}\,dx$$

Optimal (type 3, 55 leaves, 1 step):

$$-\frac{2\,(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x])}{e\,\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}$$

Result (type 4, 11 586 leaves):

$$\frac{2\,b\,\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{c\,e}-$$

$$\Bigg(8\,b\,(-i\,b+c)\,\sqrt{b^2+c^2}\,\Bigg(\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{-\frac{\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(-b+i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\Big],1\Big]-$$

$$2\,\text{EllipticPi}\Big[-1,\text{ArcSin}\Big[\sqrt{-\frac{\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(-b+i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\Big],1\Big]\Bigg)\,\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

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

$$\Bigg(\left(b+i\,c-\sqrt{b^2+c^2}\right)^2\left(b+i\,c+\sqrt{b^2+c^2}\right)\,e\,(1+\text{Cos}[d+e\,x])\,\sqrt{\frac{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{(1+\text{Cos}[d+e\,x])^2}}$$

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

$$\frac{1}{c\,e\,(1+\text{Cos}[d+e\,x])\,\sqrt{\frac{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{(1+\text{Cos}[d+e\,x])^2}}}\,2\,(b^2+c^2)\,\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

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

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

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

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

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

$$\left(\left(2\,c^2\left(-i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-i\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]+2\,i\right.\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{i+\frac{c}{b-\sqrt{b^2+c^2}}}{-i+\frac{c}{b-\sqrt{b^2+c^2}}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

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

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

$$\Bigg(8 b^3 \Bigg(\left(-b+\mathrm{i}\, c+\sqrt{b^2+c^2}\right) \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\, b+c+\mathrm{i} \sqrt{b^2+c^2}\right) \left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(\mathrm{i}\, b+c-\mathrm{i} \sqrt{b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]-2 \mathrm{i}\, c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\, c-\sqrt{b^2+c^2}\right) \left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\, c-\sqrt{b^2+c^2}\right) \left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\, b+c+\mathrm{i} \sqrt{b^2+c^2}\right) \left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(\mathrm{i}\, b+c-\mathrm{i} \sqrt{b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]\Bigg)$$

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

$$\Bigg(\left(b-\mathrm{i}\, c-\sqrt{b^2+c^2}\right) \left(-b-\mathrm{i}\, c+\sqrt{b^2+c^2}\right) \left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right) \left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b^5 \Bigg(\left(-b+\mathrm{i}\, c+\sqrt{b^2+c^2}\right) \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\, b+c+\mathrm{i} \sqrt{b^2+c^2}\right) \left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(\mathrm{i}\, b+c-\mathrm{i} \sqrt{b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]-2 \mathrm{i}\, c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\, c-\sqrt{b^2+c^2}\right) \left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\, c-\sqrt{b^2+c^2}\right) \left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\, b+c+\mathrm{i} \sqrt{b^2+c^2}\right) \left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(\mathrm{i}\, b+c-\mathrm{i} \sqrt{b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b\,c^2\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8\,b^2\sqrt{b^2+c^2}\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(8 b^4\sqrt{b^2+c^2}\,\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4 b\left(b^2+c^2\right)\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

$$\sqrt{\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2 c\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\Bigg)+$$

$$\Bigg(4 b^3\left(b^2+c^2\right)\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\operatorname{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

$$\sqrt{\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2 c\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\Bigg)+$$

$$\Bigg(8 b^3\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\operatorname{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-i b+c+i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c-i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(\left(-b-i\,c-\sqrt{b^2+c^2}\right)\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b^5\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(c^2\left(-b-i\,c-\sqrt{b^2+c^2}\right)\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(i-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b\,c^2\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c+i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c-i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b\,\left(b^2+c^2\right)\,\Bigg(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)$$

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

$$\Bigg(4\,b^3\,\left(b^2+c^2\right)\,\Bigg(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\left(c^2\left(-b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\right.$$

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

$$\left(2\,b^3\left(-\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\right)\Big/\left(c\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(b+\sqrt{b^2+c^2}+2\,c\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]+\left(-b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)}\right)+$$

$$\left(2\,b\,c\left(-\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\right)\Big/\left(\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(2\,b^2\sqrt{b^2+c^2}\,\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\,\right],1\right]\,\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\right.$$

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

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

$$\left(b\,c\,\left(2\,\mathrm{i}\,\left(-\frac{1}{2}\,\mathrm{i}\,\left(\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\,\right],1\right]-\frac{1}{2\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$\mathrm{i}\,\left(\mathrm{i}\,\left(-\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)+\mathrm{i}\,\left(\mathrm{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\,\right],1\right]+$$

$$\left.\frac{2\,c\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}}{-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\,\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right)$$

$$\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}$$

$$\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)+\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left(-\frac{c}{b-\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\Bigg)\Bigg)\Bigg/$$

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

$$\Bigg(c\,\sqrt{b^2+c^2}\,\Bigg(2\,\mathbb{i}\,\Bigg(-\frac{1}{2}\,\mathbb{i}\left(\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-\frac{1}{2\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}$$

$$\mathbb{i}\left(\mathbb{i}\left(-\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)+\mathbb{i}\left(\mathbb{i}-\frac{c}{b-\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]+$$

$$\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}}{-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]}{\left(b-\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b-\sqrt{b^2+c^2}}\right)}\right)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}$$

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

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

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

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

Problem 434: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}\,dx$$

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

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

Result (type 4, 63 264 leaves) : Display of huge result suppressed!

Problem 435: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 160 leaves, 4 steps) :

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

Result (type 1, 1 leaves) :

???

Problem 436: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 226 leaves, 5 steps) :

$$\frac{3\,\text{ArcTanh}\left[\frac{\left(b^2+c^2\right)^{1/4}\text{Sin}[d+e\,x-\text{ArcTan}[b,c]]}{\sqrt{2}\sqrt{\sqrt{b^2+c^2}+\sqrt{b^2+c^2}\,\text{Cos}[d+e\,x-\text{ArcTan}[b,c]]}}\right]}{16\sqrt{2}\left(b^2+c^2\right)^{5/4}e}-$$
$$\frac{c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]}{4\sqrt{b^2+c^2}\,e\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{5/2}}-\frac{3\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}{16\left(b^2+c^2\right)e\left(\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{3/2}}$$

Result (type 1, 1 leaves) :

???

Problem 437: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

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

$$-\frac{64\left(b^2+c^2\right)\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}{15\,e\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}+\frac{16\sqrt{b^2+c^2}\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{15\,e}-\frac{2\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\left(-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{3/2}}{5\,e}$$

Result (type 4, 11 602 leaves):

$$\frac{\sqrt{b^2+c^2}\left(\frac{4\,b\sqrt{b^2+c^2}}{3\,c}+\frac{4}{3}\,c\,\text{Cos}[d+e\,x]-\frac{4}{3}\,b\,\text{Sin}[d+e\,x]\right)\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{e}+$$

$$\frac{1}{e}\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

$$\left(\frac{44\,b\left(b^2+c^2\right)}{15\,c}+\frac{2}{15}\,c\sqrt{b^2+c^2}\,\text{Cos}[d+e\,x]-\frac{2}{5}\,b\,c\,\text{Cos}\left[2\left(d+e\,x\right)\right]-\frac{2}{15}\,b\sqrt{b^2+c^2}\,\text{Sin}[d+e\,x]+\frac{1}{5}\left(b^2-c^2\right)\text{Sin}\left[2\left(d+e\,x\right)\right]\right)-$$

$$\left(256\,b\,c\left(b^2+c^2\right)^{5/2}\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}}\right],1\right]-\right.\right.$$

$$\left.2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}}\right],1\right]\right)\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

$$\left.\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)\left(-\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)}\right)^{3/2}\left(-c+\left(b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]^2\right)\right)\Bigg/$$

$$\left(15\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)^3\left(b^2+c^2-b\sqrt{b^2+c^2}\right)e\left(1+\text{Cos}[d+e\,x]\right)\sqrt{\frac{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{\left(1+\text{Cos}[d+e\,x]\right)^2}}\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\left(d+e\,x\right)\right]\right)^2\right.$$

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

$$\frac{1}{15\,c\,e\,(1+\text{Cos}[d+e\,x])\,\sqrt{\frac{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{(1+\text{Cos}[d+e\,x])^2}}}\,64\,\left(b^2+c^2\right)^2\,\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

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

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

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

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

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

$$\Bigg(\Bigg(2\,c^2\left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]+2\,i\right.$$

$$\left.\text{EllipticPi}\left[\frac{i+\frac{c}{b+\sqrt{b^2+c^2}}}{-i+\frac{c}{b+\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

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

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

$$\Bigg(8\,b^3\Bigg(\left(-b+i\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+i\,c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4\,b^5\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\Big[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\Big[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4\,b\,c^2\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\Big[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\Big[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\left(4\,b\,(b^2+c^2)\left(\left(-b+i\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+i\,c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\right)$$

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

$$\left(\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4\,b^3\,(b^2+c^2)\left(\left(-b+i\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,i\right.\right.$$

$$\left.c\,\text{EllipticPi}\left[\frac{\left(b+i\,c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\right)$$

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

$$\left(c^2\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\Bigg(8\,b^3\,\Bigg(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\,\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\,\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4\,b^5\,\Bigg(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-2\,\mathrm{i}\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\,\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\,\sqrt{b^2+c^2}\right)\,\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\,\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\,\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\,\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4\,b\,c^2\,\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\Bigg],1\Bigg]-2\,i\,c$$

$$\text{EllipticPi}\Bigg[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\,\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\Bigg[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\Bigg],1\Bigg]\Bigg)$$

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

$$\Bigg(\left(-b-i\,c-\sqrt{b^2+c^2}\right)\,\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\,\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(8\,b^2\,\sqrt{b^2+c^2}\,\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\Bigg],1\Bigg]-2\,i$$

$$c\,\text{EllipticPi}\Bigg[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\,\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\Bigg[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\,\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\,\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\Bigg],1\Bigg]\Bigg)$$

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

$$\Bigg(\left(-b-i\,c-\sqrt{b^2+c^2}\right)\,\left(b-i\,c+\sqrt{b^2+c^2}\right)\,\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\,\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\left(8 b^4 \sqrt{b^2+c^2} \left(\left(-b+i c-\sqrt{b^2+c^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right] - 2 i\right.\right.$$

$$\left. c\, \text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right) \left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right) \left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}, \text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]\right)$$

$$\left.\left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right) \sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}} \left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)\right) \Big/$$

$$\left(c^2 \left(-b-i c-\sqrt{b^2+c^2}\right) \left(b-i c+\sqrt{b^2+c^2}\right) \left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right) \left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4 b \left(b^2+c^2\right) \left(\left(-b+i c-\sqrt{b^2+c^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right] - 2 i c\right.\right.$$

$$\left. \text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right) \left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right) \left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}, \text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]\right)$$

$$\left.\left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right) \sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}} \left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)\right) \Big/$$

$$\left(\left(-b-i c-\sqrt{b^2+c^2}\right) \left(b-i c+\sqrt{b^2+c^2}\right) \left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right) \left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4 b^3 \left(b^2+c^2\right) \left(\left(-b+i c-\sqrt{b^2+c^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right],1\right]-2 i\right.\right.$$

$$\left.c\, \text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right) \left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right) \left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left.\left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right) \sqrt{\frac{\left(-i b+c-i \sqrt{b^2+c^2}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i b+c+i \sqrt{b^2+c^2}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}} \left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)\right)\Big/$$

$$\left(c^2 \left(-b-i c-\sqrt{b^2+c^2}\right) \left(b-i c+\sqrt{b^2+c^2}\right) \left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right) \left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(2 b^3 \left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right],1\right] \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}} \left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)\right)\Big/\left(c \left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(2 b c \left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right) \left(i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right) \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right],1\right] \left(-i+\text{Tan}\left[\frac{1}{2} (d+e x)\right]\right)\right.$$

$$\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg/\left(\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2 c \operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\left(2 b^2 \sqrt{b^2+c^2}\left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\right)\Bigg/\left(c\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2 c \operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)-$$

$$\left(b c\left(2 i\left(-\frac{1}{2} i\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\operatorname{EllipticE}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-\frac{1}{2\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$i\left(i\left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right)+i\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right)\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\operatorname{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]+$$

$$\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}}{-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],\,1\right]}{\left(b+\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\right)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}$$

$$\left.\left.\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)+\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\right)\right)\Big/$$

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

$$\left(c\,\sqrt{b^2+c^2}\,\left(2\,\mathbb{i}\,\left(-\frac{1}{2}\,\mathbb{i}\,\left(\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],\,1\right]-\frac{1}{2\left(-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$\mathbb{i}\left(\mathbb{i}\left(-\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)+\mathbb{i}\left(\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],\,1\right]+$$

$$\frac{2\,c\,\text{EllipticPi}\left[\frac{i+\frac{c}{b+\sqrt{b^2+c^2}}}{-i+\frac{c}{b+\sqrt{b^2+c^2}}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\Bigg)$$

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

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

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

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

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

Problem 438: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 130 leaves, 2 steps):

$$\frac{8\sqrt{b^2+c^2}\,\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)}{3\,e\,\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}-\frac{2\,\left(c\,\text{Cos}[d+e\,x]-b\,\text{Sin}[d+e\,x]\right)\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{3\,e}$$

Result (type 4, 11 512 leaves):

$$-\frac{2\,b\,\sqrt{b^2+c^2}\,\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}}{c\,e}+$$

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

$$\left(32\,b\,c\,\left(b^2+c^2\right)^2\left(\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{-\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]-\right.\right.$$

$$\left.2\,\text{EllipticPi}\left[-1,\text{ArcSin}\left[\sqrt{-\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\,\right],1\right]\right)\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

$$\left.\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left(-\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}\right)^{3/2}\left(-c+\left(b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]^2\right)^2\right)\Big/$$

$$\left(3\left(b+i\,c+\sqrt{b^2+c^2}\right)^3\left(b^2+c^2-b\,\sqrt{b^2+c^2}\right)e\,\left(1+\text{Cos}[d+e\,x]\right)\sqrt{\frac{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{\left(1+\text{Cos}[d+e\,x]\right)^2}}\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\right.$$

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

$$\frac{1}{3\,c\,e\,(1+\text{Cos}[d+e\,x])\sqrt{\frac{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{(1+\text{Cos}[d+e\,x])^2}}}\,8\,(b^2+c^2)^{3/2}\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}$$

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

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

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

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

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

$$\Bigg(\Bigg(2\,c^2\left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\Bigg(-i\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Bigg],1\Bigg]+2\,i$$

$$\text{EllipticPi}\left[\frac{\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}}{-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

$$\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg/\left(\left(\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\left(\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2\,c\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]+\left(b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)}\right)+$$

$$\left(8\,b^3\left(\left(-b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}\,c\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\ \text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg/$$

$$\left(\left(b-\mathbb{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4\,b^5\left(\left(-b+\mathbb{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathbb{i}\,c\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\ \text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\right)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\left(c^2\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4\,b\,c^2\left(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\ \text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\right)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Bigg/$$

$$\left(\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4\,b\left(b^2+c^2\right)\left(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}, \text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4 b^3\left(b^2+c^2\right)\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]-2 i$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}, \text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(8 b^3\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]-2 i c$$

$$\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}, \text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]\right)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\left(\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4 b^5\left(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]-2 i c\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}, \text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]\right)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\left(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4 b c^2\left(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right], 1\right]-2 i c\right.\right.$$

$$\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\ \text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(8\,b^2\sqrt{b^2+c^2}\,\Bigg(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\ \text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(8\,b^4\sqrt{b^2+c^2}\,\Bigg(\left(-b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}$$

$$c\,\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\left(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\Bigg(4 b\left(b^2+c^2\right)\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\left(\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\Bigg(4 b^3\left(b^2+c^2\right)\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i$$

$$c\,\text{EllipticPi}\Big[\frac{\left(b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]\Bigg)$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(c^2\left(-b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(2\,b^3\left(-\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

$$\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg)\Big/\left(c\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2\,c\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]+\left(b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)}\right)+$$

$$\Bigg(2\,b\,c\left(-\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\Big],1\Big]\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

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

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

$$\Bigg(2\,b^2\sqrt{b^2+c^2}\left(-\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)$$

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

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

$$\Bigg(b\,c\,\Bigg(2\,\mathrm{i}\,\Bigg(-\frac{1}{2}\,\mathrm{i}\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-\frac{1}{2\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}$$

$$\mathrm{i}\left(\mathrm{i}\left(-\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)+\mathrm{i}\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]+$$

$$\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}}{-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],\,1\right]}{\left(b+\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\Bigg)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}$$

$$\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)+\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\Bigg)\Bigg)\Bigg/$$

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

$$\Bigg(c\,\sqrt{b^2+c^2}\,\Bigg(2\,\mathbb{i}\,\Bigg(-\frac{1}{2}\,\mathbb{i}\left(\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],\,1\right]-\frac{1}{2\left(-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}$$

$$\mathbb{i}\left(\mathbb{i}\left(-\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)+\mathbb{i}\left(\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],\,1\right]+$$

$$\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{i+\frac{c}{b+\sqrt{b^2+c^2}}}{-i+\frac{c}{b+\sqrt{b^2+c^2}}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],\,1\right]}{\left(b+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\right)$$

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

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

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

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

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

Problem 439: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{-\sqrt{b^2+c^2}+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}\, dx$$

Optimal (type 3, 57 leaves, 1 step):

$$-\frac{2 \left(c \operatorname{Cos}[d+e x]-b \operatorname{Sin}[d+e x]\right)}{e \sqrt{-\sqrt{b^2+c^2}+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}}$$

Result (type 4, 11 415 leaves):

$$\frac{2 b \sqrt{-\sqrt{b^2+c^2}+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}}{c e}-\left(8 b c \left(b^2+c^2\right)^{3/2} \left(\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{-\frac{\left(b+i c+\sqrt{b^2+c^2}\right) \left(i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(b-i c+\sqrt{b^2+c^2}\right) \left(-i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]-\right.\right.$$

$$\left.2 \operatorname{EllipticPi}\left[-1, \operatorname{ArcSin}\left[\sqrt{-\frac{\left(b+i c+\sqrt{b^2+c^2}\right) \left(i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(b-i c+\sqrt{b^2+c^2}\right) \left(-i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], 1\right]\right) \sqrt{-\sqrt{b^2+c^2}+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}$$

$$\left.\left(-i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right) \left(-\frac{\left(b+i c+\sqrt{b^2+c^2}\right) \left(i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(b-i c+\sqrt{b^2+c^2}\right) \left(-i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}\right)^{3/2} \left(-c+\left(b+\sqrt{b^2+c^2}\right) \operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right) \left(1+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]^2\right)\right) \Big/$$

$$\left(\left(b+i c+\sqrt{b^2+c^2}\right)^3 \left(b^2+c^2-b \sqrt{b^2+c^2}\right) e \left(1+\operatorname{Cos}[d+e x]\right) \sqrt{\frac{-\sqrt{b^2+c^2}+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}{\left(1+\operatorname{Cos}[d+e x]\right)^2}} \left(i+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]\right)^2\right.$$

$$\left.\sqrt{\left(-\left(1+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]^2\right) \left(-2 c \operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]+b \left(-1+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]^2\right)+\sqrt{b^2+c^2} \left(1+\operatorname{Tan}\left[\frac{1}{2} (d+e x)\right]^2\right)\right)\right)}\right)+$$

$$\frac{1}{c e \left(1+\operatorname{Cos}[d+e x]\right) \sqrt{\frac{-\sqrt{b^2+c^2}+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}{(1+\operatorname{Cos}[d+e x])^2}}} 2 \left(b^2+c^2\right) \sqrt{-\sqrt{b^2+c^2}+b \operatorname{Cos}[d+e x]+c \operatorname{Sin}[d+e x]}$$

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

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

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

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

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

$$\Bigg(\left(2\,c^2\left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]+2\,i\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i+\frac{c}{b+\sqrt{b^2+c^2}}}{-i+\frac{c}{b+\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)$$

$$\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\Bigg/\left(\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\Bigg(8\,b^3\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-b-\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4\,b^5\Bigg(\left(-b+\mathrm{i}\,c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-2\,\mathrm{i}\,c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-\mathrm{i}\,c-\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(c^2\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4\,b\,c^2\Bigg(\left(-b+i\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+i\,c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

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

$$\Bigg(\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-b-i\,c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4\,b\,\left(b^2+c^2\right)\Bigg(\left(-b+i\,c+\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,i\,c$$

$$\text{EllipticPi}\left[\frac{\left(b+i\,c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(4b^3\left(b^2+c^2\right)\Bigg(\left(-b+i c+\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2i$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+i c-\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c-\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\Bigg(c^2\left(b-i c-\sqrt{b^2+c^2}\right)\left(-b-i c+\sqrt{b^2+c^2}\right)\left(-\frac{-b-\sqrt{b^2+c^2}}{c}+\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(8b^3\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2i c$$

$$\mathrm{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\left(\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2c\tan\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\Bigg(4 b^5\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Bigg/$$

$$\left(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2c\tan\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\Bigg(4 b c^2\Bigg(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c$$

$$\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-i\,c-\sqrt{b^2+c^2}\right)\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(8\,b^2\sqrt{b^2+c^2}\,\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,i$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\Bigg)\Big/$$

$$\Bigg(\left(-b-i\,c-\sqrt{b^2+c^2}\right)\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)$$

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

$$\Bigg(8\,b^4\sqrt{b^2+c^2}\,\Bigg(\left(-b+i\,c-\sqrt{b^2+c^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-2\,i$$

$$c\,\mathrm{EllipticPi}\left[\frac{\left(b+i\,c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i\,c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-i\,b+c-i\,\sqrt{b^2+c^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(i\,b+c+i\,\sqrt{b^2+c^2}\right)\left(-i+\mathrm{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]\Bigg)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\bigg/$$

$$\left(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4 b\left(b^2+c^2\right)\left(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i c\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\bigg/$$

$$\left(\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

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

$$\left(4 b^3\left(b^2+c^2\right)\left(\left(-b+i c-\sqrt{b^2+c^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]-2 i\right.\right.$$

$$\left.c\,\text{EllipticPi}\left[\frac{\left(b+i c+\sqrt{b^2+c^2}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)}{\left(b-i c+\sqrt{b^2+c^2}\right)\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\right)$$

$$\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\sqrt{\frac{\left(-i b+c-i\sqrt{b^2+c^2}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i b+c+i\sqrt{b^2+c^2}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\Bigg)\Big/$$

$$\left(c^2\left(-b-i c-\sqrt{b^2+c^2}\right)\left(b-i c+\sqrt{b^2+c^2}\right)\left(\frac{-b-\sqrt{b^2+c^2}}{c}-\frac{-b+\sqrt{b^2+c^2}}{c}\right)\left(i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2 c\tan\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\left(2 b^3\left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/\left(c\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2 c\tan\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\left(2 b c\left(-i-\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\right],1\right]\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}{\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-i+\tan\left[\frac{1}{2}(d+e x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\tan\left[\frac{1}{2}(d+e x)\right]\right)\right)\Big/\left(\left(-i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(i+\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\sqrt{\left(\left(1+\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2 c\tan\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\tan\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)+$$

$$\left(2\,b^2\sqrt{b^2+c^2}\,\left(-\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\right.$$

$$\left.\sqrt{\frac{\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\right)\Big/\left(c\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\right.$$

$$\left.\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\sqrt{\left(\left(1+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2\,c\,\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]+\left(b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]^2\right)\right)}\right)-$$

$$\left(b\,c\left(2\,\mathrm{i}\left(-\frac{1}{2}\,\mathrm{i}\left(\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]-\frac{1}{2\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\right.\right.\right.$$

$$\mathrm{i}\left(\mathrm{i}\left(-\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)+\mathrm{i}\left(\mathrm{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]+$$

$$\left.\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}}{-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}},\text{ArcSin}\left[\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\right)\right.$$

$$\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathrm{i}\,b+c-\mathrm{i}\sqrt{b^2+c^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}{\left(\mathrm{i}\,b+c+\mathrm{i}\sqrt{b^2+c^2}\right)\left(-\mathrm{i}+\text{Tan}\left[\frac{1}{2}(d+e\,x)\right]\right)}}$$

$$\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)+\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)^2\Bigg)\Bigg)\Bigg/$$

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

$$\Bigg(c\,\sqrt{b^2+c^2}\,\Bigg(2\,\mathbb{i}\,\Bigg(-\frac{1}{2}\,\mathbb{i}\left(\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]-\frac{1}{2\left(-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}$$

$$\mathbb{i}\left(\mathbb{i}\left(-\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)+\mathbb{i}\left(\mathbb{i}-\frac{c}{b+\sqrt{b^2+c^2}}\right)\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]+$$

$$\left.\frac{2\,c\,\text{EllipticPi}\left[\frac{\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}}{-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}\right],1\right]}{\left(b+\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\frac{c}{b+\sqrt{b^2+c^2}}\right)}\right)$$

$$\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)\sqrt{\frac{\left(-\mathbb{i}\,b+c-\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}{\left(\mathbb{i}\,b+c+\mathbb{i}\,\sqrt{b^2+c^2}\right)\left(-\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(d+e\,x)\right]\right)}}$$

$$\left.\left.\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\left(\text{i}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)\left(-\frac{c}{b+\sqrt{b^2+c^2}}+\text{Tan}\left[\frac{1}{2}(d+e x)\right]\right)^2\right)\right)\bigg/$$

$$\left.\left.\left(\sqrt{\left(\left(1+\text{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\left(-b+\sqrt{b^2+c^2}-2 c\,\text{Tan}\left[\frac{1}{2}(d+e x)\right]+\left(b+\sqrt{b^2+c^2}\right)\text{Tan}\left[\frac{1}{2}(d+e x)\right]^2\right)\right)}\right)\right)\right)\bigg/$$

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

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

Problem 440: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{-\sqrt{b^2+c^2}+b\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}}\,dx$$

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

$$-\frac{\sqrt{2}\,\text{ArcTan}\left[\frac{\left(b^2+c^2\right)^{1/4}\text{Sin}[d+e x-\text{ArcTan}[b,c]]}{\sqrt{2}\sqrt{-\sqrt{b^2+c^2}+\sqrt{b^2+c^2}\,\text{Cos}[d+e x-\text{ArcTan}[b,c]]}}\right]}{\left(b^2+c^2\right)^{1/4} e}$$

Result (type 4, 61 904 leaves) : Display of huge result suppressed!

