Mathematica 11.3 Integration Test Results

Test results for the 653 problems in "4.1.1.2 (g cos)^p (a+b sin)^m.m"

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

$$\int \text{Sec}[c+d x] \, (a+a \, \text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 17 leaves, 2 steps):

$$-\frac{a \, \text{Log}[1-\text{Sin}[c+d x]]}{d}$$

Result (type 3, 83 leaves):

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

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

$$\int \text{Sec}[c+d x]^3 \, (a+a \, \text{Sin}[c+d x]) \, dx$$

Optimal (type 3, 39 leaves, 4 steps):

$$\frac{a \, \text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}+\frac{a^2}{2 d \, (a-a \, \text{Sin}[c+d x])}$$

Result (type 3, 143 leaves):

$$-\frac{a \, \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{2 d}+\frac{a \, \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{2 d}+\frac{a \, \text{Sec}[c+d x]^2}{2 d}+\frac{a}{4 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{a}{4 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}$$

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

$$\int \text{Sec}[c+d x]^5 \, (a+a \, \text{Sin}[c+d x]) \, dx$$

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

$$\frac{3\,a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{a^3}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{a^2}{4\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^2}{8\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 207 leaves):

$$-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{a\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{3\,a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{3\,a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$

Problem 20: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 38 leaves, 3 steps):

$$-a^2\,x+\frac{2\,a^4\,\text{Cos}[c+d\,x]}{d\,(a^2-a^2\,\text{Sin}[c+d\,x])}$$

Result (type 3, 101 leaves):

$$-\left(\left(a^2\,\left((c+d\,x)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-(4+c+d\,x)\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(1+\text{Sin}[c+d\,x])^2\right)\Big/\left(d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right)\right)$$

Problem 25: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^7\,(a+a\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 109 leaves, 4 steps):

$$\frac{a^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{4\,d}+\frac{a^5}{12\,d\,(a-a\,\text{Sin}[c+d\,x])^3}+\frac{a^4}{8\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{3\,a^3}{16\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^3}{16\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 290 leaves):

$$\left(\left(-3-12\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+12\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+\frac{4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{6\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{9\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\,(a+a\,\text{Sin}[c+d\,x])^2\right)\Bigg/\left(48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\right)$$

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

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

Optimal (type 3, 22 leaves, 2 steps):

$$\frac{(a+a\,\text{Sin}[c+d\,x])^4}{4\,a\,d}$$

Result (type 3, 47 leaves):

$$\frac{1}{32\,d}a^3\,\left(-28\,\text{Cos}\left[2\,(c+d\,x)\right]+\text{Cos}\left[4\,(c+d\,x)\right]+56\,\text{Sin}[c+d\,x]-8\,\text{Sin}\left[3\,(c+d\,x)\right]\right)$$

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

$$\int \text{Sec}[c+d\,x]^3\,(a+a\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 3, 40 leaves, 3 steps):

$$\frac{a^3\,\text{Log}[1-\text{Sin}[c+d\,x]]}{d}+\frac{2\,a^4}{d\,(a-a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 92 leaves):

$$-\left(\left(2\,a^3\,\left(-1-\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]\right)\right)\Bigg/\left(d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\right)$$

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

$$\int \text{Cos}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])^8\,dx$$

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

$$\frac{4\,(a+a\,\text{Sin}[c+d\,x])^{11}}{11\,a^3\,d}-\frac{(a+a\,\text{Sin}[c+d\,x])^{12}}{3\,a^4\,d}+\frac{(a+a\,\text{Sin}[c+d\,x])^{13}}{13\,a^5\,d}$$

Result (type 3, 139 leaves):

$$-\frac{1}{1757184\,d}a^8\,(4434144\,\text{Cos}[2\,(c+d\,x)]+815100\,\text{Cos}[4\,(c+d\,x)]-354640\,\text{Cos}[6\,(c+d\,x)]-92664\,\text{Cos}[8\,(c+d\,x)]+20592\,\text{Cos}[10\,(c+d\,x)]-572\,\text{Cos}[12\,(c+d\,x)]-8314020\,\text{Sin}[c+d\,x]+877591\,\text{Sin}[3\,(c+d\,x)]+872157\,\text{Sin}[5\,(c+d\,x)]+6006\,\text{Sin}[7\,(c+d\,x)]-58630\,\text{Sin}[9\,(c+d\,x)]+4485\,\text{Sin}[11\,(c+d\,x)]-33\,\text{Sin}[13\,(c+d\,x)])$$

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

$$\int\text{Cos}[c+d\,x]^3\,(a+a\,\text{Sin}[c+d\,x])^8\,dx$$

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

$$\frac{(a+a\,\text{Sin}[c+d\,x])^{10}}{5\,a^2\,d}-\frac{(a+a\,\text{Sin}[c+d\,x])^{11}}{11\,a^3\,d}$$

Result (type 3, 109 leaves):

$$\frac{1}{56320\,d}a^8\,(-284240\,\text{Cos}[2\,(c+d\,x)]+25080\,\text{Cos}[6\,(c+d\,x)]-3520\,\text{Cos}[8\,(c+d\,x)]+88\,\text{Cos}[10\,(c+d\,x)]+461890\,\text{Sin}[c+d\,x]-106590\,\text{Sin}[3\,(c+d\,x)]-31977\,\text{Sin}[5\,(c+d\,x)]+11495\,\text{Sin}[7\,(c+d\,x)]-715\,\text{Sin}[9\,(c+d\,x)]+5\,\text{Sin}[11\,(c+d\,x)])$$

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

$$\int\text{Cos}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^8\,dx$$

Optimal (type 3, 22 leaves, 2 steps):

$$\frac{(a+a\,\text{Sin}[c+d\,x])^9}{9\,a\,d}$$

Result (type 3, 97 leaves):

$$\frac{1}{2304\,d}a^8\,(-31824\,\text{Cos}[2\,(c+d\,x)]+8568\,\text{Cos}[4\,(c+d\,x)]-816\,\text{Cos}[6\,(c+d\,x)]+18\,\text{Cos}[8\,(c+d\,x)]+43758\,\text{Sin}[c+d\,x]-18564\,\text{Sin}[3\,(c+d\,x)]+3060\,\text{Sin}[5\,(c+d\,x)]-153\,\text{Sin}[7\,(c+d\,x)]+\text{Sin}[9\,(c+d\,x)])$$

Problem 49: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8\,dx$$

Optimal (type 3, 179 leaves, 8 steps):

$$\frac{1155\,a^8\,x}{8}-\frac{385\,a^8\,\text{Cos}[c+d\,x]^3}{4\,d}+\frac{1155\,a^8\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{8\,d}+\frac{2\,a^{15}\,\text{Cos}[c+d\,x]^{11}}{3\,d\,\left(a-a\,\text{Sin}[c+d\,x]\right)^7}-\frac{22\,a^{13}\,\text{Cos}[c+d\,x]^9}{3\,d\,\left(a-a\,\text{Sin}[c+d\,x]\right)^5}-\frac{66\,a^{14}\,\text{Cos}[c+d\,x]^7}{d\,\left(a^2-a^2\,\text{Sin}[c+d\,x]\right)^3}-\frac{231\,a^{16}\,\text{Cos}[c+d\,x]^5}{4\,d\,\left(a^8-a^8\,\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 465 leaves):

$$\frac{1155\,(c+d\,x)\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8}{8\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}}-\frac{78\,\text{Cos}[c+d\,x]\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}}+\frac{2\,\text{Cos}\left[3\,(c+d\,x)\right]\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}}+\left(64\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8\right)\Big/\left(3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}\right)+\left(128\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8\right)\Big/\left(3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}\right)-\left(1024\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8\right)\Big/\left(3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}\right)-\frac{31\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8\,\text{Sin}\left[2\,(c+d\,x)\right]}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}}+\frac{\left(a+a\,\text{Sin}[c+d\,x]\right)^8\,\text{Sin}\left[4\,(c+d\,x)\right]}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{16}}$$

Problem 50: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^5\,\left(a+a\,\text{Sin}[c+d\,x]\right)^8\,dx$$

Optimal (type 3, 110 leaves, 3 steps):

$$-\frac{80\,a^8\,\text{Log}\left[1-\text{Sin}[c+d\,x]\right]}{d}-\frac{31\,a^8\,\text{Sin}[c+d\,x]}{d}-\frac{4\,a^8\,\text{Sin}[c+d\,x]^2}{d}-\frac{a^8\,\text{Sin}[c+d\,x]^3}{3\,d}+\frac{16\,a^{10}}{d\,\left(a-a\,\text{Sin}[c+d\,x]\right)^2}-\frac{80\,a^9}{d\,\left(a-a\,\text{Sin}[c+d\,x]\right)}$$

Result (type 3, 341 leaves):

$$\frac{2\,\text{Cos}[2\,(c+d\,x)]\,(a+a\,\text{Sin}[c+d\,x])^8}{d\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]+\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^{16}}-\frac{160\,\text{Log}\left[\text{Cos}[\frac{1}{2}\,(c+d\,x)]-\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right]\,(a+a\,\text{Sin}[c+d\,x])^8}{d\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]+\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^{16}}+\left(16\,(a+a\,\text{Sin}[c+d\,x])^8\right)\Big/\left(d\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]-\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^4\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]+\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^{16}\right)-\left(80\,(a+a\,\text{Sin}[c+d\,x])^8\right)\Big/\left(d\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]-\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^2\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]+\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^{16}\right)-\frac{125\,\text{Sin}[c+d\,x]\,(a+a\,\text{Sin}[c+d\,x])^8}{4\,d\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]+\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^{16}}+\frac{(a+a\,\text{Sin}[c+d\,x])^8\,\text{Sin}[3\,(c+d\,x)]}{12\,d\,\left(\text{Cos}[\frac{1}{2}\,(c+d\,x)]+\text{Sin}[\frac{1}{2}\,(c+d\,x)]\right)^{16}}$$

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

$$\int \frac{\text{Sec}[c+d\,x]}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 37 leaves, 4 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,a\,d}-\frac{1}{2\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 126 leaves):

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

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

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

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

$$-\frac{\text{Sec}[c+d\,x]}{3\,d\,(a+a\,\text{Sin}[c+d\,x])}+\frac{2\,\text{Tan}[c+d\,x]}{3\,a\,d}$$

Result (type 3, 103 leaves):

$$\left(2\,\text{Cos}[c+d\,x]-4\,\text{Cos}[2\,(c+d\,x)]+8\,\text{Sin}[c+d\,x]+\text{Sin}[2\,(c+d\,x)]\right)\Big/\left(12\,a\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(1+\text{Sin}[c+d\,x])\right)$$

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

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

Optimal (type 3, 77 leaves, 4 steps):

$$\frac{3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,a\,d}+\frac{1}{8\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^2}-\frac{1}{4\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 190 leaves):

$$-\left(\left(\left(2+\frac{1}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\Big/\left(8\,d\,(a+a\,\text{Sin}[c+d\,x])\right)\right)$$

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

$$\int\frac{\text{Sec}[c+d\,x]^5}{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 120 leaves, 4 steps):

$$\frac{5\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{16\,a\,d}+\frac{a}{32\,d\,(a-a\,\text{Sin}[c+d\,x])^2}+\frac{1}{8\,d\,(a-a\,\text{Sin}[c+d\,x])}-\frac{a^2}{24\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{3\,a}{32\,d\,(a+a\,\text{Sin}[c+d\,x])^2}-\frac{3}{16\,d\,(a+a\,\text{Sin}[c+d\,x])}$$

Result (type 3, 267 leaves):

$$\frac{1}{96\, d\, (a + a\, \text{Sin}[c + d\, x])}\left(-18 - \frac{4}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^4} - \frac{9}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2} - 30\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2 + 30\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2 + \frac{3\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^4} + \frac{12\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] + \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c + d\, x)\right] - \text{Sin}\left[\frac{1}{2}(c + d\, x)\right]\right)^2}\right)$$

Problem 68: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 34 leaves, 2 steps):

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

Result (type 3, 75 leaves):

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

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

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

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

$$\frac{\text{ArcTanh}[\text{Sin}[c + d\, x]]}{4\, a^2\, d} - \frac{1}{4\, d\, (a + a\, \text{Sin}[c + d\, x])^2} - \frac{1}{4\, d\left(a^2 + a^2\, \text{Sin}[c + d\, x]\right)}$$

Result (type 3, 139 leaves):

$$-\left(\left(1+\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\right)\Big/\left(4\,d\,(a+a\,\text{Sin}[c+d\,x])^2\right)\right)$$

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

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

Optimal (type 3, 104 leaves, 4 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[c+d\,x]]}{4\,a^2\,d}-\frac{a}{12\,d\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{1}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^2}+\frac{1}{16\,d\,(a^2-a^2\,\text{Sin}[c+d\,x])}-\frac{3}{16\,d\,(a^2+a^2\,\text{Sin}[c+d\,x])}$$

Result (type 3, 217 leaves):

$$-\left(\left(6+\frac{4}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+9\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+12\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4-12\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4-\frac{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Big/\left(48\,d\,(a+a\,\text{Sin}[c+d\,x])^2\right)\right)$$

Problem 76: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d\,x]^7}{(a+a\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 3, 23 leaves, 2 steps):

$$-\frac{(a-a\,\text{Sin}[c+d\,x])^4}{4\,a^7\,d}$$

Result (type 3, 48 leaves):

$$-\frac{1}{32\,a^3\,d}\left(-28\,\text{Cos}[2\,(c+d\,x)]+\text{Cos}[4\,(c+d\,x)]+8\,(-7\,\text{Sin}[c+d\,x]+\text{Sin}[3\,(c+d\,x)])\right)$$

Problem 80: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 39 leaves, 3 steps):

$$-\frac{\text{Log}[1+\text{Sin}[c+d x]]}{a^3 d}-\frac{2}{d \left(a^3+a^3 \text{Sin}[c+d x]\right)}$$

Result (type 3, 89 leaves):

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

Problem 81: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 27 leaves, 1 step):

$$-\frac{\text{Cos}[c+d x]^3}{3 d (a+a \text{Sin}[c+d x])^3}$$

Result (type 3, 66 leaves):

$$\left(\left(-3 \text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Cos}\left[\frac{3}{2} (c+d x)\right]\right) \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3\right) \Big/ \left(3 a^3 d (1+\text{Sin}[c+d x])^3\right)$$

Problem 83: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]}{(a+a \text{Sin}[c+d x])^3} \, dx$$

Optimal (type 3, 82 leaves, 4 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[c+d x]]}{8 a^3 d}-\frac{1}{6 d (a+a \text{Sin}[c+d x])^3}-\frac{1}{8 a d (a+a \text{Sin}[c+d x])^2}-\frac{1}{8 d \left(a^3+a^3 \text{Sin}[c+d x]\right)}$$

Result (type 3, 167 leaves):

$$-\left(\left(4+3\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2+3\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4+3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6-3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\right)\Big/\left(24\,d\,(a+a\,\text{Sin}[c+d x])^3\right)\right)$$

Problem 88: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^8}{(a+a\,\text{Sin}[c+d x])^8}\,dx$$

Optimal (type 3, 127 leaves, 5 steps):

$$\frac{x}{a^8}-\frac{2\,\text{Cos}[c+d x]^7}{7\,a\,d\,(a+a\,\text{Sin}[c+d x])^7}+\frac{2\,\text{Cos}[c+d x]^5}{5\,a^3\,d\,(a+a\,\text{Sin}[c+d x])^5}-\frac{2\,\text{Cos}[c+d x]^3}{3\,a^2\,d\,(a^2+a^2\,\text{Sin}[c+d x])^3}+\frac{2\,\text{Cos}[c+d x]}{d\,(a^8+a^8\,\text{Sin}[c+d x])}$$

Result (type 3, 263 leaves):

$$\frac{1}{105\,d\,(a+a\,\text{Sin}[c+d x])^8}\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^9\left(480\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]-240\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)-1056\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2+528\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3+976\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4-488\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5-704\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6+105\,(c+d x)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7\right)$$

Problem 90: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^6}{(a+a\,\text{Sin}[c+d x])^8}\,dx$$

Optimal (type 3, 58 leaves, 2 steps):

$$-\frac{\text{Cos}[c+d x]^7}{9\,d\,(a+a\,\text{Sin}[c+d x])^8}-\frac{\text{Cos}[c+d x]^7}{63\,a\,d\,(a+a\,\text{Sin}[c+d x])^7}$$

Result (type 3, 128 leaves):

$$-\left(\left(315\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-189\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-63\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]+9\,\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]-189\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-105\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]+27\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{9}{2}\,(c+d\,x)\right]\right)\Big/\left(504\,a^8\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^9\right)\right)$$

Problem 101: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^7\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,dx$$

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

$$\frac{16\,(a+a\,\text{Sin}[c+d\,x])^{9/2}}{9\,a^4\,d}-\frac{24\,(a+a\,\text{Sin}[c+d\,x])^{11/2}}{11\,a^5\,d}+\frac{12\,(a+a\,\text{Sin}[c+d\,x])^{13/2}}{13\,a^6\,d}-\frac{2\,(a+a\,\text{Sin}[c+d\,x])^{15/2}}{15\,a^7\,d}$$

Result (type 3, 1137 leaves):

$$\frac{35\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{64\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$
$$\frac{35\,\text{Cos}\left[\frac{3\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{3\,c}{2}\right]-\text{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{192\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$
$$\frac{21\,\text{Cos}\left[\frac{5\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{5\,c}{2}\right]+\text{Sin}\left[\frac{5\,c}{2}\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{320\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$
$$\frac{3\,\text{Cos}\left[\frac{7\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{7\,c}{2}\right]-\text{Sin}\left[\frac{7\,c}{2}\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{64\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$
$$\frac{7\,\text{Cos}\left[\frac{9\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{9\,c}{2}\right]+\text{Sin}\left[\frac{9\,c}{2}\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{576\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$
$$\frac{7\,\text{Cos}\left[\frac{11\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{11\,c}{2}\right]-\text{Sin}\left[\frac{11\,c}{2}\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{704\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$
$$\frac{\text{Cos}\left[\frac{13\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{13\,c}{2}\right]+\text{Sin}\left[\frac{13\,c}{2}\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}}{832\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{\mathrm{Cos}\left[\frac{15\,d\,x}{2}\right]\left(\mathrm{Cos}\left[\frac{15\,c}{2}\right]-\mathrm{Sin}\left[\frac{15\,c}{2}\right]\right)\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{960\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{35\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}\left[\frac{d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{64\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{35\left(\mathrm{Cos}\left[\frac{3\,c}{2}\right]+\mathrm{Sin}\left[\frac{3\,c}{2}\right]\right)\mathrm{Sin}\left[\frac{3\,d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{192\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{21\left(\mathrm{Cos}\left[\frac{5\,c}{2}\right]-\mathrm{Sin}\left[\frac{5\,c}{2}\right]\right)\mathrm{Sin}\left[\frac{5\,d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{320\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{3\left(\mathrm{Cos}\left[\frac{7\,c}{2}\right]+\mathrm{Sin}\left[\frac{7\,c}{2}\right]\right)\mathrm{Sin}\left[\frac{7\,d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{64\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{7\left(\mathrm{Cos}\left[\frac{9\,c}{2}\right]-\mathrm{Sin}\left[\frac{9\,c}{2}\right]\right)\mathrm{Sin}\left[\frac{9\,d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{576\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{7\left(\mathrm{Cos}\left[\frac{11\,c}{2}\right]+\mathrm{Sin}\left[\frac{11\,c}{2}\right]\right)\mathrm{Sin}\left[\frac{11\,d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{704\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\left(\mathrm{Cos}\left[\frac{13\,c}{2}\right]-\mathrm{Sin}\left[\frac{13\,c}{2}\right]\right)\mathrm{Sin}\left[\frac{13\,d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{832\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\left(\mathrm{Cos}\left[\frac{15\,c}{2}\right]+\mathrm{Sin}\left[\frac{15\,c}{2}\right]\right)\mathrm{Sin}\left[\frac{15\,d\,x}{2}\right]\sqrt{a\,\left(1+\mathrm{Sin}[c+d\,x]\right)}}{960\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}$$

Problem 102: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[c+d\,x]^6\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 127 leaves, 4 steps):

$$-\frac{256\,a^4\,\mathrm{Cos}[c+d\,x]^7}{3003\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{7/2}}-\frac{64\,a^3\,\mathrm{Cos}[c+d\,x]^7}{429\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{5/2}}-\frac{24\,a^2\,\mathrm{Cos}[c+d\,x]^7}{143\,d\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{3/2}}-\frac{2\,a\,\mathrm{Cos}[c+d\,x]^7}{13\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}$$

Result (type 3, 995 leaves):

$$-\frac{5\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{8\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{5\,\text{Cos}\left[\frac{3\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{3\,c}{2}\right]+\text{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{32\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{3\,\text{Cos}\left[\frac{5\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{5\,c}{2}\right]-\text{Sin}\left[\frac{5\,c}{2}\right]\right)\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{32\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{3\,\text{Cos}\left[\frac{7\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{7\,c}{2}\right]+\text{Sin}\left[\frac{7\,c}{2}\right]\right)\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{112\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{\text{Cos}\left[\frac{9\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{9\,c}{2}\right]-\text{Sin}\left[\frac{9\,c}{2}\right]\right)\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{48\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\text{Cos}\left[\frac{11\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{11\,c}{2}\right]+\text{Sin}\left[\frac{11\,c}{2}\right]\right)\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{352\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-$$

$$\frac{\text{Cos}\left[\frac{13\,d\,x}{2}\right]\left(\text{Cos}\left[\frac{13\,c}{2}\right]-\text{Sin}\left[\frac{13\,c}{2}\right]\right)\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{416\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{5\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{d\,x}{2}\right]\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{8\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{5\left(\text{Cos}\left[\frac{3\,c}{2}\right]-\text{Sin}\left[\frac{3\,c}{2}\right]\right)\text{Sin}\left[\frac{3\,d\,x}{2}\right]\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{32\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{3\left(\text{Cos}\left[\frac{5\,c}{2}\right]+\text{Sin}\left[\frac{5\,c}{2}\right]\right)\text{Sin}\left[\frac{5\,d\,x}{2}\right]\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{32\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{3\left(\text{Cos}\left[\frac{7\,c}{2}\right]-\text{Sin}\left[\frac{7\,c}{2}\right]\right)\text{Sin}\left[\frac{7\,d\,x}{2}\right]\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{112\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\left(\text{Cos}\left[\frac{9\,c}{2}\right]+\text{Sin}\left[\frac{9\,c}{2}\right]\right)\text{Sin}\left[\frac{9\,d\,x}{2}\right]\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{48\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\left(\text{Cos}\left[\frac{11\,c}{2}\right]-\text{Sin}\left[\frac{11\,c}{2}\right]\right)\text{Sin}\left[\frac{11\,d\,x}{2}\right]\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{352\,d\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\left(\text{Cos}\left[\frac{13\,c}{2}\right]+\text{Sin}\left[\frac{13\,c}{2}\right]\right)\,\text{Sin}\left[\frac{13\,d\,x}{2}\right]\,\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}}{416\,d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}$$

Problem 108: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,\mathrm{d}x$$

Optimal (type 3, 40 leaves, 3 steps):

$$\frac{\sqrt{2}\,\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}$$

Result (type 3, 95 leaves):

$$-\left(\left(\left(2-2\,\mathrm{i}\right)\,\left(-1\right)^{1/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\,\left(-1\right)^{3/4}\,\text{Sec}\left[\frac{d\,x}{4}\right]\,\left(\text{Cos}\left[\frac{1}{4}\,\left(2\,c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{4}\,\left(2\,c+d\,x\right)\right]\right)\right]\,\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}\right)\Big/\left(d\,\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\right)\right)$$

Problem 109: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^2\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,\mathrm{d}x$$

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

$$-\frac{\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{\sqrt{2}\,d}+\frac{\text{Sec}[c+d\,x]\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d}$$

Result (type 3, 106 leaves):

$$\frac{1}{d}\text{Sec}[c+d\,x]\left(1-\left(1+\mathrm{i}\right)\,\left(-1\right)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\,\left(-1\right)^{3/4}\,\text{Sec}\left[\frac{d\,x}{4}\right]\,\left(\text{Cos}\left[\frac{1}{4}\,\left(2\,c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{4}\,\left(2\,c+d\,x\right)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\right)\,\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}$$

Problem 110: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,\mathrm{d}x$$

Optimal (type 3, 95 leaves, 5 steps):

$$\frac{3\sqrt{a}\ \text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\ \sqrt{a}}\right]}{4\sqrt{2}\ d}-\frac{3\,a}{4\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^2\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{2\,d}$$

Result (type 3, 271 leaves):

$$\left(\left(-2-(3-3\,i)\,(-1)^{1/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{d\,x}{4}\right]\left(\text{Cos}\left[\frac{1}{4}(2\,c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(2\,c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)+\frac{2\,\text{Sin}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}+\frac{\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)\Big/\left(4\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\right)$$

Problem 111: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^4\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 137 leaves, 5 steps):

$$-\frac{5\sqrt{a}\ \text{ArcTanh}\left[\frac{\sqrt{a}\ \text{Cos}[c+d\,x]}{\sqrt{2}\ \sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{8\sqrt{2}\ d}-\frac{5\,a^2\,\text{Cos}[c+d\,x]}{8\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}+\frac{5\,a\,\text{Sec}[c+d\,x]}{6\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^3\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{3\,d}$$

Result (type 3, 302 leaves):

$$\left(\left(\frac{6\,\text{Sin}\left[\frac{d\,x}{2}\right]}{\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]}-\frac{3\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]}-(15+15\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{d\,x}{4}\right]\left(\text{Cos}\left[\frac{1}{4}(2\,c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(2\,c+d\,x)\right]\right)\right]\right.\right.$$
$$\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2+\frac{4\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+$$
$$\left.\left.\frac{12\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)\Big/$$
$$\left(24\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right)$$

Problem 112: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^5\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 149 leaves, 7 steps):

$$\frac{35\,\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{64\,\sqrt{2}\,d}-\frac{35\,a^2}{96\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-$$
$$\frac{35\,a}{64\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{7\,a\,\text{Sec}[c+d\,x]^2}{16\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^4\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{4\,d}$$

Result (type 3, 179 leaves):

$$\left(\sqrt{a\,(1+\text{Sin}[c+d\,x])}\left((-420+420\,i)\,(-1)^{1/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{d\,x}{4}\right]\right.\right.\right.$$
$$\left.\left(\text{Cos}\left[\frac{1}{4}(2\,c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}(2\,c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3+$$
$$(-102-70\,\text{Cos}[2\,(c+d\,x)]+329\,\text{Sin}[c+d\,x]+105\,\text{Sin}[3\,(c+d\,x)])\Big/$$
$$\left.\left.\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\right)\right)\Big/$$
$$\left(768\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\right)$$

Problem 113: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^6\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 197 leaves, 7 steps):

$$-\frac{63\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{128\sqrt{2}\,d}-\frac{63\,a^2\,\text{Cos}[c+d\,x]}{128\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-\frac{21\,a^2\,\text{Sec}[c+d\,x]}{80\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}+\frac{21\,a\,\text{Sec}[c+d\,x]}{32\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,\text{Sec}[c+d\,x]^3}{10\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^5\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{5\,d}$$

Result (type 3, 191 leaves) :

$$\left(\sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\left((-2520-2520\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\,\text{Sec}\left[\frac{d\,x}{4}\right]\left(\text{Cos}\left[\frac{1}{4}(2\,c+d\,x)\right]-\text{Sin}\left[\frac{1}{4}(2\,c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4+\left(649+1092\,\text{Cos}[2\,(c+d\,x)]+315\,\text{Cos}[4\,(c+d\,x)]+1572\,\text{Sin}[c+d\,x]+420\,\text{Sin}[3\,(c+d\,x)]\right)\Big/\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\right)\Big/\left(5120\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)$$

Problem 114: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^7\,(a+a\,\text{Sin}[c+d\,x])^{3/2}\,dx$$

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

$$\frac{16\,(a+a\,\text{Sin}[c+d\,x])^{11/2}}{11\,a^4\,d}-\frac{24\,(a+a\,\text{Sin}[c+d\,x])^{13/2}}{13\,a^5\,d}+\frac{4\,(a+a\,\text{Sin}[c+d\,x])^{15/2}}{5\,a^6\,d}-\frac{2\,(a+a\,\text{Sin}[c+d\,x])^{17/2}}{17\,a^7\,d}$$

Result (type 3, 865 leaves) :

$$\frac{35\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{64\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{7\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{7\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{160\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{5\,\text{Cos}\left[\frac{11}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{352\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{\text{Cos}\left[\frac{13}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{416\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-$$

$$\frac{\text{Cos}\left[\frac{15}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{640\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{\text{Cos}\left[\frac{17}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{2176\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{35\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}}{64\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+\frac{7\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{7\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]}{160\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+\frac{(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{5\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\,\text{Sin}\left[\frac{11}{2}\,(c+d\,x)\right]}{352\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\,\text{Sin}\left[\frac{13}{2}\,(c+d\,x)\right]}{416\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\,\text{Sin}\left[\frac{15}{2}\,(c+d\,x)\right]}{640\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\,\text{Sin}\left[\frac{17}{2}\,(c+d\,x)\right]}{2176\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}$$

Problem 115: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^6\,(a+a\,\text{Sin}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 159 leaves, 5 steps):

$$-\frac{4096\,a^5\,\text{Cos}[c+d\,x]^7}{45045\,d\,(a+a\,\text{Sin}[c+d\,x])^{7/2}}-\frac{1024\,a^4\,\text{Cos}[c+d\,x]^7}{6435\,d\,(a+a\,\text{Sin}[c+d\,x])^{5/2}}-$$

$$\frac{128\,a^3\,\text{Cos}[c+d\,x]^7}{715\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-\frac{32\,a^2\,\text{Cos}[c+d\,x]^7}{195\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{2\,a\,\text{Cos}[c+d\,x]^7\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{15\,d}$$

Result (type 3, 865 leaves):

$$-\frac{45\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+\frac{25\,\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{192\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-$$
$$\frac{39\,\text{Cos}\left[\frac{5}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{320\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+\frac{3\,\text{Cos}\left[\frac{7}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-$$
$$\frac{17\,\text{Cos}\left[\frac{9}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{576\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-\frac{3\,\text{Cos}\left[\frac{11}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{704\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-$$
$$\frac{3\,\text{Cos}\left[\frac{13}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{832\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-\frac{\text{Cos}\left[\frac{15}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{960\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+$$
$$\frac{45\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+\frac{25\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]}{192\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+$$
$$\frac{39\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\text{Sin}\left[\frac{5}{2}(c+d\,x)\right]}{320\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+\frac{3\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\text{Sin}\left[\frac{7}{2}(c+d\,x)\right]}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+$$
$$\frac{17\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\text{Sin}\left[\frac{9}{2}(c+d\,x)\right]}{576\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-\frac{3\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\text{Sin}\left[\frac{11}{2}(c+d\,x)\right]}{704\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}+$$
$$\frac{3\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\text{Sin}\left[\frac{13}{2}(c+d\,x)\right]}{832\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}-\frac{\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\text{Sin}\left[\frac{15}{2}(c+d\,x)\right]}{960\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3}$$

Problem 121: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}\,dx$$

Optimal (type 3, 62 leaves, 4 steps):

$$\frac{2\sqrt{2}\,a^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}-\frac{2\,a\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d}$$

Result (type 3, 98 leaves):

$$-\left(\left(2\left(\left(2+2\,i\right)\left(-1\right)^{1/4}\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\left(-1\right)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\right.\right.\right.$$
$$\left.\left.\left.\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)\Big/\left(d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right)\right)$$

Problem 122: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^2\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}\,dx$$

Optimal (type 3, 26 leaves, 1 step):

$$\frac{2\,a\,\text{Sec}[c+d\,x]\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d}$$

Result (type 3, 67 leaves):

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

Problem 123: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^3\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}\,dx$$

Optimal (type 3, 73 leaves, 4 steps):

$$\frac{a^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,d}+\frac{\text{Sec}[c+d\,x]^2\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{2\,d}$$

Result (type 3, 134 leaves):

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

Problem 124: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}\,dx$$

Optimal (type 3, 107 leaves, 4 steps):

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

Result (type 3, 130 leaves):

$$\frac{1}{d}\left(\frac{1}{12}+\frac{\mathbb{i}}{12}\right) a\,\text{Sec}[c+d x]^3 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2 \sqrt{a\,(1+\text{Sin}[c+d x])}\,\left(6\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3-(1-\mathbb{i})\,(-5+3\,\text{Sin}[c+d x])\right)$$

Problem 125: Result unnecessarily involves imaginary or complex numbers.

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

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

$$\frac{15\,a^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d x]}}{\sqrt{2}\,\sqrt{a}}\right]}{32\,\sqrt{2}\,d}-\frac{15\,a^2}{32\,d\,\sqrt{a+a\,\text{Sin}[c+d x]}}+\frac{5\,a\,\text{Sec}[c+d x]^2\,\sqrt{a+a\,\text{Sin}[c+d x]}}{16\,d}+\frac{\text{Sec}[c+d x]^4\,(a+a\,\text{Sin}[c+d x])^{3/2}}{4\,d}$$

Result (type 3, 161 leaves):

$$\frac{1}{d}\left(\frac{1}{128}+\frac{\mathbb{i}}{128}\right) a\,\text{Sec}[c+d x]^4 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2 \sqrt{a\,(1+\text{Sin}[c+d x])}\,\left(-60\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)+(1-\mathbb{i})\,(-9+15\,\text{Cos}[2\,(c+d x)]+40\,\text{Sin}[c+d x])\right)$$

Problem 126: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d x]^6\,(a+a\,\text{Sin}[c+d x])^{3/2}\,dx$$

Optimal (type 3, 169 leaves, 6 steps):

$$-\frac{7\,a^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d x]}}\right]}{16\,\sqrt{2}\,d}-\frac{7\,a^3\,\text{Cos}[c+d x]}{16\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}+\frac{7\,a^2\,\text{Sec}[c+d x]}{12\,d\,\sqrt{a+a\,\text{Sin}[c+d x]}}+\frac{7\,a\,\text{Sec}[c+d x]^3\,\sqrt{a+a\,\text{Sin}[c+d x]}}{30\,d}+\frac{\text{Sec}[c+d x]^5\,(a+a\,\text{Sin}[c+d x])^{3/2}}{5\,d}$$

Result (type 3, 288 leaves):

$$\frac{1}{240\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}\left(30\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-15\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)+(105+105\,i)\,(-1)^{3/4}\right.$$
$$\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+$$
$$\frac{24\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}+\frac{40\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$
$$\left.\frac{90\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\left(a\,(1+\text{Sin}[c+d\,x])\right)^{3/2}$$

Problem 127: Result more than twice size of optimal antiderivative.

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

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

$$\frac{8\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{11/2}}{11\,a^3\,d}-\frac{8\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{13/2}}{13\,a^4\,d}+\frac{2\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{15/2}}{15\,a^5\,d}$$

Result (type 3, 865 leaves):

$$\frac{45\,\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-\frac{65\,\text{Cos}\left[\frac{3}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{192\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-$$

$$\frac{\text{Cos}\left[\frac{5}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{320\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-\frac{5\,\text{Cos}\left[\frac{7}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-$$

$$\frac{5\,\text{Cos}\left[\frac{9}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{192\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-\frac{5\,\text{Cos}\left[\frac{11}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{704\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-$$

$$\frac{5\,\text{Cos}\left[\frac{13}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{832\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}+\frac{\text{Cos}\left[\frac{15}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{960\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}+$$

$$\frac{45\,\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}+\frac{65\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\text{Sin}\left[\frac{3}{2}\left(c+d\,x\right)\right]}{192\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-$$

$$\frac{\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\text{Sin}\left[\frac{5}{2}\left(c+d\,x\right)\right]}{320\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}+\frac{5\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\text{Sin}\left[\frac{7}{2}\left(c+d\,x\right)\right]}{64\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-$$

$$\frac{5\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\text{Sin}\left[\frac{9}{2}\left(c+d\,x\right)\right]}{192\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}+\frac{5\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\text{Sin}\left[\frac{11}{2}\left(c+d\,x\right)\right]}{704\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-$$

$$\frac{5\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\text{Sin}\left[\frac{13}{2}\left(c+d\,x\right)\right]}{832\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}-\frac{\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\text{Sin}\left[\frac{15}{2}\left(c+d\,x\right)\right]}{960\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5}$$

Problem 128: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^4\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}dx$$

Optimal (type 3, 159 leaves, 5 steps):

$$-\frac{4096\,a^5\,\text{Cos}[c+d\,x]^5}{15015\,d\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}-\frac{1024\,a^4\,\text{Cos}[c+d\,x]^5}{3003\,d\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{128\,a^3\,\text{Cos}[c+d\,x]^5}{429\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-$$

$$\frac{32\,a^2\,\text{Cos}[c+d\,x]^5\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{143\,d}-\frac{2\,a\,\text{Cos}[c+d\,x]^5\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{13\,d}$$

Result (type 3, 757 leaves):

$$-\frac{9\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{8\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}+\frac{3\,\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{32\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-\frac{29\,\mathrm{Cos}\left[\frac{5}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{160\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-\frac{5\,\mathrm{Cos}\left[\frac{7}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{112\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-\frac{\mathrm{Cos}\left[\frac{9}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{48\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-\frac{5\,\mathrm{Cos}\left[\frac{11}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{352\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}+\frac{\mathrm{Cos}\left[\frac{13}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{416\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}+\frac{9\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}}{8\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}+\frac{3\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}\mathrm{Sin}\left[\frac{3}{2}(c+d\,x)\right]}{32\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}+\frac{29\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}\mathrm{Sin}\left[\frac{5}{2}(c+d\,x)\right]}{160\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-\frac{5\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}\mathrm{Sin}\left[\frac{7}{2}(c+d\,x)\right]}{112\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}+\frac{\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}\mathrm{Sin}\left[\frac{9}{2}(c+d\,x)\right]}{48\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-\frac{5\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}\mathrm{Sin}\left[\frac{11}{2}(c+d\,x)\right]}{352\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}-\frac{\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}\mathrm{Sin}\left[\frac{13}{2}(c+d\,x)\right]}{416\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5}$$

Problem 132: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Sec}[c+d\,x]\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{5/2}\,dx$$

Optimal (type 3, 86 leaves, 5 steps):

$$\frac{4\sqrt{2}\,a^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}-\frac{4\,a^2\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{d}-\frac{2\,a\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{3/2}}{3\,d}$$

Result (type 3, 126 leaves):

$$-\left(\left(\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{5/2}\left((24+24\,i)\,(-1)^{1/4}\,\mathrm{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\right]+15\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Cos}\left[\frac{3}{2}(c+d\,x)\right]+15\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{3}{2}(c+d\,x)\right]\right)\right)\Big/\left(3\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)\right)$$

Problem 134: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Sec}[c+d\,x]^3\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{5/2}\,dx$$

Optimal (type 3, 69 leaves, 4 steps):

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

Result (type 3, 138 leaves):

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

Problem 135: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}\,dx$$

Optimal (type 3, 30 leaves, 1 step):

$$\frac{2\,a\,\text{Sec}[c+d\,x]^3\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{3\,d}$$

Result (type 3, 69 leaves):

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

Problem 136: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^5\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}\,dx$$

Optimal (type 3, 103 leaves, 5 steps):

$$\frac{3\,a^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{16\,\sqrt{2}\,d}+\frac{3\,a\,\text{Sec}[c+d\,x]^2\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{16\,d}+\frac{\text{Sec}[c+d\,x]^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{4\,d}$$

Result (type 3, 174 leaves):

$$\left(a^2 \sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\left(11\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+3\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]+11\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+(3+3\,i)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\left(-3+\text{Cos}\left[2\,(c+d\,x)\right]+4\,\text{Sin}[c+d\,x]\right)-3\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]\right)\right)\Big/\left(32\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)$$

Problem 137: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^6\,(a+a\,\text{Sin}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 139 leaves, 5 steps):

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

Result (type 3, 129 leaves):

$$\left(\left((15+15\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]+\frac{89-15\,\text{Cos}\left[2\,(c+d\,x)\right]-80\,\text{Sin}[c+d\,x]}{2\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}\right)(a\,(1+\text{Sin}[c+d\,x]))^{5/2}\right)\Big/\left(60\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\right)$$

Problem 138: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 159 leaves, 7 steps):

$$\frac{35\,a^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{128\,\sqrt{2}\,d}-\frac{35\,a^3}{128\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{35\,a^2\,\text{Sec}[c+d\,x]^2\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{192\,d}+\frac{7\,a\,\text{Sec}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}{48\,d}+\frac{\text{Sec}[c+d\,x]^6\,(a+a\,\text{Sin}[c+d\,x])^{5/2}}{6\,d}$$

Result (type 3, 176 leaves):

$$\frac{1}{d}\left(\frac{1}{3072}+\frac{i}{3072}\right) a^2 \text{Sec}[c+d x]^6 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4$$
$$\sqrt{a(1+\text{Sin}[c+d x])}\left(-840(-1)^{1/4} \text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]\right.$$
$$\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)+$$
$$\left.(1-i)\left(490 \text{Cos}[2(c+d x)]+791 \text{Sin}[c+d x]-15(10+7 \text{Sin}[3(c+d x)])\right)\right)$$

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

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

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

$$\frac{16 (a+a \text{Sin}[c+d x])^{15/2}}{15 a^4 d}-\frac{24 (a+a \text{Sin}[c+d x])^{17/2}}{17 a^5 d}+\frac{12 (a+a \text{Sin}[c+d x])^{19/2}}{19 a^6 d}-\frac{2 (a+a \text{Sin}[c+d x])^{21/2}}{21 a^7 d}$$

Result (type 3, 1189 leaves):

$$\frac{91\,\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{128\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-\frac{91\,\mathrm{Cos}\left[\frac{3}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{256\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-$$

$$\frac{7\,\mathrm{Cos}\left[\frac{5}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{1280\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-\frac{43\,\mathrm{Cos}\left[\frac{7}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{448\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-$$

$$\frac{7\,\mathrm{Cos}\left[\frac{9}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{192\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-\frac{7\,\mathrm{Cos}\left[\frac{11}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{512\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-$$

$$\frac{7\,\mathrm{Cos}\left[\frac{13}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{512\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+\frac{7\,\mathrm{Cos}\left[\frac{15}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{3840\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-$$

$$\frac{7\,\mathrm{Cos}\left[\frac{17}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{4352\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+\frac{7\,\mathrm{Cos}\left[\frac{19}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{9728\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+$$

$$\frac{\mathrm{Cos}\left[\frac{21}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{10752\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+\frac{91\,\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right](a(1+\mathrm{Sin}[c+d x]))^{7/2}}{128\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+$$

$$\frac{91\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{3}{2}(c+d x)\right]}{256\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-\frac{7\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{5}{2}(c+d x)\right]}{1280\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+$$

$$\frac{43\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{7}{2}(c+d x)\right]}{448\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-\frac{7\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{9}{2}(c+d x)\right]}{192\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+$$

$$\frac{7\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{11}{2}(c+d x)\right]}{512\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-\frac{7\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{13}{2}(c+d x)\right]}{512\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-$$

$$\frac{7\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{15}{2}(c+d x)\right]}{3840\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-\frac{7\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{17}{2}(c+d x)\right]}{4352\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}-$$

$$\frac{7\,(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{19}{2}(c+d x)\right]}{9728\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}+\frac{(a(1+\mathrm{Sin}[c+d x]))^{7/2}\,\mathrm{Sin}\left[\frac{21}{2}(c+d x)\right]}{10752\,d\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^7}$$

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

$$\int \mathrm{Cos}[c+d x]^6\,(a+a\,\mathrm{Sin}[c+d x])^{7/2}\,dx$$

Optimal (type 3, 223 leaves, 7 steps):

$$-\frac{131072\,a^7\,\text{Cos}[c+d\,x]^7}{969969\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}}-\frac{32768\,a^6\,\text{Cos}[c+d\,x]^7}{138567\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}-\frac{12288\,a^5\,\text{Cos}[c+d\,x]^7}{46189\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{1024\,a^4\,\text{Cos}[c+d\,x]^7}{4199\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{64\,a^3\,\text{Cos}[c+d\,x]^7\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{323\,d}-\frac{48\,a^2\,\text{Cos}[c+d\,x]^7\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{323\,d}-\frac{2\,a\,\text{Cos}[c+d\,x]^7\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{19\,d}$$

Result (type 3, 1081 leaves):

$$-\frac{143\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{128\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{13\,\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{128\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{13\,\text{Cos}\left[\frac{5}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{23\,\text{Cos}\left[\frac{7}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{7\,\text{Cos}\left[\frac{9}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{192\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{19\,\text{Cos}\left[\frac{11}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{704\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{7\,\text{Cos}\left[\frac{13}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{3328\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{\text{Cos}\left[\frac{15}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{256\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{7\,\text{Cos}\left[\frac{17}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{4352\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{\text{Cos}\left[\frac{19}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{4864\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{143\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{128\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{13\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]}{128\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{13\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{5}{2}(c+d\,x)\right]}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{23\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{7}{2}(c+d\,x)\right]}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{7\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{9}{2}(c+d\,x)\right]}{192\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{19\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{11}{2}(c+d\,x)\right]}{704\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{7\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{13}{2}(c+d\,x)\right]}{3328\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{15}{2}(c+d\,x)\right]}{256\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{7\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{17}{2}(c+d\,x)\right]}{4352\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{19}{2}(c+d\,x)\right]}{4864\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}$$

Problem 141: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^5\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}\,dx$$

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

$$\frac{8\,(a+a\,\mathrm{Sin}[c+d\,x])^{13/2}}{13\,a^3\,d}-\frac{8\,(a+a\,\mathrm{Sin}[c+d\,x])^{15/2}}{15\,a^4\,d}+\frac{2\,(a+a\,\mathrm{Sin}[c+d\,x])^{17/2}}{17\,a^5\,d}$$

Result (type 3, 865 leaves):

$$\frac{55\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{64\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{11\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{24\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$
$$\frac{\mathrm{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{20\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{3\,\mathrm{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{32\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$
$$\frac{5\,\mathrm{Cos}\left[\frac{9}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{96\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{\mathrm{Cos}\left[\frac{13}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{104\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+$$
$$\frac{7\,\mathrm{Cos}\left[\frac{15}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{1920\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+\frac{\mathrm{Cos}\left[\frac{17}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{2176\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+$$
$$\frac{55\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}}{64\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+\frac{11\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]}{24\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$
$$\frac{(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]}{20\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+\frac{3\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}\,\mathrm{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]}{32\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$
$$\frac{5\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}\,\mathrm{Sin}\left[\frac{9}{2}\,(c+d\,x)\right]}{96\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}\,\mathrm{Sin}\left[\frac{13}{2}\,(c+d\,x)\right]}{104\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$
$$\frac{7\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}\,\mathrm{Sin}\left[\frac{15}{2}\,(c+d\,x)\right]}{1920\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+\frac{(a\,(1+\mathrm{Sin}[c+d\,x]))^{7/2}\,\mathrm{Sin}\left[\frac{17}{2}\,(c+d\,x)\right]}{2176\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}$$

Problem 142: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[c+d\,x]^4\,(a+a\,\mathrm{Sin}[c+d\,x])^{7/2}\,dx$$

Optimal (type 3, 191 leaves, 6 steps):

$$-\frac{16384\,a^6\,\mathrm{Cos}[c+d\,x]^5}{45045\,d\,(a+a\,\mathrm{Sin}[c+d\,x])^{5/2}}-\frac{4096\,a^5\,\mathrm{Cos}[c+d\,x]^5}{9009\,d\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}-$$
$$\frac{512\,a^4\,\mathrm{Cos}[c+d\,x]^5}{1287\,d\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-\frac{128\,a^3\,\mathrm{Cos}[c+d\,x]^5\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{429\,d}-$$
$$\frac{8\,a^2\,\mathrm{Cos}[c+d\,x]^5\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}{39\,d}-\frac{2\,a\,\mathrm{Cos}[c+d\,x]^5\,(a+a\,\mathrm{Sin}[c+d\,x])^{5/2}}{15\,d}$$

Result (type 3, 865 leaves):

$$-\frac{99\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{11\,\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{192\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-$$
$$\frac{77\,\text{Cos}\left[\frac{5}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{320\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{43\,\text{Cos}\left[\frac{7}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-$$
$$\frac{7\,\text{Cos}\left[\frac{9}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{576\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{17\,\text{Cos}\left[\frac{11}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{704\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+$$
$$\frac{7\,\text{Cos}\left[\frac{13}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{832\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{\text{Cos}\left[\frac{15}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{960\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+$$
$$\frac{99\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}}{64\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{11\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]}{192\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+$$
$$\frac{77\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{5}{2}(c+d\,x)\right]}{320\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{43\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{7}{2}(c+d\,x)\right]}{448\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+$$
$$\frac{7\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{9}{2}(c+d\,x)\right]}{576\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-\frac{17\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{11}{2}(c+d\,x)\right]}{704\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}-$$
$$\frac{7\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{13}{2}(c+d\,x)\right]}{832\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}+\frac{\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\text{Sin}\left[\frac{15}{2}(c+d\,x)\right]}{960\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}$$

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

$$\int \text{Cos}[c+d\,x]^3\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}\,dx$$

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

$$\frac{4\left(a+a\,\text{Sin}[c+d\,x]\right)^{11/2}}{11\,a^2\,d}-\frac{2\left(a+a\,\text{Sin}[c+d\,x]\right)^{13/2}}{13\,a^3\,d}$$

Result (type 3, 757 leaves):

$$\frac{9\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{8\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{21\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$

$$\frac{5\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$

$$\frac{\text{Cos}\left[\frac{9}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+\frac{7\,\text{Cos}\left[\frac{11}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{352\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+$$

$$\frac{\text{Cos}\left[\frac{13}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{416\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+\frac{9\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}}{8\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+$$

$$\frac{21\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{5\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+$$

$$\frac{\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-\frac{\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}\,\text{Sin}\left[\frac{9}{2}\,(c+d\,x)\right]}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}-$$

$$\frac{7\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}\,\text{Sin}\left[\frac{11}{2}\,(c+d\,x)\right]}{352\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+\frac{\left(a\,(1+\text{Sin}[c+d\,x])\right)^{7/2}\,\text{Sin}\left[\frac{13}{2}\,(c+d\,x)\right]}{416\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}$$

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

$$\int \text{Cos}[c+d\,x]^2\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}\,dx$$

Optimal (type 3, 159 leaves, 5 steps):

$$-\frac{4096\,a^5\,\text{Cos}[c+d\,x]^3}{3465\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{1024\,a^4\,\text{Cos}[c+d\,x]^3}{1155\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}-\frac{128\,a^3\,\text{Cos}[c+d\,x]^3\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{231\,d}-\frac{32\,a^2\,\text{Cos}[c+d\,x]^3\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{99\,d}-\frac{2\,a\,\text{Cos}[c+d\,x]^3\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{11\,d}$$

Result (type 3, 649 leaves):

$$-\frac{21\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}}{8\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}-\frac{\text{Cos}\left[\frac{3}{2}(c+d x)\right]\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}}{8\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}-$$
$$\frac{21\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}}{80\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}-\frac{19\,\text{Cos}\left[\frac{7}{2}(c+d x)\right]\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}}{112\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}+$$
$$\frac{7\,\text{Cos}\left[\frac{9}{2}(c+d x)\right]\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}}{144\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}+\frac{\text{Cos}\left[\frac{11}{2}(c+d x)\right]\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}}{176\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}+$$
$$\frac{21\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}}{8\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}-\frac{\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}\text{Sin}\left[\frac{3}{2}(c+d x)\right]}{8\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}+$$
$$\frac{21\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}\text{Sin}\left[\frac{5}{2}(c+d x)\right]}{80\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}-\frac{19\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}\text{Sin}\left[\frac{7}{2}(c+d x)\right]}{112\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}-$$
$$\frac{7\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}\text{Sin}\left[\frac{9}{2}(c+d x)\right]}{144\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}+\frac{\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{7/2}\text{Sin}\left[\frac{11}{2}(c+d x)\right]}{176\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}}$$

Problem 146: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d x]\left(a+a\,\text{Sin}[c+d x]\right)^{7/2}\,dx$$

Optimal (type 3, 110 leaves, 6 steps):

$$\frac{8\sqrt{2}\,a^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}-\frac{8\,a^{3}\sqrt{a+a\,\text{Sin}[c+d x]}}{d}-$$
$$\frac{4\,a^{2}\left(a+a\,\text{Sin}[c+d x]\right)^{3/2}}{3\,d}-\frac{2\,a\left(a+a\,\text{Sin}[c+d x]\right)^{5/2}}{5\,d}$$

Result (type 3, 165 leaves):

$$-\left(\left(a^{3}\left(1+\text{Sin}[c+d x]\right)^{3}\sqrt{a\left(1+\text{Sin}[c+d x]\right)}\right.\right.$$
$$\left(\left(480+480\,i\right)(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]+\right.$$
$$330\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]-35\,\text{Cos}\left[\frac{3}{2}(c+d x)\right]-3\,\text{Cos}\left[\frac{5}{2}(c+d x)\right]+330\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+$$
$$\left.\left.\left.35\,\text{Sin}\left[\frac{3}{2}(c+d x)\right]-3\,\text{Sin}\left[\frac{5}{2}(c+d x)\right]\right)\right)\Big/\left(30\,d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^{7}\right)\right)$$

Problem 148: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d x]^{3}\left(a+a\,\text{Sin}[c+d x]\right)^{7/2}\,dx$$

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

$$-\frac{3\sqrt{2}\,a^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}+\frac{3\,a^3\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d}+\frac{a\,\text{Sec}[c+d\,x]^2\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{d}$$

Result (type 3, 159 leaves):

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

Problem 150: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^5\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}\,dx$$

Optimal (type 3, 106 leaves, 5 steps):

$$-\frac{a^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{8\,\sqrt{2}\,d}-\frac{a^2\,\text{Sec}[c+d\,x]^2\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{8\,d}+\frac{a\,\text{Sec}[c+d\,x]^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{2\,d}$$

Result (type 3, 172 leaves):

$$-\left(\left(a^3\,\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}\,\left(-7\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-7\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+(1+i)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{1/4}\,\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\,\left(-3+\text{Cos}[2\,(c+d\,x)]+4\,\text{Sin}[c+d\,x]\right)-\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]\right)\right)\Big/\left(16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\right)$$

Problem 151: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^6\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}\,dx$$

Optimal (type 3, 30 leaves, 1 step):

$$\frac{2\,a\,\text{Sec}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])^{5/2}}{5\,d}$$

Result (type 3, 69 leaves):

$$\left(2\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\right)\Big/\left(5\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)$$

Problem 152: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^7\,(a+a\,\text{Sin}[c+d\,x])^{7/2}\,dx$$

Optimal (type 3, 135 leaves, 6 steps):

$$\frac{5\,a^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{64\,\sqrt{2}\,d}+\frac{5\,a^2\,\text{Sec}[c+d\,x]^2\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}{64\,d}+\frac{5\,a\,\text{Sec}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])^{5/2}}{48\,d}+\frac{\text{Sec}[c+d\,x]^6\,(a+a\,\text{Sin}[c+d\,x])^{7/2}}{6\,d}$$

Result (type 3, 205 leaves):

$$\Bigg(a^3\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}\,\Bigg(198\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+85\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-15\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]-(60+60\,i)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{1/4}\,\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6+198\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-85\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]-15\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]\Bigg)\Bigg)\Big/\left(768\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)$$

Problem 153: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^8\,(a+a\,\text{Sin}[c+d\,x])^{7/2}\,dx$$

Optimal (type 3, 171 leaves, 6 steps):

$$-\frac{a^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{8\,\sqrt{2}\,d}+\frac{a^3\,\text{Sec}[c+d\,x]\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{8\,d}+\frac{a^2\,\text{Sec}[c+d\,x]^3\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{12\,d}+\frac{a\,\text{Sec}[c+d\,x]^5\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{10\,d}+\frac{\text{Sec}[c+d\,x]^7\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}}{7\,d}$$

Result (type 3, 139 leaves):

$$\left(\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}\left(\left(105+105\,i\right)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\,\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]+\left(2286-770\,\text{Cos}\left[2\,(c+d\,x)\right]-2471\,\text{Sin}[c+d\,x]+105\,\text{Sin}\left[3\,(c+d\,x)\right]\right)\Big/\left(4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)\right)\right)\Big/\left(840\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)$$

Problem 154: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^9\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}\,dx$$

Optimal (type 3, 191 leaves, 8 steps):

$$\frac{315\,a^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2048\,\sqrt{2}\,d}-\frac{315\,a^4}{2048\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{105\,a^3\,\text{Sec}[c+d\,x]^2\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{1024\,d}+\frac{21\,a^2\,\text{Sec}[c+d\,x]^4\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{256\,d}+\frac{3\,a\,\text{Sec}[c+d\,x]^6\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{32\,d}+\frac{\text{Sec}[c+d\,x]^8\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}}{8\,d}$$

Result (type 3, 735 leaves):

$$-\frac{(a\,(1+\text{Sin}[c+d\,x]))^{7/2}}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8}-$$

$$\left(\left(\frac{315}{2048}+\frac{315\,i}{2048}\right)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{1/4}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]\right.\right.$$
$$\left.\left.\left(\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\Big/$$
$$\left(16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\left(5\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(64\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\left(41\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(512\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\left(187\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(2048\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\left(\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(8\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^8\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\left(5\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\left(41\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(256\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)+$$
$$\left(187\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,(1+\text{Sin}[c+d\,x]))^{7/2}\right)\Big/$$
$$\left(1024\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7\right)$$

Problem 155: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sec}[c+d\,x]^{10}\,(a+a\,\text{Sin}[c+d\,x])^{7/2}\,dx$$

Optimal (type 3, 233 leaves, 8 steps):

$$-\frac{11\,a^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{64\,\sqrt{2}\,d}-\frac{11\,a^5\,\text{Cos}[c+d\,x]}{64\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}+\frac{11\,a^4\,\text{Sec}[c+d\,x]}{48\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+$$
$$\frac{11\,a^3\,\text{Sec}[c+d\,x]^3\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{120\,d}+\frac{11\,a^2\,\text{Sec}[c+d\,x]^5\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}{140\,d}+$$
$$\frac{11\,a\,\text{Sec}[c+d\,x]^7\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{126\,d}+\frac{\text{Sec}[c+d\,x]^9\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}}{9\,d}$$

Result (type 3, 388 leaves):

$$\frac{1}{20160\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^9}$$
$$\left(630\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-315\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)+(3465+3465\,i)\,(-1)^{3/4}\right.$$
$$\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\,\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+$$
$$\frac{1120\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^9}+\frac{1440\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^7}+$$
$$\frac{1512\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}+\frac{1680\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$
$$\left.\frac{3150\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{7/2}$$

Problem 161: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^2}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 3, 30 leaves, 1 step):

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

Result (type 3, 67 leaves):

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

Problem 163: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sec}[c+d x]}{\sqrt{a+a \text{Sin}[c+d x]}} \, dx$$

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

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+a \text{Sin}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{\sqrt{2} \sqrt{a} \, d}-\frac{1}{d \sqrt{a+a \text{Sin}[c+d x]}}$$

Result (type 3, 76 leaves):

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

Problem 164: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 102 leaves, 4 steps):

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

Result (type 3, 118 leaves):

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

Problem 165: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 116 leaves, 6 steps):

$$\frac{5\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{8\,\sqrt{2}\,\sqrt{a}\,d}-\frac{5\,a}{12\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{5}{8\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^2}{2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 108 leaves):

$$\left(\left(-30-30\,i\right)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{1/4}\,\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)-\text{Sec}[c+d\,x]^2\,\left(11+15\,\text{Cos}\left[2\,(c+d\,x)\right]-20\,\text{Sin}[c+d\,x]\right)\right)\Big/\left(48\,d\,\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}\right)$$

Problem 166: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sec}[c+d\,x]^4}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\,dx$$

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

$$-\frac{35\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{64\,\sqrt{2}\,\sqrt{a}\,d}-\frac{35\,a\,\text{Cos}[c+d\,x]}{64\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{7\,a\,\text{Sec}[c+d\,x]}{24\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}+\frac{35\,\text{Sec}[c+d\,x]}{48\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^3}{3\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 117 leaves):

$$\left(\left(420+420\,i\right)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\,\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)+\text{Sec}[c+d\,x]^3\,\left(102+70\,\text{Cos}\left[2\,(c+d\,x)\right]+329\,\text{Sin}[c+d\,x]+105\,\text{Sin}\left[3\,(c+d\,x)\right]\right)\right)\Big/\left(768\,d\,\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}\right)$$

Problem 167: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 175 leaves, 8 steps):

$$\frac{63\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{128\,\sqrt{2}\,\sqrt{a}\,d}-\frac{21\,a}{64\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-\frac{9\,a\,\text{Sec}[c+d\,x]^2}{40\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-\frac{63}{128\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{63\,\text{Sec}[c+d\,x]^2}{160\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^4}{4\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 130 leaves):

$$\left(\left(-315-315\,i\right)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)-\frac{1}{8}\,\text{Sec}[c+d\,x]^4\left(649+1092\,\text{Cos}[2\,(c+d\,x)]+315\,\text{Cos}[4\,(c+d\,x)]-1572\,\text{Sin}[c+d\,x]-420\,\text{Sin}[3\,(c+d\,x)]\right)\right)\Big/\left(640\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)$$

Problem 168: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sec}[c+d\,x]^6}{\sqrt{a+a\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 3, 221 leaves, 8 steps):

$$-\frac{231\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{512\,\sqrt{2}\,\sqrt{a}\,d}-\frac{231\,a\,\text{Cos}[c+d\,x]}{512\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-\frac{77\,a\,\text{Sec}[c+d\,x]}{320\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-\frac{11\,a\,\text{Sec}[c+d\,x]^3}{60\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}+\frac{77\,\text{Sec}[c+d\,x]}{128\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{11\,\text{Sec}[c+d\,x]^3}{40\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{\text{Sec}[c+d\,x]^5}{5\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 140 leaves):

$$\left(\left(3465+3465\,i\right)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)\,(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)+\frac{1}{16}\,\text{Sec}[c+d\,x]^5\left(11090+11352\,\text{Cos}[2\,(c+d\,x)]+2310\,\text{Cos}[4\,(c+d\,x)]+36850\,\text{Sin}[c+d\,x]+17787\,\text{Sin}[3\,(c+d\,x)]+3465\,\text{Sin}[5\,(c+d\,x)]\right)\right)\Big/\left(7680\,d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)$$

Problem 172: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^4}{(a+a\,\text{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 30 leaves, 1 step):

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

Result (type 3, 69 leaves):

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

Problem 174: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 76 leaves, 3 steps):

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

Result (type 3, 100 leaves):

$$\left(2\left((2+2\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right)\Big/\left(d\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\right)$$

Problem 176: Result unnecessarily involves imaginary or complex numbers.