Problem 441: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{\left(-\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 164 leaves, 4 steps) :

$$\frac{\mathrm{ArcTan}\left[\frac{\left(b^2+c^2\right)^{1/4}\mathrm{Sin}[d+e\,x-\mathrm{ArcTan}[b,c]]}{\sqrt{2}\sqrt{-\sqrt{b^2+c^2}+\sqrt{b^2+c^2}\,\mathrm{Cos}[d+e\,x-\mathrm{ArcTan}[b,c]]}}\right]}{2\sqrt{2}\left(b^2+c^2\right)^{3/4}e}+\frac{c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x]}{2\sqrt{b^2+c^2}\,e\left(-\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{3/2}}$$

Result (type 1, 1 leaves) :

???

Problem 442: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{\left(-\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 232 leaves, 5 steps) :

$$-\frac{3\,\mathrm{ArcTan}\left[\frac{\left(b^2+c^2\right)^{1/4}\mathrm{Sin}[d+e\,x-\mathrm{ArcTan}[b,c]]}{\sqrt{2}\sqrt{-\sqrt{b^2+c^2}+\sqrt{b^2+c^2}\,\mathrm{Cos}[d+e\,x-\mathrm{ArcTan}[b,c]]}}\right]}{16\sqrt{2}\left(b^2+c^2\right)^{5/4}e}+\frac{c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x]}{4\sqrt{b^2+c^2}\,e\left(-\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{5/2}}-\frac{3\left(c\,\mathrm{Cos}[d+e\,x]-b\,\mathrm{Sin}[d+e\,x]\right)}{16\left(b^2+c^2\right)e\left(-\sqrt{b^2+c^2}+b\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{3/2}}$$

Result (type 1, 1 leaves) :

???

Problem 448: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 371 leaves, 7 steps):

$$-\frac{2\,(c\,\text{Cos}[d+e\,x]-a\,\text{Sin}[d+e\,x])\,(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}}{3\,e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])}+$$
$$\frac{8\,b\,\text{EllipticE}\left[\frac{1}{2}\,(d+e\,x-\text{ArcTan}[a,c]),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\,(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}}{3\,e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])\sqrt{\frac{b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}+$$
$$\left(2\,(a^2-b^2+c^2)\,\text{EllipticF}\left[\frac{1}{2}\,(d+e\,x-\text{ArcTan}[a,c]),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\sqrt{\frac{b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}\,(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}\right)\Big/$$
$$\left(3\,e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^2\right)$$

Result (type 6, 2490 leaves):

$$\frac{\left(\frac{8\,a\,b}{3\,c}-\frac{2}{3}\,c\,\text{Cos}[d+e\,x]+\frac{2}{3}\,a\,\text{Sin}[d+e\,x]\right)\,(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}}{e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])}+$$
$$\left(2\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]\right.$$
$$\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}$$

$$\left.(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}\right) \Big/ \left(3\sqrt{1+\frac{a^2}{c^2}}\;c\,e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^{3/2}\right)+$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c}\right]\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]\right.$$

$$\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\;\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\;\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\;\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\;\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}$$

$$\left.(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}\right) \Big/ \left(\sqrt{1+\frac{a^2}{c^2}}\;c\,e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^{3/2}\right)+$$

$$\left(2\,c\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c}\right]\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]\right.$$

$$\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\;\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}$$

$$\left.(a+b\,\mathrm{Sec}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x])^{3/2}\right)\Bigg/\left(3\sqrt{1+\frac{a^2}{c^2}}\;e\,\mathrm{Sec}[d+e\,x]^{3/2}\,(b+a\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x])^{3/2}\right)+$$

$$\Bigg(4\,a^2\,b\,\Bigg(-\Bigg(\Bigg(c\,\mathrm{AppellF1}\Bigg[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\Bigg]$$

$$\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]\right)\Bigg/\left(a\sqrt{1+\frac{c^2}{a^2}}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}\right.$$

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

$$\left.(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}\right)\Big/\left(3\,c\,e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^{3/2}\right)+$$

$$\left(4\,b\,c\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)\Bigg/\left(a\sqrt{1+\frac{c^2}{a^2}}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}\right.$$

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

$$\left.(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}\right) \Big/ \left(3\,e\,\text{Sec}[d+e\,x]^{3/2}\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^{3/2}\right)$$

Problem 449: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 118 leaves, 3 steps):

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

Result (type 6, 1580 leaves):

$$\frac{2\,a\,\sqrt{a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]}}{c\,e\,\sqrt{\text{Sec}[d+e\,x]}}+$$

$$\left(2\,b\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]\right.$$

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

$$\left.\sqrt{a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]}\right)\Big/\left(\sqrt{1+\frac{a^2}{c^2}}\;c\,e\,\sqrt{\text{Sec}[d+e\,x]}\;\sqrt{b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}\right)+$$

$$\Bigg(a^2\Bigg(-\Bigg(\Bigg(c\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{a}\big]\big]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{a}\big]\big]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\Big]$$

$$\left.\text{Sin}\Big[d+e\,x-\text{ArcTan}\Big[\frac{c}{a}\Big]\Big]\right)\Bigg/\Bigg(a\sqrt{1+\frac{c^2}{a^2}}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{a}\big]\big]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\Big[d+e\,x-\text{ArcTan}\Big[\frac{c}{a}\Big]\Big]}$$

$$\left.\left.\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{a}\big]\big]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\right)-\frac{\frac{2\,a\left(b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{a}\big]\big]\right)}{a^2+c^2}-\frac{c\,\text{Sin}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{a}\big]\big]}{a\sqrt{1+\frac{c^2}{a^2}}}}{\sqrt{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{c}{a}\big]\big]}}\Bigg)$$

$$\left.\sqrt{a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]}\right)\Big/\left(c\,e\,\sqrt{\text{Sec}[d+e\,x]}\;\sqrt{b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}\right)+$$

$$c\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)\Bigg/\left(a\sqrt{1+\frac{c^2}{a^2}}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}\right.$$

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

$$\left.\sqrt{a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]}\right)\Bigg/\left(e\sqrt{\text{Sec}[d+e\,x]}\,\sqrt{b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}\right)$$

Problem 450: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 118 leaves, 3 steps):

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

Result (type 6, 339 leaves):

$$\left(2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{b-\sqrt{1+\frac{a^2}{c^2}}\,c},\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{b+\sqrt{1+\frac{a^2}{c^2}}\,c}\right]\right.$$

$$\sqrt{\text{Sec}[d+e\,x]}\;\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]\sqrt{b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]}\;\sqrt{-\frac{\sqrt{1+\frac{a^2}{c^2}}\,c\,\left(-1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{b+\sqrt{1+\frac{a^2}{c^2}}\,c}}$$

$$\left.\sqrt{\frac{\sqrt{1+\frac{a^2}{c^2}}\,c\,\left(1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{-b+\sqrt{1+\frac{a^2}{c^2}}\,c}}\;\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}\right)\Big/\left(\sqrt{1+\frac{a^2}{c^2}}\,c\,e\,\sqrt{a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]}\right)$$

Problem 451: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 240 leaves, 4 steps):

$$-\frac{2\,\text{Sec}[d+e\,x]^{3/2}\,(c\,\text{Cos}[d+e\,x]-a\,\text{Sin}[d+e\,x])\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])}{(a^2-b^2+c^2)\,e\,(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}}-$$

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

Result (type 6, 1732 leaves) :

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

$$\left(2\,b\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c}\right]\text{Sec}[d+e\,x]^{3/2}\right.$$

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

$$\left.\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\Bigg/$$

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

$$\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\ \left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\ \left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)\Bigg/\left(a\sqrt{1+\frac{c^2}{a^2}}\ \sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\ \sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\right)-\frac{\frac{2\,a\left(b+a\sqrt{1+\frac{c^2}{a^2}}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)}{a^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}}}{\sqrt{b+a\sqrt{1+\frac{c^2}{a^2}}\ \text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}}\Bigg)\Bigg)\Bigg/$$

$$\left(c\left(a^2-b^2+c^2\right)e\left(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]\right)^{3/2}\right)-\left(c\,\text{Sec}[d+e\,x]^{3/2}\left(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x]\right)^{3/2}\right.$$

$$\left(-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.\right.\right.$$

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

$$\left.\left.\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\right)-$$

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

Problem 452: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 492 leaves, 8 steps):

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

$$\frac{8\,\text{Sec}[d+e x]^{5/2}\left(b\,c\,\text{Cos}[d+e x]-a\,b\,\text{Sin}[d+e x]\right)\left(b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^2}{3\left(a^2-b^2+c^2\right)^2 e\left(a+b\,\text{Sec}[d+e x]+c\,\text{Tan}[d+e x]\right)^{5/2}}+$$

$$\frac{8\,b\,\text{EllipticE}\left[\frac{1}{2}\left(d+e x-\text{ArcTan}[a,c]\right),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\text{Sec}[d+e x]^{5/2}\left(b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^3}{3\left(a^2-b^2+c^2\right)^2 e\sqrt{\frac{b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}{b+\sqrt{a^2+c^2}}}\left(a+b\,\text{Sec}[d+e x]+c\,\text{Tan}[d+e x]\right)^{5/2}}+$$

$$\left(2\,\text{EllipticF}\left[\frac{1}{2}\left(d+e x-\text{ArcTan}[a,c]\right),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\text{Sec}[d+e x]^{5/2}\left(b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^2\sqrt{\frac{b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]}{b+\sqrt{a^2+c^2}}}\right)\Bigg/$$
$$\left(3\left(a^2-b^2+c^2\right)e\left(a+b\,\text{Sec}[d+e x]+c\,\text{Tan}[d+e x]\right)^{5/2}\right)$$

Result (type 6, 2708 leaves):

$$\Bigg(\text{Sec}[d+e x]^{5/2}\left(b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^3$$
$$\left(\frac{8\,b\left(a^2+c^2\right)}{3\,a\,c\left(-a^2+b^2-c^2\right)^2}+\frac{2\left(b\,c+a^2\,\text{Sin}[d+e x]+c^2\,\text{Sin}[d+e x]\right)}{3\,a\left(a^2-b^2+c^2\right)\left(b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)^2}-\frac{2\left(a^2\,c+3\,b^2\,c+c^3+4\,a^2\,b\,\text{Sin}[d+e x]+4\,b\,c^2\,\text{Sin}[d+e x]\right)}{3\,a\left(a^2-b^2+c^2\right)^2\left(b+a\,\text{Cos}[d+e x]+c\,\text{Sin}[d+e x]\right)}\right)\Bigg)\Bigg/$$
$$\left(e\left(a+b\,\text{Sec}[d+e x]+c\,\text{Tan}[d+e x]\right)^{5/2}\right)+$$

$$\Bigg(2\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Sin}\left[d+e x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c}\right]\text{Sec}[d+e x]^{5/2}$$

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

$$\left.\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\Bigg/$$

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

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c}\right]\text{Sec}[d+e\,x]^{5/2}\right.$$

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

$$\left.\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\Bigg/$$

$$\left(\sqrt{1+\frac{a^2}{c^2}}\ c\ \left(a^2-b^2+c^2\right)^2 e\ \left(a+b\,\mathrm{Sec}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]\right)^{5/2}\right)+$$

$$\left(2\,c\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\ c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\ c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\ c\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\ c}\right)c}\right]\mathrm{Sec}[d+e\,x]^{5/2}\right.$$

$$\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\ \left(b+a\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{5/2}\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\ \mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}$$

$$\left.\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\ \mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\ \mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\Big/$$

$$\left(3\sqrt{1+\frac{a^2}{c^2}}\ \left(a^2-b^2+c^2\right)^2 e\ \left(a+b\,\mathrm{Sec}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]\right)^{5/2}\right)+\left(4\,a^2\,b\,\mathrm{Sec}[d+e\,x]^{5/2}\ \left(b+a\,\mathrm{Cos}[d+e\,x]+c\,\mathrm{Sin}[d+e\,x]\right)^{5/2}\right.$$

$$-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)\Bigg/\left(a\sqrt{1+\frac{c^2}{a^2}}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}\right.$$

$$\left.\left.\left.\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)-\frac{\frac{2\,a\left(b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)}{a^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}}}{\sqrt{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}}\right)\right)\Bigg/$$

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

$$-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)\Bigg/\left(a\sqrt{1+\frac{c^2}{a^2}}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right.$$

$$\left.\left.\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\right)-$$

$$\left.\left.\frac{\frac{2a\left(b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)}{a^2+c^2}-\frac{c\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}}}{\sqrt{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{c}{a}\right]\right]}}\right)\right)\Bigg/\left(3\left(a^2-b^2+c^2\right)^2 e\left(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]\right)^{5/2}\right)$$

Problem 453: Attempted integration timed out after 120 seconds.

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

Optimal (type 4, 371 leaves, 7 steps):

$$-\frac{2\,\text{Cos}[d+e\,x]^{3/2}\,(c\,\text{Cos}[d+e\,x]-a\,\text{Sin}[d+e\,x])\,(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}}{3\,e\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])}+$$

$$\left(8\,b\,\text{Cos}[d+e\,x]^{3/2}\,\text{EllipticE}\left[\frac{1}{2}\,(d+e\,x-\text{ArcTan}[a,c]),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\,(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}\right)\Big/$$

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

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

$$\left.(a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x])^{3/2}\right)\Big/\left(3\,e\,(b+a\,\text{Cos}[d+e\,x]+c\,\text{Sin}[d+e\,x])^2\right)$$

Result (type 1, 1 leaves):

???

Problem 454: Attempted integration timed out after 120 seconds.

$$\int\sqrt{\text{Cos}[d+e\,x]}\,\sqrt{a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]}\,dx$$

Optimal (type 4, 118 leaves, 3 steps):

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

Result (type 1, 1 leaves):

???

Problem 455: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{\text{Cos}[d+e\,x]}\,\sqrt{a+b\,\text{Sec}[d+e\,x]+c\,\text{Tan}[d+e\,x]}}\,dx$$

Optimal (type 4, 118 leaves, 3 steps):

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

Result (type 4, 506 leaves):

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

Problem 456: Attempted integration timed out after 120 seconds.

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

Optimal (type 4, 240 leaves, 4 steps):

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

Result (type 1, 1 leaves):

???

Problem 457: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{\mathrm{Cos}[d+e x]^{5/2}\,(a+b\,\mathrm{Sec}[d+e x]+c\,\mathrm{Tan}[d+e x])^{5/2}}\,dx$$

Optimal (type 4, 492 leaves, 8 steps):

$$-\frac{2\,(c\,\mathrm{Cos}[d+e x]-a\,\mathrm{Sin}[d+e x])\,(b+a\,\mathrm{Cos}[d+e x]+c\,\mathrm{Sin}[d+e x])}{3\,(a^2-b^2+c^2)\,e\,\mathrm{Cos}[d+e x]^{5/2}\,(a+b\,\mathrm{Sec}[d+e x]+c\,\mathrm{Tan}[d+e x])^{5/2}}+\frac{8\,(b\,c\,\mathrm{Cos}[d+e x]-a\,b\,\mathrm{Sin}[d+e x])\,(b+a\,\mathrm{Cos}[d+e x]+c\,\mathrm{Sin}[d+e x])^2}{3\,(a^2-b^2+c^2)^2\,e\,\mathrm{Cos}[d+e x]^{5/2}\,(a+b\,\mathrm{Sec}[d+e x]+c\,\mathrm{Tan}[d+e x])^{5/2}}+$$

$$\frac{8\,b\,\mathrm{EllipticE}\left[\frac{1}{2}\,(d+e x-\mathrm{ArcTan}[a,c]),\,\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\,(b+a\,\mathrm{Cos}[d+e x]+c\,\mathrm{Sin}[d+e x])^3}{3\,(a^2-b^2+c^2)^2\,e\,\mathrm{Cos}[d+e x]^{5/2}\,\sqrt{\frac{b+a\,\mathrm{Cos}[d+e x]+c\,\mathrm{Sin}[d+e x]}{b+\sqrt{a^2+c^2}}}\,(a+b\,\mathrm{Sec}[d+e x]+c\,\mathrm{Tan}[d+e x])^{5/2}}+$$

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

Result (type 1, 1 leaves):

???

Problem 461: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Csc}[x]}{2+2\,\mathrm{Cot}[x]+3\,\mathrm{Csc}[x]}\,dx$$

Optimal (type 3, 21 leaves, 4 steps):

$$x+2\,\mathrm{ArcTan}\left[\frac{\mathrm{Cos}[x]-\mathrm{Sin}[x]}{2+\mathrm{Cos}[x]+\mathrm{Sin}[x]}\right]$$

Result (type 3, 51 leaves):

$$-\mathrm{ArcTan}\left[\frac{\mathrm{Cos}\left[\frac{x}{2}\right]}{2\,\mathrm{Cos}\left[\frac{x}{2}\right]+\mathrm{Sin}\left[\frac{x}{2}\right]}\right]+\mathrm{ArcTan}\left[\mathrm{Sec}\left[\frac{x}{2}\right]\,\left(2\,\mathrm{Cos}\left[\frac{x}{2}\right]+\mathrm{Sin}\left[\frac{x}{2}\right]\right)\right]$$

Problem 462: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a + c \operatorname{Cot}[d + e x] + b \operatorname{Csc}[d + e x])^{3/2}}{\operatorname{Csc}[d + e x]^{3/2}} \, dx$$

Optimal (type 4, 371 leaves, 7 steps):

$$\frac{8 b (a + c \operatorname{Cot}[d + e x] + b \operatorname{Csc}[d + e x])^{3/2} \operatorname{EllipticE}\left[\frac{1}{2} (d + e x - \operatorname{ArcTan}[c, a]), \frac{2 \sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]}{3 e \operatorname{Csc}[d + e x]^{3/2} (b + c \operatorname{Cos}[d + e x] + a \operatorname{Sin}[d + e x]) \sqrt{\frac{b+c \operatorname{Cos}[d+e x]+a \operatorname{Sin}[d+e x]}{b+\sqrt{a^2+c^2}}}} +$$

$$\left(2 (a^2 - b^2 + c^2) (a + c \operatorname{Cot}[d + e x] + b \operatorname{Csc}[d + e x])^{3/2} \operatorname{EllipticF}\left[\frac{1}{2} (d + e x - \operatorname{ArcTan}[c, a]), \frac{2 \sqrt{a^2 + c^2}}{b + \sqrt{a^2 + c^2}}\right] \sqrt{\frac{b + c \operatorname{Cos}[d + e x] + a \operatorname{Sin}[d + e x]}{b + \sqrt{a^2 + c^2}}}\right) \Big/$$

$$\left(3 e \operatorname{Csc}[d + e x]^{3/2} (b + c \operatorname{Cos}[d + e x] + a \operatorname{Sin}[d + e x])^2\right) - \frac{2 (a + c \operatorname{Cot}[d + e x] + b \operatorname{Csc}[d + e x])^{3/2} (a \operatorname{Cos}[d + e x] - c \operatorname{Sin}[d + e x])}{3 e \operatorname{Csc}[d + e x]^{3/2} (b + c \operatorname{Cos}[d + e x] + a \operatorname{Sin}[d + e x])}$$

Result (type 6, 2490 leaves):

$$\frac{(a + c \operatorname{Cot}[d + e x] + b \operatorname{Csc}[d + e x])^{3/2} \left(\frac{8 b c}{3 a} - \frac{2}{3} a \operatorname{Cos}[d + e x] + \frac{2}{3} c \operatorname{Sin}[d + e x]\right)}{e \operatorname{Csc}[d + e x]^{3/2} (b + c \operatorname{Cos}[d + e x] + a \operatorname{Sin}[d + e x])} + \left(4 a b (a + c \operatorname{Cot}[d + e x] + b \operatorname{Csc}[d + e x])^{3/2}\right.$$

$$\left(-\left(\left(a \operatorname{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, -\frac{b + \sqrt{1 + \frac{a^2}{c^2}}\, c \operatorname{Cos}\left[d + e x - \operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1 + \frac{a^2}{c^2}} \left(1 - \frac{b}{\sqrt{1+\frac{a^2}{c^2}}\, c}\right) c}, -\frac{b + \sqrt{1 + \frac{a^2}{c^2}}\, c \operatorname{Cos}\left[d + e x - \operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1 + \frac{a^2}{c^2}} \left(-1 - \frac{b}{\sqrt{1+\frac{a^2}{c^2}}\, c}\right) c}\right]\right.\right.\right.$$

$$\left.\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right)\right/\left(\sqrt{1+\frac{a^2}{c^2}}\;c\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\;\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\;\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\;\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\;\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\right)-\frac{\frac{2\,c\left(b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2}-\frac{a\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\;c}}{\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}}\Bigg)\Bigg)\Bigg/$$

$$\left(3\,e\,\mathrm{Csc}[d+e\,x]^{3/2}\left(b+c\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x]\right)^{3/2}\right)+\Bigg(4\,b\,c^2\left(a+c\,\mathrm{Cot}[d+e\,x]+b\,\mathrm{Csc}[d+e\,x]\right)^{3/2}$$

$$\Bigg(-\Bigg(\Bigg(a\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c}\right]$$

$$\left.\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right)\right/\left(\sqrt{1+\frac{a^2}{c^2}}\;c\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\;\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right.$$

$$\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\Bigg)\Bigg)-$$

$$\left.\left(\frac{\frac{2\,c\left(b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2}-\frac{a\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\,c}}{\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}}\right)\right)\right/\left(3\,a\,e\,\mathrm{Csc}[d+e\,x]^{3/2}\left(b+c\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x]\right)^{3/2}\right)+$$

$$\left(2\,a\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.$$

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

$$\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}$$

$$\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}$$

$$\left.\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\Big/$$

$$\left(3\sqrt{1+\frac{c^2}{a^2}}\;e\,\text{Csc}[d+e\,x]^{3/2}\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^{3/2}\right)+$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.$$

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

$$\left.\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\Big/$$

$$\left(a\sqrt{1+\frac{c^2}{a^2}}\;e\,\text{Csc}[d+e\,x]^{3/2}\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^{3/2}\right)+$$

$$\left(2\,c^2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.$$

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

$$\left.\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\Bigg/$$

$$\left(3\,a\sqrt{1+\frac{c^2}{a^2}}\,e\,\text{Csc}[d+e\,x]^{3/2}\,(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])^{3/2}\right)$$

Problem 463: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]}}{\sqrt{\text{Csc}[d+e\,x]}}\,dx$$

Optimal (type 4, 118 leaves, 3 steps):

$$\frac{2\sqrt{a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(d+e\,x-\text{ArcTan}[c,a]),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]}{e\sqrt{\text{Csc}[d+e\,x]}\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}$$