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

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

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\sqrt{2}\,a^{3/2}\,d}-\frac{1}{3\,d\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}-\frac{1}{2\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 106 leaves):

$$\left(-2-3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2-(3+3\,i)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right)\Big/\left(6\,d\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\right)$$

Problem 177: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Sec}[c+d x]^2}{(a+a \operatorname{Sin}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 134 leaves, 5 steps):

$$-\frac{15 \operatorname{ArcTanh}\left[\frac{\sqrt{a} \operatorname{Cos}[c+d x]}{\sqrt{2} \sqrt{a+a \operatorname{Sin}[c+d x]}}\right]}{32 \sqrt{2} a^{3/2} d}-\frac{15 \operatorname{Cos}[c+d x]}{32 d (a+a \operatorname{Sin}[c+d x])^{3/2}}-\frac{\operatorname{Sec}[c+d x]}{4 d (a+a \operatorname{Sin}[c+d x])^{3/2}}+\frac{5 \operatorname{Sec}[c+d x]}{8 a d \sqrt{a+a \operatorname{Sin}[c+d x]}}$$

Result (type 3, 224 leaves):

$$\left(-4+\frac{8 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]}{\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]}+14 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right] \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)-7 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2+(15+15 i) (-1)^{3/4} \operatorname{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right) (-1)^{3/4} \left(-1+\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]\right)\right] \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3+\frac{8 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3}{\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]}\right) \Big/ \left(32 d (a (1+\operatorname{Sin}[c+d x]))^{3/2}\right)$$

Problem 178: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Sec}[c+d x]^3}{(a+a \operatorname{Sin}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 150 leaves, 7 steps):

$$\frac{7 \operatorname{ArcTanh}\left[\frac{\sqrt{a+a \operatorname{Sin}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{16 \sqrt{2} a^{3/2} d}-\frac{7}{24 d (a+a \operatorname{Sin}[c+d x])^{3/2}}-\frac{\operatorname{Sec}[c+d x]^2}{5 d (a+a \operatorname{Sin}[c+d x])^{3/2}}-\frac{7}{16 a d \sqrt{a+a \operatorname{Sin}[c+d x]}}+\frac{7 \operatorname{Sec}[c+d x]^2}{20 a d \sqrt{a+a \operatorname{Sin}[c+d x]}}$$

Result (type 3, 241 leaves):

$$\left(-40-\frac{24}{\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^2}-90\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^2-\right.$$
$$(105+105\,i)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]$$
$$\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^3+\frac{15\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^3}{\cos\left[\frac{1}{2}(c+d x)\right]-\sin\left[\frac{1}{2}(c+d x)\right]}+$$
$$\left.\frac{30\,\sin\left[\frac{1}{2}(c+d x)\right]\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^3}{\left(\cos\left[\frac{1}{2}(c+d x)\right]-\sin\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Big/\left(240\,d\,\left(a\,(1+\sin[c+d x])\right)^{3/2}\right)$$

Problem 179: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sec[c+d x]^4}{(a+a\,\sin[c+d x])^{3/2}}\,dx$$

Optimal (type 3, 195 leaves, 7 steps):

$$-\frac{105\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\cos[c+d x]}{\sqrt{2}\,\sqrt{a+a\,\sin[c+d x]}}\right]}{256\,\sqrt{2}\,a^{3/2}\,d}-\frac{105\,\cos[c+d x]}{256\,d\,(a+a\,\sin[c+d x])^{3/2}}-\frac{7\,\sec[c+d x]}{32\,d\,(a+a\,\sin[c+d x])^{3/2}}-$$
$$\frac{\sec[c+d x]^3}{6\,d\,(a+a\,\sin[c+d x])^{3/2}}+\frac{35\,\sec[c+d x]}{64\,a\,d\,\sqrt{a+a\,\sin[c+d x]}}+\frac{\sec[c+d x]^3}{4\,a\,d\,\sqrt{a+a\,\sin[c+d x]}}$$

Result (type 3, 334 leaves):

$$\frac{1}{768\,d\,\left(a\,(1+\sin[c+d x])\right)^{3/2}}\left(-68+\frac{64\,\sin\left[\frac{1}{2}(c+d x)\right]}{\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^3}-\right.$$
$$\frac{32}{\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^2}+\frac{136\,\sin\left[\frac{1}{2}(c+d x)\right]}{\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]}+$$
$$246\,\sin\left[\frac{1}{2}(c+d x)\right]\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)-$$
$$123\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^2+(315+315\,i)\,(-1)^{3/4}$$
$$\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^3+$$
$$\left.\frac{32\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^3}{\left(\cos\left[\frac{1}{2}(c+d x)\right]-\sin\left[\frac{1}{2}(c+d x)\right]\right)^3}+\frac{192\left(\cos\left[\frac{1}{2}(c+d x)\right]+\sin\left[\frac{1}{2}(c+d x)\right]\right)^3}{\cos\left[\frac{1}{2}(c+d x)\right]-\sin\left[\frac{1}{2}(c+d x)\right]}\right)$$

Problem 180: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 211 leaves, 9 steps):

$$\frac{99 \text{ArcTanh}\left[\frac{\sqrt{a+a \text{Sin}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{256 \sqrt{2} a^{3/2} d}-\frac{33}{128 d (a+a \text{Sin}[c+d x])^{3/2}}-\frac{99 \text{Sec}[c+d x]^2}{560 d (a+a \text{Sin}[c+d x])^{3/2}}-\frac{\text{Sec}[c+d x]^4}{7 d (a+a \text{Sin}[c+d x])^{3/2}}-\frac{99}{256 a d \sqrt{a+a \text{Sin}[c+d x]}}+\frac{99 \text{Sec}[c+d x]^2}{320 a d \sqrt{a+a \text{Sin}[c+d x]}}+\frac{11 \text{Sec}[c+d x]^4}{56 a d \sqrt{a+a \text{Sin}[c+d x]}}$$

Result (type 3, 376 leaves):

$$\frac{1}{8960 d (a (1+\text{Sin}[c+d x]))^{3/2}}\left(-1120-\frac{320}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{672}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-2800\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2-(3465+3465 i)(-1)^{1/4} \text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3+\frac{140\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}+\frac{665\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]}+\frac{280 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{1330 \text{Sin}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)$$

Problem 181: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sec}[c+d x]^6}{(a+a \text{Sin}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 256 leaves, 9 steps):

$$-\frac{3003\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d\,x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}\right]}{8192\,\sqrt{2}\,a^{3/2}\,d}-\frac{3003\,\text{Cos}[c+d\,x]}{8192\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{1001\,\text{Sec}[c+d\,x]}{5120\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{143\,\text{Sec}[c+d\,x]^3}{960\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{\text{Sec}[c+d\,x]^5}{8\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}+\frac{1001\,\text{Sec}[c+d\,x]}{2048\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{143\,\text{Sec}[c+d\,x]^3}{640\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{13\,\text{Sec}[c+d\,x]^5}{80\,a\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 444 leaves):

$$\frac{1}{122880\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}}\left(-8860+\frac{3840\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}-\frac{1920}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{9920\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}-\frac{4960}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{17720\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}+32490\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)-16245\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+(45045+45045\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3+\frac{1536\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}+\frac{6400\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+\frac{28800\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)$$

Problem 182: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cos}[c+d\,x]^{10}}{\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 95 leaves, 3 steps):

$$-\frac{64\,a^3\,\text{Cos}[c+d\,x]^{11}}{2145\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{11/2}}-\frac{16\,a^2\,\text{Cos}[c+d\,x]^{11}}{195\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{9/2}}-\frac{2\,a\,\text{Cos}[c+d\,x]^{11}}{15\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}}$$

Result (type 3, 865 leaves):

$$-\frac{45\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{64\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{65\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{192\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{\mathrm{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{320\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{5\,\mathrm{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{64\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{5\,\mathrm{Cos}\left[\frac{9}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{192\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{5\,\mathrm{Cos}\left[\frac{11}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{704\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{5\,\mathrm{Cos}\left[\frac{13}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{832\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{\mathrm{Cos}\left[\frac{15}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{960\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{45\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{64\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{65\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]}{192\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]}{320\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{5\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\mathrm{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]}{64\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{5\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\mathrm{Sin}\left[\frac{9}{2}\,(c+d\,x)\right]}{192\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}+$$

$$\frac{5\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\mathrm{Sin}\left[\frac{11}{2}\,(c+d\,x)\right]}{704\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{5\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\mathrm{Sin}\left[\frac{13}{2}\,(c+d\,x)\right]}{832\,d\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}}-$$

$$\frac{\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5\,\text{Sin}\left[\frac{15}{2}\left(c+d\,x\right)\right]}{960\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}$$

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

$$\int\frac{\text{Cos}[c+d\,x]^9}{\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

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

$$\frac{32\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}{5\,a^5\,d}-\frac{64\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{7/2}}{7\,a^6\,d}+\frac{16\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{9/2}}{3\,a^7\,d}-\frac{16\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{11/2}}{11\,a^8\,d}+\frac{2\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{13/2}}{13\,a^9\,d}$$

Result (type 3, 757 leaves):

$$\frac{9\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{8\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}-\frac{3\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{32\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{29\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{160\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{5\,\text{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{112\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{\text{Cos}\left[\frac{9}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{48\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{5\,\text{Cos}\left[\frac{11}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{352\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}-\frac{\text{Cos}\left[\frac{13}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{416\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{9\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{8\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{3\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]}{32\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{29\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]}{160\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}-\frac{5\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]}{112\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}+\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Sin}\left[\frac{9}{2}\,(c+d\,x)\right]}{48\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}-\frac{5\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Sin}\left[\frac{11}{2}\,(c+d\,x)\right]}{352\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}-\frac{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,\text{Sin}\left[\frac{13}{2}\,(c+d\,x)\right]}{416\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}$$

Problem 186: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cos}[c+d x]^6}{(a+a \text{Sin}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 30 leaves, 1 step):

$$-\frac{2 a \text{Cos}[c+d x]^7}{7 d (a+a \text{Sin}[c+d x])^{7/2}}$$

Result (type 3, 69 leaves):

$$-\left(\left(2 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^7 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5\right) \Big/ \left(7 d (a (1+\text{Sin}[c+d x]))^{5/2}\right)\right)$$

Problem 188: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cos}[c+d x]^4}{(a+a \text{Sin}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 108 leaves, 4 steps):

$$-\frac{4 \sqrt{2} \text{ArcTanh}\left[\frac{\sqrt{a} \text{Cos}[c+d x]}{\sqrt{2} \sqrt{a+a \text{Sin}[c+d x]}}\right]}{a^{5/2} d}+\frac{2 \text{Cos}[c+d x]^3}{3 a d (a+a \text{Sin}[c+d x])^{3/2}}+\frac{4 \text{Cos}[c+d x]}{a^2 d \sqrt{a+a \text{Sin}[c+d x]}}$$

Result (type 3, 128 leaves):

$$\left(\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5 \left((24+24 i) (-1)^{3/4} \text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right) (-1)^{3/4} \left(-1+\text{Tan}\left[\frac{1}{4} (c+d x)\right]\right)\right]+15 \text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Cos}\left[\frac{3}{2} (c+d x)\right]-15 \text{Sin}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{3}{2} (c+d x)\right]\right)\right) \Big/ \left(3 d (a (1+\text{Sin}[c+d x]))^{5/2}\right)$$

Problem 190: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 75 leaves, 3 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a} \text{Cos}[c+d x]}{\sqrt{2} \sqrt{a+a \text{Sin}[c+d x]}}\right]}{\sqrt{2} a^{5/2} d}-\frac{\text{Cos}[c+d x]}{a d (a+a \text{Sin}[c+d x])^{3/2}}$$

Result (type 3, 108 leaves):

$$-\left(\left(\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3\right.\right.$$
$$\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]+(1+i)(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\right.\right.$$
$$\left.\left.\left.\left(-1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]\right)(1+\text{Sin}[c+d x])\right)\Big/\left(d\left(a(1+\text{Sin}[c+d x])\right)^{5/2}\right)\Big)$$

Problem 192: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 113 leaves, 6 steps):

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

Result (type 3, 131 leaves):

$$\left(-12-10\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2-15\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4-\right.$$
$$(15+15 i)(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]$$
$$\left.\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5\right)\Big/\left(60 d\left(a(1+\text{Sin}[c+d x])\right)^{5/2}\right)$$

Problem 193: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 167 leaves, 6 steps):

$$-\frac{35\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d x]}{\sqrt{2}\sqrt{a+a\,\text{Sin}[c+d x]}}\right]}{128\sqrt{2}\,a^{5/2}\,d}-\frac{\text{Sec}[c+d x]}{6 d\,(a+a\,\text{Sin}[c+d x])^{5/2}}-$$
$$\frac{35\,\text{Cos}[c+d x]}{128 a d\,(a+a\,\text{Sin}[c+d x])^{3/2}}-\frac{7\,\text{Sec}[c+d x]}{48 a d\,(a+a\,\text{Sin}[c+d x])^{3/2}}+\frac{35\,\text{Sec}[c+d x]}{96 a^2 d\sqrt{a+a\,\text{Sin}[c+d x]}}$$

Result (type 3, 284 leaves):

$$\frac{1}{384\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}\left(-32+\frac{64\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}+\right.$$
$$88\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)-$$
$$44\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2+114\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]$$
$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3-57\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4+$$
$$(105+105\,i)\,(-1)^{3/4}\,\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]$$
$$\left.\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5+\frac{48\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)$$

Problem 194: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sec}[c+d\,x]^3}{\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 185 leaves, 8 steps):

$$\frac{9\,\text{ArcTanh}\left[\frac{\sqrt{a+a\,\text{Sin}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{32\,\sqrt{2}\,a^{5/2}\,d}-\frac{\text{Sec}[c+d\,x]^2}{7\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{5/2}}-\frac{3}{16\,a\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-$$
$$\frac{9\,\text{Sec}[c+d\,x]^2}{70\,a\,d\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}}-\frac{9}{32\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{9\,\text{Sec}[c+d\,x]^2}{40\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}$$

Result (type 3, 266 leaves):

$$\frac{1}{1120\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}}\left(-112-\frac{80}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\right.$$
$$140\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2-280\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4-$$
$$(315+315\,i)\,(-1)^{1/4}\,\text{ArcTan}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{1/4}\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right]$$
$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5+\frac{35\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}+$$
$$\left.\frac{70\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 195: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sec}[c+d x]^4}{(a+a\,\text{Sin}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 233 leaves, 8 steps):

$$-\frac{1155\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Cos}[c+d x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sin}[c+d x]}}\right]}{4096\,\sqrt{2}\,a^{5/2}\,d}-\frac{\text{Sec}[c+d x]^3}{8\,d\,(a+a\,\text{Sin}[c+d x])^{5/2}}-\frac{1155\,\text{Cos}[c+d x]}{4096\,a\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}-\frac{77\,\text{Sec}[c+d x]}{512\,a\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}-\frac{11\,\text{Sec}[c+d x]^3}{96\,a\,d\,(a+a\,\text{Sin}[c+d x])^{3/2}}+\frac{385\,\text{Sec}[c+d x]}{1024\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d x]}}+\frac{11\,\text{Sec}[c+d x]^3}{64\,a^2\,d\,\sqrt{a+a\,\text{Sin}[c+d x]}}$$

Result (type 3, 394 leaves):

$$\frac{1}{12288\,d\,(a\,(1+\text{Sin}[c+d x]))^{5/2}}\left(-736+\frac{768\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}-\frac{384}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}+\right.$$
$$\frac{1472\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]}{\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]}+2072\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]$$
$$\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)-1036\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2+$$
$$3090\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3-$$
$$1545\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4+(3465+3465\,i)\,(-1)^{3/4}$$
$$\text{ArcTanh}\left[\left(\frac{1}{2}+\frac{i}{2}\right)(-1)^{3/4}\left(-1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5+$$
$$\left.\frac{256\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5}{\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}+\frac{1920\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5}{\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]}\right)$$

Problem 197: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

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

$$-\frac{2\,a\,\left(e\,\text{Cos}[c+d\,x]\right)^{7/2}}{7\,d\,e}+\frac{6\,a\,e^2\,\sqrt{e\,\text{Cos}[c+d\,x]}\;\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{5\,d\,\sqrt{\text{Cos}[c+d\,x]}}+\frac{2\,a\,e\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\text{Sin}[c+d\,x]}{5\,d}$$

Result (type 5, 264 leaves):

$$\frac{1}{560\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}\,a\,e^3\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}\right]\,\Big(-154\,\text{Cos}[d\,x]-182\,\text{Cos}[2\,c+d\,x]+14\,\text{Cos}[2\,c+3\,d\,x]-14\,\text{Cos}[4\,c+3\,d\,x]-30\,\text{Sin}[c]+168\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,d\,x}\,\left(\text{Cos}[c]+i\,\text{Sin}[c]\right)^2\right]\left(\text{Cos}[d\,x]-i\,\text{Sin}[d\,x]\right)\,\sqrt{1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}+56\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{3}{4},\,\frac{7}{4},\,-e^{2\,i\,d\,x}\,\left(\text{Cos}[c]+i\,\text{Sin}[c]\right)^2\right]\left(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]\right)\,\sqrt{1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}+20\,\text{Sin}[c+2\,d\,x]-20\,\text{Sin}[3\,c+2\,d\,x]+5\,\text{Sin}[3\,c+4\,d\,x]-5\,\text{Sin}[5\,c+4\,d\,x]\Big)$$

Problem 199: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+a\,\text{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 4, 63 leaves, 3 steps):

$$-\frac{2\,a\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}{3\,d\,e}+\frac{2\,a\,\sqrt{e\,\text{Cos}[c+d\,x]}\;\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{d\,\sqrt{\text{Cos}[c+d\,x]}}$$

Result (type 5, 260 leaves):

$$\frac{1}{6\,d\,\left(\left(1+e^{2\,i\,d\,x}\right)\,\text{Cos}[c]+i\,\left(-1+e^{2\,i\,d\,x}\right)\,\text{Sin}[c]\right)}\,a\,\sqrt{e\,\text{Cos}[c+d\,x]}\;\text{Csc}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}\right]\,\left(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]\right)\,\Big(-6\,\text{Cos}[d\,x]-6\,\text{Cos}[2\,c+d\,x]-2\,\text{Sin}[c]+6\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,d\,x}\,\left(\text{Cos}[c]+i\,\text{Sin}[c]\right)^2\right]\left(\text{Cos}[d\,x]-i\,\text{Sin}[d\,x]\right)\,\sqrt{1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}+2\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{3}{4},\,\frac{7}{4},\,-e^{2\,i\,d\,x}\,\left(\text{Cos}[c]+i\,\text{Sin}[c]\right)^2\right]\left(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]\right)\,\sqrt{1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}+\text{Sin}[c+2\,d\,x]-\text{Sin}[3\,c+2\,d\,x]\Big)$$

Problem 201: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

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

Optimal (type 4, 91 leaves, 4 steps):

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

Result (type 5, 188 leaves):

$$-\frac{1}{6\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}\,a\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}\right]\left(-6\,(\text{Cos}[d\,x]+\text{Sin}[c])+3\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,d\,x}\,(\text{Cos}[c]+i\,\text{Sin}[c])^2\right]\right.$$
$$(\text{Cos}[d\,x]-i\,\text{Sin}[d\,x])\,\sqrt{1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}\,+$$
$$\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},-e^{2\,i\,d\,x}\,(\text{Cos}[c]+i\,\text{Sin}[c])^2\right]$$
$$\left.(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\sqrt{1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}\right)$$

Problem 203: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 126 leaves, 5 steps):

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

Result (type 5, 160 leaves):

$$\left(2\,a\,\sqrt{e\,\text{Cos}[c+d\,x]}\,(\text{Cos}[c+d\,x]-i\,\text{Sin}[c+d\,x])\left(3\,i+\text{Cos}[c+d\,x]+3\,i\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right.\right.$$
$$\left.\left.\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\,(-1+\text{Sin}[c+d\,x])-2\,i\,\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(5\,d\,e^4\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)$$

Problem 210: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 89 leaves, 4 steps):

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

Result (type 4, 1198 leaves):

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

$$\left(2 \text{Cos}[c+d x]^2 \left(-\frac{\text{Cos}\left[\frac{1}{2} (c+d x)\right] \sqrt{\text{Cos}[c+d x]}}{3 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}-\right.\right.$$

$$\left.\frac{\sqrt{\text{Cos}[c+d x]}\ \text{Sin}\left[\frac{1}{2} (c+d x)\right]}{3 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}\right) (a+a \text{Sin}[c+d x])^2$$

$$\left(\text{Cos}[c+d x]-2 \sqrt{2}\ \text{Cos}\left[\frac{1}{4} (c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2} (c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2} (c+d x)\right]}}\right.$$

$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4} (c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right],17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}\right)\right)\Big/$$

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

$$\left(\left(\text{Sin}[c+d x] \left(\text{Cos}[c+d x]-2 \sqrt{2}\ \text{Cos}\left[\frac{1}{4} (c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2} (c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2} (c+d x)\right]}}\right.\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4} (c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right],17-12 \sqrt{2}\right]$$

$$\left.\left.\sqrt{3-2 \sqrt{2}-\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}\right)\right)\Big/\left(3 \text{Cos}[c+d x]^{3/2}\right)+$$

$$\frac{1}{3 \sqrt{\text{Cos}[c+d x]}}2 \left(-\text{Sin}[c+d x]+\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2} (c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2} (c+d x)\right]}}\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\text{Tan}\left[\frac{1}{4}(c+d x)\right]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}+\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]\right.$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\text{Sin}\left[\frac{1}{4}(c+d x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}-$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right.$$

$$\left(\frac{\left(-2+\sqrt{2}\right)\text{Sin}\left[\frac{1}{2}(c+d x)\right]}{2\left(1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)\right.\right.$$

$$\left.\left.\left.\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\Bigg/\left(2\left(1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)^2\right)\right)$$

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\Bigg/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right)-$$

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\Bigg/$$

$$\left.\left.\left.\left.\left(\sqrt{2\left(3-2\sqrt{2}\right)}\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\right)\right)\right)\right)\right)$$

Problem 212: Result more than twice size of optimal antiderivative.

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

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

$$\frac{2 a^2 \sqrt{\text{Cos}[c+d x]}\ \text{EllipticF}\left[\frac{1}{2} (c+d x), 2\right]}{7 d e^4 \sqrt{e \text{Cos}[c+d x]}}+\frac{2 a^2 \text{Sin}[c+d x]}{7 d e^3 (e \text{Cos}[c+d x])^{3/2}}+\frac{4 \left(a^2+a^2 \text{Sin}[c+d x]\right)}{7 d e (e \text{Cos}[c+d x])^{7/2}}$$

Result (type 4, 1227 leaves):

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

$$\left(2 \text{Cos}[c+d x]^4 \left(\frac{\text{Cos}\left[\frac{1}{2} (c+d x)\right] \sqrt{\text{Cos}[c+d x]}}{7 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}+\frac{\sqrt{\text{Cos}[c+d x]}\ \text{Sin}\left[\frac{1}{2} (c+d x)\right]}{7 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}\right) (a+a \text{Sin}[c+d x])^2 \left(\text{Cos}[c+d x]-2 \sqrt{2}\ \text{Cos}\left[\frac{1}{4} (c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2} (c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2} (c+d x)\right]}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4} (c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}\right)\right) \Big/$$

$$\left(7 d (e \text{Cos}[c+d x])^{9/2} \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4\right.$$

$$\left(-\left(\left(\text{Sin}[c+d x] \left(\text{Cos}[c+d x]-2 \sqrt{2}\ \text{Cos}\left[\frac{1}{4} (c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \text{Cos}\left[\frac{1}{2} (c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2} (c+d x)\right]}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4} (c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}\right)\right) \Big/ \left(7 \text{Cos}[c+d x]^{3/2}\right)\right) -$$

$$
\begin{aligned}
&\frac{1}{7\sqrt{\text{Cos}[c+d\,x]}}\,2\left(-\text{Sin}[c+d\,x]+\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\right.\right.\\
&\quad\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]\right)\Big/\\
&\quad\left(\sqrt{2}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}\right)+\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\left(c+d\,x\right)\right]\\
&\quad\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.\\
&\quad\left.17-12\sqrt{2}\right]\text{Sin}\left[\frac{1}{4}\left(c+d\,x\right)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}-\\
&\quad\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right.\\
&\quad\left(\frac{\left(-2+\sqrt{2}\right)\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{2\left(1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\right.\right.\\
&\quad\left.\left.\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\Big/\left(2\left(1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^{2}\right)\right)\\
&\quad\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}\right)\Big/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\right)-\\
&\quad\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\ \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}\right)\Big/\\
&\quad\left.\left.\left(\sqrt{2\left(3-2\sqrt{2}\right)}\ \sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}{3-2\sqrt{2}}}\ \sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}{3-2\sqrt{2}}}\right)\right)\right)
\end{aligned}
$$

Problem 222: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 127 leaves, 5 steps):

$$-\frac{2\,a^3\,\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{21\,d\,e^4\,\sqrt{e\,\text{Cos}[c+d\,x]}}+\frac{4\,a^5\,\sqrt{e\,\text{Cos}[c+d\,x]}}{7\,d\,e^5\,(a-a\,\text{Sin}[c+d\,x])^2}-\frac{2\,a^6\,\sqrt{e\,\text{Cos}[c+d\,x]}}{21\,d\,e^5\,(a^3-a^3\,\text{Sin}[c+d\,x])}$$

Result (type 4, 1227 leaves):

$$\left(\text{Cos}[c+d\,x]^5\left(-\frac{2}{21}+\frac{4}{7\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{2}{21\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)(a+a\,\text{Sin}[c+d\,x])^3\right)\Big/\left(d\,(e\,\text{Cos}[c+d\,x])^{9/2}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\right)+$$

$$\left(2\,\text{Cos}[c+d\,x]^4\left(-\frac{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\text{Cos}[c+d\,x]}}{21\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\sqrt{\text{Cos}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{21\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)(a+a\,\text{Sin}[c+d\,x])^3\right.$$

$$\left(\text{Cos}[c+d\,x]-2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right.$$

$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)\right)\Big/$$

$$\left(21\,d\,(e\,\text{Cos}[c+d\,x])^{9/2}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\right.$$

$$\left(\left(\text{Sin}[c+d\,x]\left(\text{Cos}[c+d\,x]-2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right.\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right]$$

$$\left.\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/ \left(21\,\text{Cos}[c+d x]^{3/2}\right)+$$

$$\frac{1}{21\sqrt{\text{Cos}[c+d x]}}\,2\left(-\text{Sin}[c+d x]+\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right.\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right]\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right) \Big/$$

$$\left(\sqrt{2}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)+\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\text{Sin}\left[\frac{1}{4}(c+d x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}-$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right]\right.$$

$$\left(\frac{\left(-2+\sqrt{2}\right)\text{Sin}\left[\frac{1}{2}(c+d x)\right]}{2\left(1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)\right.\right.$$

$$\left.\left.\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(2\left(1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)^2\right)\right)$$

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\Big/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right)-$$

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\Big/$$

$$\left(\sqrt{2\left(3-2\sqrt{2}\right)}\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 230: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+a\,\text{Sin}[c+d x])^4}{(e\,\text{Cos}[c+d x])^{9/2}}\,dx$$

Optimal (type 4, 127 leaves, 5 steps):

$$\frac{10 a^4 \sqrt{\text{Cos}[c+d x]}\ \text{EllipticF}\left[\frac{1}{2}(c+d x),2\right]}{21 d e^4 \sqrt{e\,\text{Cos}[c+d x]}}+\frac{4 a^7 (e\,\text{Cos}[c+d x])^{5/2}}{7 d e^7 (a-a\,\text{Sin}[c+d x])^3}-\frac{20 a^8 \sqrt{e\,\text{Cos}[c+d x]}}{21 d e^5 \left(a^4-a^4\,\text{Sin}[c+d x]\right)}$$

Result (type 4, 1227 leaves):

$$\left(\text{Cos}[c+d x]^5\left(\frac{10}{21}+\frac{8}{7\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{32}{21\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)(a+a\,\text{Sin}[c+d x])^4\right)\Bigg/\left(d\,(e\,\text{Cos}[c+d x])^{9/2}\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\right)-$$

$$\left(10\,\text{Cos}[c+d x]^4\left(\frac{5\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\text{Cos}[c+d x]}}{21\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{5\sqrt{\text{Cos}[c+d x]}\ \text{Sin}\left[\frac{1}{2}(c+d x)\right]}{21\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}\right)(a+a\,\text{Sin}[c+d x])^4\right.$$

$$\left(\text{Cos}[c+d x]-2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right.$$

$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right)\Bigg/$$

$$\left(21\,d\,(e\,\mathrm{Cos}[c+d\,x])^{9/2}\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^{8}\right.$$

$$\left(-\left(\left(5\,\mathrm{Sin}[c+d\,x]\left(\mathrm{Cos}[c+d\,x]-2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{4}(c+d\,x)\right]^{2}\right.\right.\right.\right.$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.\left.\left.\left.17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^{2}}\right)\right)\Big/\left(21\,\mathrm{Cos}[c+d\,x]^{3/2}\right)\right)-$$

$$\frac{1}{21\sqrt{\mathrm{Cos}[c+d\,x]}}\,10\left(-\mathrm{Sin}[c+d\,x]+\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right.\right.$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\Big/$$

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

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\mathrm{Sin}\left[\frac{1}{4}(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^{2}}\;-$$

$$\left(\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{4}(c+d\,x)\right]^{2}\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right.$$

$$\left(\frac{\left(-2+\sqrt{2}\right)\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{2\left(1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right)\right.\right.$$

$$\left.\left.\left.\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left(2\left(1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right)^{2}\right)\right)$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\Bigg/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+dx)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+dx)\right]}}\right)-$$

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+dx)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+dx)\right]}}\ \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\right)\Bigg/$$

$$\left(\sqrt{2\left(3-2\sqrt{2}\right)}\ \sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{3-2\sqrt{2}}}\ \sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{3-2\sqrt{2}}}\right)\Bigg)\Bigg)\Bigg)$$

Problem 232: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+a\,\text{Sin}[c+dx])^4}{(e\,\text{Cos}[c+dx])^{13/2}}\,dx$$

Optimal (type 4, 169 leaves, 6 steps):

$$-\frac{2a^4\sqrt{\text{Cos}[c+dx]}\ \text{EllipticF}\left[\frac{1}{2}(c+dx),2\right]}{77\,d\,e^6\sqrt{e\,\text{Cos}[c+dx]}}+\frac{4a^7\sqrt{e\,\text{Cos}[c+dx]}}{11\,d\,e^7\,(a-a\,\text{Sin}[c+dx])^3}-$$

$$\frac{2a^8\sqrt{e\,\text{Cos}[c+dx]}}{77\,d\,e^7\left(a^2-a^2\,\text{Sin}[c+dx]\right)^2}-\frac{2a^8\sqrt{e\,\text{Cos}[c+dx]}}{77\,d\,e^7\left(a^4-a^4\,\text{Sin}[c+dx]\right)}$$

Result (type 4, 1256 leaves):

$$\Bigg(\text{Cos}[c+dx]^7$$

$$\left(-\frac{2}{77}+\frac{4}{11\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^6}-\frac{2}{77\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^4}-\right.$$

$$\left.\frac{2}{77\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2}\right)(a+a\,\text{Sin}[c+dx])^4\Bigg)\Bigg/$$

$$\left(d\,(e\,\text{Cos}[c+dx])^{13/2}\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^8\right)+$$

$$\Bigg(2\,\text{Cos}[c+dx]^6\left(-\frac{\text{Cos}\left[\frac{1}{2}(c+dx)\right]\sqrt{\text{Cos}[c+dx]}}{77\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)}-\right.$$

$$\left.\frac{\sqrt{\text{Cos}[c+dx]}\ \text{Sin}\left[\frac{1}{2}(c+dx)\right]}{77\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)}\right)(a+a\,\text{Sin}[c+dx])^4$$

$$\left(\text{Cos}[c+d x]-2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right.$$

$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right)\Big/$$

$$\left(77\,d\,(e\,\text{Cos}[c+d x])^{13/2}\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8\right.$$

$$\left(\left(\text{Sin}[c+d x]\left(\text{Cos}[c+d x]-2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right.\right.\right.$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\left.\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right)\Big/\left(77\,\text{Cos}[c+d x]^{3/2}\right)+$$

$$\frac{1}{77\sqrt{\text{Cos}[c+d x]}}\,2\left(-\text{Sin}[c+d x]+\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right.\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\text{Tan}\left[\frac{1}{4}(c+d x)\right]\right)\Big/$$

$$\left(\sqrt{2}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)+\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\text{Sin}\left[\frac{1}{4}(c+d x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}-$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right.$$

$$\left(\frac{\left(-2+\sqrt{2}\right)\text{Sin}\left[\frac{1}{2}(c+d x)\right]}{2\left(1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)\right.\right.$$

$$\left.\left.\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(2\left(1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]\right)^2\right)\right)$$

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\Big/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}-\right.$$

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\Big/$$

$$\left.\left.\left.\left(\sqrt{2\left(3-2\sqrt{2}\right)}\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\right)\right)\right)\right)$$

Problem 237: Result more than twice size of optimal antiderivative.

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

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

$$\frac{2e\sqrt{e\,\text{Cos}[c+d x]}}{a d}+\frac{2e^2\sqrt{\text{Cos}[c+d x]}\ \text{EllipticF}\left[\frac{1}{2}(c+d x),2\right]}{a d\sqrt{e\,\text{Cos}[c+d x]}}$$

Result (type 4, 1089 leaves):

$$\left(2\,(e\,\text{Cos}[c+d x])^{3/2}\,\text{Sec}[c+d x]^2\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2\right.$$

$$\left(\frac{\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\text{Cos}[c+d x]}}{\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]}-\frac{\sqrt{\text{Cos}[c+d x]}\ \text{Sin}\left[\frac{1}{2}(c+d x)\right]}{\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]}\right)$$

$$\left(\text{Cos}[c+d x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right.$$

$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right)\Big/$$

$$\left(d\left(a+a\,\text{Sin}[c+d\,x]\right)\left(\frac{1}{\text{Cos}[c+d\,x]^{3/2}}\text{Sin}[c+d\,x]\right.\right.$$

$$\left(\text{Cos}[c+d\,x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\right)+$$

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

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]\right)\Big/$$

$$\left(\sqrt{2}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\right)-\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\left(c+d\,x\right)\right]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\text{Sin}\left[\frac{1}{4}\left(c+d\,x\right)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}+$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right.$$

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

$$\left.\left.\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\Big/\left(2\left(1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2\right)\right)$$

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\right)\Big/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\right)+$$

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{3-2\,\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}\right)\Bigg/$$

$$\left(\sqrt{2\left(3-2\,\sqrt{2}\right)}\;\sqrt{1-\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}{3-2\,\sqrt{2}}}\;\sqrt{1-\frac{\left(17-12\,\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}{3-2\,\sqrt{2}}}\right)\Bigg)\Bigg)\Bigg)$$

Problem 239: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}\,dx$$

Optimal (type 4, 78 leaves, 3 steps):

$$\frac{2\,\sqrt{\mathrm{Cos}[c+d\,x]}\;\mathrm{EllipticF}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{3\,a\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}-\frac{2\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{3\,d\,e\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)}$$

Result (type 4, 1182 leaves):

$$\Bigg(\mathrm{Cos}[c+d\,x]\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{2}$$

$$\left(-\frac{2}{3}-\frac{2}{3\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{2}}\right)\Bigg)\Bigg/$$

$$\left(d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\right)+\Bigg(2\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{2}$$

$$\left(\frac{\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\mathrm{Cos}[c+d\,x]}}{3\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\sqrt{\mathrm{Cos}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{3\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)$$

$$\Bigg(\mathrm{Cos}[c+d\,x]+2\,\sqrt{2}\;\mathrm{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\sqrt{3-2\,\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(3\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)\Bigg(\Bigg(\mathrm{Sin}[c+d\,x]\Bigg(\mathrm{Cos}[c+d\,x]+2\,\sqrt{2}\;\mathrm{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\right.$$

$$\left.17-12\,\sqrt{2}\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]^2}\,\Bigg)\Bigg)\Bigg/\left(3\,\text{Cos}\left[c+d\,x\right]^{3/2}\right)+$$

$$\frac{1}{3\,\sqrt{\text{Cos}\left[c+d\,x\right]}}\,2\,\left(-\text{Sin}\left[c+d\,x\right]-\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}}\right.\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\,\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]\right)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]^2}\right)-\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\right.$$

$$\left.17-12\,\sqrt{2}\right]\,\text{Sin}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]^2}\;+$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]^2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\right.$$

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

$$\left.\left.\text{Sin}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\Bigg/\left(2\,\left(1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)^2\right)\right)$$

$$\left.\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]^2}\right)\Bigg/\left(\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}}\right)+\right.$$

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]}}\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,\left(c+d\,x\right)\right]^2}\right)\Bigg/$$

$$\left(\sqrt{2\left(3-2\sqrt{2}\right)}\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 247: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 83 leaves, 3 steps):

$$-\frac{2\,e^2\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}(c+d\,x),2\right]}{3\,a^2\,d\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{4\,e\sqrt{e\,\text{Cos}[c+d\,x]}}{3\,d\left(a^2+a^2\,\text{Sin}[c+d\,x]\right)}$$

Result (type 4, 1190 leaves):

$$\left((e\,\text{Cos}[c+d\,x])^{3/2}\,\text{Sec}[c+d\,x]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\right.$$

$$\left.\left(\frac{2}{3}-\frac{4}{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/\left(d\,(a+a\,\text{Sin}[c+d\,x])^2\right)-$$

$$\left(2\,(e\,\text{Cos}[c+d\,x])^{3/2}\,\text{Sec}[c+d\,x]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\right.$$

$$\left(-\frac{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\text{Cos}[c+d\,x]}}{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\sqrt{\text{Cos}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)$$

$$\left(\text{Cos}[c+d\,x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right.$$

$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)\right)\Big/$$

$$\left(3\,d\,(a+a\,\text{Sin}[c+d\,x])^2\right)\left(-\left(\left(\text{Sin}[c+d\,x]\left(\text{Cos}[c+d\,x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2\right.\right.\right.\right.$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$17-12\sqrt{2}\Big]\sqrt{3-2\sqrt{2}-\mathrm{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}\Bigg)\Bigg)\Big/\left(3\,\mathrm{Cos}[c+d\,x]^{3/2}\right)\Bigg)-$$

$$\frac{1}{3\sqrt{\mathrm{Cos}[c+d\,x]}}\,2\left(-\mathrm{Sin}[c+d\,x]-\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right.\right.$$

$$\left.\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\Big],17-12\sqrt{2}\Big]\,\mathrm{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]\right)\Big/$$

$$\left(\sqrt{2}\sqrt{3-2\sqrt{2}-\mathrm{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}\right)-\sqrt{2}\,\mathrm{Cos}\Big[\frac{1}{4}(c+d\,x)\Big]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\;\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\Big],$$

$$17-12\sqrt{2}\Big]\,\mathrm{Sin}\Big[\frac{1}{4}(c+d\,x)\Big]\sqrt{3-2\sqrt{2}-\mathrm{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}+$$

$$\left(\sqrt{2}\,\mathrm{Cos}\Big[\frac{1}{4}(c+d\,x)\Big]^2\,\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\Big],17-12\sqrt{2}\Big]\right.$$

$$\left(\frac{\left(-2+\sqrt{2}\right)\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{2\left(1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\right)\right.\right.$$

$$\left.\left.\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\right)\Big/\left(2\left(1+\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\right)^2\right)\right)$$

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

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\sqrt{3-2\sqrt{2}-\mathrm{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}\right)\Big/$$

$$\left.\left.\left.\left(\sqrt{2\left(3-2\sqrt{2}\right)}\sqrt{1-\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right)\right)\right)\right)$$

Problem 249: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{e \operatorname{Cos}[c+d x]}\ (a+a \operatorname{Sin}[c+d x])^2}\, dx$$

Optimal (type 4, 116 leaves, 4 steps):

$$\frac{2 \sqrt{\operatorname{Cos}[c+d x]}\ \operatorname{EllipticF}\left[\frac{1}{2}(c+d x), 2\right]}{7 a^2 d \sqrt{e \operatorname{Cos}[c+d x]}} - \frac{2 \sqrt{e \operatorname{Cos}[c+d x]}}{7 d e\, (a+a \operatorname{Sin}[c+d x])^2} - \frac{2 \sqrt{e \operatorname{Cos}[c+d x]}}{7 d e\, \left(a^2+a^2 \operatorname{Sin}[c+d x]\right)}$$

Result (type 4, 1209 leaves):

$$\left(\operatorname{Cos}[c+d x] \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4 \left(-\frac{2}{7}-\frac{2}{7 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{2}{7 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right) \Big/$$
$$\left(d \sqrt{e \operatorname{Cos}[c+d x]}\ (a+a \operatorname{Sin}[c+d x])^2\right) + \left(2 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4\right.$$
$$\left(\frac{\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\operatorname{Cos}[c+d x]}}{7 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)} - \frac{\sqrt{\operatorname{Cos}[c+d x]}\ \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{7 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}\right)$$
$$\left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}}\right.$$
$$\left.\left.\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/$$
$$\left(7 d \sqrt{e \operatorname{Cos}[c+d x]}\ (a+a \operatorname{Sin}[c+d x])^2\right) \left(\left(\operatorname{Sin}[c+d x] \left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2\right.\right.\right.$$
$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}}\ \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right],\right.$$
$$\left.\left.\left.17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/ \left(7 \operatorname{Cos}[c+d x]^{3/2}\right) +$$

$$
\begin{aligned}
&\frac{1}{7\sqrt{\operatorname{Cos}[c+d\,x]}}\,2\,\Bigg(-\operatorname{Sin}[c+d\,x]-\Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\\
&\quad \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\Bigg)\Bigg/\\
&\quad \Bigg(\sqrt{2}\,\sqrt{3-2\sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}\Bigg)-\sqrt{2}\,\operatorname{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]\\
&\quad \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.\\
&\quad \left.17-12\sqrt{2}\right]\operatorname{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}\;+\\
&\quad \Bigg(\sqrt{2}\,\operatorname{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\\
&\qquad \Bigg(\frac{\left(-2+\sqrt{2}\right)\operatorname{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\left(1+\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}+\Bigg(\Big(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\Big)\\
&\qquad\quad \operatorname{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)\Bigg/\left(2\left(1+\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^{2}\right)\Bigg)\\
&\qquad \sqrt{3-2\sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}\Bigg)\Bigg/\Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg)+\\
&\quad \Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{3-2\sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}\Bigg)\Bigg/\\
&\quad \Bigg(\sqrt{2\left(3-2\sqrt{2}\right)}\;\sqrt{1-\frac{\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}{3-2\sqrt{2}}}\;\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\operatorname{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{2}}{3-2\sqrt{2}}}\Bigg)\Bigg)\Bigg)\Bigg)
\end{aligned}
$$

Problem 259: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 118 leaves, 4 steps):

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

Result (type 4, 1217 leaves):

$$\left((e \operatorname{Cos}[c+d x])^{3/2} \operatorname{Sec}[c+d x] \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6 \left(\frac{2}{21}-\frac{4}{7 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{2}{21 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right) \Big/ \left(d (a+a \operatorname{Sin}[c+d x])^3\right)-$$

$$\left(2 (e \operatorname{Cos}[c+d x])^{3/2} \operatorname{Sec}[c+d x]^2 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6 \left(-\frac{\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\operatorname{Cos}[c+d x]}}{21 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{\sqrt{\operatorname{Cos}[c+d x]} \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{21 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}\right) \left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/$$

$$\left(21 d (a+a \operatorname{Sin}[c+d x])^3 \left(-\left(\left(\operatorname{Sin}[c+d x] \left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/ \left(21 \operatorname{Cos}[c+d x]^{3/2}\right)\right)-\right.\right.$$

$$\frac{1}{21\,\sqrt{\text{Cos}[c+d\,x]}}\,2\,\Bigg(-\text{Sin}[c+d\,x]-\Bigg(\Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\Bigg)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\right.$$

$$\left.17-12\,\sqrt{2}\right]\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;+$$

$$\Bigg(\sqrt{2}\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]$$

$$\Bigg(\frac{\left(-2+\sqrt{2}\right)\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\left(1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}+\Bigg(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)\Bigg/\left(2\,\left(1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Bigg)$$

$$\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\Bigg)\Bigg/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right)\;+$$

$$\Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\Bigg)\Bigg/$$

$$\left(\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\;\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{3-2\,\sqrt{2}}}\;\sqrt{1-\frac{\left(17-12\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{3-2\,\sqrt{2}}}\right)\Bigg)\Bigg)\Bigg)$$

Problem 261: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+a\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 4, 153 leaves, 5 steps):

$$\frac{10\sqrt{\text{Cos}[c+d x]}\ \text{EllipticF}\left[\frac{1}{2}(c+d x),2\right]}{77 a^3 d\sqrt{e\,\text{Cos}[c+d x]}}-\frac{2\sqrt{e\,\text{Cos}[c+d x]}}{11 d e\,(a+a\,\text{Sin}[c+d x])^3}-\frac{10\sqrt{e\,\text{Cos}[c+d x]}}{77 a d e\,(a+a\,\text{Sin}[c+d x])^2}-\frac{10\sqrt{e\,\text{Cos}[c+d x]}}{77 d e\,(a^3+a^3\,\text{Sin}[c+d x])}$$

Result (type 4, 1236 leaves):

$$\Bigg(\text{Cos}[c+d x]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6\Bigg(-\frac{10}{77}-\frac{2}{11\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}-\frac{10}{77\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}-\frac{10}{77\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\Bigg)\Bigg)\Bigg/$$

$$\left(d\sqrt{e\,\text{Cos}[c+d x]}\ (a+a\,\text{Sin}[c+d x])^3\right)+\Bigg(10\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6$$

$$\left(\frac{5\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\text{Cos}[c+d x]}}{77\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{5\sqrt{\text{Cos}[c+d x]}\ \text{Sin}\left[\frac{1}{2}(c+d x)\right]}{77\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}\right)$$

$$\Bigg(\text{Cos}[c+d x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(77 d\sqrt{e\,\text{Cos}[c+d x]}\ (a+a\,\text{Sin}[c+d x])^3\Bigg)\Bigg(\Bigg(5\,\text{Sin}[c+d x]\Bigg(\text{Cos}[c+d x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d x)\right]}}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\Bigg)\Bigg)\Bigg/\left(77\,\text{Cos}[c+d x]^{3/2}\right)+$$

$$\frac{1}{77\sqrt{\text{Cos}[c+d\,x]}}\,10\,\Bigg(-\text{Sin}[c+d\,x]-\Bigg(\Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}$$

$$\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\Big],\,17-12\sqrt{2}\Big]\,\text{Tan}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]\Bigg)\Big/$$

$$\Bigg(\sqrt{2}\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]^{2}}\Bigg)-\sqrt{2}\,\text{Cos}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\Big],$$

$$17-12\sqrt{2}\Big]\,\text{Sin}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]^{2}}\;+$$

$$\Bigg(\sqrt{2}\,\text{Cos}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]^{2}\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\Big],\,17-12\sqrt{2}\Big]$$

$$\Bigg(\frac{\left(-2+\sqrt{2}\right)\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{2\left(1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)}+\Bigg(\Bigg(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\Big[\frac{1}{2}\left(c+d\,x\right)\Big]\Bigg)$$

$$\text{Sin}\Big[\frac{1}{2}\left(c+d\,x\right)\Big]\Bigg)\Big/\Bigg(2\left(1+\text{Cos}\Big[\frac{1}{2}\left(c+d\,x\right)\Big]\right)^{2}\Bigg)\Bigg)$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]^{2}}\Bigg)\Big/\Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\Bigg)\;+$$

$$\Bigg(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]}}\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\left(c+d\,x\right)\Big]^{2}}\Bigg)\Big/$$

$$\Bigg(\sqrt{2\left(3-2\sqrt{2}\right)}\,\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}{3-2\sqrt{2}}}\,\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{2}}{3-2\sqrt{2}}}\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 267: Result more than twice size of optimal antiderivative.

$$\int \frac{(e \operatorname{Cos}[c+d x])^{7/2}}{(a+a \operatorname{Sin}[c+d x])^4} \, dx$$

Optimal (type 4, 120 leaves, 4 steps):

$$\frac{10 e^4 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticF}\left[\frac{1}{2}(c+d x), 2\right]}{21 a^4 d \sqrt{e \operatorname{Cos}[c+d x]}} - \frac{4 e (e \operatorname{Cos}[c+d x])^{5/2}}{7 a d (a+a \operatorname{Sin}[c+d x])^3} + \frac{20 e^3 \sqrt{e \operatorname{Cos}[c+d x]}}{21 d (a^4+a^4 \operatorname{Sin}[c+d x])}$$

Result (type 4, 1219 leaves):

$$\left((e \operatorname{Cos}[c+d x])^{7/2} \operatorname{Sec}[c+d x]^3 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8 \left(-\frac{10}{21}-\frac{8}{7 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{32}{21 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right) \Big/ \left(d (a+a \operatorname{Sin}[c+d x])^4\right) +$$

$$\left(10 (e \operatorname{Cos}[c+d x])^{7/2} \operatorname{Sec}[c+d x]^4 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8 \left(\frac{5 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\operatorname{Cos}[c+d x]}}{21 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{5 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{21 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}\right) \left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/$$

$$\left(21 d (a+a \operatorname{Sin}[c+d x])^4 \left(\left(5 \operatorname{Sin}[c+d x] \left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/ \left(21 \operatorname{Cos}[c+d x]^{3/2}\right) +\right.\right.$$

$$
\begin{aligned}
&\frac{1}{21\sqrt{\text{Cos}[c+d\,x]}}\,10\,\Bigg(-\text{Sin}[c+d\,x]-\Bigg(\sqrt{\frac{-1+\sqrt{2}-\big(-2+\sqrt{2}\big)\,\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}{1+\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}}\\
&\quad\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\big[\tfrac{1}{4}\,(c+d\,x)\big]}{\sqrt{3-2\sqrt{2}}}\Big],\,17-12\sqrt{2}\Big]\,\text{Tan}\Big[\frac{1}{4}\,(c+d\,x)\Big]\Bigg)\Bigg/\\
&\quad\Bigg(\sqrt{2}\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\,(c+d\,x)\Big]^{2}}\Bigg)-\sqrt{2}\,\text{Cos}\Big[\frac{1}{4}\,(c+d\,x)\Big]\\
&\quad\sqrt{\frac{-1+\sqrt{2}-\big(-2+\sqrt{2}\big)\,\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}{1+\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}}\;\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\big[\tfrac{1}{4}\,(c+d\,x)\big]}{\sqrt{3-2\sqrt{2}}}\Big],\\
&\quad 17-12\sqrt{2}\Big]\,\text{Sin}\Big[\frac{1}{4}\,(c+d\,x)\Big]\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\,(c+d\,x)\Big]^{2}}\;+\\
&\quad\Bigg(\sqrt{2}\,\text{Cos}\Big[\frac{1}{4}\,(c+d\,x)\Big]^{2}\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\big[\tfrac{1}{4}\,(c+d\,x)\big]}{\sqrt{3-2\sqrt{2}}}\Big],\,17-12\sqrt{2}\Big]\\
&\quad\Bigg(\frac{\big(-2+\sqrt{2}\big)\,\text{Sin}\big[\tfrac{1}{2}\,(c+d\,x)\big]}{2\,\big(1+\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]\big)}+\Bigg(\Bigg(-1+\sqrt{2}-\big(-2+\sqrt{2}\big)\,\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Bigg)\\
&\quad\quad\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Bigg)\Bigg/\Bigg(2\,\Big(1+\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)^{2}\Bigg)\Bigg)\\
&\quad\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\,(c+d\,x)\Big]^{2}}\Bigg)\Bigg/\Bigg(\sqrt{\frac{-1+\sqrt{2}-\big(-2+\sqrt{2}\big)\,\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}{1+\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}}\Bigg)+\\
&\quad\Bigg(\sqrt{\frac{-1+\sqrt{2}-\big(-2+\sqrt{2}\big)\,\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}{1+\text{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]}}\;\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}\,(c+d\,x)\Big]^{2}}\Bigg)\Bigg/\\
&\quad\Bigg(\sqrt{2\,\big(3-2\sqrt{2}\big)}\;\sqrt{1-\frac{\text{Tan}\big[\tfrac{1}{4}\,(c+d\,x)\big]^{2}}{3-2\sqrt{2}}}\;\sqrt{1-\frac{\big(17-12\sqrt{2}\big)\,\text{Tan}\big[\tfrac{1}{4}\,(c+d\,x)\big]^{2}}{3-2\sqrt{2}}}\Bigg)\Bigg)\Bigg)\Bigg)
\end{aligned}
$$

Problem 269: Result more than twice size of optimal antiderivative.

$$\int \frac{(e \operatorname{Cos}[c+d x])^{3/2}}{(a+a \operatorname{Sin}[c+d x])^4} \, dx$$

Optimal (type 4, 154 leaves, 5 steps):

$$-\frac{2 e^2 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticF}\left[\frac{1}{2}(c+d x), 2\right]}{77 a^4 d \sqrt{e \operatorname{Cos}[c+d x]}}-\frac{4 e \sqrt{e \operatorname{Cos}[c+d x]}}{11 a d (a+a \operatorname{Sin}[c+d x])^3}+\frac{2 e \sqrt{e \operatorname{Cos}[c+d x]}}{77 d \left(a^2+a^2 \operatorname{Sin}[c+d x]\right)^2}+\frac{2 e \sqrt{e \operatorname{Cos}[c+d x]}}{77 d \left(a^4+a^4 \operatorname{Sin}[c+d x]\right)}$$

Result (type 4, 1244 leaves):

$$\left((e \operatorname{Cos}[c+d x])^{3/2} \operatorname{Sec}[c+d x] \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8 \left(\frac{2}{77}-\frac{4}{11 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{2}{77 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{2}{77 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right) \Big/ \left(d (a+a \operatorname{Sin}[c+d x])^4\right) -$$

$$\left(2 (e \operatorname{Cos}[c+d x])^{3/2} \operatorname{Sec}[c+d x]^2 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^8 \left(-\frac{\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\operatorname{Cos}[c+d x]}}{77 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{\sqrt{\operatorname{Cos}[c+d x]} \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]}{77 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}\right) \left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right)\right) \Big/$$

$$\left(77 d (a+a \operatorname{Sin}[c+d x])^4 \left(-\left(\left(\operatorname{Sin}[c+d x] \left(\operatorname{Cos}[c+d x]+2 \sqrt{2} \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]}} \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right],\right.\right.\right.\right.\right.\right.$$

$$17-12\sqrt{2}\,\Big]\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}\,\Bigg)\Bigg)\Bigg/\left(77\,\text{Cos}[c+d\,x]^{3/2}\right)\Bigg)-$$

$$\frac{1}{77\sqrt{\text{Cos}[c+d\,x]}}\,2\left(-\text{Sin}[c+d\,x]-\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right.\right.$$

$$\left.\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\Big],17-12\sqrt{2}\Big]\,\text{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]\right)\Bigg/$$

$$\left(\sqrt{2}\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}\right)-\sqrt{2}\,\text{Cos}\Big[\frac{1}{4}(c+d\,x)\Big]$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\Big],$$

$$17-12\sqrt{2}\Big]\,\text{Sin}\Big[\frac{1}{4}(c+d\,x)\Big]\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}+$$

$$\left(\sqrt{2}\,\text{Cos}\Big[\frac{1}{4}(c+d\,x)\Big]^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\Big],17-12\sqrt{2}\Big]\right.$$

$$\left(\frac{\left(-2+\sqrt{2}\right)\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{2\left(1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\right)\right.\right.$$

$$\left.\left.\text{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\right)\Bigg/\left(2\left(1+\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\right)^2\right)\right)$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}\,\Bigg)\Bigg/\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right)+$$

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\,\sqrt{3-2\sqrt{2}-\text{Tan}\Big[\frac{1}{4}(c+d\,x)\Big]^2}\right)\Bigg/$$

$$\left(\sqrt{2\left(3-2\sqrt{2}\right)}\,\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\,\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right)\Bigg)\Bigg)\Bigg)$$

Problem 271: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{e\,\text{Cos}[c+d\,x]}\;(a+a\,\text{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 4, 191 leaves, 6 steps):

$$\frac{2\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}(c+d\,x),2\right]}{33\,a^4\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{2\sqrt{e\,\text{Cos}[c+d\,x]}}{15\,d\,e\,(a+a\,\text{Sin}[c+d\,x])^4}-\frac{14\sqrt{e\,\text{Cos}[c+d\,x]}}{165\,a\,d\,e\,(a+a\,\text{Sin}[c+d\,x])^3}-\frac{2\sqrt{e\,\text{Cos}[c+d\,x]}}{33\,d\,e\,(a^2+a^2\,\text{Sin}[c+d\,x])^2}-\frac{2\sqrt{e\,\text{Cos}[c+d\,x]}}{33\,d\,e\,(a^4+a^4\,\text{Sin}[c+d\,x])}$$

Result (type 4, 1263 leaves):

$$\left(\text{Cos}[c+d\,x]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8\right.$$
$$\left(-\frac{2}{33}-\frac{2}{15\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8}-\frac{14}{165\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}-\right.$$
$$\left.\left.\frac{2}{33\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4}-\frac{2}{33\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$
$$\left(d\sqrt{e\,\text{Cos}[c+d\,x]}\;(a+a\,\text{Sin}[c+d\,x])^4\right)+\left(2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8\right.$$
$$\left(\frac{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\text{Cos}[c+d\,x]}}{33\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\sqrt{\text{Cos}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{33\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)$$
$$\left(\text{Cos}[c+d\,x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]}}\right.$$
$$\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)\right)\Big/$$
$$\left(33\,d\sqrt{e\,\text{Cos}[c+d\,x]}\;(a+a\,\text{Sin}[c+d\,x])^4\left(\left(\text{Sin}[c+d\,x]\left(\text{Cos}[c+d\,x]+2\sqrt{2}\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2\right.\right.\right.\right.$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\ \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.\left.\left.17-12\sqrt{2}\right]\ \sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)\right)\Big/\left(33\,\mathrm{Cos}[c+d\,x]^{3/2}\right)+$$

$$\frac{1}{33\sqrt{\mathrm{Cos}[c+d\,x]}}\,2\left(-\mathrm{Sin}[c+d\,x]-\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right.\right.$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\Big/$$

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

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\ \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\,\mathrm{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\ +$$

$$\left(\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right.$$

$$\left(\frac{\left(-2+\sqrt{2}\right)\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\left(1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}+\left(\left(-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right.\right.$$

$$\left.\left.\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big/\left(2\left(1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\right)$$

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

$$\left(\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}}\ \sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)\Big/$$

$$\left(\sqrt{2\left(3-2\sqrt{2}\right)}\sqrt{1-\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right)\Bigg)\Bigg)\Bigg)$$

Problem 273: Result unnecessarily involves imaginary or complex numbers.

$$\int (e\,\mathrm{Cos}[c+d\,x])^{3/2}\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 236 leaves, 8 steps):

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

Result (type 3, 269 leaves):

$$-\Bigg(\Bigg(i\,e\,e^{-i(c+d\,x)}\sqrt{e\,\mathrm{Cos}[c+d\,x]}\Big(-i\sqrt{1+e^{2i(c+d\,x)}}-2\,e^{i(c+d\,x)}\sqrt{1+e^{2i(c+d\,x)}}+2\,i\,e^{2i(c+d\,x)}\sqrt{1+e^{2i(c+d\,x)}}+e^{3i(c+d\,x)}\sqrt{1+e^{2i(c+d\,x)}}-3\,d\,e^{2i(c+d\,x)}\,x+3\,e^{2i(c+d\,x)}\,\mathrm{ArcSinh}\left[e^{i(c+d\,x)}\right]-3\,i\,e^{2i(c+d\,x)}\,\mathrm{Log}\left[1+\sqrt{1+e^{2i(c+d\,x)}}\right]\Big)\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}\Bigg)\Big/\left(4\,d\left(i+e^{i(c+d\,x)}\right)\sqrt{1+e^{2i(c+d\,x)}}\right)\Bigg)$$

Problem 274: Result unnecessarily involves imaginary or complex numbers.

$$\int\sqrt{e\,\mathrm{Cos}[c+d\,x]}\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 3, 194 leaves, 7 steps):

$$-\frac{a\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}}{d\,e\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}+\frac{\sqrt{e}\,\mathrm{ArcSinh}\left[\frac{\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\sqrt{e}}\right]\sqrt{1+\mathrm{Cos}[c+d\,x]}\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{d\,(1+\mathrm{Cos}[c+d\,x]+\mathrm{Sin}[c+d\,x])}+$$
$$\left(\sqrt{e}\,\mathrm{ArcTan}\left[\frac{\sqrt{e}\,\mathrm{Sin}[c+d\,x]}{\sqrt{e\,\mathrm{Cos}[c+d\,x]}\sqrt{1+\mathrm{Cos}[c+d\,x]}}\right]\sqrt{1+\mathrm{Cos}[c+d\,x]}\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\right)\Big/\left(d\,(1+\mathrm{Cos}[c+d\,x]+\mathrm{Sin}[c+d\,x])\right)$$