Result (type 6, 1580 leaves):

$$\frac{2\,c\,\sqrt{a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]}}{a\,e\,\sqrt{\text{Csc}[d+e\,x]}}+\Bigg(a\,\sqrt{a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]}$$

$$\Bigg(-\Bigg(\Bigg(a\,\text{AppellF1}\Big[-\frac{1}{2},\,-\frac{1}{2},\,-\frac{1}{2},\,\frac{1}{2},\,-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{a}{c}\big]\big]}{\sqrt{1+\frac{a^2}{c^2}}\,\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c},\,-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{a}{c}\big]\big]}{\sqrt{1+\frac{a^2}{c^2}}\,\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c}\Big]$$

$$\text{Sin}\Big[d+e\,x-\text{ArcTan}\Big[\frac{a}{c}\Big]\Big]\Bigg)\Bigg/\Bigg(\sqrt{1+\frac{a^2}{c^2}}\,c\,\sqrt{\frac{c\,\sqrt{\frac{a^2+c^2}{c^2}}-c\,\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{a}{c}\big]\big]}{b+c\,\sqrt{\frac{a^2+c^2}{c^2}}}}\,\sqrt{b+c\,\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Cos}\Big[d+e\,x-\text{ArcTan}\Big[\frac{a}{c}\Big]\Big]}$$

$$\sqrt{\frac{c\,\sqrt{\frac{a^2+c^2}{c^2}}+c\,\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{a}{c}\big]\big]}{-b+c\,\sqrt{\frac{a^2+c^2}{c^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,c\,\left(b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2}-\frac{a\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\,c}}{\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\big[d+e\,x-\text{ArcTan}\big[\frac{a}{c}\big]\big]}}\Bigg)\Bigg)\Bigg/$$

$$\left(e\,\sqrt{\text{Csc}[d+e\,x]}\,\sqrt{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}\right)+\Bigg(c^2\,\sqrt{a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]}$$

$$-\left(\left(\left(a\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]\right)\Bigg/\left(\sqrt{1+\frac{a^2}{c^2}}\;c\,\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\;\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right.$$

$$\left.\left.\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\;\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\;\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\right)-$$

$$\left.\left.\frac{\frac{2\,c\left(b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2}-\frac{a\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\;c}}{\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}}\right)\right)\Bigg/\left(a\,e\,\sqrt{\text{Csc}[d+e\,x]}\;\sqrt{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}\right)+$$

$$\left(2\,b\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\;\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\;\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.$$

$$\sqrt{a + c\,\text{Cot}[d + e\,x] + b\,\text{Csc}[d + e\,x]}\ \text{Sec}\left[d + e\,x + \text{ArcTan}\left[\frac{c}{a}\right]\right]$$

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

$$\sqrt{b + a\sqrt{\frac{a^2 + c^2}{a^2}}\ \text{Sin}\left[d + e\,x + \text{ArcTan}\left[\frac{c}{a}\right]\right]}$$

$$\left.\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}} + a\sqrt{\frac{a^2+c^2}{a^2}}\ \text{Sin}\left[d + e\,x + \text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b + a\sqrt{\frac{a^2+c^2}{a^2}}}}\ \right) \Big/$$

$$\left(a\sqrt{1 + \frac{c^2}{a^2}}\ e\sqrt{\text{Csc}[d + e\,x]}\ \sqrt{b + c\,\text{Cos}[d + e\,x] + a\,\text{Sin}[d + e\,x]}\right)$$

Problem 464: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{\text{Csc}[d + e\,x]}}{\sqrt{a + c\,\text{Cot}[d + e\,x] + b\,\text{Csc}[d + e\,x]}}\,dx$$

Optimal (type 4, 118 leaves, 3 steps):

$$\frac{2\sqrt{\text{Csc}[d + e\,x]}\ \text{EllipticF}\left[\frac{1}{2}\left(d + e\,x - \text{ArcTan}[c, a]\right), \frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}{e\sqrt{a + c\,\text{Cot}[d + e\,x] + b\,\text{Csc}[d + e\,x]}}$$

Result (type 6, 339 leaves):

$$\left(2\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b-a\sqrt{1+\frac{c^2}{a^2}}},\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{1+\frac{c^2}{a^2}}}\right]\right.$$

$$\sqrt{\text{Csc}[d+e\,x]}\,\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]\sqrt{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}\sqrt{-\frac{a\sqrt{1+\frac{c^2}{a^2}}\left(-1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)}{b+a\sqrt{1+\frac{c^2}{a^2}}}}$$

$$\left.\sqrt{\frac{a\sqrt{1+\frac{c^2}{a^2}}\left(1+\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]\right)}{-b+a\sqrt{1+\frac{c^2}{a^2}}}}\sqrt{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}\right)\Bigg/\left(a\sqrt{1+\frac{c^2}{a^2}}\,e\sqrt{a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]}\right)$$

Problem 465: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 240 leaves, 4 steps):

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

$$\frac{2\,\text{Csc}[d+e\,x]^{3/2}(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])(a\,\text{Cos}[d+e\,x]-c\,\text{Sin}[d+e\,x])}{(a^2-b^2+c^2)\,e\,(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x])^{3/2}}$$

Result (type 6, 1732 leaves):

$$\frac{\text{Csc}[d+e\,x]^{3/2}(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])^2\left(-\frac{2(a^2+c^2)}{a\,c\,(a^2-b^2+c^2)}+\frac{2(a\,b+a^2\,\text{Sin}[d+e\,x]+c^2\,\text{Sin}[d+e\,x])}{c\,(a^2-b^2+c^2)(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])}\right)}{e\,(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x])^{3/2}}-$$

$$\Bigg(a\,\text{Csc}[d+e\,x]^{3/2}\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^{3/2}$$

$$\left(-\left(\left(a\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c}\right]\right.\right.\right.$$

$$\left.\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]\right)\Bigg/\left(\sqrt{1+\frac{a^2}{c^2}}\;c\,\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\;\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\right)-\frac{\frac{2\,c\left(b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2}-\frac{a\,\text{Sin}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\,c}}{\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}}\Bigg)\Bigg/$$

$$\left(\left(a^2-b^2+c^2\right) e \left(a+c \operatorname{Cot}[d+e x]+b \operatorname{Csc}[d+e x]\right)^{3/2}\right)-\left(c^2 \operatorname{Csc}[d+e x]^{3/2} \left(b+c \operatorname{Cos}[d+e x]+a \operatorname{Sin}[d+e x]\right)^{3/2}\right.$$

$$\left(-\left(\left(\left(a \operatorname{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\, c \operatorname{Cos}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\, c}\right) c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\, c \operatorname{Cos}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\, c}\right) c}\right]\right.\right.\right.$$

$$\left.\operatorname{Sin}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]\right) \Big/ \left(\sqrt{1+\frac{a^2}{c^2}}\, c \sqrt{\frac{c \sqrt{\frac{a^2+c^2}{c^2}}-c \sqrt{\frac{a^2+c^2}{c^2}} \operatorname{Cos}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c \sqrt{\frac{a^2+c^2}{c^2}}}}\right.$$

$$\left.\left.\sqrt{b+c \sqrt{\frac{a^2+c^2}{c^2}} \operatorname{Cos}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]} \sqrt{\frac{c \sqrt{\frac{a^2+c^2}{c^2}}+c \sqrt{\frac{a^2+c^2}{c^2}} \operatorname{Cos}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c \sqrt{\frac{a^2+c^2}{c^2}}}}\right)\right)-$$

$$\left.\left.\frac{\frac{2 c \left(b+\sqrt{1+\frac{a^2}{c^2}}\, c \operatorname{Cos}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2}-\frac{a \operatorname{Sin}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\, c}}{\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\, c \operatorname{Cos}\left[d+e x-\operatorname{ArcTan}\left[\frac{a}{c}\right]\right]}}\right)\right) \Big/ \left(a \left(a^2-b^2+c^2\right) e \left(a+c \operatorname{Cot}[d+e x]+b \operatorname{Csc}[d+e x]\right)^{3/2}\right)-$$

$$\left(2\,b\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.$$

$$\text{Csc}[d+e\,x]^{3/2}\,\text{Sec}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]\,\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^{3/2}$$

$$\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\;\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}$$

$$\left.\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\Big/$$

$$\left(a\left(a^2-b^2+c^2\right)\sqrt{1+\frac{c^2}{a^2}}\;e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{3/2}\right)$$

Problem 466: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 492 leaves, 8 steps):

$$\frac{8\,b\,\text{Csc}[d+e\,x]^{5/2}\,\text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}[c,a]\right),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^3}{3\left(a^2-b^2+c^2\right)^2 e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}+$$

$$\left(2\,\text{Csc}[d+e\,x]^{5/2}\,\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}[c,a]\right),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^2\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}\right)\Big/$$

$$\left(3\left(a^2-b^2+c^2\right)e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\right)-\frac{2\,\text{Csc}[d+e\,x]^{5/2}\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)\left(a\,\text{Cos}[d+e\,x]-c\,\text{Sin}[d+e\,x]\right)}{3\left(a^2-b^2+c^2\right)e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}}+$$

$$\frac{8\,\text{Csc}[d+e\,x]^{5/2}\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^2\left(a\,b\,\text{Cos}[d+e\,x]-b\,c\,\text{Sin}[d+e\,x]\right)}{3\left(a^2-b^2+c^2\right)^2 e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}}$$

Result (type 6, 2708 leaves):

$$\left(\text{Csc}[d+e\,x]^{5/2}\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^3\right.$$

$$\left.\left(\frac{8\,b\left(a^2+c^2\right)}{3\,a\,c\left(-a^2+b^2-c^2\right)^2}+\frac{2\left(a\,b+a^2\,\text{Sin}[d+e\,x]+c^2\,\text{Sin}[d+e\,x]\right)}{3\,c\left(a^2-b^2+c^2\right)\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^2}-\frac{2\left(a^3+3\,a\,b^2+a\,c^2+4\,a^2\,b\,\text{Sin}[d+e\,x]+4\,b\,c^2\,\text{Sin}[d+e\,x]\right)}{3\,c\left(a^2-b^2+c^2\right)^2\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)}\right)\right)\Big/$$

$$\left(e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\right)+\left(4\,a\,b\,\text{Csc}[d+e\,x]^{5/2}\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^{5/2}\right.$$

$$\left(-\left(\left(a\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\,c\,\text{Cos}\left[d+e\,x-\text{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\,c}\right)c}\right]\right.\right.\right.$$

$$\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right) \Big/ \left(\sqrt{1+\frac{a^2}{c^2}}\;c\,\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\;\sqrt{b+c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}+c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{-b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right)\right)-\frac{\frac{2\,c\left(b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2}-\frac{a\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\;c}}{\sqrt{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}}\Bigg)\Bigg)\Big/$$

$$\left(3\left(a^2-b^2+c^2\right)^2 e\left(a+c\,\mathrm{Cot}[d+e\,x]+b\,\mathrm{Csc}[d+e\,x]\right)^{5/2}\right)+\Bigg(4\,b\,c^2\,\mathrm{Csc}[d+e\,x]^{5/2}\left(b+c\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x]\right)^{5/2}$$

$$\Bigg(-\Bigg(\Bigg(\Bigg(a\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c},-\frac{b+\sqrt{1+\frac{a^2}{c^2}}\;c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\left(-1-\frac{b}{\sqrt{1+\frac{a^2}{c^2}}\;c}\right)c}\right]$$

$$\left.\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right) \Big/ \left(\sqrt{1+\frac{a^2}{c^2}}\;c\,\sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}}-c\sqrt{\frac{a^2+c^2}{c^2}}\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{b+c\sqrt{\frac{a^2+c^2}{c^2}}}}\right.$$

$$\sqrt{b + c\sqrt{\frac{a^2+c^2}{c^2}}\ \mathrm{Cos}\left[d + e\,x - \mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{a^2+c^2}{c^2}} + c\sqrt{\frac{a^2+c^2}{c^2}}\ \mathrm{Cos}\left[d + e\,x - \mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{-b + c\sqrt{\frac{a^2+c^2}{c^2}}}}\ \Bigg)\Bigg) -$$

$$\left.\left.\frac{\frac{2\,c\left(b+\sqrt{1+\frac{a^2}{c^2}}\ c\,\mathrm{Cos}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]\right)}{a^2+c^2} - \frac{a\,\mathrm{Sin}\left[d+e\,x-\mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}{\sqrt{1+\frac{a^2}{c^2}}\ c}}{\sqrt{b + \sqrt{1+\frac{a^2}{c^2}}\ c\,\mathrm{Cos}\left[d + e\,x - \mathrm{ArcTan}\left[\frac{a}{c}\right]\right]}}\right)\right) \Big/ \left(3\,a\left(a^2 - b^2 + c^2\right)^2 e\left(a + c\,\mathrm{Cot}[d + e\,x] + b\,\mathrm{Csc}[d + e\,x]\right)^{5/2}\right) +$$

$$\left(2\,a\,\mathrm{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{b + a\sqrt{1+\frac{c^2}{a^2}}\ \mathrm{Sin}\left[d + e\,x + \mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1 - \frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}, -\frac{b + a\sqrt{1+\frac{c^2}{a^2}}\ \mathrm{Sin}\left[d + e\,x + \mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1 - \frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\right.$$

$$\mathrm{Csc}[d + e\,x]^{5/2}\,\mathrm{Sec}\left[d + e\,x + \mathrm{ArcTan}\left[\frac{c}{a}\right]\right]\left(b + c\,\mathrm{Cos}[d + e\,x] + a\,\mathrm{Sin}[d + e\,x]\right)^{5/2}$$

$$\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}} - a\sqrt{\frac{a^2+c^2}{a^2}}\ \mathrm{Sin}\left[d + e\,x + \mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{b + a\sqrt{\frac{a^2+c^2}{a^2}}}}\ \sqrt{b + a\sqrt{\frac{a^2+c^2}{a^2}}\ \mathrm{Sin}\left[d + e\,x + \mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}$$

$$\left.\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}} + a\sqrt{\frac{a^2+c^2}{a^2}}\ \mathrm{Sin}\left[d + e\,x + \mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{-b + a\sqrt{\frac{a^2+c^2}{a^2}}}}\ \right) \Big/$$

$$\left(3\,\left(a^2-b^2+c^2\right)^2\sqrt{1+\frac{c^2}{a^2}}\;e\,\left(a+c\,\mathrm{Cot}[d+e\,x]+b\,\mathrm{Csc}[d+e\,x]\right)^{5/2}\right)+$$

$$\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\;\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\;\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\mathrm{Csc}[d+e\,x]^{5/2}\right.$$

$$\mathrm{Sec}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]\left(b+c\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x]\right)^{5/2}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}-a\sqrt{\frac{a^2+c^2}{a^2}}\;\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{b+a\sqrt{\frac{a^2+c^2}{a^2}}}}$$

$$\left.\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\;\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\;\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\right)\Big/$$

$$\left(a\,\left(a^2-b^2+c^2\right)^2\sqrt{1+\frac{c^2}{a^2}}\;e\,\left(a+c\,\mathrm{Cot}[d+e\,x]+b\,\mathrm{Csc}[d+e\,x]\right)^{5/2}\right)+$$

$$\left(2\,c^2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\;\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)},-\frac{b+a\sqrt{1+\frac{c^2}{a^2}}\;\mathrm{Sin}\left[d+e\,x+\mathrm{ArcTan}\left[\frac{c}{a}\right]\right]}{a\sqrt{1+\frac{c^2}{a^2}}\left(-1-\frac{b}{a\sqrt{1+\frac{c^2}{a^2}}}\right)}\right]\mathrm{Csc}[d+e\,x]^{5/2}\right.$$

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

$$\sqrt{b+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}\,\sqrt{\frac{a\sqrt{\frac{a^2+c^2}{a^2}}+a\sqrt{\frac{a^2+c^2}{a^2}}\,\text{Sin}\left[d+e\,x+\text{ArcTan}\left[\frac{c}{a}\right]\right]}{-b+a\sqrt{\frac{a^2+c^2}{a^2}}}}\Bigg)\Bigg/$$

$$\left(3\,a\,(a^2-b^2+c^2)^2\sqrt{1+\frac{c^2}{a^2}}\;e\,(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x])^{5/2}\right)$$

Problem 467: Attempted integration timed out after 120 seconds.

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

Optimal (type 4, 371 leaves, 7 steps):

$$\left(8\,b\,(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x])^{3/2}\,\text{EllipticE}\left[\frac{1}{2}\,(d+e\,x-\text{ArcTan}[c,a]),\,\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\,\text{Sin}[d+e\,x]^{3/2}\right)\Bigg/$$

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

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

$$\text{Sin}[d+e\,x]^{3/2}\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}\Bigg)\Bigg/\left(3\,e\,(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])^2\right)-$$

$$\frac{2\,(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x])^{3/2}\,\text{Sin}[d+e\,x]^{3/2}\,(a\,\text{Cos}[d+e\,x]-c\,\text{Sin}[d+e\,x])}{3\,e\,(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])}$$

Result (type 1, 1 leaves):

???

Problem 468: Attempted integration timed out after 120 seconds.

$$\int \sqrt{a + c\,\text{Cot}[d + e\,x] + b\,\text{Csc}[d + e\,x]}\,\sqrt{\text{Sin}[d + e\,x]}\,dx$$

Optimal (type 4, 118 leaves, 3 steps):

$$\frac{2\sqrt{a + c\,\text{Cot}[d + e\,x] + b\,\text{Csc}[d + e\,x]}\,\text{EllipticE}\left[\frac{1}{2}\left(d + e\,x - \text{ArcTan}[c, a]\right), \frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\sqrt{\text{Sin}[d + e\,x]}}{e\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}$$

Result (type 1, 1 leaves):

???

Problem 469: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{a + c\,\text{Cot}[d + e\,x] + b\,\text{Csc}[d + e\,x]}\,\sqrt{\text{Sin}[d + e\,x]}}\,dx$$

Optimal (type 4, 118 leaves, 3 steps):

$$\frac{2\,\text{EllipticF}\left[\frac{1}{2}\left(d + e\,x - \text{ArcTan}[c, a]\right), \frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}{e\sqrt{a + c\,\text{Cot}[d + e\,x] + b\,\text{Csc}[d + e\,x]}\,\sqrt{\text{Sin}[d + e\,x]}}$$

Result (type 4, 719 leaves):

$$\Bigg(4 \left(\mathrm{i}\, a+b-c-\mathrm{i} \sqrt{a^2-b^2+c^2}\right) (1+\mathrm{Cos}[d+e x]) \sqrt{\mathrm{Csc}[d+e x]}$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a-\mathrm{i}\, b+\mathrm{i}\, c+\sqrt{a^2-b^2+c^2}\right) \left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(-a+\mathrm{i}\, b-\mathrm{i}\, c+\sqrt{a^2-b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}\right], \frac{\mathrm{i}\, b+\sqrt{a^2-b^2+c^2}}{\mathrm{i}\, b-\sqrt{a^2-b^2+c^2}}\right]$$

$$\sqrt{\frac{b+c \,\mathrm{Cos}[d+e x]+a \,\mathrm{Sin}[d+e x]}{(1+\mathrm{Cos}[d+e x])^2}} \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)^2 \sqrt{\frac{\left(-a-\mathrm{i}\, b+\mathrm{i}\, c+\sqrt{a^2-b^2+c^2}\right) \left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(-a+\mathrm{i}\, b-\mathrm{i}\, c+\sqrt{a^2-b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}$$

$$\sqrt{\mathrm{Cot}\left[\frac{1}{2} (d+e x)\right]+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]} \sqrt{\frac{\mathrm{i} \left(a-\sqrt{a^2-b^2+c^2}+b \,\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]-c \,\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(-a+\mathrm{i}\, b-\mathrm{i}\, c+\sqrt{a^2-b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}}$$

$$\sqrt{-\frac{\mathrm{i} \left(a+\sqrt{a^2-b^2+c^2}+b \,\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]-c \,\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}{\left(a-\mathrm{i}\, b+\mathrm{i}\, c+\sqrt{a^2-b^2+c^2}\right) \left(-\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]\right)}} \sqrt{\frac{\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]}{1+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]^2}}\Bigg) \Bigg/$$

$$\Bigg(\left(a+\mathrm{i}\, b-\mathrm{i}\, c-\sqrt{a^2-b^2+c^2}\right) e \sqrt{a+c \,\mathrm{Cot}[d+e x]+b \,\mathrm{Csc}[d+e x]}$$

$$\sqrt{\left(1+\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]^2\right) \left(b+c+2 a \,\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]+b \,\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]^2-c \,\mathrm{Tan}\left[\frac{1}{2} (d+e x)\right]^2\right)}\Bigg)$$

Problem 470: Attempted integration timed out after 120 seconds.

$$\int \frac{1}{(a+c \,\mathrm{Cot}[d+e x]+b \,\mathrm{Csc}[d+e x])^{3/2} \,\mathrm{Sin}[d+e x]^{3/2}} \, dx$$

Optimal (type 4, 240 leaves, 4 steps) :

$$-\frac{2\,\text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}[c,a]\right),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^2}{\left(a^2-b^2+c^2\right)e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{3/2}\text{Sin}[d+e\,x]^{3/2}\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}-\frac{2\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)\left(a\,\text{Cos}[d+e\,x]-c\,\text{Sin}[d+e\,x]\right)}{\left(a^2-b^2+c^2\right)e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{3/2}\text{Sin}[d+e\,x]^{3/2}}$$

Result (type 1, 1 leaves) :

???

Problem 471: Attempted integration timed out after 120 seconds.

$$\int\frac{1}{\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\text{Sin}[d+e\,x]^{5/2}}\,dx$$

Optimal (type 4, 492 leaves, 8 steps) :

$$\frac{8\,b\,\text{EllipticE}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}[c,a]\right),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^3}{3\left(a^2-b^2+c^2\right)^2e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\text{Sin}[d+e\,x]^{5/2}\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}}+$$

$$\left(2\,\text{EllipticF}\left[\frac{1}{2}\left(d+e\,x-\text{ArcTan}[c,a]\right),\frac{2\sqrt{a^2+c^2}}{b+\sqrt{a^2+c^2}}\right]\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^2\sqrt{\frac{b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]}{b+\sqrt{a^2+c^2}}}\right)\Big/$$

$$\left(3\left(a^2-b^2+c^2\right)e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\text{Sin}[d+e\,x]^{5/2}\right)-$$

$$\frac{2\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)\left(a\,\text{Cos}[d+e\,x]-c\,\text{Sin}[d+e\,x]\right)}{3\left(a^2-b^2+c^2\right)e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\text{Sin}[d+e\,x]^{5/2}}+\frac{8\left(b+c\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]\right)^2\left(a\,b\,\text{Cos}[d+e\,x]-b\,c\,\text{Sin}[d+e\,x]\right)}{3\left(a^2-b^2+c^2\right)^2e\left(a+c\,\text{Cot}[d+e\,x]+b\,\text{Csc}[d+e\,x]\right)^{5/2}\text{Sin}[d+e\,x]^{5/2}}$$

Result (type 1, 1 leaves) :

???

Problem 475: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\text{Cos}[x]^2-\text{Sin}[x]^2}\,dx$$

Optimal (type 3, 11 leaves, 2 steps) :

$$\frac{1}{2}\,\text{ArcTanh}[2\,\text{Cos}[x]\,\text{Sin}[x]]$$

Result (type 3, 23 leaves):

$$-\frac{1}{2}\,\text{Log}[\text{Cos}[x]-\text{Sin}[x]]+\frac{1}{2}\,\text{Log}[\text{Cos}[x]+\text{Sin}[x]]$$

Problem 503: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{d+e\,\text{Sin}[x]}{a+b\,\text{Sin}[x]+c\,\text{Sin}[x]^2}\,dx$$

Optimal (type 3, 242 leaves, 7 steps):

$$\frac{\sqrt{2}\left(e+\frac{2\,c\,d-b\,e}{\sqrt{b^2-4\,a\,c}}\right)\text{ArcTan}\left[\frac{2\,c+\left(b-\sqrt{b^2-4\,a\,c}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}\,\sqrt{b^2-2\,c\,(a+c)-b\,\sqrt{b^2-4\,a\,c}}}\right]}{\sqrt{b^2-2\,c\,(a+c)-b\,\sqrt{b^2-4\,a\,c}}}+\frac{\sqrt{2}\left(e-\frac{2\,c\,d-b\,e}{\sqrt{b^2-4\,a\,c}}\right)\text{ArcTan}\left[\frac{2\,c+\left(b+\sqrt{b^2-4\,a\,c}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}\,\sqrt{b^2-2\,c\,(a+c)+b\,\sqrt{b^2-4\,a\,c}}}\right]}{\sqrt{b^2-2\,c\,(a+c)+b\,\sqrt{b^2-4\,a\,c}}}$$

Result (type 3, 286 leaves):

$$\frac{1}{\sqrt{-\frac{b^2}{2}+2\,a\,c}}\left(\frac{\left(-2\,i\,c\,d+\left(i\,b+\sqrt{-b^2+4\,a\,c}\right)e\right)\text{ArcTan}\left[\frac{2\,c+\left(b-i\,\sqrt{-b^2+4\,a\,c}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}\,\sqrt{b^2-2\,c\,(a+c)-i\,b\,\sqrt{-b^2+4\,a\,c}}}\right]}{\sqrt{b^2-2\,c\,(a+c)-i\,b\,\sqrt{-b^2+4\,a\,c}}}+\frac{\left(2\,i\,c\,d+\left(-i\,b+\sqrt{-b^2+4\,a\,c}\right)e\right)\text{ArcTan}\left[\frac{2\,c+\left(b+i\,\sqrt{-b^2+4\,a\,c}\right)\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}\,\sqrt{b^2-2\,c\,(a+c)+i\,b\,\sqrt{-b^2+4\,a\,c}}}\right]}{\sqrt{b^2-2\,c\,(a+c)+i\,b\,\sqrt{-b^2+4\,a\,c}}}\right)$$

Problem 510: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[d+e\,x])\left(b^2+2\,a\,b\,\text{Tan}[d+e\,x]+a^2\,\text{Tan}[d+e\,x]^2\right)^2\,dx$$

Optimal (type 3, 144 leaves, 7 steps):

$$a\left(a^2-3b^2\right)\left(a^2+b^2\right)x+\frac{b\left(3a^2-b^2\right)\left(a^2+b^2\right)\text{Log}[\text{Cos}[d+ex]]}{e}-\frac{a\left(a^4-b^4\right)\text{Tan}[d+ex]}{e}+\frac{b\left(a^2+b^2\right)(b+a\,\text{Tan}[d+ex])^2}{2e}+\frac{\left(a^2+b^2\right)(b+a\,\text{Tan}[d+ex])^3}{3e}+\frac{b\,(b+a\,\text{Tan}[d+ex])^4}{4e}$$

Result (type 3, 578 leaves):

$$\frac{a^4 b\,\text{Cos}[d+ex]\,(b+a\,\text{Tan}[d+ex])^4\,(a+b\,\text{Tan}[d+ex])}{4e\,(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^4\,(a\,\text{Cos}[d+ex]+b\,\text{Sin}[d+ex])}+\frac{a^2 b\left(a^2+3b^2\right)\text{Cos}[d+ex]^3\,(b+a\,\text{Tan}[d+ex])^4\,(a+b\,\text{Tan}[d+ex])}{e\,(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^4\,(a\,\text{Cos}[d+ex]+b\,\text{Sin}[d+ex])}-\frac{a\,(-i a+b)\,(i a+b)\left(-a^2+3b^2\right)(d+ex)\,\text{Cos}[d+ex]^5\,(b+a\,\text{Tan}[d+ex])^4\,(a+b\,\text{Tan}[d+ex])}{e\,(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^4\,(a\,\text{Cos}[d+ex]+b\,\text{Sin}[d+ex])}+\frac{\left(3a^4 b+2a^2 b^3-b^5\right)\text{Cos}[d+ex]^5\,\text{Log}[\text{Cos}[d+ex]]\,(b+a\,\text{Tan}[d+ex])^4\,(a+b\,\text{Tan}[d+ex])}{e\,(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^4\,(a\,\text{Cos}[d+ex]+b\,\text{Sin}[d+ex])}+\frac{\text{Cos}[d+ex]^2\left(a^5\,\text{Sin}[d+ex]+4a^3 b^2\,\text{Sin}[d+ex]\right)(b+a\,\text{Tan}[d+ex])^4\,(a+b\,\text{Tan}[d+ex])}{3e\,(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^4\,(a\,\text{Cos}[d+ex]+b\,\text{Sin}[d+ex])}+\left(2\,\text{Cos}[d+ex]^4\left(-2a^5\,\text{Sin}[d+ex]+a^3 b^2\,\text{Sin}[d+ex]+6ab^4\,\text{Sin}[d+ex]\right)(b+a\,\text{Tan}[d+ex])^4\,(a+b\,\text{Tan}[d+ex])\right)\Big/\left(3e\,(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^4\,(a\,\text{Cos}[d+ex]+b\,\text{Sin}[d+ex])\right)$$

Problem 512: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{a+b\,\text{Tan}[d+ex]}{b^2+2ab\,\text{Tan}[d+ex]+a^2\,\text{Tan}[d+ex]^2}\,dx$$

Optimal (type 3, 101 leaves, 4 steps):

$$-\frac{a\left(a^2-3b^2\right)x}{\left(a^2+b^2\right)^2}+\frac{b\left(3a^2-b^2\right)\text{Log}[b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex]]}{\left(a^2+b^2\right)^2 e}-\frac{a^2-b^2}{\left(a^2+b^2\right)e\,(b+a\,\text{Tan}[d+ex])}$$

Result (type 3, 219 leaves):

$$\frac{1}{2b\left(a^2+b^2\right)^2 e\,(b+a\,\text{Tan}[d+ex])}\left(b^2\left(-2\,(a-i b)^3\,(d+ex)-b\left(-3a^2+b^2\right)\text{Log}\left[(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^2\right]\right)+a\left(2\,(a-i b)\left(a^3-a^2 b\,(-i+d+ex)+b^3\,(-i+d+ex)+i a b^2\,(i+2d+2ex)\right)-b^2\left(-3a^2+b^2\right)\text{Log}\left[(b\,\text{Cos}[d+ex]+a\,\text{Sin}[d+ex])^2\right]\right)\text{Tan}[d+ex]+2 i b^2\left(-3a^2+b^2\right)\text{ArcTan}[\text{Tan}[d+ex]]\,(b+a\,\text{Tan}[d+ex])\right)$$

Problem 513: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{a+b\,\mathrm{Tan}[d+e\,x]}{\left(b^2+2\,a\,b\,\mathrm{Tan}[d+e\,x]+a^2\,\mathrm{Tan}[d+e\,x]^2\right)^2}\,dx$$

Optimal (type 3, 197 leaves, 6 steps):

$$\frac{a\left(a^4-10\,a^2\,b^2+5\,b^4\right)x}{\left(a^2+b^2\right)^4}-\frac{b\left(5\,a^4-10\,a^2\,b^2+b^4\right)\mathrm{Log}[b\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x]]}{\left(a^2+b^2\right)^4 e}-$$

$$\frac{a^2-b^2}{3\left(a^2+b^2\right)e\left(b+a\,\mathrm{Tan}[d+e\,x]\right)^3}-\frac{b\left(3\,a^2-b^2\right)}{2\left(a^2+b^2\right)^2 e\left(b+a\,\mathrm{Tan}[d+e\,x]\right)^2}+\frac{a^4-6\,a^2\,b^2+b^4}{\left(a^2+b^2\right)^3 e\left(b+a\,\mathrm{Tan}[d+e\,x]\right)}$$

Result (type 3, 1098 leaves):

$$\Big(\big(-5\,\mathrm{i}\,a^{11}\,b+5\,a^{10}\,b^2-5\,\mathrm{i}\,a^9\,b^3+5\,a^8\,b^4+14\,\mathrm{i}\,a^7\,b^5-14\,a^6\,b^6+22\,\mathrm{i}\,a^5\,b^7-22\,a^4\,b^8+7\,\mathrm{i}\,a^3\,b^9-7\,a^2\,b^{10}-\mathrm{i}\,a\,b^{11}+b^{12}\big)$$

$$(d+e\,x)\,\mathrm{Sec}[d+e\,x]^3\,(b\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x])^4\,(a+b\,\mathrm{Tan}[d+e\,x])\Big)\Big/$$

$$\Big((a-\mathrm{i}\,b)^3\,(a+\mathrm{i}\,b)^4\,(-\mathrm{i}\,a+b)^4\,(\mathrm{i}\,a+b)^4\,e\,(a\,\mathrm{Cos}[d+e\,x]+b\,\mathrm{Sin}[d+e\,x])\,(b+a\,\mathrm{Tan}[d+e\,x])^4\Big)-$$

$$\Big(\mathrm{i}\,\big(-5\,a^4\,b+10\,a^2\,b^3-b^5\big)\,\mathrm{ArcTan}[\mathrm{Tan}[d+e\,x]]\,\mathrm{Sec}[d+e\,x]^3\,(b\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x])^4\,(a+b\,\mathrm{Tan}[d+e\,x])\Big)\Big/$$

$$\Big(\big(a^2+b^2\big)^4\,e\,(a\,\mathrm{Cos}[d+e\,x]+b\,\mathrm{Sin}[d+e\,x])\,(b+a\,\mathrm{Tan}[d+e\,x])^4\Big)+$$

$$\Big(\big(-5\,a^4\,b+10\,a^2\,b^3-b^5\big)\,\mathrm{Log}\big[(b\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x])^2\big]\,\mathrm{Sec}[d+e\,x]^3\,(b\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x])^4\,(a+b\,\mathrm{Tan}[d+e\,x])\Big)\Big/$$

$$\Big(2\,\big(a^2+b^2\big)^4\,e\,(a\,\mathrm{Cos}[d+e\,x]+b\,\mathrm{Sin}[d+e\,x])\,(b+a\,\mathrm{Tan}[d+e\,x])^4\Big)+$$

$$\Big(\mathrm{Sec}[d+e\,x]^3\,(b\,\mathrm{Cos}[d+e\,x]+a\,\mathrm{Sin}[d+e\,x])\,\big(-12\,a^8\,b\,\mathrm{Cos}[d+e\,x]+24\,a^6\,b^3\,\mathrm{Cos}[d+e\,x]+36\,a^4\,b^5\,\mathrm{Cos}[d+e\,x]+9\,a^7\,b^2\,(d+e\,x)\,\mathrm{Cos}[d+e\,x]-$$

$$81\,a^5\,b^4\,(d+e\,x)\,\mathrm{Cos}[d+e\,x]-45\,a^3\,b^6\,(d+e\,x)\,\mathrm{Cos}[d+e\,x]+45\,a\,b^8\,(d+e\,x)\,\mathrm{Cos}[d+e\,x]+8\,a^8\,b\,\mathrm{Cos}[3\,(d+e\,x)]-$$

$$54\,a^6\,b^3\,\mathrm{Cos}[3\,(d+e\,x)]-44\,a^4\,b^5\,\mathrm{Cos}[3\,(d+e\,x)]+18\,a^2\,b^7\,\mathrm{Cos}[3\,(d+e\,x)]-9\,a^7\,b^2\,(d+e\,x)\,\mathrm{Cos}[3\,(d+e\,x)]+$$

$$93\,a^5\,b^4\,(d+e\,x)\,\mathrm{Cos}[3\,(d+e\,x)]-75\,a^3\,b^6\,(d+e\,x)\,\mathrm{Cos}[3\,(d+e\,x)]+15\,a\,b^8\,(d+e\,x)\,\mathrm{Cos}[3\,(d+e\,x)]-12\,a^9\,\mathrm{Sin}[d+e\,x]+$$

$$51\,a^7\,b^2\,\mathrm{Sin}[d+e\,x]+81\,a^5\,b^4\,\mathrm{Sin}[d+e\,x]+9\,a^3\,b^6\,\mathrm{Sin}[d+e\,x]-9\,a\,b^8\,\mathrm{Sin}[d+e\,x]+9\,a^8\,b\,(d+e\,x)\,\mathrm{Sin}[d+e\,x]-$$

$$81\,a^6\,b^3\,(d+e\,x)\,\mathrm{Sin}[d+e\,x]-45\,a^4\,b^5\,(d+e\,x)\,\mathrm{Sin}[d+e\,x]+45\,a^2\,b^7\,(d+e\,x)\,\mathrm{Sin}[d+e\,x]+4\,a^9\,\mathrm{Sin}[3\,(d+e\,x)]-$$

$$31\,a^7\,b^2\,\mathrm{Sin}[3\,(d+e\,x)]+5\,a^5\,b^4\,\mathrm{Sin}[3\,(d+e\,x)]+31\,a^3\,b^6\,\mathrm{Sin}[3\,(d+e\,x)]-9\,a\,b^8\,\mathrm{Sin}[3\,(d+e\,x)]-3\,a^8\,b\,(d+e\,x)\,\mathrm{Sin}[3\,(d+e\,x)]+$$

$$39\,a^6\,b^3\,(d+e\,x)\,\mathrm{Sin}[3\,(d+e\,x)]-105\,a^4\,b^5\,(d+e\,x)\,\mathrm{Sin}[3\,(d+e\,x)]+45\,a^2\,b^7\,(d+e\,x)\,\mathrm{Sin}[3\,(d+e\,x)]\big)\,(a+b\,\mathrm{Tan}[d+e\,x])\Big)\Big/$$

$$\Big(12\,b\,(-\mathrm{i}\,a+b)^4\,(\mathrm{i}\,a+b)^4\,e\,(a\,\mathrm{Cos}[d+e\,x]+b\,\mathrm{Sin}[d+e\,x])\,(b+a\,\mathrm{Tan}[d+e\,x])^4\Big)$$

Problem 517: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a+b\,\mathrm{Tan}[d+e\,x]}{\left(b^2+2\,a\,b\,\mathrm{Tan}[d+e\,x]+a^2\,\mathrm{Tan}[d+e\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 316 leaves, 5 steps):

$$-\frac{(a^2-b^2)\,(b+a\,\text{Tan}[d+e\,x])}{2\,(a^2+b^2)\,e\,(b^2+2\,a\,b\,\text{Tan}[d+e\,x]+a^2\,\text{Tan}[d+e\,x]^2)^{3/2}}-\frac{(a^4-6\,a^2\,b^2+b^4)\,\text{Log}[b\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x]]\,(b+a\,\text{Tan}[d+e\,x])^3}{(a^2+b^2)^3\,e\,(b^2+2\,a\,b\,\text{Tan}[d+e\,x]+a^2\,\text{Tan}[d+e\,x]^2)^{3/2}}-\frac{4\,b\,(a^2-b^2)\,x\,(a\,b+a^2\,\text{Tan}[d+e\,x])^3}{a^2\,(a^2+b^2)^3\,(b^2+2\,a\,b\,\text{Tan}[d+e\,x]+a^2\,\text{Tan}[d+e\,x]^2)^{3/2}}-\frac{b\,(3\,a^2-b^2)\,(a\,b+a^2\,\text{Tan}[d+e\,x])^3}{(a^2+b^2)^2\,e\,(a^3\,b+a^4\,\text{Tan}[d+e\,x])\,(b^2+2\,a\,b\,\text{Tan}[d+e\,x]+a^2\,\text{Tan}[d+e\,x]^2)^{3/2}}$$

Result (type 3, 293 leaves) :

$$\frac{1}{2\,(a^2+b^2)^3\,e\,(b+a\,\text{Tan}[d+e\,x])\,\sqrt{(b+a\,\text{Tan}[d+e\,x])^2}}\Big(\big(-a^6+a^2\,b^4\big)\,\text{Sec}[d+e\,x]^2+2\,\mathrm{i}\,(a^4-6\,a^2\,b^2+b^4)\,\text{ArcTan}[\text{Tan}[d+e\,x]]\,(b+a\,\text{Tan}[d+e\,x])^2+(b+a\,\text{Tan}[d+e\,x])\,\Big(b\,\Big(-2\,\mathrm{i}\,(a-\mathrm{i}\,b)^4\,(d+e\,x)-(a^4-6\,a^2\,b^2+b^4)\,\text{Log}\big[(b\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])^2\big]\Big)+a\,\Big(2\,(a-\mathrm{i}\,b)\,\big(a^2\,b\,(4\,\mathrm{i}-3\,d-3\,e\,x)+b^3\,(-2\,\mathrm{i}+d+e\,x)-\mathrm{i}\,a^3\,(4\,\mathrm{i}+d+e\,x)+\mathrm{i}\,a\,b^2\,(2\,\mathrm{i}+3\,d+3\,e\,x)\big)-(a^4-6\,a^2\,b^2+b^4)\,\text{Log}\big[(b\,\text{Cos}[d+e\,x]+a\,\text{Sin}[d+e\,x])^2\big]\Big)\,\text{Tan}[d+e\,x]\Big)\Big)$$

Problem 518: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Sec}[d+e\,x])\,(b^2+2\,a\,b\,\text{Sec}[d+e\,x]+a^2\,\text{Sec}[d+e\,x]^2)^2\,dx$$

Optimal (type 3, 184 leaves, 8 steps) :

$$a\,b^4\,x+\frac{b\,(19\,a^4+56\,a^2\,b^2+8\,b^4)\,\text{ArcTanh}[\text{Sin}[d+e\,x]]}{8\,e}+\frac{a\,(4\,a^4+50\,a^2\,b^2+19\,b^4)\,\text{Tan}[d+e\,x]}{6\,e}+\frac{a^2\,b\,(41\,a^2+26\,b^2)\,\text{Sec}[d+e\,x]\,\text{Tan}[d+e\,x]}{24\,e}+\frac{(4\,a^2+7\,b^2)\,(a\,b+a^2\,\text{Sec}[d+e\,x])^2\,\text{Tan}[d+e\,x]}{12\,a\,e}+\frac{b\,(a\,b+a^2\,\text{Sec}[d+e\,x])^3\,\text{Tan}[d+e\,x]}{4\,a^2\,e}$$

Result (type 3, 590 leaves) :

$$\frac{a\, b^4\, (d+e\, x)}{e}+\frac{\left(-19\, a^4\, b-56\, a^2\, b^3-8\, b^5\right)\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]-\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right]}{8\, e}+$$
$$\frac{\left(19\, a^4\, b+56\, a^2\, b^3+8\, b^5\right)\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right]}{8\, e}+\frac{a^4\, b}{16\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]-\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)^4}+$$
$$\frac{4\, a^5+57\, a^4\, b+16\, a^3\, b^2+72\, a^2\, b^3}{48\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]-\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)^2}-\frac{a^4\, b}{16\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)^4}+$$
$$\frac{-4\, a^5-57\, a^4\, b-16\, a^3\, b^2-72\, a^2\, b^3}{48\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)^2}+\frac{a^5\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]+4\, a^3\, b^2\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]}{6\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]-\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)^3}+$$
$$\frac{a^5\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]+4\, a^3\, b^2\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]}{6\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)^3}+\frac{2\, \left(a^5\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]+13\, a^3\, b^2\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]+6\, a\, b^4\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)}{3\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]-\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)}+$$
$$\frac{2\, \left(a^5\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]+13\, a^3\, b^2\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]+6\, a\, b^4\, \text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)}{3\, e\, \left(\text{Cos}\left[\frac{1}{2}\, (d+e\, x)\right]+\text{Sin}\left[\frac{1}{2}\, (d+e\, x)\right]\right)}$$

Problem 548: Result more than twice size of optimal antiderivative.

$$\int \frac{B\, \text{Cos}[x]+C\, \text{Sin}[x]}{a+b\, \text{Cos}[x]+i\, b\, \text{Sin}[x]}\, dx$$

Optimal (type 3, 92 leaves, 1 step):

$$-\frac{b\, (B+i\, C)\, x}{2\, a^2}-\frac{\left(i\, b^2\, (B+i\, C)+a^2\, (i\, B+C)\right)\, \text{Log}[a+b\, \text{Cos}[x]+i\, b\, \text{Sin}[x]]}{2\, a^2\, b}+\frac{(i\, B-C)\, (\text{Cos}[x]-i\, \text{Sin}[x])}{2\, a}$$

Result (type 3, 195 leaves):

$$\frac{\left(a^2\, B-b^2\, B-i\, a^2\, C-i\, b^2\, C\right)\, x}{4\, a^2\, b}-\frac{\left(a^2\, B+b^2\, B-i\, a^2\, C+i\, b^2\, C\right)\, \text{ArcTan}\left[\frac{(a+b)\, \text{Cos}\left[\frac{x}{2}\right]}{-a\, \text{Sin}\left[\frac{x}{2}\right]+b\, \text{Sin}\left[\frac{x}{2}\right]}\right]}{2\, a^2\, b}+$$
$$\frac{i\, (B+i\, C)\, \text{Cos}[x]}{2\, a}-\frac{i\, \left(a^2\, B+b^2\, B-i\, a^2\, C+i\, b^2\, C\right)\, \text{Log}\left[a^2+b^2+2\, a\, b\, \text{Cos}[x]\right]}{4\, a^2\, b}+\frac{(B+i\, C)\, \text{Sin}[x]}{2\, a}$$

Problem 549: Result more than twice size of optimal antiderivative.

$$\int \frac{B\, \text{Cos}[x]+C\, \text{Sin}[x]}{a+b\, \text{Cos}[x]-i\, b\, \text{Sin}[x]}\, dx$$

Optimal (type 3, 90 leaves, 1 step):

$$-\frac{b\,(B-\mathrm{i}\,C)\,x}{2\,a^2}+\frac{\left(\mathrm{i}\,a^2\,(B+\mathrm{i}\,C)+b^2\,(\mathrm{i}\,B+C)\right)\,\mathrm{Log}[a+b\,\mathrm{Cos}[x]-\mathrm{i}\,b\,\mathrm{Sin}[x]]}{2\,a^2\,b}-\frac{(\mathrm{i}\,B+C)\,(\mathrm{Cos}[x]+\mathrm{i}\,\mathrm{Sin}[x])}{2\,a}$$

Result (type 3, 195 leaves):

$$\frac{\left(a^2\,B-b^2\,B+\mathrm{i}\,a^2\,C+\mathrm{i}\,b^2\,C\right)\,x}{4\,a^2\,b}+\frac{\left(a^2\,B+b^2\,B+\mathrm{i}\,a^2\,C-\mathrm{i}\,b^2\,C\right)\,\mathrm{ArcTan}\left[\frac{(a+b)\,\mathrm{Cos}\left[\frac{x}{2}\right]}{a\,\mathrm{Sin}\left[\frac{x}{2}\right]-b\,\mathrm{Sin}\left[\frac{x}{2}\right]}\right]}{2\,a^2\,b}-$$
$$\frac{\mathrm{i}\,(B-\mathrm{i}\,C)\,\mathrm{Cos}[x]}{2\,a}+\frac{\mathrm{i}\,\left(a^2\,B+b^2\,B+\mathrm{i}\,a^2\,C-\mathrm{i}\,b^2\,C\right)\,\mathrm{Log}\left[a^2+b^2+2\,a\,b\,\mathrm{Cos}[x]\right]}{4\,a^2\,b}+\frac{(B-\mathrm{i}\,C)\,\mathrm{Sin}[x]}{2\,a}$$

Problem 556: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x])^{5/2}\,(d+b\,e\,\mathrm{Cos}[x]+c\,e\,\mathrm{Sin}[x])\,dx$$

Optimal (type 4, 390 leaves, 8 steps):

$$\frac{1}{105\,\sqrt{\frac{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}{a+\sqrt{b^2+c^2}}}}$$
$$2\,\left(161\,a^2\,d+63\,(b^2+c^2)\,d+15\,a^3\,e+145\,a\,(b^2+c^2)\,e\right)\,\mathrm{EllipticE}\left[\frac{1}{2}\,(x-\mathrm{ArcTan}[b,c]),\,\frac{2\,\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\,\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}-$$
$$\left(2\,(a^2-b^2-c^2)\,(56\,a\,d+15\,a^2\,e+25\,(b^2+c^2)\,e)\,\mathrm{EllipticF}\left[\frac{1}{2}\,(x-\mathrm{ArcTan}[b,c]),\,\frac{2\,\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\,\sqrt{\frac{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}{a+\sqrt{b^2+c^2}}}\right)\Big/$$
$$\left(105\,\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}\right)-\frac{2}{7}\,(a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x])^{5/2}\,(c\,e\,\mathrm{Cos}[x]-b\,e\,\mathrm{Sin}[x])-$$
$$\frac{2}{35}\,(a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x])^{3/2}\,(c\,(7\,d+5\,a\,e)\,\mathrm{Cos}[x]-b\,(7\,d+5\,a\,e)\,\mathrm{Sin}[x])-$$
$$\frac{2}{105}\,\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}\,\left(c\,(56\,a\,d+15\,a^2\,e+25\,(b^2+c^2)\,e)\,\mathrm{Cos}[x]-b\,(56\,a\,d+15\,a^2\,e+25\,(b^2+c^2)\,e)\,\mathrm{Sin}[x]\right)$$