Result (type 3, 195 leaves):

$$-\left(\left(\left(i \sqrt{e \operatorname{Cos}[c+d x]}\left(-i \sqrt{1+e^{2 i (c+d x)}}+e^{i (c+d x)} \sqrt{1+e^{2 i (c+d x)}}+ i d e^{i (c+d x)} x+i e^{i (c+d x)} \operatorname{ArcSinh}\left[e^{i (c+d x)}\right]-e^{i (c+d x)} \operatorname{Log}\left[1+\sqrt{1+e^{2 i (c+d x)}}\right]\right) \sqrt{a (1+\operatorname{Sin}[c+d x])}\right) \Big/ \left(d \left(i+e^{i (c+d x)}\right) \sqrt{1+e^{2 i (c+d x)}}\right)\right)\right)$$

Problem 275: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{a+a \operatorname{Sin}[c+d x]}}{\sqrt{e \operatorname{Cos}[c+d x]}} \, dx$$

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

$$-\frac{2 \operatorname{ArcSinh}\left[\frac{\sqrt{e \operatorname{Cos}[c+d x]}}{\sqrt{e}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}}{d \sqrt{e} (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])}+\left(2 \operatorname{ArcTan}\left[\frac{\sqrt{e} \operatorname{Sin}[c+d x]}{\sqrt{e \operatorname{Cos}[c+d x]} \sqrt{1+\operatorname{Cos}[c+d x]}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}\right) \Big/ \left(d \sqrt{e} (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])\right)$$

Result (type 3, 108 leaves):

$$\left(\sqrt{1+e^{2 i (c+d x)}} \left(d x-\operatorname{ArcSinh}\left[e^{i (c+d x)}\right]+i \operatorname{Log}\left[1+\sqrt{1+e^{2 i (c+d x)}}\right]\right) \sqrt{a (1+\operatorname{Sin}[c+d x])}\right) \Big/ \left(d \left(1-i e^{i (c+d x)}\right) \sqrt{e \operatorname{Cos}[c+d x]}\right)$$

Problem 280: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (e \operatorname{Cos}[c+d x])^{5/2} (a+a \operatorname{Sin}[c+d x])^{3/2} \, dx$$

Optimal (type 3, 319 leaves, 10 steps):

$$-\frac{15 a^3 (e \operatorname{Cos}[c+d x])^{7/2}}{32 d e (a+a \operatorname{Sin}[c+d x])^{3/2}}+\frac{15 a^2 e (e \operatorname{Cos}[c+d x])^{3/2}}{64 d \sqrt{a+a \operatorname{Sin}[c+d x]}}-\frac{3 a^2 (e \operatorname{Cos}[c+d x])^{7/2}}{8 d e \sqrt{a+a \operatorname{Sin}[c+d x]}}-\frac{a (e \operatorname{Cos}[c+d x])^{7/2} \sqrt{a+a \operatorname{Sin}[c+d x]}}{4 d e}+\frac{45 a e^{5/2} \operatorname{ArcSinh}\left[\frac{\sqrt{e \operatorname{Cos}[c+d x]}}{\sqrt{e}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}}{64 d (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])}+\left(45 a e^{5/2} \operatorname{ArcTan}\left[\frac{\sqrt{e} \operatorname{Sin}[c+d x]}{\sqrt{e \operatorname{Cos}[c+d x]} \sqrt{1+\operatorname{Cos}[c+d x]}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}\right) \Big/ \left(64 d (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])\right)$$

Result (type 4, 2816 leaves):

$$\Bigg(\left(e\,\mathrm{Cos}[c+d\,x]\right)^{5/2}\,\mathrm{Sec}[c+d\,x]^2\,\left(a\,\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{3/2}\Bigg(-\frac{3}{4}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\frac{3}{64}\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-\frac{1}{8}\,\mathrm{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]-\frac{1}{32}\,\mathrm{Cos}\left[\frac{7}{2}\,(c+d\,x)\right]+\frac{3}{4}\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+\frac{3}{64}\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]+\frac{1}{8}\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]-\frac{1}{32}\,\mathrm{Sin}\left[\frac{7}{2}\,(c+d\,x)\right]\Bigg)\Bigg)\Bigg/$$

$$\left(d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)+\Bigg(45\,\sqrt{3-2\,\sqrt{2}}\,\left(e\,\mathrm{Cos}[c+d\,x]\right)^{5/2}$$

$$\mathrm{Sec}[c+d\,x]^2\,\left(a\,\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^{3/2}\,\sqrt{3-2\,\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\left(1+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}\,\sqrt{\frac{-3+2\,\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\left(2-2\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)$$

$$\Bigg(4\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\,\sqrt{3-2\,\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+$$

$$8\,\mathrm{EllipticPi}\left[-3+2\,\sqrt{2},\,-\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+\sqrt{2}\,\Bigg(\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-$$

$$\mathrm{Log}\left[2-2\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right]\Bigg)$$

$$\left.\left.\left(1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\right)\right)\right)\Big/$$

$$\left(128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\left(4\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-\right.\right.$$

$$3\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-52\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+$$

$$39\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+200\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-$$

$$150\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-200\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+$$

$$150\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+52\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-$$

$$39\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-4\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+$$

$$3\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^5\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;-$$

$$6\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$48\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$84\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$56\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$48\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$6\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

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

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;-4\sqrt{3-2\sqrt{2}}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)$$

Problem 281: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 278 leaves, 9 steps):

$$-\frac{7\,a^2\,(e\,\text{Cos}[c+d\,x])^{5/2}}{12\,d\,e\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{7\,a\,e\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{8\,d}-\frac{a\,(e\,\text{Cos}[c+d\,x])^{5/2}\sqrt{a+a\,\text{Sin}[c+d\,x]}}{3\,d\,e}-\frac{7\,a\,e^{3/2}\,\text{ArcSinh}\left[\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{\sqrt{e}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{8\,d\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x])}+\left(7\,a\,e^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{e}\,\text{Sin}[c+d\,x]}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{1+\text{Cos}[c+d\,x]}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\right)\Big/\left(8\,d\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x])\right)$$

Result (type 4, 2810 leaves):

$$\left(\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\text{Sec}[c+d\,x]\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\left(\frac{5}{12}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{3}{8}\,\text{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]-\frac{1}{12}\,\text{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]+\frac{5}{12}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+\frac{3}{8}\,\text{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]-\frac{1}{12}\,\text{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]\right)\right)\Big/$$

$$\left(d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right)-\left(7\,\sqrt{3-2\,\sqrt{2}}\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\text{Sec}[c+d\,x]\right.$$

$$\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}\,\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\left(2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)$$

$$\left(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+$$

$$8\,\text{EllipticPi}\left[-3+2\,\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]$$

$$\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-\sqrt{2}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right]\right)$$

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

$$\left(16\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right.$$

$$\left(-4\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2+3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2+52\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-200\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4+200\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6-52\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8+$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8+4\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^{10}-$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^5\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;+$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$4\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$32\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$84\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$56\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$32\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$4\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

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

$$\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$
$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-4\,\sqrt{3-2\,\sqrt{2}}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\,\sqrt{3-2\,\sqrt{2}\,-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}\,+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$
$$\sqrt{\frac{-3+2\,\sqrt{2}\,+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$
$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$
$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)\right)$$

Problem 282: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 243 leaves, 8 steps):

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

Result (type 4, 2322 leaves):

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

$$\left(25\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{3/2}\left(\sqrt{2}\,\left(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\right.\right.\right.$$

$$\left.\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\right)$$

$$\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],17-12\,\sqrt{2}\right]$$

$$\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}+$$

$$8\,\text{EllipticPi}\left[-3+2\,\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],17-12\,\sqrt{2}\right]$$

$$\left.\left.\left.\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)\right)\right/$$

$$\left(64\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right.$$

$$\left(\frac{1}{16\,\sqrt{\text{Cos}[c+d\,x]}}5\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\left(\sqrt{2}\,\left(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\right.\right.\right.$$

$$\left.\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\right)$$

$$\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\right.$$

$$\left.17-12\,\sqrt{2}\right]\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}+$$

$$8\,\text{EllipticPi}\left[-3+2\,\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],17-12\,\sqrt{2}\right]$$

$$\left.\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-$$

$$\frac{1}{16\,\text{Cos}[c+d\,x]^{3/2}}\,5\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Sin}[c+d\,x]\left(\sqrt{2}\left(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\right)\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],17-12\,\sqrt{2}\right]\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}+8\,\text{EllipticPi}\left[-3+2\,\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],17-12\,\sqrt{2}\right]\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-$$

$$\frac{1}{8\,\sqrt{\text{Cos}[c+d\,x]}}\,5\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\left(\left(\left(\left(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\right)\left(-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right)\Big/\left(\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)+\left(\left(-3+2\,\sqrt{2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],17-12\,\sqrt{2}\right]\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)\Big/\left(\sqrt{1+\left(-3+2\,\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)+\left(2\,\left(-3+2\,\sqrt{2}\right)\text{EllipticPi}\left[-3+2\,\sqrt{2},\right.\right.$$

$$-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right] \text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\Bigg) \Bigg/ \left(\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right) -$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right] \text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]\right.$$

$$\left.\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right) \Bigg/ \left(\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right) -$$

$$\left(2\,\text{EllipticPi}\left[-3+2\sqrt{2}, -\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right]\right.$$

$$\left.\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right] \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right) \Bigg/$$

$$\left(\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right) + \left(\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\right.$$

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right) \Bigg/$$

$$\left(\sqrt{3-2\sqrt{2}} \sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}} \sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\right) -$$

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

$$\left.\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right) \Bigg/ \left(\sqrt{3-2\sqrt{2}} \sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}}\right.$$

$$\left.\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}} \left(1-\frac{\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{3-2\sqrt{2}}\right)\right) +$$

$$\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,\left(\frac{1}{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]-\left(-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]+\left(-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\Big/\left(\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)\right)\Big/\left(2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)\right)\right)\right)$$

Problem 283: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 198 leaves, 7 steps):

$$-\frac{a\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d\,e}-\frac{3\,a\,\text{ArcSinh}\left[\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{\sqrt{e}}\right]\,\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d\,\sqrt{e}\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x])}+\left(3\,a\,\text{ArcTan}\left[\frac{\sqrt{e}\,\text{Sin}[c+d\,x]}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{1+\text{Cos}[c+d\,x]}}\right]\,\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\right)\Big/\left(d\,\sqrt{e}\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x])\right)$$

Result (type 4, 2750 leaves):

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\left(2-2\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)$$

$$\left(4\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$

$$8\,\mathrm{EllipticPi}\left[-3+2\sqrt{2},-\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-\sqrt{2}\left(\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right]-\right.$$

$$\left.\mathrm{Log}\left[2-2\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right]\right)$$

$$\left.\left.\left(1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4\right)\right)\right)\Big/$$

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

$$\left(-4\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2+3\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2+52\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-\right.$$

$$39\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-200\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4+200\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6-52\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8+$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8+4\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^{10}-$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^5\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}+$$

$$6\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-$$

$$48\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$84\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$56\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$48\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$6\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

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

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-4\sqrt{3-2\sqrt{2}}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\left.\left.\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)$$

Problem 284: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}{(e\,\mathrm{Cos}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 210 leaves, 7 steps):

$$\frac{4\,a\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{d\,e\sqrt{e\,\mathrm{Cos}[c+d\,x]}}-\frac{2\,a^2\,\mathrm{ArcSinh}\left[\frac{\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\sqrt{e}}\right]\sqrt{1+\mathrm{Cos}[c+d\,x]}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{d\,e^{3/2}\,(a+a\,\mathrm{Cos}[c+d\,x]+a\,\mathrm{Sin}[c+d\,x])}-$$
$$\left(2\,a^2\,\mathrm{ArcTan}\left[\frac{\sqrt{e}\,\mathrm{Sin}[c+d\,x]}{\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\sqrt{1+\mathrm{Cos}[c+d\,x]}}\right]\sqrt{1+\mathrm{Cos}[c+d\,x]}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\right)\Big/$$
$$\left(d\,e^{3/2}\,(a+a\,\mathrm{Cos}[c+d\,x]+a\,\mathrm{Sin}[c+d\,x])\right)$$

Result (type 4, 2727 leaves):

$$\left(4\,\mathrm{Cos}[c+d\,x]^2\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{3/2}\right)\Big/\left(d\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}\right.$$
$$\left.\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right)-$$
$$\left(\sqrt{3-2\sqrt{2}}\,\mathrm{Cos}[c+d\,x]^2\,(a\,(1+\mathrm{Sin}[c+d\,x]))^{3/2}\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right.$$
$$\left(1+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right)\sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{1-3\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\left(2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)$$

$$\left(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

$$8\,\text{EllipticPi}\left[-3+2\,\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]$$

$$\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+\sqrt{2}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right]\right)$$

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

$$\left(d\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\right.$$

$$\left(4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\right.$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+$$

$$3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+2\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\;-12\sqrt{2\left(3-2\sqrt{2}\right)}\;\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\;+2\sqrt{2\left(3-2\sqrt{2}\right)}\;\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^5\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\;-$$

$$6\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;+$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;+$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;-$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;-$$

$$84\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$56\sqrt{2}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$32\sqrt{2}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$4\sqrt{2}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$4\sqrt{3-2\sqrt{2}}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\sqrt{2}\;\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\sqrt{2}\;\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-4\sqrt{3-2\sqrt{2}}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\sqrt{2}\;\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\sqrt{2}\;\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)$$

Problem 289: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (e\,\text{Cos}[c+d\,x])^{3/2}\,(a+a\,\text{Sin}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 323 leaves, 10 steps):

$$-\frac{77\,a^3\,(e\,\text{Cos}[c+d\,x])^{5/2}}{96\,d\,e\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{77\,a^2\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{64\,d}-\frac{11\,a^2\,(e\,\text{Cos}[c+d\,x])^{5/2}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{24\,d\,e}-\frac{77\,a^2\,e^{3/2}\,\text{ArcSinh}\left[\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{\sqrt{e}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{64\,d\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x])}+\left(77\,a^2\,e^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{e}\,\text{Sin}[c+d\,x]}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{1+\text{Cos}[c+d\,x]}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\right)\Big/\left(64\,d\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x])\right)-\frac{a\,(e\,\text{Cos}[c+d\,x])^{5/2}\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}{4\,d\,e}$$

Result (type 4, 2838 leaves):

$$\left((e\,\text{Cos}[c+d\,x])^{3/2}\,\text{Sec}[c+d\,x]\,(a\,(1+\text{Sin}[c+d\,x]))^{5/2}\left(\frac{5}{12}\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\frac{35}{64}\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]-\frac{5}{24}\text{Cos}\left[\frac{5}{2}(c+d\,x)\right]+\frac{1}{32}\text{Cos}\left[\frac{7}{2}(c+d\,x)\right]+\frac{5}{12}\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\frac{35}{64}\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]-\frac{5}{24}\text{Sin}\left[\frac{5}{2}(c+d\,x)\right]-\frac{1}{32}\text{Sin}\left[\frac{7}{2}(c+d\,x)\right]\right)\right)\Big/\left(d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)-\left(77\,\sqrt{3-2\sqrt{2}}\,(e\,\text{Cos}[c+d\,x])^{3/2}\right.$$

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

$$\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\left(2-2\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\right)$$

$$\left(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\,\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}+$$

$$8\,\text{EllipticPi}\left[-3+2\,\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]$$

$$\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}-\sqrt{2}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\right]\right)$$

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

$$\left(128\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^5\right.$$

$$\left(-4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-\right.$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4+$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4+200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6-$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6-52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8+$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8+4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}-$$

$$3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}+2\,\sqrt{2\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+dx)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+dx)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+dx)\right]^5\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}+$$

$$6\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4}-$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4}-$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4}+$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4}+$$

$$84\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$56\,\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$48\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$32\,\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$6\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$4\,\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

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

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

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\,\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-4\,\sqrt{3-2\,\sqrt{2}}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

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

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\,\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\left.\left.\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,\right)\right)$$

Problem 290: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{5/2}\,dx$$

Optimal (type 3, 286 leaves, 9 steps):

$$-\frac{15\,a^3\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}}{8\,d\,e\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}-\frac{3\,a^2\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{4\,d\,e}+\frac{15\,a^2\,\sqrt{e}\,\mathrm{ArcSinh}\left[\frac{\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\sqrt{e}}\right]\,\sqrt{1+\mathrm{Cos}[c+d\,x]}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}{8\,d\,(1+\mathrm{Cos}[c+d\,x]+\mathrm{Sin}[c+d\,x])}+\left(15\,a^2\,\sqrt{e}\,\mathrm{ArcTan}\left[\frac{\sqrt{e}\,\mathrm{Sin}[c+d\,x]}{\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\sqrt{1+\mathrm{Cos}[c+d\,x]}}\right]\,\sqrt{1+\mathrm{Cos}[c+d\,x]}\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\right)\Big/\left(8\,d\,(1+\mathrm{Cos}[c+d\,x]+\mathrm{Sin}[c+d\,x])\right)-\frac{a\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}{3\,d\,e}$$

Result (type 4, 2350 leaves):

$$\left(\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}\left(-\frac{29}{12}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{5}{8}\,\mathrm{Cos}\left[\frac{3}{2}\,(c+d\,x)\right]+\frac{1}{12}\,\mathrm{Cos}\left[\frac{5}{2}\,(c+d\,x)\right]+\frac{29}{12}\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{5}{8}\,\mathrm{Sin}\left[\frac{3}{2}\,(c+d\,x)\right]-\frac{1}{12}\,\mathrm{Sin}\left[\frac{5}{2}\,(c+d\,x)\right]\right)\right)\Big/\left(d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\right)-$$

$$\left(225\,\mathrm{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(a\,(1+\mathrm{Sin}[c+d\,x])\right)^{5/2}\left(\sqrt{2}\,\left(\mathrm{Log}\left[\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\mathrm{Log}\left[2+\sqrt{2}\,\sqrt{\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\right)\right.\right.$$

$$\sqrt{\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+4\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]$$

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

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\Bigg)\Bigg)\Bigg/$$

$$\Bigg(256\,d\,\sqrt{\text{Cos}[c+d\,x]}\;\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6$$

$$\Bigg(\frac{1}{32\sqrt{\text{Cos}[c+d\,x]}}\,15\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\Bigg(\sqrt{2}\,\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-$$

$$\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\Bigg)$$

$$\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\Bigg)-$$

$$\frac{1}{32\,\text{Cos}[c+d\,x]^{3/2}}\,15\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Sin}[c+d\,x]\,\Bigg(\sqrt{2}\,\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-$$

$$\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\Bigg)$$

$$\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\Bigg)-$$

$$\frac{1}{16\sqrt{\text{Cos}[c+d\,x]}}\,15\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\Bigg(\Bigg(\Bigg(\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\text{Log}\Big[$$

$$2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\Big]\Bigg)$$

$$\left(-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\right.$$

$$\left.\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\Bigg)\Bigg/\left(\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)+$$

$$\Bigg(\left(-3+2\sqrt{2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\Bigg)\Bigg/$$

$$\left(\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)+\Bigg(2\left(-3+2\sqrt{2}\right)\text{EllipticPi}\Big[-3+2\sqrt{2},$$

$$-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\Big]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\Bigg)\Bigg/\left(\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-$$

$$\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\Bigg)\Bigg/\left(\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-$$

$$\left(2\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\right.$$

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

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

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)\Big/$$

$$\left(\sqrt{3-2\sqrt{2}}\,\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\,\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right)-$$

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

$$\left.\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)\Big/\left(\sqrt{3-2\sqrt{2}}\,\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right.$$

$$\left.\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\left(1-\frac{\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}\right)\right)+$$

$$\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}\left(\frac{1}{2}\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]-\left(-\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\right.\right.\right.$$

$$\left.\frac{1}{4}(c+d\,x)\right]+\left(-\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\Big/\left(\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)\Big/$$

$$\left.\left.\left(2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right)\right)\right)\right)\right)$$

Problem 291: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

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

Optimal (type 3, 247 leaves, 8 steps):

$$-\frac{7 a^2 \sqrt{e \operatorname{Cos}[c + d x]} \sqrt{a + a \operatorname{Sin}[c + d x]}}{4 d e} - \frac{21 a^2 \operatorname{ArcSinh}\left[\frac{\sqrt{e \operatorname{Cos}[c+d x]}}{\sqrt{e}}\right] \sqrt{1 + \operatorname{Cos}[c + d x]} \sqrt{a + a \operatorname{Sin}[c + d x]}}{4 d \sqrt{e} \left(1 + \operatorname{Cos}[c + d x] + \operatorname{Sin}[c + d x]\right)} + \left(21 a^2 \operatorname{ArcTan}\left[\frac{\sqrt{e} \operatorname{Sin}[c + d x]}{\sqrt{e \operatorname{Cos}[c + d x]} \sqrt{1 + \operatorname{Cos}[c + d x]}}\right] \sqrt{1 + \operatorname{Cos}[c + d x]} \sqrt{a + a \operatorname{Sin}[c + d x]}\right) \Big/ \left(4 d \sqrt{e} \left(1 + \operatorname{Cos}[c + d x] + \operatorname{Sin}[c + d x]\right)\right) - \frac{a \sqrt{e \operatorname{Cos}[c + d x]} (a + a \operatorname{Sin}[c + d x])^{3/2}}{2 d e}$$

Result (type 4, 2782 leaves):

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

$$\left(21 \sqrt{3 - 2 \sqrt{2}} \operatorname{Cos}[c + d x] (a (1 + \operatorname{Sin}[c + d x]))^{5/2} \sqrt{3 - 2 \sqrt{2} - \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2} \right.$$

$$\left(1 + \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2\right) \sqrt{\frac{-3 + 2 \sqrt{2} + \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2}{-3 + 2 \sqrt{2}}}$$

$$\sqrt{\frac{-3 + 2 \sqrt{2} + 17 \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2 - 12 \sqrt{2} \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2}{-3 + 2 \sqrt{2}}}$$

$$\sqrt{1 - 3 \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2 + 2 \sqrt{2} \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2}$$

$$\left(2 - 2 \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2 + \sqrt{2} \sqrt{1 - 6 \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2 + \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^4}\right)$$

$$\left(4 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]}{\sqrt{3 - 2 \sqrt{2}}}\right], 17 - 12 \sqrt{2}\right] \sqrt{3 - 2 \sqrt{2} - \operatorname{Tan}\left[\frac{1}{4} (c + d x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\ +$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\ -\sqrt{2}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\sqrt{2}\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\right]\right)$$

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

$$\left(8\,d\sqrt{e\,\text{Cos}[c+d x]}\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5\right.$$

$$\left(-4\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2+3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2+52\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-200\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4+200\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^6-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^6-52\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^8+$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^8+4\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^{10}-$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\ \text{Sec}\left[\frac{1}{4}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;-12\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;+2\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^5\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;+$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$4\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$32\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$84\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$56\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$48\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$32\,\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$6\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$4\,\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

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

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

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-4\,\sqrt{3-2\,\sqrt{2}}\,\mathrm{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

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

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\left.\left.\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,\right)\right)$$

Problem 292: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

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

Optimal (type 3, 239 leaves, 8 steps):

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

Result (type 4, 2753 leaves):

$$\left(\mathrm{Cos}[c+d\,x]^2\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\frac{8}{\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]}-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a\,(1+\mathrm{Sin}[c+d\,x]))^{5/2}\right)\Big/\left(d\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)-$$

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

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\left(2-2\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)$$

$$\left(4\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}+\sqrt{2}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\sqrt{2}\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\right]\right)$$

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

$$\left(2\,d\left(e\,\text{Cos}\left[c+d\,x\right]\right)^{3/2}\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^6\right.$$

$$\left(4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4-200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6+52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8-$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8-4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}+$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d x)\right]^3 \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}(c+d x)\right]^5 \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}-$$

$$6\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$84\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$56\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^6 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d x)\right]^6 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$6\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2 \mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8 \sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4} +$$

$$4\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2 \mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8 \sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4} +$$

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

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4} - 4\sqrt{3-2\sqrt{2}}\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\left.\left.\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)$$

Problem 293: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 204 leaves, 7 steps):

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

Result (type 4, 2795 leaves):

$$\left(\text{Cos}[c+d\,x]^3\left(\frac{4}{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{8\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]}{3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right.$$
$$\left.\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\right)\Big/\left(d\,\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\right)+$$
$$\left(\sqrt{3-2\sqrt{2}}\;\text{Cos}[c+d\,x]^3\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{5/2}\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right.$$
$$\left(1+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right)\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$
$$\left(2-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)$$
$$\left(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right.$$
$$\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$
$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\ \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4}-\sqrt{2}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\sqrt{2}\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4}\right]\right)$$

$$\left.\left.\left(1-6\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4\right)\right)\right)\Big/$$

$$\left(d\,(e\,\text{Cos}[c+dx])^{5/2}\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]-\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]+\text{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^5$$

$$\left(-4\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2+3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2+52\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2-\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2-200\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^4+200\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^6-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^6-52\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^8+$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^8+4\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^{10}-$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2\text{Tan}\left[\frac{1}{4}(c+dx)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+dx)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\ \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+dx)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}(c+dx)\right]^2$$

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^5\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\ \sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

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

$$6\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ -$$

$$4\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ -$$

$$48\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ +$$

$$32\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ +$$

$$84\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ -$$

$$56\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ -$$

$$48\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ +$$

$$32\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\ +$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$4\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

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

$$\sqrt{3-2\,\sqrt{2}\,-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}\,+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}\,+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-4\,\sqrt{3-2\,\sqrt{2}}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\,\sqrt{3-2\,\sqrt{2}\,-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}\,+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}\,+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,\right)\right)$$

Problem 294: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 36 leaves, 1 step):

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

Result (type 3, 87 leaves):

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

Problem 298: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 244 leaves, 8 steps):

$$-\frac{a\,(e\,\text{Cos}[c+d\,x])^{7/2}}{2\,d\,e\,(a+a\,\text{Sin}[c+d\,x])^{3/2}}+\frac{e\,(e\,\text{Cos}[c+d\,x])^{3/2}}{4\,d\sqrt{a+a\,\text{Sin}[c+d\,x]}}+$$
$$\frac{3\,e^{5/2}\,\text{ArcSinh}\left[\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{\sqrt{e}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{4\,d\,(a+a\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x])}+$$
$$\left(3\,e^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{e}\,\text{Sin}[c+d\,x]}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{1+\text{Cos}[c+d\,x]}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\right)\Big/$$
$$(4\,d\,(a+a\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x]))$$

Result (type 4, 2305 leaves):

$$\left((e\,\text{Cos}[c+d\,x])^{5/2}\,\text{Sec}[c+d\,x]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right.$$
$$\left.\left(-\frac{1}{2}\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\frac{1}{4}\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]+\frac{1}{2}\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\frac{1}{4}\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]\right)\right)\Big/$$
$$\left(d\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right)-$$
$$\left(9\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2(e\,\text{Cos}[c+d\,x])^{5/2}\left(\sqrt{2}\left(\text{Log}\left[\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\right]-\right.\right.\right.$$
$$\left.\text{Log}\left[2+\sqrt{2}\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right]\right)$$
$$\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$
$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\Bigg)\Bigg)\Bigg/$$

$$\Bigg(64\,d\,\text{Cos}[c+d\,x]^{5/2}\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}$$

$$\Bigg(\frac{1}{16\sqrt{\text{Cos}[c+d\,x]}}\,3\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{4}\,(c+d\,x)\right]\,\Bigg(\sqrt{2}\,\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-$$

$$\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\Bigg)$$

$$\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\,\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\Bigg)-$$

$$\frac{1}{16\,\text{Cos}[c+d\,x]^{3/2}}\,3\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Sin}[c+d\,x]\,\Bigg(\sqrt{2}\,\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-$$

$$\text{Log}\left[2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\Bigg)$$

$$\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\,\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-$$

$$\frac{1}{8\sqrt{\text{Cos}[c+d\,x]}}\,3\,\text{Cos}\left[\frac{1}{4}\,(c+d\,x)\right]^2\left(\left(\left(\left(\text{Log}\left[\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\text{Log}\right[\right.\right.\right.\right.$$

$$\left.2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]\right)$$

$$\left(-\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right)\right)\Big/\left(\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)+$$

$$\left(\left(-3+2\sqrt{2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\right.$$

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

$$\left(\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)+\left(2\left(-3+2\sqrt{2}\right)\text{EllipticPi}\left[-3+2\sqrt{2},\right.\right.$$

$$-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]$$

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)\Big/\left(\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\right.$$

$$\left.\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)\Big/\left(\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\right)-$$

$$\left(2\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\right.$$

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

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

$$\left.\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)\Big/$$

$$\left(\sqrt{3-2\sqrt{2}}\,\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\,\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right)-$$

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

$$\left.\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)\Big/\left(\sqrt{3-2\sqrt{2}}\,\sqrt{1-\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right.$$

$$\left.\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\left(1-\frac{\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}\right)\right)+$$

$$\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}\left(\frac{1}{2}\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]-\left(-\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\right.\right.\right.$$

$$\left.\frac{1}{4}(c+d\,x)\right]+\left(-\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4$$

$$\left.\left.\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\right)\right)\Big/\left(\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)\Big/$$

$$\left.\left.\left.\left.\left(2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right)\right)\right)\right)\right)$$

Problem 299: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

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

Optimal (type 3, 200 leaves, 7 steps):

$$\frac{e \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}}{a d} - \frac{e^{3/2} \operatorname{ArcSinh}\left[\frac{\sqrt{e \operatorname{Cos}[c+d x]}}{\sqrt{e}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}}{a d (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])} + \left(e^{3/2} \operatorname{ArcTan}\left[\frac{\sqrt{e} \operatorname{Sin}[c+d x]}{\sqrt{e \operatorname{Cos}[c+d x]} \sqrt{1+\operatorname{Cos}[c+d x]}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}\right) \Big/ \left(a d (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])\right)$$

Result (type 4, 2723 leaves):

$$\frac{(e \operatorname{Cos}[c+d x])^{3/2} \operatorname{Sec}[c+d x] \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}{d \sqrt{a (1+\operatorname{Sin}[c+d x])}} -$$

$$\left(\sqrt{3-2\sqrt{2}} \, (e \operatorname{Cos}[c+d x])^{3/2} \operatorname{Sec}[c+d x] \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right.$$

$$\sqrt{3-2\sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \left(1+\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2\right) \sqrt{\frac{-3+2\sqrt{2}+\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17 \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2} \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3 \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2+2\sqrt{2} \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}$$

$$\left(2-2 \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\sqrt{2} \sqrt{1-6 \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\right)$$

$$\left(4 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right] \sqrt{3-2\sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right) \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \sqrt{1-6 \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^4} +$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}-\sqrt{2}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right]\right)$$

$$\left.\left.\left(1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\right)\right)\right)\Bigg/$$

$$\left(2\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{a\,(1+\text{Sin}[c+d\,x])}\right.$$

$$\left(-4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2+3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2+52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4+200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6-52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8+$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8+4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}-$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^5\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}+$$

$$6\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$

$$84\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-$$

$$56\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$

$$6\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;-$$

$$4\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;+$$

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

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;-4\sqrt{3-2\sqrt{2}}\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\left.\left.\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)$$