Result (type 6, 7823 leaves):

$$\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}\,\left(\frac{2\,b\,\left(161\,a^2\,d+63\,b^2\,d+63\,c^2\,d+15\,a^3\,e+145\,a\,b^2\,e+145\,a\,c^2\,e\right)}{105\,c}-\right.$$

$$\frac{1}{210} c \left(308 a d + 180 a^2 e + 115 b^2 e + 115 c^2 e\right) \text{Cos}[x] - \frac{2}{35} b c \left(7 d + 15 a e\right) \text{Cos}[2 x] - \frac{1}{14} c \left(3 b^2 - c^2\right) e \,\text{Cos}[3 x] +$$

$$\frac{1}{210} b \left(308 a d + 180 a^2 e + 115 b^2 e + 115 c^2 e\right) \text{Sin}[x] + \frac{1}{35} \left(b^2 - c^2\right) \left(7 d + 15 a e\right) \text{Sin}[2 x] + \frac{1}{14} b \left(b^2 - 3 c^2\right) e \,\text{Sin}[3 x]\Bigg) + \frac{1}{\sqrt{1 + \frac{b^2}{c^2}}\, c}$$

$$2 a^3 d \,\text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{a + \sqrt{1 + \frac{b^2}{c^2}}\, c \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1 + \frac{b^2}{c^2}} \left(1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}, -\frac{a + \sqrt{1 + \frac{b^2}{c^2}}\, c \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1 + \frac{b^2}{c^2}} \left(-1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}\right] \text{Sec}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c \sqrt{\frac{b^2+c^2}{c^2}} - c \sqrt{\frac{b^2+c^2}{c^2}} \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{a + c \sqrt{\frac{b^2+c^2}{c^2}}}} \sqrt{a + c \sqrt{\frac{b^2 + c^2}{c^2}} \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]} \sqrt{\frac{c \sqrt{\frac{b^2+c^2}{c^2}} + c \sqrt{\frac{b^2+c^2}{c^2}} \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a + c \sqrt{\frac{b^2+c^2}{c^2}}}} + \frac{1}{15 \sqrt{1 + \frac{b^2}{c^2}}\, c}$$

$$34 a b^2 d \,\text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{a + \sqrt{1 + \frac{b^2}{c^2}}\, c \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1 + \frac{b^2}{c^2}} \left(1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}, -\frac{a + \sqrt{1 + \frac{b^2}{c^2}}\, c \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1 + \frac{b^2}{c^2}} \left(-1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}\right] \text{Sec}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c \sqrt{\frac{b^2+c^2}{c^2}} - c \sqrt{\frac{b^2+c^2}{c^2}} \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{a + c \sqrt{\frac{b^2+c^2}{c^2}}}} \sqrt{a + c \sqrt{\frac{b^2 + c^2}{c^2}} \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]} \sqrt{\frac{c \sqrt{\frac{b^2+c^2}{c^2}} + c \sqrt{\frac{b^2+c^2}{c^2}} \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a + c \sqrt{\frac{b^2+c^2}{c^2}}}} +$$

$$\frac{1}{15 \sqrt{1 + \frac{b^2}{c^2}}} 34 a c d \,\text{AppellF1}\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{3}{2}, -\frac{a + \sqrt{1 + \frac{b^2}{c^2}}\, c \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1 + \frac{b^2}{c^2}} \left(1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}, -\frac{a + \sqrt{1 + \frac{b^2}{c^2}}\, c \,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1 + \frac{b^2}{c^2}} \left(-1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\, c}\right) c}\right] \text{Sec}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{7\sqrt{1+\frac{b^2}{c^2}}\,c}$$

$$18\,a^2\,b^2\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{21\sqrt{1+\frac{b^2}{c^2}}\,c}10\,b^4\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{7\sqrt{1+\frac{b^2}{c^2}}}$$

$$18\,a^2\,c\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{21\sqrt{1+\frac{b^2}{c^2}}}$$

$$20\,b^2\,c\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{21\sqrt{1+\frac{b^2}{c^2}}}10\,c^3\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{15\,c}$$

$$23\,a^2\,b^2\,d\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+\frac{1}{5\,c}$$

$$3\,b^4\,d\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{23}{15}a^2\,c\,d\Bigg(-\Bigg(\Bigg(\Bigg(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{6}{5}b^2\,c\,d\Bigg(-\Bigg(\Bigg(\Bigg(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{3}{5}c^3 d\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+\frac{1}{7\,c}$$

$$a^3 b^2 e \left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, -\frac{a + b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1 - \frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}, -\frac{a + b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1 - \frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right] \text{Sin}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]\right) \Big/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}} - b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{a + b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a + b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}} + b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right) - \frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2} - \frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a + b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right) + \frac{1}{21\,c}$$

$$29\,a\,b^4 e \left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, -\frac{a + b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1 - \frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}, -\frac{a + b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1 - \frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right] \text{Sin}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]\right) \Big/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}} - b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{a + b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a + b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{1}{7}a^3\,c\,e\left(-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{58}{21}a\,b^2\,c\,e\left(-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.\right.$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\,\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{29}{21}a\,c^3\,e\Bigg(-\Bigg(\Bigg(\Bigg(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\,\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)$$

Problem 557: Result unnecessarily involves higher level functions and more than twice size of optimal

antiderivative.

$$\int (a + b\,\text{Cos}[x] + c\,\text{Sin}[x])^{3/2}\,(d + b\,e\,\text{Cos}[x] + c\,e\,\text{Sin}[x])\,dx$$

Optimal (type 4, 294 leaves, 7 steps):

$$\frac{2\left(20\,a\,d + 3\,a^2\,e + 9\left(b^2 + c^2\right)e\right)\text{EllipticE}\left[\frac{1}{2}\left(x - \text{ArcTan}[b,\,c]\right),\,\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{a + b\,\text{Cos}[x] + c\,\text{Sin}[x]}}{15\sqrt{\frac{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}{a+\sqrt{b^2+c^2}}}} -$$

$$\frac{2\left(a^2 - b^2 - c^2\right)\left(5\,d + 3\,a\,e\right)\text{EllipticF}\left[\frac{1}{2}\left(x - \text{ArcTan}[b,\,c]\right),\,\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{\frac{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}{a+\sqrt{b^2+c^2}}}}{15\sqrt{a + b\,\text{Cos}[x] + c\,\text{Sin}[x]}} -$$

$$\frac{2}{5}\left(a + b\,\text{Cos}[x] + c\,\text{Sin}[x]\right)^{3/2}\left(c\,e\,\text{Cos}[x] - b\,e\,\text{Sin}[x]\right) - \frac{2}{15}\sqrt{a + b\,\text{Cos}[x] + c\,\text{Sin}[x]}\,\left(c\left(5\,d + 3\,a\,e\right)\text{Cos}[x] - b\left(5\,d + 3\,a\,e\right)\text{Sin}[x]\right)$$

Result (type 6, 5218 leaves):

$$\sqrt{a + b\,\text{Cos}[x] + c\,\text{Sin}[x]}$$

$$\left(\frac{2\,b\left(20\,a\,d + 3\,a^2\,e + 9\,b^2\,e + 9\,c^2\,e\right)}{15\,c} - \frac{2}{15}\,c\left(5\,d + 6\,a\,e\right)\text{Cos}[x] - \frac{2}{5}\,b\,c\,e\,\text{Cos}[2\,x] + \frac{2}{15}\,b\left(5\,d + 6\,a\,e\right)\text{Sin}[x] + \frac{1}{5}\left(b^2 - c^2\right)e\,\text{Sin}[2\,x]\right) +$$

$$\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\;c}2\,a^2\,d\,\text{AppellF1}\left[\frac{1}{2},\,\frac{1}{2},\,\frac{1}{2},\,\frac{3}{2},\,-\frac{a + \sqrt{1+\frac{b^2}{c^2}}\;c\,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c},\,-\frac{a + \sqrt{1+\frac{b^2}{c^2}}\;c\,\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1 - \frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c}\right]\text{Sec}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}} - c\sqrt{\frac{b^2+c^2}{c^2}}\;\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{a + c\sqrt{\frac{b^2+c^2}{c^2}}}}\;\sqrt{a + c\sqrt{\frac{b^2 + c^2}{c^2}}\;\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}\;\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}} + c\sqrt{\frac{b^2+c^2}{c^2}}\;\text{Sin}\left[x + \text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a + c\sqrt{\frac{b^2+c^2}{c^2}}}} +$$

$$\frac{1}{3\sqrt{1+\frac{b^2}{c^2}}\,c}2\,b^2\,d\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{3\sqrt{1+\frac{b^2}{c^2}}}2\,c\,d\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{5\sqrt{1+\frac{b^2}{c^2}}\,c}8\,a\,b^2\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{5\sqrt{1+\frac{b^2}{c^2}}}8\,a\,c\,e\,\text{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\Big]\,\text{Sec}\Big[x+\text{ArcTan}\Big[\frac{b}{c}\Big]\Big]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\;\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\Big[x+\text{ArcTan}\Big[\frac{b}{c}\Big]\Big]}\;\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{3\,c}$$

$$4\,a\,b^2\,d\left(-\left(\left(c\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Big]\,\text{Sin}\Big[x-\text{ArcTan}\Big[\frac{c}{b}\Big]\Big]\right)\Big/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\;\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\Big[x-\text{ArcTan}\Big[\frac{c}{b}\Big]\Big]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\Big[x-\text{ArcTan}\Big[\frac{c}{b}\Big]\Big]}}\right)+$$

$$\frac{4}{3}\,a\,c\,d\,\Bigg(-\Bigg(\Bigg(c\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Big]\,\text{Sin}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]\Bigg)\Bigg/$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\,\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\,\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}}\Bigg)+\frac{1}{5\,c}$$

$$a^2\,b^2\,e\,\Bigg(-\Bigg(\Bigg(c\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Big]\,\text{Sin}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]\Bigg)\Bigg/$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\,\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+\frac{1}{5\,c}$$

$$3\,b^4\,e\left(-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Big/\right.\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\ \sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\ \sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{1}{5}\,a^2\,c\,e\left(-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Big/\right.\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+$$

$$\frac{6}{5}b^2\,c\,e\left(-\left(\left(\left(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)\middle/\right.\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+$$

$$\frac{3}{5} c^3 e \left(-\left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, -\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}, -\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right] \text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}} \sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}} - b\sqrt{\frac{b^2+c^2}{b^2}}\, \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}} \sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\, \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}} + b\sqrt{\frac{b^2+c^2}{b^2}}\, \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right) - \frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2} - \frac{c\, \text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)$$

Problem 558: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}\, (d+b\, e\, \text{Cos}[x]+c\, e\, \text{Sin}[x])\, dx$$

Optimal (type 4, 229 leaves, 6 steps):

$$\frac{2\,(3d+a e)\, \text{EllipticE}\left[\frac{1}{2}(x-\text{ArcTan}[b,c]), \frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right] \sqrt{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}}{3\sqrt{\frac{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}{a+\sqrt{b^2+c^2}}}} -$$

$$\frac{2\,(a^2-b^2-c^2)\, e\, \text{EllipticF}\left[\frac{1}{2}(x-\text{ArcTan}[b,c]), \frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right] \sqrt{\frac{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}{a+\sqrt{b^2+c^2}}}}{3\sqrt{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}} - \frac{2}{3}\sqrt{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}\, (c\, e\, \text{Cos}[x]-b\, e\, \text{Sin}[x])$$

Result (type 6, 3006 leaves):

$$\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}\left(\frac{2\,b\,(3\,d+a\,e)}{3\,c}-\frac{2}{3}\,c\,e\,\mathrm{Cos}[x]+\frac{2}{3}\,b\,e\,\mathrm{Sin}[x]\right)+\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\,c}$$

$$2\,a\,d\,\mathrm{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\Big]\,\mathrm{Sec}\Big[x+\mathrm{ArcTan}\Big[\frac{b}{c}\Big]\Big]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\,\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\Big[x+\mathrm{ArcTan}\Big[\frac{b}{c}\Big]\Big]}\,\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{3\sqrt{1+\frac{b^2}{c^2}}\,c}2\,b^2\,e\,\mathrm{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\Big]\,\mathrm{Sec}\Big[x+\mathrm{ArcTan}\Big[\frac{b}{c}\Big]\Big]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\,\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\Big[x+\mathrm{ArcTan}\Big[\frac{b}{c}\Big]\Big]}\,\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+$$

$$\frac{1}{3\sqrt{1+\frac{b^2}{c^2}}}2\,c\,e\,\mathrm{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\big[x+\mathrm{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\Big]\,\mathrm{Sec}\Big[x+\mathrm{ArcTan}\Big[\frac{b}{c}\Big]\Big]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\ \text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{c}$$

$$b^2\, d\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\ \text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\ \sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\ \sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+$$

$$c\, d\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\ \text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+\frac{1}{3\,c}$$

$$a\,b^2\,e\Bigg(-\Bigg(\Bigg(\Bigg(c\,\mathrm{AppellF1}\Bigg[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Bigg]\;\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\;\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$\frac{1}{3}\, a\, c\, e \left(- \left(\left(c\, \text{AppellF1}\left[-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, -\frac{a + b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}} \left(1 - \frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}, -\frac{a + b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}} \left(-1 - \frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right] \text{Sin}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right] \right) \Big/ \right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}} \sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}} - b\sqrt{\frac{b^2+c^2}{b^2}}\, \text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{a + b\sqrt{\frac{b^2+c^2}{b^2}}}} \sqrt{a + b\sqrt{\frac{b^2+c^2}{b^2}}\, \text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]} \right.$$

$$\left.\left. \sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}} + b\sqrt{\frac{b^2+c^2}{b^2}}\, \text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a + b\sqrt{\frac{b^2+c^2}{b^2}}}} \right)\right) - \frac{\frac{2 b \left(a + b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2} - \frac{c\, \text{Sin}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a + b\sqrt{1+\frac{c^2}{b^2}}\, \text{Cos}\left[x - \text{ArcTan}\left[\frac{c}{b}\right]\right]}} \right)$$

Problem 559: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{d + b\, e\, \text{Cos}[x] + c\, e\, \text{Sin}[x]}{\sqrt{a + b\, \text{Cos}[x] + c\, \text{Sin}[x]}}\, dx$$

Optimal (type 4, 180 leaves, 5 steps):

$$\frac{2\, e\, \text{EllipticE}\left[\frac{1}{2}\left(x - \text{ArcTan}[b, c]\right), \frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right] \sqrt{a + b\, \text{Cos}[x] + c\, \text{Sin}[x]}}{\sqrt{\frac{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}{a+\sqrt{b^2+c^2}}}} +$$

$$\frac{2\, (d - a\, e)\, \text{EllipticF}\left[\frac{1}{2}\left(x - \text{ArcTan}[b, c]\right), \frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right] \sqrt{\frac{a+b\, \text{Cos}[x]+c\, \text{Sin}[x]}{a+\sqrt{b^2+c^2}}}}{\sqrt{a + b\, \text{Cos}[x] + c\, \text{Sin}[x]}}$$

Result (type 6, 1319 leaves) :

$$\frac{2\,b\,e\,\sqrt{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}}{c}+\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\;c}$$

$$2\,d\,\text{AppellF1}\Big[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\;c\,\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\;c\,\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\;c}\right)c}\Big]\,\text{Sec}\Big[x+\text{ArcTan}\Big[\frac{b}{c}\Big]\Big]$$

$$\sqrt{\frac{c\,\sqrt{\frac{b^2+c^2}{c^2}}-c\,\sqrt{\frac{b^2+c^2}{c^2}}\;\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{a+c\,\sqrt{\frac{b^2+c^2}{c^2}}}}\;\sqrt{a+c\,\sqrt{\frac{b^2+c^2}{c^2}}\;\text{Sin}\Big[x+\text{ArcTan}\Big[\frac{b}{c}\Big]\Big]}\;\sqrt{\frac{c\,\sqrt{\frac{b^2+c^2}{c^2}}+c\,\sqrt{\frac{b^2+c^2}{c^2}}\;\text{Sin}\big[x+\text{ArcTan}\big[\frac{b}{c}\big]\big]}{-a+c\,\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{c}$$

$$b^2\,e\left(-\left(\left(c\,\text{AppellF1}\Big[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\,\sqrt{1+\frac{c^2}{b^2}}\;\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\,\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\,\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\,\sqrt{1+\frac{c^2}{b^2}}\;\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{b\,\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\,\sqrt{1+\frac{c^2}{b^2}}}\right)}\Big]\,\text{Sin}\Big[x-\text{ArcTan}\Big[\frac{c}{b}\Big]\Big]\right)\Big/\right.\right.$$

$$\left(b\,\sqrt{1+\frac{c^2}{b^2}}\;\sqrt{\frac{b\,\sqrt{\frac{b^2+c^2}{b^2}}-b\,\sqrt{\frac{b^2+c^2}{b^2}}\;\text{Cos}\big[x-\text{ArcTan}\big[\frac{c}{b}\big]\big]}{a+b\,\sqrt{\frac{b^2+c^2}{b^2}}}}\;\sqrt{a+b\,\sqrt{\frac{b^2+c^2}{b^2}}\;\text{Cos}\Big[x-\text{ArcTan}\Big[\frac{c}{b}\Big]\Big]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)+$$

$$c\,e\Bigg(-\Bigg(\Bigg(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Big/$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)$$

Problem 560: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{d+b\,e\,\mathrm{Cos}[x]+c\,e\,\mathrm{Sin}[x]}{(a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x])^{3/2}}\,dx$$

Optimal (type 4, 250 leaves, 6 steps) :

$$\frac{2\,(d-a\,e)\,\text{EllipticE}\left[\frac{1}{2}\,(x-\text{ArcTan}[b,c]),\,\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}}{(a^2-b^2-c^2)\sqrt{\frac{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}{a+\sqrt{b^2+c^2}}}}+$$

$$\frac{2\,e\,\text{EllipticF}\left[\frac{1}{2}\,(x-\text{ArcTan}[b,c]),\,\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{\frac{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}{a+\sqrt{b^2+c^2}}}}{\sqrt{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}}+\frac{2\,(c\,(d-a\,e)\,\text{Cos}[x]-b\,(d-a\,e)\,\text{Sin}[x])}{(a^2-b^2-c^2)\sqrt{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}}$$

Result (type 6, 3176 leaves) :

$$\sqrt{a+b\,\text{Cos}[x]+c\,\text{Sin}[x]}\left(\frac{2\,(b^2+c^2)\,(-d+a\,e)}{b\,c\,(-a^2+b^2+c^2)}-\frac{2\,(-a\,c\,d+a^2\,c\,e-b^2\,d\,\text{Sin}[x]-c^2\,d\,\text{Sin}[x]+a\,b^2\,e\,\text{Sin}[x]+a\,c^2\,e\,\text{Sin}[x])}{b\,(-a^2+b^2+c^2)\,(a+b\,\text{Cos}[x]+c\,\text{Sin}[x])}\right)-$$

$$\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\,c\,(-a^2+b^2+c^2)}2\,a\,d\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]$$

$$\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}+\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\,c\,(-a^2+b^2+c^2)}$$

$$2\,b^2\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ +$$

$$\frac{1}{\sqrt{1+\frac{b^2}{c^2}}\left(-a^2+b^2+c^2\right)}2\,c\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]$$

$$\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}$$

$$\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ -\frac{1}{c\left(-a^2+b^2+c^2\right)}$$

$$b^2\,d\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\ \sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\ \Bigg)\Bigg)\ \left(-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)-\frac{1}{-a^2+b^2+c^2}$$

$$c\,d\ \Bigg(-\Bigg(\Bigg(\Bigg(c\ \mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\ \sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\ \sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\ \Bigg)\Bigg)\ \left(-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+\frac{1}{c\left(-a^2+b^2+c^2\right)}$$

$$a\,b^2\,e\ \Bigg(-\Bigg(\Bigg(\Bigg(c\ \mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\ \mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\left(-\frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+\frac{1}{-a^2+b^2+c^2}$$

$$a\,c\,e\left(-\left(\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\left(-\frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)$$

Problem 561: Result unnecessarily involves higher level functions and more than twice size of optimal

antiderivative.

$$\int \frac{d+b\,e\,\mathrm{Cos}[x]+c\,e\,\mathrm{Sin}[x]}{(a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x])^{5/2}}\,dx$$

Optimal (type 4, 378 leaves, 7 steps):

$$\frac{2\left(4\,a\,d-a^2\,e-3\left(b^2+c^2\right)e\right)\mathrm{EllipticE}\left[\frac{1}{2}\left(x-\mathrm{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}}{3\left(a^2-b^2-c^2\right)^2\sqrt{\frac{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}{a+\sqrt{b^2+c^2}}}}-$$

$$\frac{2\,(d-a\,e)\,\mathrm{EllipticF}\left[\frac{1}{2}\left(x-\mathrm{ArcTan}[b,c]\right),\frac{2\sqrt{b^2+c^2}}{a+\sqrt{b^2+c^2}}\right]\sqrt{\frac{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}{a+\sqrt{b^2+c^2}}}}{3\left(a^2-b^2-c^2\right)\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}}+\frac{2\left(c\,(d-a\,e)\,\mathrm{Cos}[x]-b\,(d-a\,e)\,\mathrm{Sin}[x]\right)}{3\left(a^2-b^2-c^2\right)\left(a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]\right)^{3/2}}+$$

$$\frac{2\left(c\left(4\,a\,d-a^2\,e-3\left(b^2+c^2\right)e\right)\mathrm{Cos}[x]-b\left(4\,a\,d-a^2\,e-3\left(b^2+c^2\right)e\right)\mathrm{Sin}[x]\right)}{3\left(a^2-b^2-c^2\right)^2\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}}$$

Result (type 6, 5554 leaves):

$$\sqrt{a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]}\left(-\frac{2\left(b^2+c^2\right)\left(-4\,a\,d+a^2\,e+3\,b^2\,e+3\,c^2\,e\right)}{3\,b\,c\left(-a^2+b^2+c^2\right)^2}-\frac{2\left(-a\,c\,d+a^2\,c\,e-b^2\,d\,\mathrm{Sin}[x]-c^2\,d\,\mathrm{Sin}[x]+a\,b^2\,e\,\mathrm{Sin}[x]+a\,c^2\,e\,\mathrm{Sin}[x]\right)}{3\,b\left(-a^2+b^2+c^2\right)\left(a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]\right)^2}+\right.$$

$$\left(2\left(-3\,a^2\,c\,d-b^2\,c\,d-c^3\,d+4\,a\,b^2\,c\,e+4\,a\,c^3\,e-4\,a\,b^2\,d\,\mathrm{Sin}[x]-4\,a\,c^2\,d\,\mathrm{Sin}[x]+a^2\,b^2\,e\,\mathrm{Sin}[x]+3\,b^4\,e\,\mathrm{Sin}[x]+\right.\right.$$

$$\left.\left.\left.a^2\,c^2\,e\,\mathrm{Sin}[x]+6\,b^2\,c^2\,e\,\mathrm{Sin}[x]+3\,c^4\,e\,\mathrm{Sin}[x]\right)\right)\Big/\left(3\,b\left(-a^2+b^2+c^2\right)^2\left(a+b\,\mathrm{Cos}[x]+c\,\mathrm{Sin}[x]\right)\right)\right)+$$

$$\left(2\,a^2\,d\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\mathrm{Sin}\left[x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\mathrm{Sec}\left[x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\right.$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\Bigg) \Big/$$

$$\left(\sqrt{1+\frac{b^2}{c^2}}\ c\left(-a^2+b^2+c^2\right)^2\right)+\Bigg(2\,b^2\,d\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c}\right]$$

$$\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\Bigg) \Big/ \left(3\sqrt{1+\frac{b^2}{c^2}}\ c\left(-a^2+b^2+c^2\right)^2\right)+$$

$$\Bigg(2\,c\,d\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\ c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\ c}\right)c}\right]\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]$$

$$\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}\ \sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\Bigg)\Big/$$

$$\left(3\sqrt{1+\frac{b^2}{c^2}}\left(-a^2+b^2+c^2\right)^2\right)-\left(8\,a\,b^2\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\right.$$

$$\text{Sec}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\ \sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\right)\Big/\left(3\sqrt{1+\frac{b^2}{c^2}}\,c\left(-a^2+b^2+c^2\right)^2\right)-$$

$$\left(8\,a\,c\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1}{2},\frac{1}{2},\frac{3}{2},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c},-\frac{a+\sqrt{1+\frac{b^2}{c^2}}\,c\,\text{Sin}\left[x+\text{ArcTan}\left[\frac{b}{c}\right]\right]}{\sqrt{1+\frac{b^2}{c^2}}\left(-1-\frac{a}{\sqrt{1+\frac{b^2}{c^2}}\,c}\right)c}\right]\right.$$

$$\mathrm{Sec}\left[x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}-c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\sqrt{a+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}$$

$$\left.\sqrt{\frac{c\sqrt{\frac{b^2+c^2}{c^2}}+c\sqrt{\frac{b^2+c^2}{c^2}}\,\mathrm{Sin}\left[x+\mathrm{ArcTan}\left[\frac{b}{c}\right]\right]}{-a+c\sqrt{\frac{b^2+c^2}{c^2}}}}\right)\Bigg/\left(3\sqrt{1+\frac{b^2}{c^2}}\left(-a^2+b^2+c^2\right)^2\right)+\frac{1}{3\,c\,\left(-a^2+b^2+c^2\right)^2}$$

$$4\,a\,b^2\,d\left(-\left(\left(c\,\mathrm{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\mathrm{Sin}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\mathrm{Cos}\left[x-\mathrm{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)+\frac{1}{3\left(-a^2+b^2+c^2\right)^2}$$

$$4\,a\,c\,d\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},\,-\frac{1}{2},\,-\frac{1}{2},\,\frac{1}{2},\,-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},\,-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\left.\left.\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{3\,c\left(-a^2+b^2+c^2\right)^2}$$

$$a^2\,b^2\,e\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},\,-\frac{1}{2},\,-\frac{1}{2},\,\frac{1}{2},\,-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},\,-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\right/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{c\left(-a^2+b^2+c^2\right)^2}$$

$$b^4\,e\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\right.\right.$$

$$\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\right.$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg)-\frac{\frac{2\,b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{3\left(-a^2+b^2+c^2\right)^2}$$

$$a^2\,c\,e\left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Bigg/\right.\right.$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg(-\frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{\left(-a^2+b^2+c^2\right)^2}$$

$$2\,b^2\,c\,e\,\Bigg(-\Bigg(\Bigg(c\,\text{AppellF1}\Bigg[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\Bigg]\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\Bigg)\Bigg/$$

$$\Bigg(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}$$

$$\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\Bigg)\Bigg(-\frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\Bigg)-\frac{1}{\left(-a^2+b^2+c^2\right)^2}$$

$$c^3 e \left(-\left(\left(c\,\text{AppellF1}\left[-\frac{1}{2},-\frac{1}{2},-\frac{1}{2},\frac{1}{2},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)},-\frac{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}\left(-1-\frac{a}{b\sqrt{1+\frac{c^2}{b^2}}}\right)}\right]\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)\Big/\left(b\sqrt{1+\frac{c^2}{b^2}}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}-b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\sqrt{a+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}\sqrt{\frac{b\sqrt{\frac{b^2+c^2}{b^2}}+b\sqrt{\frac{b^2+c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{-a+b\sqrt{\frac{b^2+c^2}{b^2}}}}\right)\right)-\frac{\frac{2b\left(a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]\right)}{b^2+c^2}-\frac{c\,\text{Sin}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}{b\sqrt{1+\frac{c^2}{b^2}}}}{\sqrt{a+b\sqrt{1+\frac{c^2}{b^2}}\,\text{Cos}\left[x-\text{ArcTan}\left[\frac{c}{b}\right]\right]}}\right)$$