Problem 300: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}}\,dx$$

Optimal (type 3, 169 leaves, 6 steps):

$$\frac{2\sqrt{e}\,\text{ArcSinh}\left[\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{\sqrt{e}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{d\,\left(a+a\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x]\right)}+$$

$$\left(2\sqrt{e}\,\text{ArcTan}\left[\frac{\sqrt{e}\,\text{Sin}[c+d\,x]}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{1+\text{Cos}[c+d\,x]}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(d\,\left(a+a\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x]\right)\right)$$

Result (type 4, 2607 leaves):

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

$$\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}\,\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\left(2-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)$$

$$\left(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\,+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+\sqrt{2}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right]\right)$$

$$\left(1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\right)\Bigg)\Bigg)\Bigg/\Bigg(d\,\sqrt{a\,(1+\text{Sin}[c+d\,x])}$$

$$\Bigg(4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+$$

$$3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+2\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,-12\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^5\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,-$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

$$4\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-$$

$$32\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-$$

$$84\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

$$56\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-$$

$$32\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

$$4\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

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

$$\sqrt{3-2\,\sqrt{2}\,-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}\,+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}\,+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$
$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;-4\sqrt{3-2\sqrt{2}}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$
$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)$$

Problem 305: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^{7/2}}{(a+a\,\text{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 247 leaves, 8 steps):

$$\frac{e\,(e\,\text{Cos}[c+d\,x])^{5/2}}{2\,a\,d\sqrt{a+a\,\text{Sin}[c+d\,x]}}+\frac{5\,e^3\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{4\,a^2\,d}-$$
$$\frac{5\,e^{7/2}\,\text{ArcSinh}\left[\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{\sqrt{e}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}}{4\,a^2\,d\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x])}+$$
$$\left(5\,e^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{e}\,\text{Sin}[c+d\,x]}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{1+\text{Cos}[c+d\,x]}}\right]\sqrt{1+\text{Cos}[c+d\,x]}\,\sqrt{a+a\,\text{Sin}[c+d\,x]}\right)\Big/$$
$$(4\,a^2\,d\,(1+\text{Cos}[c+d\,x]+\text{Sin}[c+d\,x]))$$

Result (type 4, 2786 leaves):

$$\left((e\,\text{Cos}[c+d\,x])^{7/2}\,\text{Sec}[c+d\,x]^3\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\right.$$
$$\left.\left(\frac{3}{2}\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\frac{1}{4}\text{Cos}\left[\frac{3}{2}(c+d\,x)\right]+\frac{3}{2}\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-\frac{1}{4}\text{Sin}\left[\frac{3}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left(d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right)-\Bigg(5\,\sqrt{3-2\,\sqrt{2}}\,\left(e\,\text{Cos}[c+d\,x]\right)^{7/2}\,\text{Sec}[c+d\,x]^3$$

$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}\,\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\left(2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)$$

$$\Bigg(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,+$$

$$8\,\text{EllipticPi}\left[-3+2\,\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]}{\sqrt{3-2\,\sqrt{2}}}\right],\,17-12\,\sqrt{2}\right]$$

$$\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\,\sqrt{2}\right)\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,-\sqrt{2}\,\Bigg(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-$$

$$\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right]\Bigg)$$

$$\left(1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\right)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(8\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}$$

$$\Bigg(-4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2+3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2+52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4+$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4+200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6-$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6-52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8+$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8+4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}-$$

$$3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+2\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}-12\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^5\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}+$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$4\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$32\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$84\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$56\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$32\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$4\,\sqrt{2}\,\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

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

$$\sqrt{3-2\,\sqrt{2}\,-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}\,+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}\,+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-4\,\sqrt{3-2\,\sqrt{2}}\;\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\,\sqrt{3-2\,\sqrt{2}\,-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{\frac{-3+2\,\sqrt{2}\,+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}\,+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$

$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;\right)\right)$$

Problem 306: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 215 leaves, 7 steps):

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

Result (type 4, 2726 leaves):

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

$$\left(3\,\sqrt{3-2\,\sqrt{2}}\,(e\,\text{Cos}[c+d\,x])^{5/2}\,\text{Sec}[c+d\,x]^2\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right.$$

$$\sqrt{3-2\,\sqrt{2}\,-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)\sqrt{\frac{-3+2\,\sqrt{2}\,+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\left(2-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)$$

$$\left(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}+\sqrt{2}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\sqrt{2}\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right]\right)$$

$$\left.\left.\left(1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4\right)\right)\right)\Big/\left(2\,d\,\left(a\,\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right.$$

$$\left(4\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2-3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2-52\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+200\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4-200\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^6+52\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8-$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8-4\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^{10}+$$

$$3\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2+2\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^3\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2+2\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^5\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2+2\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2}-$$

$$6\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^4}+$$

$$4\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^4}+$$

$$48\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^4}-$$

$$32\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+dx)\right]^4}-$$

$$84\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$56\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$48\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$32\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$6\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$4\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

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

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-4\sqrt{3-2\sqrt{2}}\,\mathrm{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

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

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\,\right)\right)$$

Problem 307: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 236 leaves, 8 steps):

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

Result (type 4, 2723 leaves):

$$-\left(\left(4\,(e\,\text{Cos}[c+d\,x])^{3/2}\,\text{Sec}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right)\Big/\right.$$
$$\left.\left(d\,(a\,(1+\text{Sin}[c+d\,x]))^{3/2}\right)\right)+$$
$$\left(\sqrt{3-2\sqrt{2}}\,(e\,\text{Cos}[c+d\,x])^{3/2}\,\text{Sec}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\right.$$
$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\left(1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right)\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$
$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}$$
$$\left(2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right)$$

$$\left(4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\,+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}-\sqrt{2}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\right]\right)$$

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

$$\left(d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\left(a\left(1+\text{Sin}[c+d\,x]\right)\right)^{3/2}\right.$$

$$\left(-4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4+200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6-52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8+$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8+4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}-$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\,\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;-12\sqrt{2\left(3-2\sqrt{2}\right)}\;\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;+2\sqrt{2\left(3-2\sqrt{2}\right)}\;\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^5\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\;+$$

$$6\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$4\sqrt{2}\;\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$48\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$32\sqrt{2}\;\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;+$$

$$84\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\;-$$

$$56\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+d x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\;-$$

$$48\,\mathrm{Sec}\left[\frac{1}{4}(c+d x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\;+$$

$$32\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+d x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^6\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\;+$$

$$6\,\mathrm{Sec}\left[\frac{1}{4}(c+d x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\;-$$

$$4\sqrt{2}\,\mathrm{Sec}\left[\frac{1}{4}(c+d x)\right]^2\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^8\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\;+$$

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

$$\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\;-4\sqrt{3-2\sqrt{2}}\,\mathrm{Sec}\left[\frac{1}{4}(c+d x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^3\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\left.\left.\sqrt{1-6\,\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\mathrm{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\right)\right)$$

Problem 313: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(e \operatorname{Cos}[c+d x])^{9/2}}{(a+a \operatorname{Sin}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 261 leaves, 9 steps):

$$\frac{e\,(e \operatorname{Cos}[c+d x])^{7/2}}{2 a d\,(a+a \operatorname{Sin}[c+d x])^{3/2}}+\frac{7 e^3\,(e \operatorname{Cos}[c+d x])^{3/2}}{4 a^2 d \sqrt{a+a \operatorname{Sin}[c+d x]}}+$$
$$\frac{21 e^{9/2} \operatorname{ArcSinh}\left[\frac{\sqrt{e \operatorname{Cos}[c+d x]}}{\sqrt{e}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}}{4 d\,(a^3+a^3 \operatorname{Cos}[c+d x]+a^3 \operatorname{Sin}[c+d x])}+$$
$$\left(21 e^{9/2} \operatorname{ArcTan}\left[\frac{\sqrt{e} \operatorname{Sin}[c+d x]}{\sqrt{e \operatorname{Cos}[c+d x]} \sqrt{1+\operatorname{Cos}[c+d x]}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}\right) \Big/$$
$$\left(4 d\,(a^3+a^3 \operatorname{Cos}[c+d x]+a^3 \operatorname{Sin}[c+d x])\right)$$

Result (type 4, 2330 leaves):

$$\left((e \operatorname{Cos}[c+d x])^{9/2} \operatorname{Sec}[c+d x]^4 \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5\right.$$
$$\left.\left(\frac{5}{2} \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\frac{1}{4} \operatorname{Cos}\left[\frac{3}{2}(c+d x)\right]-\frac{5}{2} \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]-\frac{1}{4} \operatorname{Sin}\left[\frac{3}{2}(c+d x)\right]\right)\right) \Big/$$
$$\left(d\,(a\,(1+\operatorname{Sin}[c+d x]))^{5/2}\right)-\left(441 \operatorname{Cos}\left[\frac{1}{4}(c+d x)\right]^2 (e \operatorname{Cos}[c+d x])^{9/2}\right.$$
$$\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4 \left(\sqrt{2}\left(\operatorname{Log}\left[\operatorname{Sec}\left[\frac{1}{4}(c+d x)\right]^2\right]-\right.\right.$$
$$\left.\operatorname{Log}\left[2+\sqrt{2} \sqrt{\operatorname{Cos}[c+d x] \operatorname{Sec}\left[\frac{1}{4}(c+d x)\right]^4}-2 \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2\right]\right)$$
$$\sqrt{\operatorname{Cos}[c+d x] \operatorname{Sec}\left[\frac{1}{4}(c+d x)\right]^4}+4 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]$$
$$\sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \sqrt{1+\left(-3+2 \sqrt{2}\right) \operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]^2}+$$
$$8 \operatorname{EllipticPi}\left[-3+2 \sqrt{2}, -\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(64\, d\, \text{Cos}[c+d x]^{9/2}\left(a\left(1+\text{Sin}[c+d x]\right)\right)^{5/2}$$

$$\Bigg(\frac{1}{16\sqrt{\text{Cos}[c+d x]}}\, 21\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]\text{Sin}\left[\frac{1}{4}(c+d x)\right]\Bigg(\sqrt{2}\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\right]-$$

$$\text{Log}\left[2+\sqrt{2}\sqrt{\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2\right]\Bigg)$$

$$\sqrt{\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^4}+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\Bigg)-$$

$$\frac{1}{16\,\text{Cos}[c+d x]^{3/2}}\, 21\,\text{Cos}\left[\frac{1}{4}(c+d x)\right]^2\text{Sin}[c+d x]\Bigg(\sqrt{2}\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2\right]-$$

$$\text{Log}\left[2+\sqrt{2}\sqrt{\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2\right]\Bigg)$$

$$\sqrt{\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^4}+4\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],\right.$$

$$\left.17-12\sqrt{2}\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\Bigg) -$$

$$\frac{1}{8\sqrt{\text{Cos}[c+d\,x]}}21\,\text{Cos}\left[\frac{1}{4}(c+d\,x)\right]^2\Bigg(\Bigg(\Bigg(\Bigg(\text{Log}\left[\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\right]-\text{Log}\Big[$$

$$2+\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}-2\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\Big]\Bigg)$$

$$\Bigg(-\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\Bigg)\Bigg)\Bigg/\left(\sqrt{2}\,\sqrt{\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)+$$

$$\Bigg(\left(-3+2\sqrt{2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

$$\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\Bigg)\Bigg/$$

$$\left(\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)+\Bigg(2\left(-3+2\sqrt{2}\right)\text{EllipticPi}\Big[-3+2\sqrt{2},$$

$$-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\Big]\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\Bigg)\Bigg/\left(\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)-$$

$$\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]$$

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\Bigg)\Bigg/\left(\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\right)-$$

$$\Bigg(2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]$$

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

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

$$\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{1+\left(-3+2\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\Bigg)\Bigg/$$

$$\left(\sqrt{3-2\sqrt{2}}\sqrt{1-\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\right)-$$

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

$$\sqrt{1+\left(-3+2\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\Bigg)\Bigg/\Bigg(\sqrt{3-2\sqrt{2}}\sqrt{1-\frac{\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}$$

$$\sqrt{1-\frac{\left(17-12\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}}\left(1-\frac{\left(-3+2\sqrt{2}\right)\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{3-2\sqrt{2}}\right)\Bigg)+$$

$$\sqrt{2}\sqrt{\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}\Bigg(\frac{1}{2}\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]-\Bigg(-\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\mathrm{Tan}\Big[$$

$$\frac{1}{4}(c+d\,x)\Big]+\Big(-\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4\mathrm{Sin}[c+d\,x]+\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4$$

$$\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]\Big)\Big/\left(\sqrt{2}\sqrt{\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\Bigg)\Bigg/$$

$$\left(2+\sqrt{2}\sqrt{\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{4}(c+d\,x)\right]^4}-2\,\mathrm{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 314: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(e \operatorname{Cos}[c+d x])^{7/2}}{(a+a \operatorname{Sin}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 239 leaves, 8 steps):

$$-\frac{4 e (e \operatorname{Cos}[c+d x])^{5/2}}{a d (a+a \operatorname{Sin}[c+d x])^{3/2}}-\frac{5 e^3 \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}}{a^3 d}+$$
$$\frac{5 e^{7/2} \operatorname{ArcSinh}\left[\frac{\sqrt{e \operatorname{Cos}[c+d x]}}{\sqrt{e}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}}{a^3 d (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])}-$$
$$\left(5 e^{7/2} \operatorname{ArcTan}\left[\frac{\sqrt{e} \operatorname{Sin}[c+d x]}{\sqrt{e \operatorname{Cos}[c+d x]} \sqrt{1+\operatorname{Cos}[c+d x]}}\right] \sqrt{1+\operatorname{Cos}[c+d x]} \sqrt{a+a \operatorname{Sin}[c+d x]}\right) \Big/$$
$$\left(a^3 d (1+\operatorname{Cos}[c+d x]+\operatorname{Sin}[c+d x])\right)$$

Result (type 4, 2779 leaves):

$$\left((e \operatorname{Cos}[c+d x])^{7/2} \operatorname{Sec}[c+d x]^3 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5\right.$$
$$\left.\left(-\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]-\frac{8}{\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]}\right)\right) \Big/$$
$$\left(d (a (1+\operatorname{Sin}[c+d x]))^{5/2}\right)+\left(5 \sqrt{3-2 \sqrt{2}} (e \operatorname{Cos}[c+d x])^{7/2} \operatorname{Sec}[c+d x]^3\right.$$
$$\left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^5 \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2} \left(1+\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2\right)$$
$$\sqrt{\frac{-3+2 \sqrt{2}+\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2}{-3+2 \sqrt{2}}} \sqrt{\frac{-3+2 \sqrt{2}+17 \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2-12 \sqrt{2} \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2}{-3+2 \sqrt{2}}}$$
$$\sqrt{1-3 \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2+2 \sqrt{2} \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2}$$
$$\left(2-2 \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2+\sqrt{2} \sqrt{1-6 \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2+\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^4}\right)$$
$$\left(4 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2}\right.$$
$$\sqrt{1+\left(-3+2 \sqrt{2}\right) \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2} \sqrt{1-6 \operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^2+\operatorname{Tan}\left[\frac{1}{4} (c+d x)\right]^4}+$$

$$8\,\text{EllipticPi}\left[-3+2\sqrt{2},\,-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],\,17-12\sqrt{2}\right]$$

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\,\sqrt{1+\left(-3+2\sqrt{2}\right)\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}-\sqrt{2}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4}\right]\right)$$

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

$$\left(2\,d\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\left(a\left(1+\text{Sin}\left[c+d\,x\right]\right)\right)^{5/2}\right.$$

$$\left(-4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-\right.$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4+$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^4+200\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6-$$

$$150\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^6-52\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8+$$

$$39\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^8+4\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}-$$

$$3\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^{10}+2\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}\,\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2}-12\sqrt{2\left(3-2\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d x)\right]^3 \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}(c+d x)\right]^5 \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2} \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}+$$

$$6\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]^2 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$84\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]^4 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$56\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]^4 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}-$$

$$48\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]^6 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{4}(c+d x)\right]^6 \sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}+$$

$$6\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;-$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\;+$$

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

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}-4\sqrt{3-2\sqrt{2}}\,\text{Sec}\left[\frac{1}{4}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2}$$

$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d\,x)\right]^4}\right)\right)$$

Problem 315: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 218 leaves, 7 steps):

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

Result (type 4, 2766 leaves):

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

$$\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4 \sqrt{3-2 \sqrt{2}-\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2} \left(1+\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2\right)$$

$$\sqrt{\frac{-3+2 \sqrt{2}+\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}{-3+2 \sqrt{2}}} \sqrt{\frac{-3+2 \sqrt{2}+17 \,\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2-12 \sqrt{2} \,\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}{-3+2 \sqrt{2}}}$$

$$\sqrt{1-3 \,\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2+2 \sqrt{2} \,\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}$$

$$\left(2-2 \,\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2+\sqrt{2} \sqrt{1-6 \,\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2+\text{Tan}\left[\frac{1}{4} (c+d x)\right]^4}\right)$$

$$\left(4 \,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4} (c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right] \sqrt{3-2 \sqrt{2}-\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}\right.$$

$$\sqrt{1+\left(-3+2 \sqrt{2}\right) \text{Tan}\left[\frac{1}{4} (c+d x)\right]^2} \sqrt{1-6 \,\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2+\text{Tan}\left[\frac{1}{4} (c+d x)\right]^4}+$$

$$8 \,\text{EllipticPi}\left[-3+2 \sqrt{2}, -\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4} (c+d x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]$$

$$\sqrt{3-2 \sqrt{2}-\text{Tan}\left[\frac{1}{4} (c+d x)\right]^2} \sqrt{1+\left(-3+2 \sqrt{2}\right) \text{Tan}\left[\frac{1}{4} (c+d x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}+\sqrt{2}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\right]-\right.$$

$$\left.\text{Log}\left[2-2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\sqrt{2}\,\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\right]\right)$$

$$\left.\left.\left(1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\right)\right)\right)\Big/\left(d\,\left(a\,(1+\text{Sin}[c+d\,x])\right)^{5/2}\right.$$

$$\left(4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2-52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\right.$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4-200\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+$$

$$150\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6+52\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-$$

$$39\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8-4\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+$$

$$3\,\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^{10}+2\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}-12\,\sqrt{2\,\left(3-2\,\sqrt{2}\right)}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^3\,\sqrt{3-2\,\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\,\sqrt{\frac{-3+2\,\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\,\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\,\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\,\sqrt{2}}}$$

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

$$\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^5 \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;\sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2}\;-$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$84\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$56\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$48\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$32\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^6\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;-$$

$$6\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

$$4\sqrt{2}\,\text{Sec}\left[\frac{1}{4}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^8\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^2+\text{Tan}\left[\frac{1}{4}\,(c+d\,x)\right]^4}\;+$$

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

$$\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}$$

$$\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\ -4\sqrt{3-2\sqrt{2}}\ \text{Sec}\left[\frac{1}{4}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}(c+d x)\right]^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}\ \sqrt{\frac{-3+2\sqrt{2}+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{\frac{-3+2\sqrt{2}+17\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2-12\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}{-3+2\sqrt{2}}}$$

$$\sqrt{1-3\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+2\sqrt{2}\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2}$$

$$\left.\left.\sqrt{1-6\,\text{Tan}\left[\frac{1}{4}(c+d x)\right]^2+\text{Tan}\left[\frac{1}{4}(c+d x)\right]^4}\right)\right)$$

Problem 327: Attempted integration timed out after 120 seconds.

$$\int (e\,\text{Cos}[c+d x])^p\,(a+a\,\text{Sin}[c+d x])^8\,dx$$

Optimal (type 5, 95 leaves, 2 steps):

$$-\frac{1}{d\,e\,(1+p)}2^{\frac{17}{2}+\frac{p}{2}}a^8\,(e\,\text{Cos}[c+d x])^{1+p}$$

$$\text{Hypergeometric2F1}\left[\frac{1}{2}(-15-p),\frac{1+p}{2},\frac{3+p}{2},\frac{1}{2}(1-\text{Sin}[c+d x])\right](1+\text{Sin}[c+d x])^{\frac{1}{2}(-1-p)}$$

Result (type 1, 1 leaves):

???

Problem 328: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (e\,\text{Cos}[c+d\,x])^p\,(a+a\,\text{Sin}[c+d\,x])^3\,dx$$

Optimal (type 5, 95 leaves, 2 steps):

$$-\frac{1}{d\,e\,(1+p)}2^{\frac{7}{2}+\frac{p}{2}}\,a^3\,(e\,\text{Cos}[c+d\,x])^{1+p}\,\text{Hypergeometric2F1}\left[\frac{1}{2}(-5-p),\frac{1+p}{2},\frac{3+p}{2},\frac{1}{2}(1-\text{Sin}[c+d\,x])\right](1+\text{Sin}[c+d\,x])^{\frac{1}{2}(-1-p)}$$

Result (type 5, 462 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6}\,i\,2^{-3-p}\left(e^{-i(c+d\,x)}+e^{i(c+d\,x)}\right)^p\left(1+e^{2\,i(c+d\,x)}\right)^{-p}\text{Cos}[c+d\,x]^{-p}$$
$$(e\,\text{Cos}[c+d\,x])^p\left(-\frac{i\,e^{-3\,i(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{3}{2}-\frac{p}{2},-p,-\frac{1}{2}-\frac{p}{2},-e^{2\,i(c+d\,x)}\right]}{3+p}-\right.$$
$$\frac{6\,e^{-2\,i(c+d\,x)}\,\text{Hypergeometric2F1}\left[-1-\frac{p}{2},-p,-\frac{p}{2},-e^{2\,i(c+d\,x)}\right]}{2+p}+$$
$$\frac{15\,i\,e^{-i(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{2}-\frac{p}{2},-p,\frac{1}{2}-\frac{p}{2},-e^{2\,i(c+d\,x)}\right]}{1+p}-$$
$$\frac{15\,i\,e^{i(c+d\,x)}\,\text{Hypergeometric2F1}\left[\frac{1}{2}-\frac{p}{2},-p,\frac{3}{2}-\frac{p}{2},-e^{2\,i(c+d\,x)}\right]}{-1+p}-$$
$$\frac{6\,e^{2\,i(c+d\,x)}\,\text{Hypergeometric2F1}\left[1-\frac{p}{2},-p,2-\frac{p}{2},-e^{2\,i(c+d\,x)}\right]}{-2+p}+$$
$$\frac{i\,e^{3\,i(c+d\,x)}\,\text{Hypergeometric2F1}\left[\frac{3}{2}-\frac{p}{2},-p,\frac{5}{2}-\frac{p}{2},-e^{2\,i(c+d\,x)}\right]}{-3+p}+$$
$$\left.\frac{20\,\text{Hypergeometric2F1}\left[-p,-\frac{p}{2},1-\frac{p}{2},-e^{2\,i(c+d\,x)}\right]}{p}\right)(a+a\,\text{Sin}[c+d\,x])^3$$

Problem 329: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (e\,\text{Cos}[c+d\,x])^p\,(a+a\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 5, 95 leaves, 2 steps):

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

Result (type 5, 351 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}2^{-2-p}\left(e^{-i\,(c+d\,x)}+e^{i\,(c+d\,x)}\right)^p\left(1+e^{2\,i\,(c+d\,x)}\right)^{-p}\text{Cos}[c+d\,x]^{-p}$$
$$(e\,\text{Cos}[c+d\,x])^p\left(-\frac{i\,e^{-2\,i\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[-1-\frac{p}{2},\,-p,\,-\frac{p}{2},\,-e^{2\,i\,(c+d\,x)}\right]}{2+p}-\right.$$
$$\frac{4\,e^{-i\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{2}-\frac{p}{2},\,-p,\,\frac{1}{2}-\frac{p}{2},\,-e^{2\,i\,(c+d\,x)}\right]}{1+p}+$$
$$\frac{4\,e^{i\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[\frac{1}{2}-\frac{p}{2},\,-p,\,\frac{3}{2}-\frac{p}{2},\,-e^{2\,i\,(c+d\,x)}\right]}{-1+p}-$$
$$\frac{i\,e^{2\,i\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[1-\frac{p}{2},\,-p,\,2-\frac{p}{2},\,-e^{2\,i\,(c+d\,x)}\right]}{-2+p}+$$
$$\left.\frac{6\,i\,\text{Hypergeometric2F1}\left[-p,\,-\frac{p}{2},\,1-\frac{p}{2},\,-e^{2\,i\,(c+d\,x)}\right]}{p}\right)\,(a+a\,\text{Sin}[c+d\,x])^2$$

Problem 330: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (e\,\text{Cos}[c+d\,x])^p\,(a+a\,\text{Sin}[c+d\,x])\,dx$$

Optimal (type 5, 93 leaves, 2 steps):

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

Result (type 5, 266 leaves):

$$\frac{1}{d\,(-1+p)\,p\,(1+p)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$
$$2^{-1-p}\,a\left(1+e^{2\,i\,(c+d\,x)}\right)^{-1-p}\left(e^{-i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)\right)^{1+p}\text{Cos}[c+d\,x]^{-p}\,(e\,\text{Cos}[c+d\,x])^p$$
$$\left(-(-1+p)\,p\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,(-1-p),\,-p,\,\frac{1-p}{2},\,-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$e^{i\,(c+d\,x)}\,(1+p)\left(e^{i\,(c+d\,x)}\,p\,\text{Hypergeometric2F1}\left[\frac{1-p}{2},\,-p,\,\frac{3-p}{2},\,-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$\left.\left.2\,i\,(-1+p)\,\text{Hypergeometric2F1}\left[-p,\,-\frac{p}{2},\,1-\frac{p}{2},\,-e^{2\,i\,(c+d\,x)}\right]\right)\right)\,(1+\text{Sin}[c+d\,x])$$

Problem 331: Unable to integrate problem.

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{a+a \operatorname{Sin}[c+d x]} \, dx$$

Optimal (type 5, 95 leaves, 2 steps):

$$-\frac{1}{a d e (1+p)} 2^{-\frac{1}{2}+\frac{p}{2}} (e \operatorname{Cos}[c+d x])^{1+p} \text{Hypergeometric2F1}\left[\frac{3-p}{2}, \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2} (1-\operatorname{Sin}[c+d x])\right] (1+\operatorname{Sin}[c+d x])^{\frac{1}{2}(-1-p)}$$

Result (type 8, 25 leaves):

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{a+a \operatorname{Sin}[c+d x]} \, dx$$

Problem 332: Unable to integrate problem.

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+a \operatorname{Sin}[c+d x])^2} \, dx$$

Optimal (type 5, 93 leaves, 2 steps):

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

Result (type 8, 25 leaves):

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+a \operatorname{Sin}[c+d x])^2} \, dx$$

Problem 333: Unable to integrate problem.

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+a \operatorname{Sin}[c+d x])^3} \, dx$$

Optimal (type 5, 93 leaves, 2 steps):

$$-\frac{1}{a^3 d e (1+p)} 2^{\frac{1}{2}(-5+p)} (e \operatorname{Cos}[c+d x])^{1+p} \text{Hypergeometric2F1}\left[\frac{7-p}{2}, \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2} (1-\operatorname{Sin}[c+d x])\right] (1+\operatorname{Sin}[c+d x])^{\frac{1}{2}(-1-p)}$$

Result (type 8, 25 leaves):

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+a \operatorname{Sin}[c+d x])^3} \, dx$$

Problem 334: Unable to integrate problem.