Problem 581: Result more than twice size of optimal antiderivative.

$$\int \frac{x}{a+b\,\text{Cos}[x]\,\text{Sin}[x]}\,dx$$

Optimal (type 4, 225 leaves, 9 steps):

$$-\frac{i\,x\,\text{Log}\left[1-\frac{i\,b\,e^{2\,i\,x}}{2\,a-\sqrt{4\,a^2-b^2}}\right]}{\sqrt{4\,a^2-b^2}}+\frac{i\,x\,\text{Log}\left[1-\frac{i\,b\,e^{2\,i\,x}}{2\,a+\sqrt{4\,a^2-b^2}}\right]}{\sqrt{4\,a^2-b^2}}-\frac{\text{PolyLog}\left[2,\frac{i\,b\,e^{2\,i\,x}}{2\,a-\sqrt{4\,a^2-b^2}}\right]}{2\sqrt{4\,a^2-b^2}}+\frac{\text{PolyLog}\left[2,\frac{i\,b\,e^{2\,i\,x}}{2\,a+\sqrt{4\,a^2-b^2}}\right]}{2\sqrt{4\,a^2-b^2}}$$

Result (type 4, 789 leaves):

$$\frac{1}{2}\left(\frac{\pi\,\text{ArcTan}\left[\frac{b+2\,a\,\text{Tan}[x]}{\sqrt{4\,a^2-b^2}}\right]}{\sqrt{4\,a^2-b^2}}+\frac{1}{\sqrt{-4\,a^2+b^2}}\left(2\,\text{ArcCos}\left[-\frac{2\,a}{b}\right]\,\text{ArcTanh}\left[\frac{(2\,a-b)\,\text{Cot}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]+(\pi-4\,x)\,\text{ArcTanh}\left[\frac{(2\,a+b)\,\text{Tan}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]-\right.\right.$$

$$\left(\text{ArcCos}\left[-\frac{2\,a}{b}\right]+2\,i\,\text{ArcTanh}\left[\frac{(2\,a-b)\,\text{Cot}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]\right)\,\text{Log}\left[\frac{(2\,a+b)\,\left(-2\,a+b-i\,\sqrt{-4\,a^2+b^2}\right)\,\left(1+i\,\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}{b\,\left(2\,a+b+\sqrt{-4\,a^2+b^2}\,\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}\right]-$$

$$\left(\text{ArcCos}\left[-\frac{2\,a}{b}\right]-2\,i\,\text{ArcTanh}\left[\frac{(2\,a-b)\,\text{Cot}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]\right)\,\text{Log}\left[\frac{(2\,a+b)\,\left(2\,i\,a-i\,b+\sqrt{-4\,a^2+b^2}\right)\,\left(i+\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}{b\,\left(2\,a+b+\sqrt{-4\,a^2+b^2}\,\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{2\,a}{b}\right]+2\,i\,\left(\text{ArcTanh}\left[\frac{(2\,a-b)\,\text{Cot}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]+\text{ArcTanh}\left[\frac{(2\,a+b)\,\text{Tan}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]\right)\right)\,\text{Log}\left[\frac{(-1)^{1/4}\,\sqrt{-4\,a^2+b^2}\,e^{-i\,x}}{2\,\sqrt{b}\,\sqrt{a+b\,\text{Cos}[x]\,\text{Sin}[x]}}\right]+$$

$$\left(\text{ArcCos}\left[-\frac{2\,a}{b}\right]-2\,i\,\text{ArcTanh}\left[\frac{(2\,a-b)\,\text{Cot}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]-2\,i\,\text{ArcTanh}\left[\frac{(2\,a+b)\,\text{Tan}\left[\frac{\pi}{4}+x\right]}{\sqrt{-4\,a^2+b^2}}\right]\right)\,\text{Log}\left[\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,\sqrt{-4\,a^2+b^2}\,e^{i\,x}}{\sqrt{b}\,\sqrt{2\,a+b\,\text{Sin}[2\,x]}}\right]+i\,\left(\text{PolyLog}\left[2,\right.\right.$$

$$\left.\left.\left.\left.\frac{\left(2\,a-i\,\sqrt{-4\,a^2+b^2}\right)\,\left(2\,a+b-\sqrt{-4\,a^2+b^2}\,\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}{b\,\left(2\,a+b+\sqrt{-4\,a^2+b^2}\,\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}\right]-\text{PolyLog}\left[2,\frac{\left(2\,a+i\,\sqrt{-4\,a^2+b^2}\right)\,\left(2\,a+b-\sqrt{-4\,a^2+b^2}\,\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}{b\,\left(2\,a+b+\sqrt{-4\,a^2+b^2}\,\text{Cot}\left[\frac{\pi}{4}+x\right]\right)}\right]\right)\right)\right)$$

Problem 588: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Sin}[a\,x]^3}{x\,(a\,x\,\text{Cos}[a\,x]-\text{Sin}[a\,x])^2}\,dx$$

Optimal (type 4, 56 leaves, 4 steps):

$$\frac{\text{Cos}[a\,x]}{a\,x}+\frac{\text{Sin}[a\,x]}{a^2\,x^2}+\frac{\text{Sin}[a\,x]^2}{a^2\,x^2\,(a\,x\,\text{Cos}[a\,x]-\text{Sin}[a\,x])}+\text{SinIntegral}[a\,x]$$

Result (type 4, 242 leaves):

$$\frac{1}{2\,a\,x\,\text{Cos}[a\,x]-2\,\text{Sin}[a\,x]}\left(1+\text{Cos}[2\,a\,x]+i\,a\,e\,x\,\text{Cos}[a\,x]\,\text{ExpIntegralEi}[-1-i\,a\,x]-i\,a\,e\,x\,\text{Cos}[a\,x]\,\text{ExpIntegralEi}[-1+i\,a\,x]-\right.$$
$$i\,e\,\text{CosIntegral}[i-a\,x]\,(a\,x\,\text{Cos}[a\,x]-\text{Sin}[a\,x])+i\,e\,\text{CosIntegral}[i+a\,x]\,(a\,x\,\text{Cos}[a\,x]-\text{Sin}[a\,x])-i\,e\,\text{ExpIntegralEi}[-1-i\,a\,x]\,\text{Sin}[a\,x]+$$
$$i\,e\,\text{ExpIntegralEi}[-1+i\,a\,x]\,\text{Sin}[a\,x]+2\,a\,x\,\text{Cos}[a\,x]\,\text{SinIntegral}[a\,x]-2\,\text{Sin}[a\,x]\,\text{SinIntegral}[a\,x]+$$
$$\left.a\,e\,x\,\text{Cos}[a\,x]\,\text{SinIntegral}[i-a\,x]-e\,\text{Sin}[a\,x]\,\text{SinIntegral}[i-a\,x]-a\,e\,x\,\text{Cos}[a\,x]\,\text{SinIntegral}[i+a\,x]+e\,\text{Sin}[a\,x]\,\text{SinIntegral}[i+a\,x]\right)$$

Problem 597: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[a x]^3}{x \left(\text{Cos}[a x] + a x \,\text{Sin}[a x]\right)^2} \, dx$$

Optimal (type 4, 56 leaves, 4 steps):

$$\frac{\text{Cos}[a x]}{a^2 x^2} + \text{CosIntegral}[a x] - \frac{\text{Sin}[a x]}{a x} - \frac{\text{Cos}[a x]^2}{a^2 x^2 \left(\text{Cos}[a x] + a x \,\text{Sin}[a x]\right)}$$

Result (type 4, 237 leaves):

$$\frac{1}{2 \left(\text{Cos}[a x] + a x \,\text{Sin}[a x]\right)} \left(-1 + \text{Cos}[2 a x] - e \,\text{Cos}[a x] \,\text{CosIntegral}[i + a x] + e \,\text{Cos}[a x] \,\text{ExpIntegralEi}[-1 - i a x] + e \,\text{Cos}[a x] \,\text{ExpIntegralEi}[-1 + i a x] - a e x \,\text{CosIntegral}[i + a x] \,\text{Sin}[a x] + a e x \,\text{ExpIntegralEi}[-1 - i a x] \,\text{Sin}[a x] + a e x \,\text{ExpIntegralEi}[-1 + i a x] \,\text{Sin}[a x] + 2 \,\text{CosIntegral}[a x] \left(\text{Cos}[a x] + a x \,\text{Sin}[a x]\right) - e \,\text{CosIntegral}[i - a x] \left(\text{Cos}[a x] + a x \,\text{Sin}[a x]\right) - i e \,\text{Cos}[a x] \,\text{SinIntegral}[i - a x] - i a e x \,\text{Sin}[a x] \,\text{SinIntegral}[i - a x] - i e \,\text{Cos}[a x] \,\text{SinIntegral}[i + a x] - i a e x \,\text{Sin}[a x] \,\text{SinIntegral}[i + a x]\right)$$

Problem 623: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{c \,\text{Tan}[a + b x] \,\text{Tan}\left[2 \left(a + b x\right)\right]}} \, dx$$

Optimal (type 3, 100 leaves, 6 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{c} \,\text{Tan}[2 a + 2 b x]}{\sqrt{-c + c \,\text{Sec}[2 a + 2 b x]}}\right]}{b \sqrt{c}} - \frac{\text{ArcTanh}\left[\frac{\sqrt{c} \,\text{Tan}[2 a + 2 b x]}{\sqrt{2} \sqrt{-c + c \,\text{Sec}[2 a + 2 b x]}}\right]}{\sqrt{2} \, b \sqrt{c}}$$

Result (type 6, 170 leaves):

$$\left(3 \,\text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}, 1, \frac{3}{2}, \text{Cot}[a + b x]^2, -\text{Cot}[a + b x]^2\right] \text{Sin}[a + b x]^2 \,\text{Tan}[a + b x]\right) \Big/ \left(b \left(2 \,\text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}, 2, \frac{5}{2}, \text{Cot}[a + b x]^2, -\text{Cot}[a + b x]^2\right] + \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}, 1, \frac{5}{2}, \text{Cot}[a + b x]^2, -\text{Cot}[a + b x]^2\right] - 3 \,\text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}, 1, \frac{3}{2}, \text{Cot}[a + b x]^2, -\text{Cot}[a + b x]^2\right] \text{Tan}[a + b x]^2\right) \sqrt{c \,\text{Tan}[a + b x] \,\text{Tan}\left[2 \left(a + b x\right)\right]}\right)$$

Problem 624: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Cos}[2 (a+b x)]}{\sqrt{c \, \text{Tan}[a+b x] \, \text{Tan}[2 (a+b x)]}} \, dx$$

Optimal (type 3, 138 leaves, 7 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{c} \, \text{Tan}[2 a+2 b x]}{\sqrt{-c+c \, \text{Sec}[2 a+2 b x]}}\right]}{2 b \sqrt{c}} - \frac{\text{ArcTanh}\left[\frac{\sqrt{c} \, \text{Tan}[2 a+2 b x]}{\sqrt{2} \sqrt{-c+c \, \text{Sec}[2 a+2 b x]}}\right]}{\sqrt{2} \, b \sqrt{c}} + \frac{\text{Sin}[2 a+2 b x]}{2 b \sqrt{-c+c \, \text{Sec}[2 a+2 b x]}}$$

Result (type 6, 226 leaves):

$$\frac{1}{4 b c}\left(\left(3 \, \text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}, 1, \frac{3}{2}, \text{Cot}[a+b x]^2, -\text{Cot}[a+b x]^2\right] \text{Cos}[2 (a+b x)] \, \text{Tan}[a+b x]\right) \Big/ \left(2 \, \text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}, 2, \frac{5}{2}, \text{Cot}[a+b x]^2, -\text{Cot}[a+b x]^2\right] + \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}, 1, \frac{5}{2}, \text{Cot}[a+b x]^2, -\text{Cot}[a+b x]^2\right] - 3 \, \text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}, 1, \frac{3}{2}, \text{Cot}[a+b x]^2, -\text{Cot}[a+b x]^2\right] \text{Tan}[a+b x]^2\right) + \text{Cot}[a+b x] \left(2 \, \text{Cos}[2 (a+b x)] + \text{ArcTan}\left[\sqrt{-1+\text{Tan}[a+b x]^2}\right] \sqrt{-1+\text{Tan}[a+b x]^2}\right)\right) \sqrt{c \, \text{Tan}[a+b x] \, \text{Tan}[2 (a+b x)]}$$

Problem 625: Result unnecessarily involves higher level functions.

$$\int \frac{\text{Cos}[2 (a+b x)]^2}{\sqrt{c \, \text{Tan}[a+b x] \, \text{Tan}[2 (a+b x)]}} \, dx$$

Optimal (type 3, 182 leaves, 8 steps):

$$\frac{7 \, \text{ArcTanh}\left[\frac{\sqrt{c} \, \text{Tan}[2 a+2 b x]}{\sqrt{-c+c \, \text{Sec}[2 a+2 b x]}}\right]}{8 b \sqrt{c}} - \frac{\text{ArcTanh}\left[\frac{\sqrt{c} \, \text{Tan}[2 a+2 b x]}{\sqrt{2} \sqrt{-c+c \, \text{Sec}[2 a+2 b x]}}\right]}{\sqrt{2} \, b \sqrt{c}} + \frac{\text{Sin}[2 a+2 b x]}{8 b \sqrt{-c+c \, \text{Sec}[2 a+2 b x]}} + \frac{\text{Cos}[2 a+2 b x] \, \text{Sin}[2 a+2 b x]}{4 b \sqrt{-c+c \, \text{Sec}[2 a+2 b x]}}$$

Result (type 6, 235 leaves):

$$\left(\left(42\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]\text{Sin}[a+b\,x]^2\,\text{Tan}[a+b\,x]\right)\Big/\left(2\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2},2,\frac{5}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]+\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},1,\frac{5}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]-3\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]\text{Tan}[a+b\,x]^2\right)+\left(2\,(1+\text{Cos}[2\,(a+b\,x)]+\text{Cos}[4\,(a+b\,x)])+\text{ArcTan}\left[\sqrt{-1+\text{Tan}[a+b\,x]^2}\right]\sqrt{-1+\text{Tan}[a+b\,x]^2}\right)\text{Tan}[2\,(a+b\,x)]\right)\Big/\left(16\,b\,\sqrt{c\,\text{Tan}[a+b\,x]\,\text{Tan}[2\,(a+b\,x)]}\right)$$

Problem 630: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(c\,\text{Tan}[a+b\,x]\,\text{Tan}[2\,(a+b\,x)])^{3/2}}\,dx$$

Optimal (type 3, 138 leaves, 7 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{c}\,\text{Tan}[2\,a+2\,b\,x]}{\sqrt{-c+c\,\text{Sec}[2\,a+2\,b\,x]}}\right]}{b\,c^{3/2}}+\frac{5\,\text{ArcTanh}\left[\frac{\sqrt{c}\,\text{Tan}[2\,a+2\,b\,x]}{\sqrt{2}\,\sqrt{-c+c\,\text{Sec}[2\,a+2\,b\,x]}}\right]}{4\,\sqrt{2}\,b\,c^{3/2}}-\frac{\text{Tan}[2\,a+2\,b\,x]}{4\,b\,(-c+c\,\text{Sec}[2\,a+2\,b\,x])^{3/2}}$$

Result (type 6, 226 leaves):

$$\frac{1}{8\,b\,c^2}\left(-\left(\left(12\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]\text{Cos}[2\,(a+b\,x)]\,\text{Tan}[a+b\,x]\right)\Big/\left(2\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2},2,\frac{5}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]+\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},1,\frac{5}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]-3\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+b\,x]^2,-\text{Cot}[a+b\,x]^2\right]\text{Tan}[a+b\,x]^2\right)\right)-\text{Cot}[a+b\,x]\left(-2+\text{Csc}[a+b\,x]^2+\text{ArcTan}\left[\sqrt{-1+\text{Tan}[a+b\,x]^2}\right]\sqrt{-1+\text{Tan}[a+b\,x]^2}\right)\right)\sqrt{c\,\text{Tan}[a+b\,x]\,\text{Tan}[2\,(a+b\,x)]}$$

Problem 631: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Cos}[2\,(a+b\,x)]}{(c\,\text{Tan}[a+b\,x]\,\text{Tan}[2\,(a+b\,x)])^{3/2}}\,dx$$

Optimal (type 3, 178 leaves, 8 steps):

$$-\frac{3\,\text{ArcTanh}\left[\frac{\sqrt{c}\,\text{Tan}[2a+2bx]}{\sqrt{-c+c\,\text{Sec}[2a+2bx]}}\right]}{2\,b\,c^{3/2}}+\frac{9\,\text{ArcTanh}\left[\frac{\sqrt{c}\,\text{Tan}[2a+2bx]}{\sqrt{2}\,\sqrt{-c+c\,\text{Sec}[2a+2bx]}}\right]}{4\sqrt{2}\,b\,c^{3/2}}-\frac{\text{Sin}[2a+2bx]}{4\,b\,(-c+c\,\text{Sec}[2a+2bx])^{3/2}}-\frac{3\,\text{Sin}[2a+2bx]}{4\,b\,c\,\sqrt{-c+c\,\text{Sec}[2a+2bx]}}$$

Result (type 6, 249 leaves):

$$\frac{1}{8\,b\,c^2}\Bigg(-2\,\text{Cot}[a+bx]-\text{Cot}[a+bx]\,\text{Csc}[a+bx]^2+4\,\text{Sin}[2\,(a+bx)]-3\,\text{ArcTan}\left[\sqrt{-1+\text{Tan}[a+bx]^2}\right]\text{Cot}[a+bx]\,\sqrt{-1+\text{Tan}[a+bx]^2}-$$
$$\left(18\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]\text{Cos}[2\,(a+bx)]\,\text{Tan}[a+bx]\right)\Big/$$
$$\Bigg(2\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2},2,\frac{5}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]+\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},1,\frac{5}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]-$$
$$3\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]\text{Tan}[a+bx]^2\Bigg)\Bigg)\sqrt{c\,\text{Tan}[a+bx]\,\text{Tan}[2\,(a+bx)]}$$

Problem 632: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Cos}[2\,(a+bx)]^2}{(c\,\text{Tan}[a+bx]\,\text{Tan}[2\,(a+bx)])^{3/2}}\,dx$$

Optimal (type 3, 234 leaves, 9 steps):

$$-\frac{19\,\text{ArcTanh}\left[\frac{\sqrt{c}\,\text{Tan}[2a+2bx]}{\sqrt{-c+c\,\text{Sec}[2a+2bx]}}\right]}{8\,b\,c^{3/2}}+\frac{13\,\text{ArcTanh}\left[\frac{\sqrt{c}\,\text{Tan}[2a+2bx]}{\sqrt{2}\,\sqrt{-c+c\,\text{Sec}[2a+2bx]}}\right]}{4\sqrt{2}\,b\,c^{3/2}}-$$
$$\frac{\text{Cos}[2a+2bx]\,\text{Sin}[2a+2bx]}{4\,b\,(-c+c\,\text{Sec}[2a+2bx])^{3/2}}-\frac{7\,\text{Sin}[2a+2bx]}{8\,b\,c\,\sqrt{-c+c\,\text{Sec}[2a+2bx]}}-\frac{\text{Cos}[2a+2bx]\,\text{Sin}[2a+2bx]}{2\,b\,c\,\sqrt{-c+c\,\text{Sec}[2a+2bx]}}$$

Result (type 6, 251 leaves):

$$\Bigg((-9\,\text{Cos}[a+bx]+4\,\text{Cos}[3\,(a+bx)]+\text{Cos}[5\,(a+bx)])\,\text{Csc}[a+bx]-$$
$$\left(114\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]\text{Sin}[a+bx]^2\,\text{Tan}[a+bx]\right)\Big/$$
$$\Bigg(2\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2},2,\frac{5}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]+\text{AppellF1}\left[\frac{3}{2},\frac{1}{2},1,\frac{5}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]-$$
$$3\,\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2},1,\frac{3}{2},\text{Cot}[a+bx]^2,-\text{Cot}[a+bx]^2\right]\text{Tan}[a+bx]^2\Bigg)-$$
$$7\,\text{ArcTan}\left[\sqrt{-1+\text{Tan}[a+bx]^2}\right]\sqrt{-1+\text{Tan}[a+bx]^2}\,\text{Tan}[2\,(a+bx)]\Bigg)\Big/\left(16\,b\,c\,\sqrt{c\,\text{Tan}[a+bx]\,\text{Tan}[2\,(a+bx)]}\right)$$

Problem 634: Result unnecessarily involves higher level functions.

$$\int \frac{\operatorname{Csc}[x]^2 \operatorname{Sec}[x]}{\sqrt{\operatorname{Sin}[2 x]}\,(-2+\operatorname{Tan}[x])}\,dx$$

Optimal (type 3, 69 leaves, 6 steps):

$$\frac{\operatorname{Cos}[x]}{2 \sqrt{\operatorname{Sin}[2 x]}}+\frac{\operatorname{Cos}[x] \operatorname{Cot}[x]}{3 \sqrt{\operatorname{Sin}[2 x]}}-\frac{5 \operatorname{ArcTanh}\left[\frac{\sqrt{\operatorname{Tan}[x]}}{\sqrt{2}}\right] \operatorname{Sin}[x]}{2 \sqrt{2} \sqrt{\operatorname{Sin}[2 x]} \sqrt{\operatorname{Tan}[x]}}$$

Result (type 4, 119 leaves):

$$\frac{1}{4} \sqrt{\operatorname{Sin}[2 x]} \left(\left(1+\frac{2 \operatorname{Cot}[x]}{3}\right) \operatorname{Csc}[x]+5 \sqrt{\frac{\operatorname{Cos}[x]}{-2+2 \operatorname{Cos}[x]}} \left(\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{1}{\sqrt{\operatorname{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]+\operatorname{EllipticPi}\left[-\frac{2}{-1+\sqrt{5}},-\operatorname{ArcSin}\left[\frac{1}{\sqrt{\operatorname{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]+\right.\right.$$

$$\left.\left.\operatorname{EllipticPi}\left[\frac{1}{2}\left(-1+\sqrt{5}\right),-\operatorname{ArcSin}\left[\frac{1}{\sqrt{\operatorname{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]\right) \operatorname{Sec}[x] \sqrt{\operatorname{Tan}\left[\frac{x}{2}\right]}\right)$$