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+a \operatorname{Sin}[c+d x])^8} \, dx$$

Optimal (type 5, 93 leaves, 2 steps):

$$-\frac{1}{a^8 d e (1+p)} 2^{\frac{1}{2}(-15+p)} (e \operatorname{Cos}[c+d x])^{1+p} \text{Hypergeometric2F1}\left[\frac{17-p}{2}, \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2}(1-\operatorname{Sin}[c+d x])\right] (1+\operatorname{Sin}[c+d x])^{\frac{1}{2}(-1-p)}$$

Result (type 8, 25 leaves):

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+a \operatorname{Sin}[c+d x])^8} \, dx$$

Problem 335: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (e \operatorname{Cos}[c+d x])^p (a+a \operatorname{Sin}[c+d x])^{7/2} \, dx$$

Optimal (type 5, 103 leaves, 3 steps):

$$-\left(\left(2^{4+\frac{p}{2}} a^4 (e \operatorname{Cos}[c+d x])^{1+p} \text{Hypergeometric2F1}\left[\frac{1}{2}(-6-p), \frac{1+p}{2}, \frac{3+p}{2}, \frac{1}{2}(1-\operatorname{Sin}[c+d x])\right] (1+\operatorname{Sin}[c+d x])^{-p/2}\right) \Big/ \left(d e (1+p) \sqrt{a+a \operatorname{Sin}[c+d x]}\right)\right)$$

Result (type 5, 629 leaves):

$$\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7}$$
$$(1+i)\,2^{-3-p}\,e^{i\,p\,(c+d\,x)}\left(e^{-i\,(c+d\,x)}+e^{i\,(c+d\,x)}\right)^p\left(1+e^{2\,i\,(c+d\,x)}\right)^{-p}\text{Cos}[c+d\,x]^{-p}\,(e\,\text{Cos}[c+d\,x])^p$$
$$\left(\frac{1}{7+2\,p}e^{-\frac{1}{2}i\,(7+2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{7}{4}-\frac{p}{2},-p,-\frac{3}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]-\right.$$
$$\frac{1}{5+2\,p}7\,i\,e^{-\frac{1}{2}i\,(5+2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{5}{4}-\frac{p}{2},-p,-\frac{1}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]-$$
$$\frac{1}{3+2\,p}21\,e^{-\frac{1}{2}i\,(3+2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{3}{4}-\frac{p}{2},-p,\frac{1}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]+$$
$$\frac{1}{1+2\,p}35\,i\,e^{-\frac{1}{2}i\,(1+2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{4}-\frac{p}{2},-p,\frac{3}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]+$$
$$\frac{1}{-1+2\,p}35\,e^{-\frac{1}{2}i\,(-1+2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[\frac{1}{4}-\frac{p}{2},-p,\frac{5}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]-$$
$$\frac{1}{-3+2\,p}21\,i\,e^{\frac{1}{2}i\,(3-2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[\frac{3}{4}-\frac{p}{2},-p,\frac{7}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]-$$
$$\frac{1}{-5+2\,p}7\,e^{\frac{1}{2}i\,(5-2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[\frac{5}{4}-\frac{p}{2},-p,\frac{9}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]+$$
$$\left.\frac{1}{-7+2\,p}i\,e^{-\frac{1}{2}i\,(-7+2\,p)\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[\frac{7}{4}-\frac{p}{2},-p,\frac{11}{4}-\frac{p}{2},-e^{2\,i\,(c+d\,x)}\right]\right)$$
$$(a\,(1+\text{Sin}[c+d\,x]))^{7/2}$$

Problem 336: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (e\,\text{Cos}[c+d\,x])^p\,(a+a\,\text{Sin}[c+d\,x])^{5/2}\,dx$$

Optimal (type 5, 103 leaves, 3 steps):

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

Result (type 5, 504 leaves):

$$-\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^5}(1-i)\, 2^{-3-p} e^{i p (c+d x)}\left(e^{-i (c+d x)}+e^{i (c+d x)}\right)^p\left(1+e^{2 i (c+d x)}\right)^{-p} \text{Cos}[c+d x]^{-p}(e\, \text{Cos}[c+d x])^p$$
$$\left(-\frac{1}{5+2 p} 2\, e^{-\frac{1}{2} i (5+2 p)(c+d x)} \text{Hypergeometric2F1}\left[-\frac{5}{4}-\frac{p}{2},-p,-\frac{1}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]+\right.$$
$$\frac{1}{3+2 p} 10\, i\, e^{-\frac{1}{2} i (3+2 p)(c+d x)} \text{Hypergeometric2F1}\left[-\frac{3}{4}-\frac{p}{2},-p,\frac{1}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]+$$
$$\frac{1}{1+2 p} 20\, e^{-\frac{1}{2} i (1+2 p)(c+d x)} \text{Hypergeometric2F1}\left[-\frac{1}{4}-\frac{p}{2},-p,\frac{3}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]-$$
$$\frac{1}{-1+2 p} 20\, i\, e^{\frac{1}{2} i (1-2 p)(c+d x)} \text{Hypergeometric2F1}\left[\frac{1}{4}-\frac{p}{2},-p,\frac{5}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]-$$
$$\frac{1}{-3+2 p} 10\, e^{\frac{1}{2} i (3-2 p)(c+d x)} \text{Hypergeometric2F1}\left[\frac{3}{4}-\frac{p}{2},-p,\frac{7}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]+$$
$$\left.\frac{1}{-5+2 p} 2\, i\, e^{-\frac{1}{2} i (-5+2 p)(c+d x)} \text{Hypergeometric2F1}\left[\frac{5}{4}-\frac{p}{2},-p,\frac{9}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]\right)$$
$$(a(1+\text{Sin}[c+d x]))^{5/2}$$

Problem 337: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int (e\, \text{Cos}[c+d x])^p (a+a\, \text{Sin}[c+d x])^{3/2}\, dx$$

Optimal (type 5, 103 leaves, 3 steps):

$$-\left(\left(2^{2+\frac{p}{2}} a^2 (e\, \text{Cos}[c+d x])^{1+p} \text{Hypergeometric2F1}\left[\frac{1}{2}(-2-p),\frac{1+p}{2},\frac{3+p}{2},\frac{1}{2}(1-\text{Sin}[c+d x])\right]\right.\right.$$
$$\left.\left.(1+\text{Sin}[c+d x])^{-p/2}\right)\Big/\left(d\, e\,(1+p)\sqrt{a+a\, \text{Sin}[c+d x]}\right)\right)$$

Result (type 5, 378 leaves):

$$-\frac{1}{d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3}(1+i)\, 2^{-2-p} e^{i p (c+d x)}\left(e^{-i (c+d x)}+e^{i (c+d x)}\right)^p\left(1+e^{2 i (c+d x)}\right)^{-p} \text{Cos}[c+d x]^{-p}(e\, \text{Cos}[c+d x])^p$$
$$\left(\frac{1}{3+2 p} 2\, e^{-\frac{1}{2} i (3+2 p)(c+d x)} \text{Hypergeometric2F1}\left[-\frac{3}{4}-\frac{p}{2},-p,\frac{1}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]-\right.$$
$$\frac{1}{1+2 p} 6\, i\, e^{-\frac{1}{2} i (1+2 p)(c+d x)} \text{Hypergeometric2F1}\left[-\frac{1}{4}-\frac{p}{2},-p,\frac{3}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]-$$
$$\frac{1}{-1+2 p} 6\, e^{\frac{1}{2} i (1-2 p)(c+d x)} \text{Hypergeometric2F1}\left[\frac{1}{4}-\frac{p}{2},-p,\frac{5}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]+$$
$$\left.\frac{1}{-3+2 p} 2\, i\, e^{-\frac{1}{2} i (-3+2 p)(c+d x)} \text{Hypergeometric2F1}\left[\frac{3}{4}-\frac{p}{2},-p,\frac{7}{4}-\frac{p}{2},-e^{2 i (c+d x)}\right]\right)$$
$$(a(1+\text{Sin}[c+d x]))^{3/2}$$

Problem 338: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int (e\,\mathrm{Cos}[c+d\,x])^p\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\,dx$$

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

$$-\left(\left(2^{1+\frac{p}{2}}\,a\,(e\,\mathrm{Cos}[c+d\,x])^{1+p}\,\mathrm{Hypergeometric2F1}\left[-\frac{p}{2},\frac{1+p}{2},\frac{3+p}{2},\frac{1}{2}\,(1-\mathrm{Sin}[c+d\,x])\right]\right.\right.$$
$$\left.\left.(1+\mathrm{Sin}[c+d\,x])^{-p/2}\right)\Big/\left(d\,e\,(1+p)\,\sqrt{a+a\,\mathrm{Sin}[c+d\,x]}\right)\right)$$

Result (type 5, 310 leaves):

$$\frac{1}{d\,(-1+2\,p)\,(1+2\,p)\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}$$
$$(1+i)\,2^{-p}\,e^{-\frac{1}{2}\,i\,d\,x}\,\mathrm{Cos}[c+d\,x]^{-p}\,(e\,\mathrm{Cos}[c+d\,x])^p$$
$$\left(e^{i\,d\,x}\,(1+2\,p)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{4}\,(1-2\,p),-p,\frac{1}{4}\,(5-2\,p),-e^{2\,i\,d\,x}\,(\mathrm{Cos}[c]+i\,\mathrm{Sin}[c])^2\right]\right.$$
$$\left(\mathrm{Cos}\left[\frac{c}{2}\right]+i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)+(-1+2\,p)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{4}\,(-1-2\,p),\right.$$
$$\left.\left.-p,\frac{1}{4}\,(3-2\,p),-e^{2\,i\,d\,x}\,(\mathrm{Cos}[c]+i\,\mathrm{Sin}[c])^2\right]\left(i\,\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right)$$
$$\left(e^{-i\,d\,x}\,\left(\left(1+e^{2\,i\,d\,x}\right)\mathrm{Cos}[c]+i\,\left(-1+e^{2\,i\,d\,x}\right)\mathrm{Sin}[c]\right)\right)^p$$
$$\left(1+e^{2\,i\,d\,x}\,\mathrm{Cos}[2\,c]+i\,e^{2\,i\,d\,x}\,\mathrm{Sin}[2\,c]\right)^{-p}\sqrt{a\,(1+\mathrm{Sin}[c+d\,x])}$$

Problem 340: Result more than twice size of optimal antiderivative.

$$\int \frac{(e\,\mathrm{Cos}[c+d\,x])^p}{(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 5, 102 leaves, 3 steps):

$$-\left(\left(2^{-1+\frac{p}{2}}\,(e\,\mathrm{Cos}[c+d\,x])^{1+p}\,\mathrm{Hypergeometric2F1}\left[\frac{4-p}{2},\frac{1+p}{2},\frac{3+p}{2},\frac{1}{2}\,(1-\mathrm{Sin}[c+d\,x])\right]\right.\right.$$
$$\left.\left.(1+\mathrm{Sin}[c+d\,x])^{1-\frac{p}{2}}\right)\Big/\left(d\,e\,(1+p)\,(a+a\,\mathrm{Sin}[c+d\,x])^{3/2}\right)\right)$$

Result (type 5, 228 leaves):

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

Problem 341: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 105 leaves, 3 steps):

$$-\left(\left(2^{-2+\frac{p}{2}}\,\left(e\,\text{Cos}[c+d\,x]\right)^{1+p}\,\text{Hypergeometric2F1}\left[\frac{6-p}{2},\,\frac{1+p}{2},\,\frac{3+p}{2},\,\frac{1}{2}\,\left(1-\text{Sin}[c+d\,x]\right)\right]\right.\right.$$
$$\left.\left.\left(1+\text{Sin}[c+d\,x]\right)^{1-\frac{p}{2}}\right)\Big/\left(a\,d\,e\,\left(1+p\right)\,\left(a+a\,\text{Sin}[c+d\,x]\right)^{3/2}\right)\right)$$

Result (type 5, 304 leaves):

$$\frac{1}{a^4\,d\,\left(-4+p\right)\,\left(-2+p\right)\,p\,\left(2+p\right)\,\sqrt{2-2\,\text{Sin}[c+d\,x]}\,\left(1+\text{Sin}[c+d\,x]\right)^3}\,2^{-2+\frac{p}{2}}\,\text{Cos}[c+d\,x]\,\left(e\,\text{Cos}[c+d\,x]\right)^p\,\left(1-\text{Sin}[c+d\,x]\right)^{-p/2}\,\sqrt{a\,\left(1+\text{Sin}[c+d\,x]\right)}$$
$$\left(8\,a\,p\,\left(-4+p^2\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,\left(-1-p\right),\,\frac{1}{2}\,\left(-4+p\right),\,\frac{1}{2}\,\left(-2+p\right),\,\frac{1}{2}\,\left(1+\text{Sin}[c+d\,x]\right)\right]+\right.$$
$$\left(-4+p\right)\,\left(1+\text{Sin}[c+d\,x]\right)\,\left(4\,a\,p\,\left(2+p\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,\left(-1-p\right),\right.\right.$$
$$\left.\frac{1}{2}\,\left(-2+p\right),\,\frac{p}{2},\,\frac{1}{2}\,\left(1+\text{Sin}[c+d\,x]\right)\right]+\left(-2+p\right)\,\left(1+\text{Sin}[c+d\,x]\right)$$
$$\left(2\,a\,\left(2+p\right)\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,\left(-1-p\right),\,\frac{p}{2},\,\frac{2+p}{2},\,\frac{1}{2}\,\left(1+\text{Sin}[c+d\,x]\right)\right]+\right.$$
$$\left.\left.\left.a\,p\,\text{Hypergeometric2F1}\left[\frac{1-p}{2},\,\frac{2+p}{2},\,\frac{4+p}{2},\,\frac{1}{2}\,\left(1+\text{Sin}[c+d\,x]\right)\right]\,\left(1+\text{Sin}[c+d\,x]\right)\right)\right)\right)$$

Problem 343: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^7\,\left(a+a\,\text{Sin}[c+d\,x]\right)^m\,dx$$

Optimal (type 3, 109 leaves, 3 steps):

$$\frac{8\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{4+m}}{a^4\,d\,(4+m)}-\frac{12\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{5+m}}{a^5\,d\,(5+m)}+\frac{6\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{6+m}}{a^6\,d\,(6+m)}-\frac{\left(a+a\,\mathrm{Sin}[c+d\,x]\right)^{7+m}}{a^7\,d\,(7+m)}$$

Result (type 3, 796 leaves):

$$\frac{1}{d}\left(a\left(1+\mathrm{Sin}[c+d\,x]\right)\right)^m\left(\frac{6144+1084\,m+117\,m^2+5\,m^3}{16\,(4+m)\,(5+m)\,(6+m)\,(7+m)}+\right.$$
$$\left(\left(29400+2578\,m+171\,m^2+5\,m^3\right)\left(-\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[c+d\,x]+\frac{1}{128}\,\mathrm{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left((4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$
$$\left(\left(29400+2578\,m+171\,m^2+5\,m^3\right)\left(\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[c+d\,x]+\frac{1}{128}\,\mathrm{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left((4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$
$$\left(\left(804\,m+109\,m^2+5\,m^3\right)\left(\frac{3}{64}\,\mathrm{Cos}[2\,(c+d\,x)]-\frac{3}{64}\,\mathrm{i}\,\mathrm{Sin}[2\,(c+d\,x)]\right)\right)\Big/$$
$$\left((4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$
$$\left(\left(804\,m+109\,m^2+5\,m^3\right)\left(\frac{3}{64}\,\mathrm{Cos}[2\,(c+d\,x)]+\frac{3}{64}\,\mathrm{i}\,\mathrm{Sin}[2\,(c+d\,x)]\right)\right)\Big/$$
$$\left((4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$
$$\left(\left(1960+1070\,m+93\,m^2+3\,m^3\right)\left(-\frac{3}{128}\,\mathrm{i}\,\mathrm{Cos}[3\,(c+d\,x)]+\frac{3}{128}\,\mathrm{Sin}[3\,(c+d\,x)]\right)\right)\Big/$$
$$\left((4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$
$$\left(\left(1960+1070\,m+93\,m^2+3\,m^3\right)\left(\frac{3}{128}\,\mathrm{i}\,\mathrm{Cos}[3\,(c+d\,x)]+\frac{3}{128}\,\mathrm{Sin}[3\,(c+d\,x)]\right)\right)\Big/$$
$$\left((4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$
$$\frac{\left(44\,m+17\,m^2+m^3\right)\left(\frac{3}{32}\,\mathrm{Cos}[4\,(c+d\,x)]-\frac{3}{32}\,\mathrm{i}\,\mathrm{Sin}[4\,(c+d\,x)]\right)}{(4+m)\,(5+m)\,(6+m)\,(7+m)}+$$
$$\frac{\left(44\,m+17\,m^2+m^3\right)\left(\frac{3}{32}\,\mathrm{Cos}[4\,(c+d\,x)]+\frac{3}{32}\,\mathrm{i}\,\mathrm{Sin}[4\,(c+d\,x)]\right)}{(4+m)\,(5+m)\,(6+m)\,(7+m)}+$$
$$\left(\left(294+103\,m+5\,m^2\right)\left(-\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[5\,(c+d\,x)]+\frac{1}{128}\,\mathrm{Sin}[5\,(c+d\,x)]\right)\right)\Big/$$
$$\left((5+m)\,(6+m)\,(7+m)\right)+\frac{\left(294+103\,m+5\,m^2\right)\left(\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[5\,(c+d\,x)]+\frac{1}{128}\,\mathrm{Sin}[5\,(c+d\,x)]\right)}{(5+m)\,(6+m)\,(7+m)}+$$
$$\frac{\frac{1}{64}\,m\,\mathrm{Cos}[6\,(c+d\,x)]-\frac{1}{64}\,\mathrm{i}\,m\,\mathrm{Sin}[6\,(c+d\,x)]}{(6+m)\,(7+m)}+\frac{\frac{1}{64}\,m\,\mathrm{Cos}[6\,(c+d\,x)]+\frac{1}{64}\,\mathrm{i}\,m\,\mathrm{Sin}[6\,(c+d\,x)]}{(6+m)\,(7+m)}+$$
$$\left.\frac{-\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[7\,(c+d\,x)]+\frac{1}{128}\,\mathrm{Sin}[7\,(c+d\,x)]}{7+m}+\frac{\frac{1}{128}\,\mathrm{i}\,\mathrm{Cos}[7\,(c+d\,x)]+\frac{1}{128}\,\mathrm{Sin}[7\,(c+d\,x)]}{7+m}\right)$$

Problem 347: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x] \, (a+a \,\text{Sin}[c+d x])^m \, dx$$

Optimal (type 5, 40 leaves, 2 steps):

$$\frac{1}{2 d m}\text{Hypergeometric2F1}\left[1,\, m,\, 1+m,\, \frac{1}{2}\,(1+\text{Sin}[c+d x])\right]\,(a+a\,\text{Sin}[c+d x])^m$$

Result (type 6, 7227 leaves):

$$-\Bigg(\Bigg(\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2 (a+a\,\text{Sin}[c+d x])^m \left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}\right)^{2m} \Bigg(-\Bigg(\Bigg(2\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^4\Bigg)\Big/$$
$$\Bigg(-2\,\text{AppellF1}\left[1,\,1-2m,\,2m,\,2,\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]+\Bigg(2m\,\text{AppellF1}\left[2,\,1-2m,\,1+2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]+(-1+2m)\,\text{AppellF1}\left[2,\,2-2m,\,2m,\,3,\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\Bigg)\Bigg)+$$
$$\Bigg((1+m)\,\text{AppellF1}\left[1+2m,\,2m,\,1,\,2+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)^2\Bigg)\Big/$$
$$\Bigg((1+2m)\Bigg(-2(1+m)\,\text{AppellF1}\left[1+2m,\,2m,\,1,\,2+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]+\Bigg(\text{AppellF1}\left[2+2m,\,2m,\,2,\,3+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]+m$$
$$\text{AppellF1}\left[2+2m,\,1+2m,\,1,\,3+2m,\,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\,1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$
$$\Bigg(d\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right)\right]\right)$$

$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]+\right.$$
$$\left.\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]\right)$$
$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\left(\frac{1}{2\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}\right.$$
$$\text{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{2m}$$
$$\left(-\left(\left(2\,\text{AppellF1}\left[1,1-2m,2m,2,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\right)\Big/\left(-2\,\text{AppellF1}\left[1,1-2m,2m,2,\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+\left(2\,m\,\text{AppellF1}\left[2,\right.\right.$$
$$1-2m,1+2m,3,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(-1+2m)\,\text{AppellF1}\left[2,2-2m,2m,3,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)+$$
$$\left(\left(1+m\right)\text{AppellF1}\left[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.\left.1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2\right)\Big/$$
$$\left(\left(1+2m\right)\left(-2\left(1+m\right)\text{AppellF1}\left[1+2m,2m,1,2+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+\left(\text{AppellF1}\left[2+2m,2m,2,3+2m,\right.\right.$$
$$\left.\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$m\,\text{AppellF1}\left[2+2m,1+2m,1,3+2m,\frac{1}{2}-\frac{1}{2}\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.\left.\left.1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)\right)\right)-$$
$$\frac{1}{2\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)}\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\text{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\left(\frac{1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{2m}$$
$$\left(-\left(\left(2\,\text{AppellF1}\left[1,1-2m,2m,2,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\Bigg((1+2\,m)\,\Bigg(-2\,(1+m)\,\text{AppellF1}\Big[1+2\,m,\,2\,m,\,1,\,2+2\,m,\,\frac{1}{2}-\frac{1}{2}\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$

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

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

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

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

Problem 348: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\,(a+a\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 47 leaves, 2 steps):

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

Result (type 6, 27 160 leaves): Display of huge result suppressed!

Problem 349: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^5\,(a+a\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 51 leaves, 2 steps):

$$-\frac{1}{8\,d\,(2-m)}a^2\,\text{Hypergeometric2F1}\left[3,\ -2+m,\ -1+m,\ \frac{1}{2}\,(1+\text{Sin}[c+d\,x])\right]\,(a+a\,\text{Sin}[c+d\,x])^{-2+m}$$

Result (type 5, 443 leaves):

$$-\frac{1}{32\,d}\left(\text{Sec}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m (a+a\,\text{Sin}[c+d\,x])^m \left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-m}$$
$$\left(-\frac{1}{m}6\left(1+\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m \text{Hypergeometric2F1}\left[m,\,m,\,1+m,\,-\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$\frac{1}{1+m}4\,\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(1+\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m$$
$$\text{Hypergeometric2F1}\left[m,\,1+m,\,2+m,\,-\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\frac{1}{2+m}\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4$$
$$\left(1+\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m \text{Hypergeometric2F1}\left[m,\,2+m,\,3+m,\,-\text{Cot}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$\frac{4\left(-1-\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2+\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m\right)}{-1+m}+$$
$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4+\left(1+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^m-\right.\right.$$
$$\left.\left.m\left(\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2+\text{Tan}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\right)\right)\Big/\left((-2+m)\,(-1+m)\right)\right)$$

Problem 350: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 83 leaves, 3 steps):

$$-\frac{1}{5\,d}2^{\frac{5}{2}+m}\,a^2\,\text{Cos}[c+d\,x]^5\,\text{Hypergeometric2F1}\left[\frac{5}{2},\,-\frac{3}{2}-m,\,\frac{7}{2},\,\frac{1}{2}\,(1-\text{Sin}[c+d\,x])\right]$$
$$(1+\text{Sin}[c+d\,x])^{-\frac{1}{2}-m}\,(a+a\,\text{Sin}[c+d\,x])^{-2+m}$$

Result (type 6, 9362 leaves):

$$-\left(\left(\left(3072\,\text{Cos}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])^m\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right.\right.\right.$$
$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(2+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{9+2\,m}$$
$$\left(\left(\text{AppellF1}\left[\frac{1}{2},\,-2\,(2+m),\,7+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},\,-2\,(2+m),\right.\right.$$
$$7+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-$$
$$2\left(2\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},\,-3-2\,m,\,7+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+\left(7+2\,m\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-2\left(2+m\right),\,2\,(4+m),\,\frac{5}{2},$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\mathrm{AppellF1}\Big[\frac{1}{2},\,-2\left(2+m\right),\,9+2\,m,\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big/$$
$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,-2\left(2+m\right),\,9+2\,m,\,\frac{3}{2},$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-$$
$$2\,\Big(2\left(2+m\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-3-2\,m,\,9+2\,m,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+\left(9+2\,m\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-2\left(2+m\right),\,2\,(5+m),\,\frac{5}{2},$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\Big(2\,\mathrm{AppellF1}\Big[\frac{1}{2},\,-2\left(2+m\right),\,2\,(4+m),\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big)\Big/$$
$$\Big(-3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,-2\left(2+m\right),\,2\,(4+m),\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$4\,\Big(\left(2+m\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-3-2\,m,\,8+2\,m,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+\left(4+m\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-2\left(2+m\right),\,9+2\,m,\,\frac{5}{2},$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big)\Big)\Big/$$
$$\Big(d\,\Big(768\,\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(2+m)}$$
$$\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{9+2\,m}$$
$$\Big(\Big(\mathrm{AppellF1}\Big[\frac{1}{2},\,-2\left(2+m\right),\,7+2\,m,\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2\Big)\Big/\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,-2\left(2+m\right),\,7+$$
$$2\,m,\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-$$
$$2\,\Big(2\left(2+m\right)\mathrm{AppellF1}\Big[\frac{3}{2},\,-3-2\,m,\,7+2\,m,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$3072\,(2+m)\,\text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$1536\,(9+2\,m)\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

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

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

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

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

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

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

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

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

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

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

$$3072\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right] \left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(2+m)} \left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{9+2m}$$

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

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

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

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

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

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

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

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

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

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

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

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]+3\Bigg(-\frac{1}{6}(9+2m)$$

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

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

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

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

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

$$9+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$

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

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

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

$$(4+m)\,\Big(-\frac{3}{10}\,\Big(9+2\,m\Big)\,\text{AppellF1}\Big[\frac{5}{2},\,-2\,\Big(2+m\Big),\,10+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}$$

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

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

$$9+2\,m,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$

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

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

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

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

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

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

Problem 351: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^2\,\Big(a+a\,\text{Sin}[c+d\,x]\Big)^m\,dx$$

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

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

$$\Big(1+\text{Sin}[c+d\,x]\Big)^{-\frac{1}{2}-m}\,\Big(a+a\,\text{Sin}[c+d\,x]\Big)^{-1+m}$$

Result (type 6, 6167 leaves):

$$-\Big(\Big(192\,\Big(\text{Cos}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)^{5+2\,m}\,\text{Cos}[c+d\,x]^2$$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(d\left(48\,\text{Cos}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^8\left(\text{Cos}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,m}\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(1+m)}\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$192\left(\mathrm{Cos}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{5+2m}\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{3}(1+m)\,\text{AppellF1}\Big[\frac{3}{2},1-2(1+m),2(2+m),\frac{5}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$
$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\Big)-4$$
$$\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\Big((1+m)\,\Big(-\frac{3}{10}(4+2m)\,\text{AppellF1}\Big[\frac{5}{2},-1-2m,$$
$$5+2m,\frac{7}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$
$$\text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]+\frac{3}{10}(-1-2m)\,\text{AppellF1}\Big[$$
$$\frac{5}{2},-2m,4+2m,\frac{7}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$
$$\text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\Big)+(2+m)$$
$$\Big(-\frac{3}{10}(5+2m)\,\text{AppellF1}\Big[\frac{5}{2},-2(1+m),6+2m,\frac{7}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$
$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2$$
$$\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]-\frac{3}{5}(1+m)\,\text{AppellF1}\Big[\frac{5}{2},1-2(1+m),$$
$$5+2m,\frac{7}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$
$$\text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\Big)\Big)\Big)\Big)\Big/$$
$$\Big(3\,\text{AppellF1}\Big[\frac{1}{2},-2(1+m),2(2+m),\frac{3}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$
$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]-4\,\Big((1+m)\,\text{AppellF1}\Big[\frac{3}{2},-1-2m,$$
$$4+2m,\frac{5}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+$$
$$(2+m)\,\text{AppellF1}\Big[\frac{3}{2},-2(1+m),5+2m,\frac{5}{2},\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$
$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)^2\Big)\Big)\Big)\Big)$$

Problem 352: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 5, 73 leaves, 3 steps):

$$\frac{1}{d}2^{-\frac{1}{2}+m}\,\text{Hypergeometric2F1}\Big[-\frac{1}{2},\frac{3}{2}-m,\frac{1}{2},\frac{1}{2}(1-\text{Sin}[c+d\,x])\Big]$$
$$\text{Sec}[c+d\,x]\,(1+\text{Sin}[c+d\,x])^{\frac{1}{2}-m}\,(a+a\,\text{Sin}[c+d\,x])^m$$

Result (type 6, 12 061 leaves):

$$-\Bigg(\Bigg(\Bigg(\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\left(a+a\,\text{Sin}[c+d\,x]\right)^m$$

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

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

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

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

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

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

$$\Bigg(15\,\text{AppellF1}\left[\frac{1}{2},2-2\,m,2\,m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

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

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

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

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

$$\Bigg(25\,\text{AppellF1}\left[\frac{3}{2},2-2\,m,2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

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

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

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

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

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\Bigg)\Bigg/$$

$$\left(7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-4\left(m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)\Big/$$

$$\left(20\,d\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]\right)^2\right.$$

$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]+\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]\right)^2$$

$$\left(-\frac{1}{20}(-1+m)\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right.$$

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

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

$$\left(15\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/$$

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

$$\left(25\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$4\left(m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{5}{2},3-2m,2m,\frac{7}{2},$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\right)\Big/$$
$$\left(7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$4\left(m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{7}{2},3-2m,2m,\frac{9}{2},\text{Tan}\Big[$$
$$\left.\left.\left.\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)-$$
$$\frac{1}{80}\text{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2(-1+m)}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{2m}$$
$$\left(-\left(\left(5\,\text{AppellF1}\left[-\frac{1}{2},2-2m,2m,\frac{1}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\Big/\left(\text{AppellF1}\left[-\frac{1}{2},2-2m,2m,\frac{1}{2},\right.\right.$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-4\left(m\,\text{AppellF1}\left[\frac{1}{2},\right.\right.$$
$$2-2m,1+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(-1+m)\,\text{AppellF1}\left[\frac{1}{2},3-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)+$$
$$\left(15\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/$$

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

$$\left(25\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^4\right)\Big/$$

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

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

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

$$\frac{1}{20}m\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)^{2(-1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}\right)^{1+2m}$$

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

$$\left(-1+m\right) \text{AppellF1}\left[\frac{1}{2}, 3-2m, 2m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)\right) +$$
$$\left(15 \text{AppellF1}\left[\frac{1}{2}, 2-2m, 2m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right) \Big/$$
$$\left(\text{AppellF1}\left[\frac{1}{2}, 2-2m, 2m, \frac{3}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] -\right.$$
$$\frac{4}{3}\left(m \text{AppellF1}\left[\frac{3}{2}, 2-2m, 1+2m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] + \left(-1+m\right) \text{AppellF1}\left[\frac{3}{2}, 3-2m, 2m, \frac{5}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right) +$$
$$\left(25 \text{AppellF1}\left[\frac{3}{2}, 2-2m, 2m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^4\right) \Big/$$
$$\left(5 \text{AppellF1}\left[\frac{3}{2}, 2-2m, 2m, \frac{5}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] -\right.$$
$$4\left(m \text{AppellF1}\left[\frac{5}{2}, 2-2m, 1+2m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] + \left(-1+m\right) \text{AppellF1}\left[\frac{5}{2}, 3-2m, 2m, \frac{7}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right) +$$
$$\left(7 \text{AppellF1}\left[\frac{5}{2}, 2-2m, 2m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^6\right) \Big/$$
$$\left(7 \text{AppellF1}\left[\frac{5}{2}, 2-2m, 2m, \frac{7}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] -\right.$$
$$4\left(m \text{AppellF1}\left[\frac{7}{2}, 2-2m, 1+2m, \frac{9}{2}, \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right] + \left(-1+m\right) \text{AppellF1}\left[\frac{7}{2}, 3-2m, 2m, \frac{9}{2}, \text{Tan}\left[\right.\right.$$
$$\left.\left.\left.\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\right) \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)\right) +$$
$$\frac{1}{20} \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right] \left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right)^{2(-1+m)}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2}\right)^{2m}$$

$$\Bigg(-\Bigg(\Bigg(5\left(m\,\text{AppellF1}\left[\frac{1}{2},2-2m,1+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\frac{1}{2}(2-2m)\,\text{AppellF1}\left[\frac{1}{2},3-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\Bigg)\Big/\left(\text{AppellF1}\left[-\frac{1}{2},2-2m,2m,\frac{1}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-4\left(m\,\text{AppellF1}\left[\frac{1}{2},2-2m,1+2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{1}{2},3-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+\left(15\,\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\Big/\left(2\left(\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\frac{4}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2-2m,1+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{3}{2},3-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)+\Bigg(15\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(-\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},2-2m,1+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{1}{6}(2-2m)\,\text{AppellF1}\left[\frac{3}{2},3-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\Bigg)\Big/\left(\text{AppellF1}\left[\frac{1}{2},2-2m,2m,\frac{3}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\frac{4}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2-2m,1+2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-1+m)\,\text{AppellF1}\left[\frac{3}{2},3-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$

$$\left(25\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$4\left(m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-1+m)\,\text{AppellF1}\Big[\frac{5}{2},3-2m,2m,\frac{7}{2},$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\left(25\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\left(-\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\frac{7}{2},\right.\right.\right.$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{3}{10}(2-2m)$$
$$\text{AppellF1}\left[\frac{5}{2},3-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{3}{2},2-2m,2m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$4\left(m\,\text{AppellF1}\left[\frac{5}{2},2-2m,1+2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-1+m)\,\text{AppellF1}\Big[\frac{5}{2},3-2m,2m,\frac{7}{2},$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\left(21\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^5\right)\Big/$$
$$\left(2\left(7\,\text{AppellF1}\left[\frac{5}{2},2-2m,2m,\frac{7}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.\right.$$
$$4\left(m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-1+m)\,\text{AppellF1}\Big[\frac{7}{2},3-2m,$$
$$\left.2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big)$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)+\left(7\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\right.$$
$$\left(-\frac{5}{7}m\,\text{AppellF1}\left[\frac{7}{2},2-2m,1+2m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$

$$
\begin{aligned}
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\\
&\frac{5}{14}\,(2-2\,m)\ \text{AppellF1}\Big[\frac{7}{2},\,3-2\,m,\,2\,m,\,\frac{9}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big)\Big)\Big/\\
&\Big(7\,\text{AppellF1}\Big[\frac{5}{2},\,2-2\,m,\,2\,m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-\\
&4\,\Big(m\,\text{AppellF1}\Big[\frac{7}{2},\,2-2\,m,\,1+2\,m,\,\frac{9}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-1+m)\ \text{AppellF1}\Big[\frac{7}{2},\,3-2\,m,\,2\,m,\,\frac{9}{2},\\
&\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+\\
&\Big(5\,\text{AppellF1}\Big[-\frac{1}{2},\,2-2\,m,\,2\,m,\,\frac{1}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\\
&\Big(m\,\text{AppellF1}\Big[\frac{1}{2},\,2-2\,m,\,1+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\frac{1}{2}\\
&(2-2\,m)\ \text{AppellF1}\Big[\frac{1}{2},\,3-2\,m,\,2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-2\\
&\Big(m\,\text{AppellF1}\Big[\frac{1}{2},\,2-2\,m,\,1+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-1+m)\ \text{AppellF1}\Big[\frac{1}{2},\,3-2\,m,\\
&2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\\
&\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-4\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\\
&\Big(m\,\Big(-\frac{1}{6}\,(1+2\,m)\ \text{AppellF1}\Big[\frac{3}{2},\,2-2\,m,\,2+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\Big[\\
&\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\\
&\frac{1}{6}\,(2-2\,m)\ \text{AppellF1}\Big[\frac{3}{2},\,3-2\,m,\,1+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\\
&\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big)+(-1+m)\ \Big(-\frac{1}{3}\,m\,\text{AppellF1}\Big[\frac{3}{2},\,3-2\,m,\\
&1+2\,m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\\
&\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{1}{6}\,(3-2\,m)\ \text{AppellF1}\Big[
\end{aligned}
$$