Problem 635: Result unnecessarily involves higher level functions.

$$\int \frac{\operatorname{Cos}[x]^2 \operatorname{Sin}[x]}{\left(\operatorname{Sin}[x]^2-\operatorname{Sin}[2 x]\right) \operatorname{Sin}[2 x]^{5/2}}\,dx$$

Optimal (type 3, 79 leaves, 6 steps):

$$\frac{\operatorname{Cos}[x]^4 \operatorname{Sin}[x]}{3 \operatorname{Sin}[2 x]^{5/2}}+\frac{\operatorname{Cos}[x]^3 \operatorname{Sin}[x]^2}{2 \operatorname{Sin}[2 x]^{5/2}}-\frac{5 \operatorname{ArcTanh}\left[\frac{\sqrt{\operatorname{Tan}[x]}}{\sqrt{2}}\right] \operatorname{Sin}[x]^5}{2 \sqrt{2} \operatorname{Sin}[2 x]^{5/2} \operatorname{Tan}[x]^{5/2}}$$

Result (type 4, 139 leaves):

$$-\frac{1}{16\left(-1+2\,\text{Cot}[x]\right)}\text{Csc}[x]\left(2\,\text{Cos}[x]-\text{Sin}[x]\right)\sqrt{\text{Sin}[2\,x]}\left(-\frac{1}{3}\left(3+2\,\text{Cot}[x]\right)\text{Csc}[x]-5\sqrt{\frac{\text{Cos}[x]}{-2+2\,\text{Cos}[x]}}\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{\text{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]+\text{EllipticPi}\left[-\frac{2}{-1+\sqrt{5}},-\text{ArcSin}\left[\frac{1}{\sqrt{\text{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]+\text{EllipticPi}\left[\frac{1}{2}\left(-1+\sqrt{5}\right),-\text{ArcSin}\left[\frac{1}{\sqrt{\text{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]\right)\text{Sec}[x]\sqrt{\text{Tan}\left[\frac{x}{2}\right]}\right)$$

Problem 636: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Cos}[x]^3\,\text{Cos}[2\,x]}{\left(\text{Sin}[x]^2-\text{Sin}[2\,x]\right)\text{Sin}[2\,x]^{5/2}}\,dx$$

Optimal (type 3, 95 leaves, 6 steps):

$$\frac{\text{Cos}[x]^5}{5\,\text{Sin}[2\,x]^{5/2}}+\frac{\text{Cos}[x]^4\,\text{Sin}[x]}{6\,\text{Sin}[2\,x]^{5/2}}-\frac{3\,\text{Cos}[x]^3\,\text{Sin}[x]^2}{4\,\text{Sin}[2\,x]^{5/2}}+\frac{3\,\text{ArcTanh}\left[\frac{\sqrt{\text{Tan}[x]}}{\sqrt{2}}\right]\text{Sin}[x]^5}{4\sqrt{2}\,\text{Sin}[2\,x]^{5/2}\,\text{Tan}[x]^{5/2}}$$

Result (type 4, 188 leaves):

$$\frac{1}{960}\text{Sec}[x]\sqrt{\text{Sin}[2\,x]}\left(-114\,\text{Cot}[x]+20\,\text{Cot}[x]^2+24\,\text{Cot}[x]\,\text{Csc}[x]^2-45\sqrt{2}\sqrt{\frac{\text{Cos}[x]}{-1+\text{Cos}[x]}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{1}{\sqrt{\text{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]\sqrt{\text{Tan}\left[\frac{x}{2}\right]}-45\sqrt{2}\sqrt{\frac{\text{Cos}[x]}{-1+\text{Cos}[x]}}\,\text{EllipticPi}\left[-\frac{2}{-1+\sqrt{5}},-\text{ArcSin}\left[\frac{1}{\sqrt{\text{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]\sqrt{\text{Tan}\left[\frac{x}{2}\right]}-45\sqrt{2}\sqrt{\frac{\text{Cos}[x]}{-1+\text{Cos}[x]}}\,\text{EllipticPi}\left[\frac{1}{2}\left(-1+\sqrt{5}\right),-\text{ArcSin}\left[\frac{1}{\sqrt{\text{Tan}\left[\frac{x}{2}\right]}}\right],-1\right]\sqrt{\text{Tan}\left[\frac{x}{2}\right]}\right)$$

Problem 638: Result more than twice size of optimal antiderivative.

$$\int (b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 26 leaves, 1 step):

$$\frac{(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^4}{4\,d}$$

Result (type 3, 938 leaves):

$$\frac{8\,b^4\,\text{Cos}[c+d\,x]\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])}{d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3}+$$
$$\left(a^4\,\text{Cos}[4\,c]\,\text{Cos}[4\,d\,x]\,\text{Cos}[c+d\,x]^5\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3\right)+$$
$$\left(16\,a\,b^2\,\text{Cos}[c+d\,x]^3\,\text{Sec}[c]\,(3\,a\,\text{Cos}[c]+2\,b\,\text{Sin}[c])\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3\right)-$$
$$\left(4\,a^3\,\text{Cos}[2\,d\,x]\,\text{Cos}[c+d\,x]^5\,(a\,\text{Cos}[2\,c]+4\,b\,\text{Sin}[2\,c])\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3\right)+$$
$$\left(32\,a\,b^3\,\text{Cos}[c+d\,x]^2\,\text{Sec}[c]\,\text{Sin}[d\,x]\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3\right)+$$
$$\left(32\,a^3\,b\,\text{Cos}[c+d\,x]^4\,\text{Sec}[c]\,\text{Sin}[d\,x]\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3\right)+$$
$$\left(4\,a^3\,\text{Cos}[c+d\,x]^5\,(-4\,b\,\text{Cos}[2\,c]+a\,\text{Sin}[2\,c])\,\text{Sin}[2\,d\,x]\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3\right)-$$
$$\left(a^4\,\text{Cos}[c+d\,x]^5\,\text{Sin}[4\,c]\,\text{Sin}[4\,d\,x]\,(b\,\text{Sec}[c+d\,x]+a\,\text{Sin}[c+d\,x])^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(3\,a\,\text{Cos}[c+d\,x]+a\,\text{Cos}[3\,c+3\,d\,x]+4\,b\,\text{Sin}[c+d\,x])\,(2\,b+a\,\text{Sin}[2\,c+2\,d\,x])^3\right)$$

Problem 654: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]^3\,(a+b\,\text{Cos}[x]^2)^3\,\text{Sin}[x]\,dx$$

Optimal (type 3, 36 leaves, 4 steps):

$$\frac{a\left(a+b\,\mathrm{Cos}[x]^2\right)^4}{8\,b^2}-\frac{\left(a+b\,\mathrm{Cos}[x]^2\right)^5}{10\,b^2}$$

Result (type 3, 137 leaves):

$$\frac{1}{32}\left(-12\,a^2\,b\,\mathrm{Cos}[x]^4-8\,a\,b^2\,\mathrm{Cos}[x]^6-2\,b^3\,\mathrm{Cos}[x]^8-4\,a^3\,\mathrm{Cos}[2\,x]-4\,a^2\,b\,\mathrm{Cos}[x]^3\,\mathrm{Cos}[3\,x]-a^3\,\mathrm{Cos}[4\,x]-\frac{1}{32}\,a\,b^2\left(48\,\mathrm{Cos}[2\,x]+36\,\mathrm{Cos}[4\,x]+16\,\mathrm{Cos}[6\,x]+3\,\mathrm{Cos}[8\,x]\right)-\frac{1}{320}\,b^3\left(140\,\mathrm{Cos}[2\,x]+100\,\mathrm{Cos}[4\,x]+50\,\mathrm{Cos}[6\,x]+15\,\mathrm{Cos}[8\,x]+2\,\mathrm{Cos}[10\,x]\right)\right)$$

Problem 657: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cos}[x]^2\,\mathrm{Sin}[x]}{\sqrt{1-\mathrm{Cos}[x]^6}}\,dx$$

Optimal (type 3, 9 leaves, 3 steps):

$$-\frac{1}{3}\,\mathrm{ArcSin}\left[\mathrm{Cos}[x]^3\right]$$

Result (type 4, 162 leaves):

$$-\left(\left(i\,\mathrm{Cos}[x]^2\,\mathrm{EllipticPi}\left[\frac{3}{2}+\frac{i\sqrt{3}}{2},\,i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{2\,i}{-3\,i+\sqrt{3}}}\,\mathrm{Tan}[x]\right],\,\frac{3\,i-\sqrt{3}}{3\,i+\sqrt{3}}\right]\mathrm{Sin}[x]\,\sqrt{1-\frac{2\,i\,\mathrm{Tan}[x]^2}{-3\,i+\sqrt{3}}}\,\sqrt{1+\frac{2\,i\,\mathrm{Tan}[x]^2}{3\,i+\sqrt{3}}}\right)\Big/\left(\sqrt{2}\,\sqrt{-\frac{i}{-3\,i+\sqrt{3}}}\,\sqrt{1-\mathrm{Cos}[x]^6}\right)\right)$$

Problem 670: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[x]\,\sqrt{1+\mathrm{Csc}[x]}\,dx$$

Optimal (type 3, 21 leaves, 4 steps):

$$\mathrm{ArcTanh}\left[\sqrt{1+\mathrm{Csc}[x]}\right]+\sqrt{1+\mathrm{Csc}[x]}\,\mathrm{Sin}[x]$$

Result (type 6, 5067 leaves):

$$\text{Sin}[x]\sqrt{\text{Csc}[x]\,(1+\text{Sin}[x])}-\left(4\,\text{Cos}\left[\frac{x}{4}\right]^{3}\sqrt{1+\text{Csc}[x]}\,\text{Sin}\left[\frac{x}{4}\right]\left(\frac{\text{Cos}\left[\frac{x}{2}\right]\sqrt{1+\text{Csc}[x]}}{2\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)}-\frac{\sqrt{1+\text{Csc}[x]}\,\text{Sin}\left[\frac{x}{2}\right]}{2\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)}\right)\right.$$

$$\left(-\left(\left(75\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\middle/\left(5\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\right.\right.\right.$$

$$\left.\left.2\left(-2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)\right)+$$

$$\text{Tan}\left[\frac{x}{4}\right]\left(\left(70\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\middle/\left(7\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\right.\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)+$$

$$\left(27\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\text{Tan}\left[\frac{x}{4}\right]\right)\middle/\left(9\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\right.$$

$$\left.\left.\left.\left.2\left(-2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)\right)\right)\right)\right/$$

$$\left(15\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)\left(\frac{1}{15\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)^{2}}4\,\text{Cos}\left[\frac{x}{4}\right]^{3}\sqrt{1+\text{Csc}[x]}\,\text{Sin}\left[\frac{x}{4}\right]\left(\frac{1}{2}\text{Cos}\left[\frac{x}{2}\right]-\frac{1}{2}\text{Sin}\left[\frac{x}{2}\right]\right)\right.\right.$$

$$\left(-\left(\left(75\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\middle/\left(5\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+2\right.\right.\right.$$

$$\left.\left.\left(-2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)\right)+$$

$$\text{Tan}\left[\frac{x}{4}\right]\left(\left(70\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\middle/\left(7\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\right.\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)+$$

$$\left(27\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\text{Tan}\left[\frac{x}{4}\right]\right)\middle/\left(9\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\right.$$

$$\left.\left.\left.2\left(-2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)\right)\right)-$$

$$\frac{1}{15\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)}\text{Cos}\left[\frac{x}{4}\right]^{4}\sqrt{1+\text{Csc}[x]}\left(-\left(\left(75\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\middle/\left(5\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},\right.\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+2\left(-2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)\right)+$$

$$\text{Tan}\left[\frac{x}{4}\right]\left(\left(70\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\middle/\left(7\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\right.\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]+\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^{2},-\text{Tan}\left[\frac{x}{4}\right]^{2}\right]\right)\text{Tan}\left[\frac{x}{4}\right]^{2}\right)+$$

$$\left(27\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] \text{Tan}\left[\frac{x}{4}\right]\right) \Big/ \left(9\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] +\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{9}{4}, \frac{1}{2}, 2, \frac{13}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{9}{4}, \frac{3}{2}, 1, \frac{13}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right)\Bigg)\Bigg) +$$

$$\frac{1}{15\sqrt{1+\text{Csc}[x]}\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)} 2\,\text{Cos}\left[\frac{x}{4}\right]^3 \text{Cot}[x]\,\text{Csc}[x]\,\text{Sin}\left[\frac{x}{4}\right] \Bigg(-\Bigg(\left(75\,\text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + 2\right.$$

$$\left.\left(-2\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right)\Bigg) +$$

$$\text{Tan}\left[\frac{x}{4}\right] \Bigg(\left(70\,\text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \Big/ \left(7\,\text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] +\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right) +$$

$$\left(27\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] \text{Tan}\left[\frac{x}{4}\right]\right) \Big/ \left(9\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] +\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{9}{4}, \frac{1}{2}, 2, \frac{13}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{9}{4}, \frac{3}{2}, 1, \frac{13}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right)\Bigg)\Bigg) +$$

$$\frac{1}{5\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)} \text{Cos}\left[\frac{x}{4}\right]^2 \sqrt{1+\text{Csc}[x]}\,\text{Sin}\left[\frac{x}{4}\right]^2 \Bigg(-\Bigg(\left(75\,\text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + 2\right.$$

$$\left.\left(-2\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right)\Bigg) +$$

$$\text{Tan}\left[\frac{x}{4}\right] \Bigg(\left(70\,\text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \Big/ \left(7\,\text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] +\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right) +$$

$$\left(27\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] \text{Tan}\left[\frac{x}{4}\right]\right) \Big/ \left(9\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] +\right.$$

$$\left.2\left(-2\,\text{AppellF1}\left[\frac{9}{4}, \frac{1}{2}, 2, \frac{13}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{9}{4}, \frac{3}{2}, 1, \frac{13}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right)\Bigg)\Bigg) -$$

$$\frac{1}{15\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)} 4\,\text{Cos}\left[\frac{x}{4}\right]^3 \sqrt{1+\text{Csc}[x]}\,\text{Sin}\left[\frac{x}{4}\right] \Bigg(-\Bigg(\Bigg(75\left(-\frac{1}{10}\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] \text{Sec}\left[\frac{x}{4}\right]^2 \text{Tan}\left[\frac{x}{4}\right] +\right.$$

$$\left.\frac{1}{20}\text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] \text{Sec}\left[\frac{x}{4}\right]^2 \text{Tan}\left[\frac{x}{4}\right]\right)\Bigg)\Big/ \left(5\,\text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + 2\right.$$

$$\left.\left(-2\,\text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right] + \text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Tan}\left[\frac{x}{4}\right]^2, -\text{Tan}\left[\frac{x}{4}\right]^2\right]\right) \text{Tan}\left[\frac{x}{4}\right]^2\right)\Bigg) +$$

$$\frac{1}{4}\text{Sec}[\tfrac{x}{4}]^2\ \Big(\Big(70\,\text{AppellF1}[\tfrac{3}{4},\tfrac{1}{2},1,\tfrac{7}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\Big/\Big(7\,\text{AppellF1}[\tfrac{3}{4},\tfrac{1}{2},1,\tfrac{7}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$2\,\Big(-2\,\text{AppellF1}[\tfrac{7}{4},\tfrac{1}{2},2,\tfrac{11}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+\text{AppellF1}[\tfrac{7}{4},\tfrac{3}{2},1,\tfrac{11}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\,\text{Tan}[\tfrac{x}{4}]^2\Big)+$$

$$\Big(27\,\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Tan}[\tfrac{x}{4}]\Big)\Big/\Big(9\,\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$2\,\Big(-2\,\text{AppellF1}[\tfrac{9}{4},\tfrac{1}{2},2,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+\text{AppellF1}[\tfrac{9}{4},\tfrac{3}{2},1,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\,\text{Tan}[\tfrac{x}{4}]^2\Big)\Big)+$$

$$\Big(75\,\text{AppellF1}[\tfrac{1}{4},\tfrac{1}{2},1,\tfrac{5}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\ \Big(\Big(\Big(-2\,\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},2,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$\text{AppellF1}[\tfrac{5}{4},\tfrac{3}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]+5\,\Big(-\frac{1}{10}\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},2,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]$$

$$\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]+\frac{1}{20}\text{AppellF1}[\tfrac{5}{4},\tfrac{3}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]\Big)+2\,\text{Tan}[\tfrac{x}{4}]^2$$

$$\Big(-\frac{5}{18}\text{AppellF1}[\tfrac{9}{4},\tfrac{3}{2},2,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]+\frac{5}{12}\text{AppellF1}[\tfrac{9}{4},\tfrac{5}{2},1,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]$$

$$\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]-2\,\Big(-\frac{5}{9}\text{AppellF1}[\tfrac{9}{4},\tfrac{1}{2},3,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]+\frac{5}{36}$$

$$\text{AppellF1}[\tfrac{9}{4},\tfrac{3}{2},2,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]\Big)\Big)\Big)\Big)\Big)\Big/\Big(5\,\text{AppellF1}[\tfrac{1}{4},\tfrac{1}{2},1,\tfrac{5}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$2\,\Big(-2\,\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},2,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+\text{AppellF1}[\tfrac{5}{4},\tfrac{3}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\,\text{Tan}[\tfrac{x}{4}]^2\Big)^2+$$

$$\text{Tan}[\tfrac{x}{4}]\ \Big(\Big(70\,\Big(-\frac{3}{14}\text{AppellF1}[\tfrac{7}{4},\tfrac{1}{2},2,\tfrac{11}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]+\frac{3}{28}\text{AppellF1}[\tfrac{7}{4},\tfrac{3}{2},1,\tfrac{11}{4},$$

$$\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]\Big)\Big)\Big/\Big(7\,\text{AppellF1}[\tfrac{3}{4},\tfrac{1}{2},1,\tfrac{7}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$2\,\Big(-2\,\text{AppellF1}[\tfrac{7}{4},\tfrac{1}{2},2,\tfrac{11}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+\text{AppellF1}[\tfrac{7}{4},\tfrac{3}{2},1,\tfrac{11}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\,\text{Tan}[\tfrac{x}{4}]^2\Big)+$$

$$\Big(27\,\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\Big)\Big/\Big(4\,\Big(9\,\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$2\,\Big(-2\,\text{AppellF1}[\tfrac{9}{4},\tfrac{1}{2},2,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+\text{AppellF1}[\tfrac{9}{4},\tfrac{3}{2},1,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\,\text{Tan}[\tfrac{x}{4}]^2\Big)\Big)+$$

$$\Big(27\,\text{Tan}[\tfrac{x}{4}]\ \Big(-\frac{5}{18}\text{AppellF1}[\tfrac{9}{4},\tfrac{1}{2},2,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]+\frac{5}{36}\text{AppellF1}[\tfrac{9}{4},\tfrac{3}{2},1,$$

$$\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\,\text{Sec}[\tfrac{x}{4}]^2\,\text{Tan}[\tfrac{x}{4}]\Big)\Big)\Big/\Big(9\,\text{AppellF1}[\tfrac{5}{4},\tfrac{1}{2},1,\tfrac{9}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$2\,\Big(-2\,\text{AppellF1}[\tfrac{9}{4},\tfrac{1}{2},2,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+\text{AppellF1}[\tfrac{9}{4},\tfrac{3}{2},1,\tfrac{13}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\Big)\,\text{Tan}[\tfrac{x}{4}]^2\Big)-$$

$$\Big(70\,\text{AppellF1}[\tfrac{3}{4},\tfrac{1}{2},1,\tfrac{7}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]\ \Big(\Big(\Big(-2\,\text{AppellF1}[\tfrac{7}{4},\tfrac{1}{2},2,\tfrac{11}{4},\text{Tan}[\tfrac{x}{4}]^2,-\text{Tan}[\tfrac{x}{4}]^2]+$$

$$\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\Big)\,\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+7\,\Big(-\frac{3}{14}\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]$$

$$\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+\frac{3}{28}\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]\Big)\Big)+2\,\text{Tan}\left[\frac{x}{4}\right]^2$$

$$\Big(-\frac{7}{22}\text{AppellF1}\left[\frac{11}{4},\frac{3}{2},2,\frac{15}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+\frac{21}{44}\text{AppellF1}\Big[\frac{11}{4},\frac{5}{2},1,\frac{15}{4},\text{Tan}\left[\frac{x}{4}\right]^2,$$

$$-\text{Tan}\left[\frac{x}{4}\right]^2\Big]\,\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]-2\,\Big(-\frac{7}{11}\text{AppellF1}\left[\frac{11}{4},\frac{1}{2},3,\frac{15}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+\frac{7}{44}\text{AppellF1}\Big[$$

$$\frac{11}{4},\frac{3}{2},2,\frac{15}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\Big]\,\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]\Big)\Big)\Big)\Big)\Big/\Big(7\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]+$$

$$2\,\Big(-2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]+\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\Big)\,\text{Tan}\left[\frac{x}{4}\right]^2\Big)^2-$$

$$\Big(27\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\text{Tan}\left[\frac{x}{4}\right]\,\Big(\Big(\Big(-2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]+$$

$$\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\Big)\,\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+9\,\Big(-\frac{5}{18}\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]$$

$$\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+\frac{5}{36}\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]\Big)\Big)+2\,\text{Tan}\left[\frac{x}{4}\right]^2$$

$$\Big(-\frac{9}{26}\text{AppellF1}\left[\frac{13}{4},\frac{3}{2},2,\frac{17}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+\frac{27}{52}\text{AppellF1}\Big[\frac{13}{4},\frac{5}{2},1,\frac{17}{4},\text{Tan}\left[\frac{x}{4}\right]^2,$$

$$-\text{Tan}\left[\frac{x}{4}\right]^2\Big]\,\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]-2\,\Big(-\frac{9}{13}\text{AppellF1}\left[\frac{13}{4},\frac{1}{2},3,\frac{17}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]+\frac{9}{52}\text{AppellF1}\Big[$$

$$\frac{13}{4},\frac{3}{2},2,\frac{17}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\Big]\,\text{Sec}\left[\frac{x}{4}\right]^2\text{Tan}\left[\frac{x}{4}\right]\Big)\Big)\Big)\Big)\Big/\Big(9\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]+$$

$$2\,\Big(-2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]+\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Tan}\left[\frac{x}{4}\right]^2,-\text{Tan}\left[\frac{x}{4}\right]^2\right]\Big)\,\text{Tan}\left[\frac{x}{4}\right]^2\Big)^2\Big)\Big)\Big)\Big)$$

Problem 673: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[x]}{\sqrt{2\,\text{Sin}[x]+\text{Sin}[x]^2}}\,dx$$

Optimal (type 3, 19 leaves, 3 steps):

$$2\,\text{ArcTanh}\left[\frac{\text{Sin}[x]}{\sqrt{2\,\text{Sin}[x]+\text{Sin}[x]^2}}\right]$$

Result (type 3, 40 leaves):

$$\frac{2\,\text{ArcSinh}\left[\frac{\sqrt{\text{Sin}[x]}}{\sqrt{2}}\right]\sqrt{\text{Sin}[x]}\,\sqrt{2+\text{Sin}[x]}}{\sqrt{\text{Sin}[x]\,(2+\text{Sin}[x])}}$$

Problem 676: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Sec}[\text{Sin}[x]]\,dx$$

Optimal (type 3, 4 leaves, 2 steps):

$$\text{ArcTanh}[\text{Sin}[\text{Sin}[x]]]$$

Result (type 3, 37 leaves):

$$-\text{Log}\left[\text{Cos}\left[\frac{\text{Sin}[x]}{2}\right]-\text{Sin}\left[\frac{\text{Sin}[x]}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{\text{Sin}[x]}{2}\right]+\text{Sin}\left[\frac{\text{Sin}[x]}{2}\right]\right]$$

Problem 677: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[x]\,\text{Sin}[x]^3\,\left(a+b\,\text{Sin}[x]^2\right)^3\,dx$$

Optimal (type 3, 36 leaves, 4 steps):

$$-\frac{a\,\left(a+b\,\text{Sin}[x]^2\right)^4}{8\,b^2}+\frac{\left(a+b\,\text{Sin}[x]^2\right)^5}{10\,b^2}$$

Result (type 3, 128 leaves):

$$\frac{1}{10240}\left(-20\,\left(64\,a^3+24\,a\,b^2+7\,b^3\right)\,\text{Cos}[2\,x]+20\,\left(16\,a^3+18\,a\,b^2+5\,b^3\right)\,\text{Cos}[4\,x]+b\,\left(-10\,b\,\left(16\,a+5\,b\right)\,\text{Cos}[6\,x]+15\,b\,\left(2\,a+b\right)\,\text{Cos}[8\,x]-2\,b^2\,\text{Cos}[10\,x]+3840\,a^2\,\text{Sin}[x]^4+2560\,a\,b\,\text{Sin}[x]^6+640\,b^2\,\text{Sin}[x]^8-1280\,a^2\,\text{Sin}[x]^3\,\text{Sin}[3\,x]\right)\right)$$

Problem 691: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[x]^2}{1-\text{Tan}[x]^2}\,dx$$

Optimal (type 3, 11 leaves, 2 steps):

$$\frac{1}{2}\,\text{ArcTanh}[2\,\text{Cos}[x]\,\text{Sin}[x]]$$

Result (type 3, 23 leaves):

$$-\frac{1}{2}\,\text{Log}[\text{Cos}[x]-\text{Sin}[x]]+\frac{1}{2}\,\text{Log}[\text{Cos}[x]+\text{Sin}[x]]$$

Problem 705: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[x]^2\,\text{Tan}[x]^6\,\left(1+\text{Tan}[x]^2\right)^3\,dx$$

Optimal (type 3, 33 leaves, 4 steps):

$$\frac{\text{Tan}[x]^7}{7}+\frac{\text{Tan}[x]^9}{3}+\frac{3\,\text{Tan}[x]^{11}}{11}+\frac{\text{Tan}[x]^{13}}{13}$$

Result (type 3, 67 leaves):

$$-\frac{16\,\text{Tan}[x]}{3003}-\frac{8\,\text{Sec}[x]^2\,\text{Tan}[x]}{3003}-\frac{2\,\text{Sec}[x]^4\,\text{Tan}[x]}{1001}-\frac{5\,\text{Sec}[x]^6\,\text{Tan}[x]}{3003}+\frac{53}{429}\,\text{Sec}[x]^8\,\text{Tan}[x]-\frac{27}{143}\,\text{Sec}[x]^{10}\,\text{Tan}[x]+\frac{1}{13}\,\text{Sec}[x]^{12}\,\text{Tan}[x]$$

Problem 709: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[x]^2}{\sqrt{4-\text{Sec}[x]^2}}\,dx$$

Optimal (type 3, 9 leaves, 2 steps):

$$\text{ArcSin}\left[\frac{\text{Tan}[x]}{\sqrt{3}}\right]$$

Result (type 3, 43 leaves):

$$\frac{\text{ArcTan}\left[\frac{\text{Sin}[x]}{\sqrt{1+2\,\text{Cos}[2\,x]}}\right]\,\sqrt{1+2\,\text{Cos}[2\,x]}\,\,\text{Sec}[x]}{\sqrt{4-\text{Sec}[x]^2}}$$

Problem 710: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[x]^2}{\sqrt{1-4\,\text{Tan}[x]^2}}\,dx$$

Optimal (type 3, 9 leaves, 2 steps):

$$\frac{1}{2}\,\text{ArcSin}[2\,\text{Tan}[x]]$$

Result (type 3, 52 leaves) :

$$\frac{\text{ArcTan}\left[\frac{2\sqrt{2}\,\text{Sin}[x]}{\sqrt{-3+5\,\text{Cos}[2\,x]}}\right]\sqrt{-3+5\,\text{Cos}[2\,x]}\ \text{Sec}[x]}{2\sqrt{2-8\,\text{Tan}[x]^2}}$$

Problem 711: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Sec}[x]^2}{\sqrt{-4+\text{Tan}[x]^2}}\,dx$$

Optimal (type 3, 14 leaves, 3 steps) :

$$\text{ArcTanh}\left[\frac{\text{Tan}[x]}{\sqrt{-4+\text{Tan}[x]^2}}\right]$$

Result (type 3, 51 leaves) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{2}\,\text{Sin}[x]}{\sqrt{3+5\,\text{Cos}[2\,x]}}\right]\sqrt{3+5\,\text{Cos}[2\,x]}\ \text{Sec}[x]}{\sqrt{2}\sqrt{-4+\text{Tan}[x]^2}}$$

Problem 712: Result more than twice size of optimal antiderivative.

$$\int\sqrt{1-\text{Cot}[x]^2}\ \text{Sec}[x]^2\,dx$$

Optimal (type 3, 19 leaves, 3 steps) :

$$\text{ArcSin}[\text{Cot}[x]]+\sqrt{1-\text{Cot}[x]^2}\ \text{Tan}[x]$$

Result (type 3, 52 leaves) :

$$\left(-\text{ArcTan}\left[\frac{\text{Cos}[x]}{\sqrt{-\text{Cos}[2\,x]}}\right]\text{Cos}[x]\sqrt{-\text{Cos}[2\,x]}+\text{Cos}[2\,x]\right)\sqrt{1-\text{Cot}[x]^2}\ \text{Sec}[2\,x]\ \text{Tan}[x]$$

Problem 728: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[x]\,\text{Tan}[x]}{\sqrt{4+\text{Sec}[x]^2}}\,dx$$

Optimal (type 3, 5 leaves, 3 steps):

$$\text{ArcCsch}[2\,\text{Cos}[x]]$$

Result (type 3, 38 leaves):

$$\frac{\text{ArcTanh}\left[\sqrt{3+2\,\text{Cos}[2\,x]}\right]\sqrt{3+2\,\text{Cos}[2\,x]}\;\text{Sec}[x]}{\sqrt{4+\text{Sec}[x]^2}}$$

Problem 738: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[6\,x]\,\text{Csc}[6\,x]}{\left(5-11\,\text{Csc}[6\,x]^2\right)^2}\,dx$$

Optimal (type 3, 43 leaves, 3 steps):

$$-\frac{\text{ArcTanh}\left[\sqrt{\frac{5}{11}}\,\text{Sin}[6\,x]\right]}{60\,\sqrt{55}}+\frac{\text{Sin}[6\,x]}{60\,\left(11-5\,\text{Sin}[6\,x]^2\right)}$$

Result (type 3, 97 leaves):

$$\frac{1}{6600\,\left(17+5\,\text{Cos}[12\,x]\right)}\left(17\,\sqrt{55}\,\left(\text{Log}\left[\sqrt{55}-5\,\text{Sin}[6\,x]\right]-\text{Log}\left[\sqrt{55}+5\,\text{Sin}[6\,x]\right]\right)+5\,\sqrt{55}\,\text{Cos}[12\,x]\,\left(\text{Log}\left[\sqrt{55}-5\,\text{Sin}[6\,x]\right]-\text{Log}\left[\sqrt{55}+5\,\text{Sin}[6\,x]\right]\right)+220\,\text{Sin}[6\,x]\right)$$

Problem 759: Result more than twice size of optimal antiderivative.

$$\int \left(\text{Cos}[x]^{12}\,\text{Sin}[x]^{10}-\text{Cos}[x]^{10}\,\text{Sin}[x]^{12}\right)dx$$

Optimal (type 3, 12 leaves, ? steps):

$$\frac{1}{11}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^{11}$$

Result (type 3, 49 leaves):

$$\frac{21\,\text{Sin}[2\,x]}{1048576}-\frac{15\,\text{Sin}[6\,x]}{1048576}+\frac{15\,\text{Sin}[10\,x]}{2097152}-\frac{5\,\text{Sin}[14\,x]}{2097152}+\frac{\text{Sin}[18\,x]}{2097152}-\frac{\text{Sin}[22\,x]}{23068672}$$

Problem 779: Result more than twice size of optimal antiderivative.

$$\int 3\,x^2\,\text{Cos}\left[7+x^3\right]\,dx$$

Optimal (type 3, 6 leaves, 3 steps):

$$\text{Sin}\left[7+x^3\right]$$

Result (type 3, 23 leaves):

$$3\left(\frac{1}{3}\,\text{Cos}\left[x^3\right]\,\text{Sin}[7]+\frac{1}{3}\,\text{Cos}[7]\,\text{Sin}\left[x^3\right]\right)$$

Problem 781: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Sin}\left[1+x^2\right]\,dx$$

Optimal (type 3, 10 leaves, 2 steps):

$$-\frac{1}{2}\,\text{Cos}\left[1+x^2\right]$$

Result (type 3, 21 leaves):

$$-\frac{1}{2}\,\text{Cos}[1]\,\text{Cos}\left[x^2\right]+\frac{1}{2}\,\text{Sin}[1]\,\text{Sin}\left[x^2\right]$$

Problem 782: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Cos}\left[1+x^2\right]\,dx$$

Optimal (type 3, 10 leaves, 2 steps):

$$\frac{1}{2}\,\text{Sin}\left[1+x^2\right]$$

Result (type 3, 21 leaves):

$$\frac{1}{2}\,\text{Cos}\left[x^2\right]\,\text{Sin}[1]+\frac{1}{2}\,\text{Cos}[1]\,\text{Sin}\left[x^2\right]$$

Problem 784: Result more than twice size of optimal antiderivative.

$$\int x^2 \operatorname{Sin}[1 + x^3] \, dx$$

Optimal (type 3, 10 leaves, 2 steps):

$$-\frac{1}{3} \operatorname{Cos}[1 + x^3]$$

Result (type 3, 21 leaves):

$$-\frac{1}{3} \operatorname{Cos}[1] \operatorname{Cos}[x^3] + \frac{1}{3} \operatorname{Sin}[1] \operatorname{Sin}[x^3]$$

Problem 802: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[x] \, (1 - \operatorname{Sin}[x]) \, dx$$

Optimal (type 3, 5 leaves, 2 steps):

$$\operatorname{Log}[1 + \operatorname{Sin}[x]]$$

Result (type 3, 36 leaves):

$$\operatorname{Log}[\operatorname{Cos}[x]] - \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] - \operatorname{Sin}\left[\frac{x}{2}\right]\right] + \operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right] + \operatorname{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 803: Result more than twice size of optimal antiderivative.

$$\int (1 + \operatorname{Cos}[x]) \operatorname{Csc}[x] \, dx$$

Optimal (type 3, 7 leaves, 2 steps):

$$\operatorname{Log}[1 - \operatorname{Cos}[x]]$$

Result (type 3, 20 leaves):

$$-\operatorname{Log}\left[\operatorname{Cos}\left[\frac{x}{2}\right]\right] + \operatorname{Log}\left[\operatorname{Sin}\left[\frac{x}{2}\right]\right] + \operatorname{Log}[\operatorname{Sin}[x]]$$

Problem 805: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[2 x] \, (\operatorname{Cos}[x] + \operatorname{Sin}[x]) \, dx$$

Optimal (type 3, 15 leaves, 6 steps):

$$-\frac{1}{2}\text{ArcTanh}[\text{Cos}[x]]+\frac{1}{2}\text{ArcTanh}[\text{Sin}[x]]$$

Result (type 3, 61 leaves):

$$-\frac{1}{2}\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]-\frac{1}{2}\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\frac{1}{2}\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]+\frac{1}{2}\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]$$

Problem 806: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[x]\,(-3+2\,\text{Sin}[x])}{2-3\,\text{Sin}[x]+\text{Sin}[x]^2}\,dx$$

Optimal (type 3, 11 leaves, 2 steps):

$$\text{Log}\left[2-3\,\text{Sin}[x]+\text{Sin}[x]^2\right]$$

Result (type 3, 26 leaves):

$$2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}[2-\text{Sin}[x]]$$

Problem 807: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[x]^2\,\text{Sin}[x]}{5+\text{Cos}[x]^2}\,dx$$

Optimal (type 3, 20 leaves, 3 steps):

$$\sqrt{5}\,\text{ArcTan}\left[\frac{\text{Cos}[x]}{\sqrt{5}}\right]-\text{Cos}[x]$$

Result (type 3, 82 leaves):

$$\frac{1}{20}\left(-\sqrt{5}\,\text{ArcTan}\left[\frac{\text{Cos}[x]}{\sqrt{5}}\right]+21\,\sqrt{5}\,\text{ArcTan}\left[\frac{1}{\sqrt{5}}-\sqrt{\frac{6}{5}}\,\text{Tan}\left[\frac{x}{2}\right]\right]+21\,\sqrt{5}\,\text{ArcTan}\left[\frac{1}{\sqrt{5}}+\sqrt{\frac{6}{5}}\,\text{Tan}\left[\frac{x}{2}\right]\right]-20\,\text{Cos}[x]\right)$$

Problem 825: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Sec}\left[5-x^2\right]\,dx$$

Optimal (type 3, 13 leaves, 2 steps):

$-\frac{1}{2}$ ArcTanh[Sin[5 - x^2]]

Result (type 3, 63 leaves):

$\frac{1}{2}$ Log[Cos[$\frac{5}{2}-\frac{x^2}{2}$] - Sin[$\frac{5}{2}-\frac{x^2}{2}$]] - $\frac{1}{2}$ Log[Cos[$\frac{5}{2}-\frac{x^2}{2}$] + Sin[$\frac{5}{2}-\frac{x^2}{2}$]]

Problem 826: Result more than twice size of optimal antiderivative.

$\int \frac{\text{Csc}\left[\frac{1}{x}\right]}{x^2}\,dx$

Optimal (type 3, 5 leaves, 2 steps):

ArcTanh[Cos[$\frac{1}{x}$]]

Result (type 3, 21 leaves):

Log[Cos[$\frac{1}{2x}$]] - Log[Sin[$\frac{1}{2x}$]]

Problem 834: Result more than twice size of optimal antiderivative.

$\int 35\,\text{Cos}[x]^3\,\text{Sin}[x]^4\,dx$

Optimal (type 3, 13 leaves, 4 steps):

7 Sin[x]^5 - 5 Sin[x]^7

Result (type 3, 33 leaves):

35 $\left(\frac{3\,\text{Sin}[x]}{64}-\frac{1}{64}\,\text{Sin}[3x]-\frac{1}{320}\,\text{Sin}[5x]+\frac{1}{448}\,\text{Sin}[7x]\right)$

Problem 850: Result more than twice size of optimal antiderivative.

$\int \frac{\text{Tan}[c+d\,x]}{\sqrt{a\,\text{Sin}[c+d\,x]^2}}\,dx$

Optimal (type 3, 30 leaves, 3 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a\,\text{Sin}[c+d\,x]^2}}{\sqrt{a}}\right]}{\sqrt{a}\;d}$$

Result (type 3, 73 leaves) :

$$\frac{\left(-\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)\,\text{Sin}[c+d\,x]}{d\,\sqrt{a\,\text{Sin}[c+d\,x]^2}}$$

Problem 861: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[x]\,\sqrt{\text{Sec}[x]+\text{Tan}[x]}\,dx$$

Optimal (type 3, 13 leaves, 4 steps) :

$$2\,\sqrt{\text{Sec}[x]\,(1+\text{Sin}[x])}$$

Result (type 3, 37 leaves) :

$$2\,\sqrt{\frac{\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]}{\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]}}$$

Problem 885: Result more than twice size of optimal antiderivative.

$$\int (-\text{Cos}[x]+\text{Sin}[x])\,(\text{Cos}[x]+\text{Sin}[x])^5\,dx$$

Optimal (type 3, 11 leaves, 1 step) :

$$-\frac{1}{6}\,(\text{Cos}[x]+\text{Sin}[x])^6$$

Result (type 3, 25 leaves) :

$$\frac{1}{4}\,\text{Cos}[4\,x]-\frac{5}{8}\,\text{Sin}[2\,x]+\frac{1}{24}\,\text{Sin}[6\,x]$$

Problem 894: Result more than twice size of optimal antiderivative.

$$\int \text{Sin}[x]\,\text{Tan}[x]^5\,dx$$

Optimal (type 3, 34 leaves, 5 steps) :

$$\frac{15}{8}\,\text{ArcTanh}[\text{Sin}[x]]-\frac{15\,\text{Sin}[x]}{8}-\frac{5}{8}\,\text{Sin}[x]\,\text{Tan}[x]^2+\frac{1}{4}\,\text{Sin}[x]\,\text{Tan}[x]^4$$

Result (type 3, 113 leaves):

$$\frac{1}{16}\left(-30\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+30\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+\frac{1}{\left(\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right)^4}-\frac{9}{\left(\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right)^2}-\frac{1}{\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)^4}+\frac{9}{\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)^2}-16\,\text{Sin}[x]\right)$$

Problem 904: Result more than twice size of optimal antiderivative.

$$\int x\,\text{Sec}[1+x]\,\text{Tan}[1+x]\,dx$$

Optimal (type 3, 14 leaves, 2 steps):

$$-\text{ArcTanh}[\text{Sin}[1+x]]+x\,\text{Sec}[1+x]$$

Result (type 3, 47 leaves):

$$\text{Log}\left[\text{Cos}\left[\frac{1+x}{2}\right]-\text{Sin}\left[\frac{1+x}{2}\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1+x}{2}\right]+\text{Sin}\left[\frac{1+x}{2}\right]\right]+x\,\text{Sec}[1+x]$$

Problem 906: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[2\,x]}{\sqrt{9-\text{Cos}[x]^4}}\,dx$$

Optimal (type 3, 11 leaves, 5 steps):

$$-\text{ArcSin}\left[\frac{\text{Cos}[x]^2}{3}\right]$$

Result (type 3, 26 leaves):

$$i\,\text{Log}\left[i\,\text{Cos}[x]^2+\sqrt{9-\text{Cos}[x]^4}\right]$$

Problem 910: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{-1+\text{Sec}[x]}{1-\text{Tan}[x]}\,dx$$

Optimal (type 3, 37 leaves, 6 steps):

$$-\frac{x}{2}+\frac{\text{ArcTanh}\left[\frac{\text{Cos}[x]\,(1+\text{Tan}[x])}{\sqrt{2}}\right]}{\sqrt{2}}+\frac{1}{2}\,\text{Log}[\text{Cos}[x]-\text{Sin}[x]]$$

Result (type 3, 40 leaves):

$$\frac{1}{2}\left(-x+(2-2\,i)\,(-1)^{1/4}\,\text{ArcTanh}\left[\frac{1+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]+\text{Log}[\text{Cos}[x]-\text{Sin}[x]]\right)$$

Problem 912: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Cos}[x]+\text{Sin}[x]}{\sqrt{\text{Cos}[x]}\,\sqrt{\text{Sin}[x]}}\,dx$$

Optimal (type 3, 57 leaves, ? steps):

$$-\sqrt{2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}\right]+\sqrt{2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}\right]$$

Result (type 5, 68 leaves):

$$-\frac{1}{3\,\left(\text{Sin}[x]^2\right)^{3/4}}$$
$$2\,\sqrt{\text{Cos}[x]}\,\sqrt{\text{Sin}[x]}\,\left(3\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\text{Cos}[x]^2\right]\text{Sin}[x]+\text{Cos}[x]\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Cos}[x]^2\right]\sqrt{\text{Sin}[x]^2}\right)$$

Problem 927: Result more than twice size of optimal antiderivative.

$$\int x^5\,\text{Sec}\left[a+b\,x^3\right]^7\,\text{Tan}\left[a+b\,x^3\right]\,dx$$

Optimal (type 3, 110 leaves, 6 steps):

$$-\frac{5\,\text{ArcTanh}\left[\text{Sin}\left[a+b\,x^3\right]\right]}{336\,b^2}+\frac{x^3\,\text{Sec}\left[a+b\,x^3\right]^7}{21\,b}-\frac{5\,\text{Sec}\left[a+b\,x^3\right]\,\text{Tan}\left[a+b\,x^3\right]}{336\,b^2}-\frac{5\,\text{Sec}\left[a+b\,x^3\right]^3\,\text{Tan}\left[a+b\,x^3\right]}{504\,b^2}-\frac{\text{Sec}\left[a+b\,x^3\right]^5\,\text{Tan}\left[a+b\,x^3\right]}{126\,b^2}$$

Result (type 3, 352 leaves):

$$\frac{1}{64512\, b^2} \text{Sec}\left[a+b x^3\right]^7 \left(3072\, b x^3+105 \text{Cos}\left[5 \left(a+b x^3\right)\right] \text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]-\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]+15 \text{Cos}\left[7 \left(a+b x^3\right)\right] \text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]-\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]+ 525 \text{Cos}\left[a+b x^3\right] \left(\text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]-\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]+\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]\right)+ 315 \text{Cos}\left[3 \left(a+b x^3\right)\right] \left(\text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]-\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]+\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]\right)- 105 \text{Cos}\left[5 \left(a+b x^3\right)\right] \text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]+\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]-15 \text{Cos}\left[7 \left(a+b x^3\right)\right] \text{Log}\left[\text{Cos}\left[\frac{1}{2} \left(a+b x^3\right)\right]+\text{Sin}\left[\frac{1}{2} \left(a+b x^3\right)\right]\right]- 566 \text{Sin}\left[2 \left(a+b x^3\right)\right]-200 \text{Sin}\left[4 \left(a+b x^3\right)\right]-30 \text{Sin}\left[6 \left(a+b x^3\right)\right]\right)$$

Problem 943: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[a+b x]^4-\text{Sin}[a+b x]^4}{\text{Cos}[a+b x]^4+\text{Sin}[a+b x]^4} \, dx$$

Optimal (type 3, 72 leaves, 4 steps):

$$-\frac{\text{Log}\left[1-\sqrt{2}\ \text{Tan}[a+b x]+\text{Tan}[a+b x]^2\right]}{2 \sqrt{2}\ b}+\frac{\text{Log}\left[1+\sqrt{2}\ \text{Tan}[a+b x]+\text{Tan}[a+b x]^2\right]}{2 \sqrt{2}\ b}$$

Result (type 3, 102 leaves):

$$-\frac{i \left(-2 i+5 \sqrt{2}\right) \left(\text{Log}\left[-1-2 i \sqrt{2}\ e^{2 i (a+b x)}+e^{4 i (a+b x)}\right]-\text{Log}\left[-1+2 i \sqrt{2}\ e^{2 i (a+b x)}+e^{4 i (a+b x)}\right]\right)}{4 \left(5 i+\sqrt{2}\right) b}$$

Problem 945: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[a+b x]^2-\text{Sin}[a+b x]^2}{\text{Cos}[a+b x]^2+\text{Sin}[a+b x]^2} \, dx$$

Optimal (type 3, 16 leaves, 6 steps):

$$\frac{\text{Cos}[a+b x]\ \text{Sin}[a+b x]}{b}$$

Result (type 3, 33 leaves):

$$\frac{\text{Cos}[2 b x]\ \text{Sin}[2 a]}{2 b}+\frac{\text{Cos}[2 a]\ \text{Sin}[2 b x]}{2 b}$$

Problem 950: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{-\text{Csc}[a+b x]^4+\text{Sec}[a+b x]^4}{\text{Csc}[a+b x]^4+\text{Sec}[a+b x]^4} \, dx$$

Optimal (type 3, 72 leaves, 4 steps):

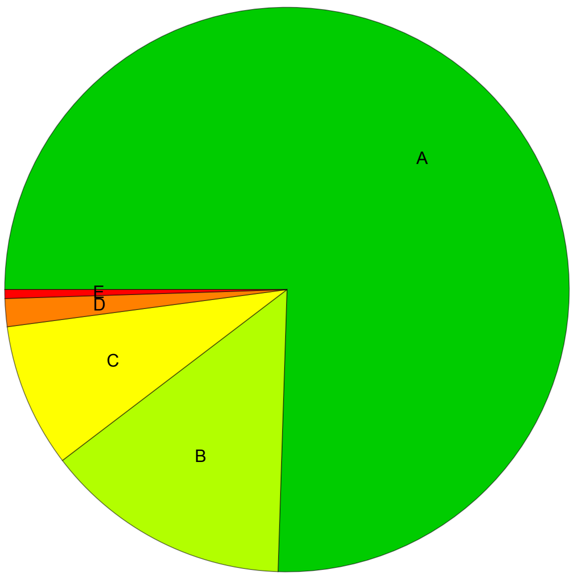
$$\frac{\text{Log}\left[1-\sqrt{2}\ \text{Tan}[a+b x]+\text{Tan}[a+b x]^2\right]}{2 \sqrt{2}\ b}-\frac{\text{Log}\left[1+\sqrt{2}\ \text{Tan}[a+b x]+\text{Tan}[a+b x]^2\right]}{2 \sqrt{2}\ b}$$

Result (type 3, 102 leaves):

$$\frac{i \left(-2 i+5 \sqrt{2}\right) \left(\text{Log}\left[-1-2 i \sqrt{2}\ e^{2 i (a+b x)}+e^{4 i (a+b x)}\right]-\text{Log}\left[-1+2 i \sqrt{2}\ e^{2 i (a+b x)}+e^{4 i (a+b x)}\right]\right)}{4 \left(5 i+\sqrt{2}\right) b}$$

Summary of Integration Test Results

2376 integration problems



A - 1794 optimal antiderivatives

B - 336 more than twice size of optimal antiderivatives

C - 196 unnecessarily complex antiderivatives

D - 38 unable to integrate problems

E - 12 integration timeouts