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

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

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

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

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

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

$$\Big(15\,\mathrm{AppellF1}\left[\frac{1}{2}, 2-2m, 2m, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2, -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]$$

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

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

$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right] + \frac{1}{6}(2-2m)$$

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

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

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

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

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

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

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

$$\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\Big] + \frac{3}{10}(2-2m)\,\mathrm{AppellF1}\Big[\frac{5}{2}, 3-2m, 1+2m, \frac{7}{2}, \mathrm{Tan}\Big[\frac{1}{4}$$

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

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

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

$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2 \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right] + \frac{3}{10}(3-2m)\,\mathrm{AppellF1}\Big[$$

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

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

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

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

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

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

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

$$\Bigg(25\,\text{AppellF1}\left[\frac{3}{2},2-2\,m,2\,m,\frac{5}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

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

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

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

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

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

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

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

$$\Bigg(m\Bigg(-\frac{5}{14}\,(1+2\,m)\,\text{AppellF1}\left[\frac{7}{2},2-2\,m,2+2\,m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]+\frac{5}{14}\,(2-2\,m)\,\text{AppellF1}\Big[\frac{7}{2},3-2\,m,1+2\,m,\frac{9}{2},\text{Tan}\Big[\frac{1}{4}$$

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

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

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

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{5}{14}\,(3-2\,m)\,\text{AppellF1}\Big[$$

$$\frac{7}{2},4-2\,m,2\,m,\frac{9}{2},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

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

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

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

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

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

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

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

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

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

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Bigg)\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+7$$

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

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

$$\frac{5}{14}\,(2-2\,m)\,\text{AppellF1}\left[\frac{7}{2},\,3-2\,m,\,2\,m,\,\frac{9}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\Bigg(m\,\Bigg(-\frac{7}{18}\,(1+2\,m)\,\text{AppellF1}\left[\frac{9}{2},\,2-2\,m,\,2+2\,m,\right.$$

$$\left.\frac{11}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{7}{18}\,(2-2\,m)\,\text{AppellF1}\left[\frac{9}{2},\right.$$

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

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

$$\Bigg(-\frac{7}{9}\,m\,\text{AppellF1}\left[\frac{9}{2},\,3-2\,m,\,1+2\,m,\,\frac{11}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{7}{18}\,(3-2\,m)\,\text{AppellF1}\left[\frac{9}{2},\,4-2\,m,\right.$$

$$2\,m,\ \frac{11}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(7\,\text{AppellF1}\left[\frac{5}{2},\ 2-2\,m,\ 2\,m,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-$$
$$4\,\Bigg(m\,\text{AppellF1}\Big[\frac{7}{2},\ 2-2\,m,\ 1+2\,m,\ \frac{9}{2},$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$(-1+m)\,\text{AppellF1}\Big[\frac{7}{2},\ 3-2\,m,\ 2\,m,\ \frac{9}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Bigg)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)$$

Problem 353: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^4\,(a+a\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 83 leaves, 3 steps):

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

Result (type 6, 3545 leaves):

$$\Bigg(\text{AppellF1}\left[-\frac{3}{2},\ 4-2\,m,\ -7+2\,m,\ -\frac{1}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\text{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{13}\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\,(a+a\,\text{Sin}[c+d\,x])^m\Bigg)\Bigg/$$
$$\Bigg(192\,d\left(-1+\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^4\Bigg(2\,(-7+2\,m)\,\text{AppellF1}\Big[-\frac{1}{2},\ 4-2\,m,$$
$$-6+2\,m,\ \frac{1}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+4\,(-2+m)$$
$$\text{AppellF1}\left[-\frac{1}{2},\ 5-2\,m,\ -7+2\,m,\ \frac{1}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$\text{AppellF1}\left[-\frac{3}{2},\ 4-2\,m,\ -7+2\,m,\ -\frac{1}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]-\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]\right)^4$$
$$\left(\text{Cos}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]+\text{Sin}\left[\frac{\pi}{4}+\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right)\right]\right)^4$$
$$\Bigg(\Bigg(13\,\text{AppellF1}\left[-\frac{3}{2},\ 4-2\,m,\ -7+2\,m,\ -\frac{1}{2},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\mathrm{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{14}\Bigg)\Bigg/\left(768\left(-1+\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right)^{4}\right.$$

$$\left(2\,(-7+2\,m)\,\mathrm{AppellF1}\left[-\frac{1}{2},4-2\,m,-6+2\,m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right]+4\,(-2+m)\,\mathrm{AppellF1}\left[-\frac{1}{2},5-2\,m,-7+2\,m,\frac{1}{2},\right.$$

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

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

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

$$\mathrm{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{16}\Bigg)\Bigg/\left(96\left(-1+\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right)^{5}\right.$$

$$\left(2\,(-7+2\,m)\,\mathrm{AppellF1}\left[-\frac{1}{2},4-2\,m,-6+2\,m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right]+4\,(-2+m)\,\mathrm{AppellF1}\left[-\frac{1}{2},5-2\,m,-7+2\,m,\frac{1}{2},\right.$$

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

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

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

$$\mathrm{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{12}\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\Bigg)\Bigg/$$

$$\left(768\left(-1+\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right)^{4}\left(2\,(-7+2\,m)\,\mathrm{AppellF1}\left[-\frac{1}{2},4-2\,m,\right.\right.\right.$$

$$\left.-6+2\,m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right]+$$

$$4\,(-2+m)\,\mathrm{AppellF1}\left[-\frac{1}{2},5-2\,m,-7+2\,m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},\right.$$

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

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

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

$$\mathrm{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{-1+2\,m}\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{13}\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

$$\mathrm{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Bigg)\Bigg/\left(192\left(-1+\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right)^{4}\right.$$

$$\left(2\,(-7+2\,m)\,\mathrm{AppellF1}\left[-\frac{1}{2},4-2\,m,-6+2\,m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right]+4\,(-2+m)\,\mathrm{AppellF1}\left[-\frac{1}{2},5-2\,m,-7+2\,m,\frac{1}{2},\right.$$

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

$$\Big(\mathrm{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{13}\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

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

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

$$\Big(192\left(-1+\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^4\Big(2\left(-7+2\,m\right)\mathrm{AppellF1}\left[-\frac{1}{2},\ 4-2\,m,\ -6+2\,m,\ \frac{1}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$

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

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

$$\mathrm{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{13}\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big(-\frac{1}{2}\mathrm{AppellF1}\left[-\frac{3}{2},\ 4-2\,m,\ -7+2\,m,\ -\frac{1}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2+\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

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

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

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

$$\frac{1}{2}\left(4-2\,m\right)\mathrm{AppellF1}\left[\frac{1}{2},\ 5-2\,m,\ -6+2\,m,\ \frac{3}{2},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Bigg)+$$
$$4\,(-2+m)\left(\frac{1}{2}\,(-7+2\,m)\,\text{AppellF1}\left[\frac{1}{2},\,5-2\,m,\,-6+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-$$
$$\frac{1}{2}\,(5-2\,m)\,\text{AppellF1}\left[\frac{1}{2},\,6-2\,m,\,-7+2\,m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Bigg)\Bigg/$$
$$\left(192\left(-1+\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^4\left(2\,(-7+2\,m)\,\text{AppellF1}\left[-\frac{1}{2},\,4-2\,m,\,-6+2\,m,\right.\right.\right.$$
$$\left.\frac{1}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$4\,(-2+m)\,\text{AppellF1}\left[-\frac{1}{2},\,5-2\,m,\,-7+2\,m,\,\frac{1}{2},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+\text{AppellF1}\left[-\frac{3}{2},\,4-2\,m,\,-7+2\,m,\,-\frac{1}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\,\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2\right)\right)$$

Problem 354: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (e\,\text{Cos}[c+d\,x])^{5/2}\,(a+a\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 88 leaves, 3 steps):

$$-\frac{1}{7\,d\,e}2^{\frac{11}{4}+m}\,a\,(e\,\text{Cos}[c+d\,x])^{7/2}\,\text{Hypergeometric2F1}\left[\frac{7}{4},\,-\frac{3}{4}-m,\,\frac{11}{4},\,\frac{1}{2}\,(1-\text{Sin}[c+d\,x])\right]$$
$$(1+\text{Sin}[c+d\,x])^{-\frac{3}{4}-m}\,(a+a\,\text{Sin}[c+d\,x])^{-1+m}$$

Result (type 6, 32 821 leaves): Display of huge result suppressed!

Problem 355: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 5, 88 leaves, 3 steps):

$$-\frac{1}{5\,d\,e}2^{\frac{9}{4}+m}\,a\,(e\,\text{Cos}[c+d\,x])^{5/2}\,\text{Hypergeometric2F1}\left[\frac{5}{4},\,-\frac{1}{4}-m,\,\frac{9}{4},\,\frac{1}{2}\,(1-\text{Sin}[c+d\,x])\right]$$
$$(1+\text{Sin}[c+d\,x])^{-\frac{1}{4}-m}\,(a+a\,\text{Sin}[c+d\,x])^{-1+m}$$

Result (type 6, 13 703 leaves):

$$\left(64\,\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{-2\,m}\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\left(a+a\,\text{Sin}[c+d\,x]\right)^{m}\right.$$

$$\left(\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\text{Cos}[c+d\,x]^{7/2}+\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\text{Cos}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]^{2}\right)$$

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

$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{3}}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right)^{2}}}$$

$$\left(\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right]\right.\right.$$

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

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

$$2\left((6+4\,m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},\right.\right.$$

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

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

$$\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right]\right)\Big/$$

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

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

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

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

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

$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\right)\right)\Big/\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-\right.\right.$$

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

$$2\left((6+4\,m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2},\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2}\Big]+(1+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{13}{4},\text{Tan}\left[\right.\right.$$

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

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

$$\Big(-9\,\mathrm{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},$$

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

$$2\,\Big(4\,(2+m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]+(1+4\,m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\Big[$$

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

$$\Bigg(5\,d\,\mathrm{Cos}[c+d\,x]^{3/2}\,\Bigg(\frac{64}{5}\,m\,\mathrm{Sec}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]$$

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

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

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

$$\Big(\Big(25\,\mathrm{AppellF1}\Big[\frac{1}{4},\,-\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{5}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]$$

$$\left(1+\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\right)\Big)\Big/\Big(-5\,\mathrm{AppellF1}\Big[\frac{1}{4},\,-\frac{1}{2}-2\,m,$$

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

$$2\,\Big((6+4\,m)\,\mathrm{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

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

$$\Big(25\,\mathrm{AppellF1}\Big[\frac{1}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{5}{4},\,\mathrm{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

$$
\begin{aligned}
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\Big/\\
&\Big(5\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-\\
&2\,\Big(4\,(2+m)\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2\,m,5+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(1+4\,m)\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\\
&\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+\\
&9\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\Big(-\Big(\Big(\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\Big(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big)\Big/\\
&\Big(-9\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+2\,\Big((6+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},-\frac{1}{2}-2\,m,\\
&4+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+\\
&(1+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big)+\\
&\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big/\\
&\Big(-9\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+2\,\Big(4\,(2+m)\,\text{AppellF1}\Big[\frac{9}{4},-\frac{1}{2}-2\,m,\\
&5+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+\\
&(1+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\\
&-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big)\Big)+\\
&\frac{32}{5}\,(3+2\,m)\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\\
&\Big(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)^{2\,m}\\
&\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{4+2\,m}
\end{aligned}
$$

$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$

$$\left(\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)\Big/\left(-5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,\right.\right.$$
$$\left.3+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$2\left((6+4\,m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(1+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,(2+m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,5+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(1+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$9\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(-\left(\left(\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)\Big/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+2\left((6+4\,m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2\,m,\right.\right.$$
$$\left.4+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(1+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)+$$
$$\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+2\left(4\,(2+m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2\,m,\right.\right.$$
$$5+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$(1+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big)\Big)-$$
$$\frac{1}{5\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}}\,32\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,m}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{3+2\,m}$$
$$\left(\left(\frac{1}{4}\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2-\frac{3}{4}\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/\right.$$
$$\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2-\left(\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right.$$
$$\left.\left.\left(\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3\right)\right)\Big/\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^3\right)$$
$$\left(\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)\Big/\left(-5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,\right.\right.$$
$$3+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$2\left((6+4\,m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(1+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\Big/\left(5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,4+2\,m,\right.\right.$$
$$\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-$$
$$2\left(4\,(2+m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,5+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(1+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$

$$9\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(-\left(\left(\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Bigg)\Bigg/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+2\left((6+4\,m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2\,m,\right.\right.$$
$$\left.4+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(1+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Bigg)+\text{AppellF1}\left[\frac{5}{4},\right.$$
$$\left.-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Bigg/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+2\left(4\,(2+m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2\,m,\right.\right.$$
$$\left.5+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(1+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2\,m,4+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)\right)-$$
$$\frac{64}{5}\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,m}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{3+2\,m}$$
$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$
$$\left(\left(\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.\right.\right.$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\Bigg/$$
$$\left(2\left(-5\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+2\left((6+4\,m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2\,m,\right.\right.$$
$$\left.4+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(1+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,3+2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\Big(25\,\Big(-\frac{1}{10}\,(3+2\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

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

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

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

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

$$2\,\Big((6+4\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

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

$$\Big(25\,\Big(-\frac{1}{10}\,(4+2\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\frac{1}{10}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

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

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

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

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

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

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

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+2\,\Big((6+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},$$

$$-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$

$$(1+4m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,3+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)+$$
$$\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big/$$
$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+2\left(4\,(2+m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2m,\right.\right.$$
$$\left.5+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(1+4m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)-$$
$$\left(25\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2}-2m,3+2m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)$$
$$\left(\left((6+4m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2m,3+2m,\frac{9}{4},\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-5\left(-\frac{1}{10}\,(3+2m)\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\right.\right.$$
$$\left.\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{1}{10}\left(-\frac{1}{2}-2m\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2m,3+2m,\frac{9}{4},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)+2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left((6+4m)\right.$$
$$\left(-\frac{5}{18}\,(4+2m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2m,5+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+$$
$$\frac{5}{18}\left(-\frac{1}{2}-2m\right)\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)+$$
$$(1+4m)\left(-\frac{5}{18}\,(3+2m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\right.\right.$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{5}{18}\left(\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[\frac{9}{4},\ \frac{3}{2}-2\,m,$$

$$3+2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

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

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

$$2\,\Bigg((6+4\,m)\ \text{AppellF1}\Big[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 4+2\,m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

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

$$\Bigg(25\,\text{AppellF1}\Big[\frac{1}{4},\ -\frac{1}{2}-2\,m,\ 4+2\,m,\ \frac{5}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

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

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+5\left(-\frac{1}{10}\,(4+2\,m)\ \text{AppellF1}\Big[\frac{5}{4},\ -\frac{1}{2}-2\,m,\ 5+2\,m,\right.$$

$$\frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{1}{10}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[\frac{5}{4},\ \frac{1}{2}-2\,m,\ 4+2\,m,\ \frac{9}{4},$$

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

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

$$\left(-\frac{5}{18}\,(5+2\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ -\frac{1}{2}-2\,m,\ 6+2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[\frac{9}{4},\ \frac{1}{2}-2\,m,\ 5+2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$(1+4\,m)\ \left(-\frac{5}{18}\,(4+2\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{1}{2}-2\,m,\ 5+2\,m,\ \frac{13}{4},\right.$$

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

$$\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]+\frac{5}{18}\Big(\frac{1}{2}-2\,m\Big)\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{3}{2}-2\,m,$$

$$4+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$

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

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

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

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

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

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

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

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

$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+2\Big((6+4\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ -\frac{1}{2}-2\,m,$$

$$4+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+$$

$$(1+4\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$

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

$$\Big(\Big(-\frac{5}{18}\ (3+2\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ -\frac{1}{2}-2\,m,\ 4+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$

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

$$\frac{5}{18}\Big(-\frac{1}{2}-2\,m\Big)\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$

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

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

$$\frac{9}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+$$

$$2\Big((6+4\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ -\frac{1}{2}-2\,m,\ 4+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+(1+4\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[$$

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

$$\Big(-\frac{5}{18}\,(4+2\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

$$\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

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

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

$$5+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]+$$

$$(1+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

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

$$\Big(1+\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big)\,\Big(\Big((6+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,$$

$$\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]+$$

$$(1+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

$$9\,\Big(-\frac{5}{18}\,(3+2\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

$$\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

$$2\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\,\Big((6+4\,m)\,\Big(-\frac{9}{26}\,(4+2\,m)\,\text{AppellF1}\Big[\frac{13}{4},\,-\frac{1}{2}-2\,m,$$

$$5+2\,m,\,\frac{17}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\,-\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]+\frac{9}{26}\left(-\frac{1}{2}-2\,m\right)$$

$$\text{AppellF1}\Big[\frac{13}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{17}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\Big[$$
$$\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]\Big)+(1+4\,m)\left(-\frac{9}{26}\,(3+2\,m)\,\mathrm{AppellF1}\Big[\frac{13}{4},\,\frac{1}{2}-2\,m,\right.$$
$$4+2\,m,\,\frac{17}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{9}{26}\left(\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\Big[$$
$$\frac{13}{4},\,\frac{3}{2}-2\,m,\,3+2\,m,\,\frac{17}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-$$
$$\left.d\,x\Big)\Big]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big)\Big)\Big)\Big)\Big/$$
$$\Big(-9\,\mathrm{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{9}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+2\,\Big((6+4\,m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,$$
$$4+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$(1+4\,m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,3+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)^2-$$
$$\Big(\mathrm{AppellF1}\Big[\frac{5}{4},\,-\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{9}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\Big(\Big(4\,(2+m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(1+4\,m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,$$
$$4+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-$$
$$9\,\Big(-\frac{5}{18}\,(4+2\,m)\,\mathrm{AppellF1}\Big[\frac{9}{4},\,-\frac{1}{2}-2\,m,\,5+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+$$
$$\frac{5}{18}\left(-\frac{1}{2}-2\,m\right)\mathrm{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,4+2\,m,\,\frac{13}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big)+$$
$$2\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big(4\,(2+m)\left(-\frac{9}{26}\,(5+2\,m)\,\mathrm{AppellF1}\Big[\frac{13}{4},\,-\frac{1}{2}-2\,m,\right.$$
$$6+2\,m,\,\frac{17}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{9}{26}\left(-\frac{1}{2}-2\,m\right)$$

$$\text{AppellF1}\left[\frac{13}{4},\frac{1}{2}-2m,5+2m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]\Bigg)+(1+4m)\left(-\frac{9}{26}(4+2m)\,\text{AppellF1}\left[\frac{13}{4},\frac{1}{2}-2m,5+2m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]+\frac{9}{26}\left(\frac{1}{2}-2m\right)\text{AppellF1}\left[\frac{13}{4},\frac{3}{2}-2m,4+2m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(-9\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2}-2m,4+2m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+2\left(4(2+m)\,\text{AppellF1}\left[\frac{9}{4},-\frac{1}{2}-2m,5+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+(1+4m)\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2}-2m,4+2m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)^2\Bigg)\Bigg)$$

Problem 356: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\sqrt{e\,\text{Cos}[c+dx]}\,(a+a\,\text{Sin}[c+dx])^m\,dx$$

Optimal (type 5, 88 leaves, 3 steps):

$$-\frac{1}{3de}2^{\frac{7}{4}+m}a\,(e\,\text{Cos}[c+dx])^{3/2}\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{1}{4}-m,\frac{7}{4},\frac{1}{2}(1-\text{Sin}[c+dx])\right](1+\text{Sin}[c+dx])^{\frac{1}{4}-m}(a+a\,\text{Sin}[c+dx])^{-1+m}$$

Result (type 6, 3061 leaves):

$$-\Bigg(\Bigg(28\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2m,2+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-dx\right)\right]^{2m}\sqrt{\text{Cos}[c+dx]}\,\sqrt{e\,\text{Cos}[c+dx]}$$

$$\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\,\left(a+a\,\text{Sin}[c+d\,x]\right)^m\Big)\Big/$$
$$\Big(d\,\Big(21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,2+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-$$
$$6\,\Big(4\,(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(1+4\,m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2\,m,2+2\,m,\frac{11}{4},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)$$
$$\Big(\Big(14\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,2+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{1+2\,m}\sqrt{\text{Cos}[c+d\,x]}\Big)\Big/$$
$$\Big(21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,2+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-$$
$$6\,\Big(4\,(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(1+4\,m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2\,m,2+2\,m,\frac{11}{4},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)-$$
$$\Big(28\,m\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,2+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{-1+2\,m}\sqrt{\text{Cos}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big/$$
$$\Big(21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,2+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-$$
$$6\,\Big(4\,(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(1+4\,m)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2\,m,2+2\,m,\frac{11}{4},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\Big(14\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,2+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\,\text{Sin}[c+d\,x]\Big)\Big/$$
$$\Big(\sqrt{\text{Cos}[c+d\,x]}\,\Big(21\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,2+2\,m,\frac{7}{4},\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-$$
$$6\,\Big(4\,(1+m)\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2\,m,3+2\,m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(1+4\,m)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2}-2\,m,2+2\,m,\frac{11}{4},$$

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

$$\Big(28\,\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

$$\Big(-\frac{3}{14}\,(2+2\,m)\ \text{AppellF1}\Big[\frac{7}{4},\ -\frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\frac{3}{14}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{7}{4},\ \frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\Big(21\,\text{AppellF1}\Big[\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-$$

$$6\,\Big(4\,(1+m)\ \text{AppellF1}\Big[\frac{7}{4},\ -\frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(1+4\,m)\ \text{AppellF1}\Big[\frac{7}{4},\ \frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{11}{4},$$

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

$$\Big(28\,\text{AppellF1}\Big[\frac{3}{4},\ -\frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

$$\Big(-3\,\Big(4\,(1+m)\ \text{AppellF1}\Big[\frac{7}{4},\ -\frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(1+4\,m)\ \text{AppellF1}\Big[\frac{7}{4},\ \frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{11}{4},$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+21\,\Big(-\frac{3}{14}\,(2+2\,m)\ \text{AppellF1}\Big[\frac{7}{4},\ -\frac{1}{2}-2\,m,$$

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

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{3}{14}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[$$

$$\frac{7}{4},\ \frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big)-6\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

$$\Big(4\,(1+m)\ \Big(-\frac{7}{22}\,(3+2\,m)\ \text{AppellF1}\Big[\frac{11}{4},\ -\frac{1}{2}-2\,m,\ 4+2\,m,\ \frac{15}{4},$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{7}{22}\left(-\frac{1}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{11}{4},\ \frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{15}{4},$$

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big) + (1+4\,m)\left(-\frac{7}{22}(2+2\,m)\ \text{AppellF1}\left[\frac{11}{4},\frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right] + \frac{7}{22}\left(\frac{1}{2}-2\,m\right)\text{AppellF1}\left[\frac{11}{4},\frac{3}{2}-2\,m,\ 2+2\,m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2 \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\Bigg)\Bigg)\Bigg) \Bigg/ \Bigg(21\ \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right] - 6\Bigg(4\,(1+m)\ \text{AppellF1}\left[\frac{7}{4},-\frac{1}{2}-2\,m,\ 3+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right] + (1+4\,m)\ \text{AppellF1}\left[\frac{7}{4},\frac{1}{2}-2\,m,\ 2+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Bigg)\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Bigg)\Bigg)$$

Problem 357: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+a\,\text{Sin}[c+d\,x])^m}{\sqrt{e\,\text{Cos}[c+d\,x]}}\,dx$$

Optimal (type 5, 86 leaves, 3 steps):

$$-\frac{1}{d\,e}2^{\frac{5}{4}+m}\,a\,\sqrt{e\,\text{Cos}[c+d\,x]}\ \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4}-m,\frac{5}{4},\frac{1}{2}(1-\text{Sin}[c+d\,x])\right](1+\text{Sin}[c+d\,x])^{\frac{3}{4}-m}(a+a\,\text{Sin}[c+d\,x])^{-1+m}$$

Result (type 6, 3947 leaves):

$$-\Bigg(\Bigg(10\ \text{AppellF1}\left[\frac{1}{4},\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\ \text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[c+d\,x]}\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2(a+a\,\text{Sin}[c+d\,x])^m\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Bigg/\Bigg(d\,\sqrt{e\,\text{Cos}[c+d\,x]}\left(-1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Bigg(-8\,m\ \text{AppellF1}\left[\frac{5}{4},\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right] + (2-8\,m)\ \text{AppellF1}\left[\frac{5}{4},\frac{3}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right] + 5\ \text{AppellF1}\left[\frac{1}{4},\frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

$$(- ((5\,\text{AppellF1}\left[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[c+d\,x]}\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4$$

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

$$\frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2] +$$

$$(2-8\,m)\ \text{AppellF1}[\frac{5}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2] + 5\,\text{AppellF1}[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},$$

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

$$(5\,\text{AppellF1}\left[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[c+d\,x]}\ \text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]) \Big/$$

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

$$\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2] + (2-8\,m)$$

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

$$5\,\text{AppellF1}\left[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

$$\sqrt{\text{Cos}[c+d\,x]}\ (\frac{1}{5}\,m\,\text{AppellF1}[\frac{5}{4},\ \frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2]\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\ \text{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2 -$$

$$\frac{1}{10}\left(\frac{1}{2}-2\,m\right)\ \text{AppellF1}[\frac{5}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2]\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\ \text{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2)$$

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

$$(-8\,m\,\text{AppellF1}[\frac{5}{4},\ \frac{1}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},\ \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2] + (2-8\,m)\ \text{AppellF1}[\frac{5}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{9}{4},$$

$$\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2] + 5\,\text{AppellF1}[\frac{1}{4},\ \frac{1}{2}-2\,m,\ 2\,m,$$

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

$$\Big(10\,m\,\text{AppellF1}\Big[\frac{1}{4}, \frac{1}{2}-2\,m, 2\,m, \frac{5}{4}, \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{-1+2\,m}\sqrt{\text{Cos}[c+d\,x]}\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

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

$$\Big(\Big(-1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\,\Big(-8\,m\,\text{AppellF1}\Big[\frac{5}{4}, \frac{1}{2}-2\,m, 1+2\,m, \frac{9}{4},$$

$$\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big] + (2-8\,m)$$

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

$$5\,\text{AppellF1}\Big[\frac{1}{4}, \frac{1}{2}-2\,m, 2\,m, \frac{5}{4}, \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\Big(5\,\text{AppellF1}\Big[\frac{1}{4}, \frac{1}{2}-2\,m, 2\,m, \frac{5}{4}, \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big/$$

$$\Big(\sqrt{\text{Cos}[c+d\,x]}\,\Big(-1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)$$

$$\Big(-8\,m\,\text{AppellF1}\Big[\frac{5}{4}, \frac{1}{2}-2\,m, 1+2\,m, \frac{9}{4}, \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big] + (2-8\,m)\,\text{AppellF1}\Big[\frac{5}{4}, \frac{3}{2}-2\,m, 2\,m, \frac{9}{4},$$

$$\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big] + 5\,\text{AppellF1}\Big[\frac{1}{4}, \frac{1}{2}-2\,m, 2\,m,$$

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

$$\Big(5\,\text{AppellF1}\Big[\frac{1}{4}, \frac{1}{2}-2\,m, 2\,m, \frac{5}{4}, \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

$$\text{Cos}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^{2\,m}\sqrt{\text{Cos}[c+d\,x]}\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

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

$$\Big(-8\,m\,\text{AppellF1}\Big[\frac{5}{4}, \frac{1}{2}-2\,m, 1+2\,m, \frac{9}{4}, \text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big] + (2-8\,m)\,\text{AppellF1}\Big[\frac{5}{4}, \frac{3}{2}-2\,m, 2\,m, \frac{9}{4},$$

$$\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2, -\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big] + 5\,\text{AppellF1}\Big[\frac{1}{4}, \frac{1}{2}-2\,m, 2\,m,$$

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

$$
\begin{array}{l}
\Big(10\,\text{AppellF1}\Big[\frac{1}{4},\,\frac{1}{2}-2\,m,\,2\,m,\,\frac{5}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big] \\
\quad \text{Cos}\Big[\frac{1}{2}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^{2\,m}\sqrt{\text{Cos}[c+d\,x]}\;\text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2 \\
\quad \Big(-8\,m\Big(\frac{5}{18}\,(1+2\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2}-2\,m,\,2+2\,m,\,\frac{13}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2, \\
\qquad -\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2-\frac{5}{18} \\
\qquad \Big(\frac{1}{2}-2\,m\Big)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2, \\
\qquad -\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)+ \\
\quad (2-8\,m)\,\Big(\frac{5}{9}\,m\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2, \\
\qquad -\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2-\frac{5}{18} \\
\qquad \Big(\frac{3}{2}-2\,m\Big)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2, \\
\qquad -\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)+ \\
\quad \frac{5}{2}\,\text{AppellF1}\Big[\frac{1}{4},\,\frac{1}{2}-2\,m,\,2\,m,\,\frac{5}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big] \\
\quad \text{Sec}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]+5\,\Big(\frac{1}{5}\,m\,\text{AppellF1}\Big[\frac{5}{4}, \\
\qquad \frac{1}{2}-2\,m,\,1+2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big] \\
\qquad \text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2-\frac{1}{10}\,\Big(\frac{1}{2}-2\,m\Big) \\
\qquad \text{AppellF1}\Big[\frac{5}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big] \\
\qquad \text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]\,\text{Csc}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)\Big)\Big/ \\
\Big(\Big(-1+\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)\,\Big(-8\,m\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2}-2\,m,\,1+2\,m,\,\frac{9}{4}, \\
\qquad \text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+ \\
\quad (2-8\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2, \\
\qquad -\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+5\,\text{AppellF1}\Big[\frac{1}{4},\,\frac{1}{2}-2\,m,\,2\,m,\,\frac{5}{4}, \\
\qquad \text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\,-\text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)^2\Big)\Big)\Big)\Big)
\end{array}
$$

Problem 358: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

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

$$\left(2^{\frac{3}{4}+m}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{5}{4}-m,\frac{3}{4},\frac{1}{2}\,(1-\text{Sin}[c+d\,x])\right]\right.$$
$$\left.(1+\text{Sin}[c+d\,x])^{\frac{1}{4}-m}\,(a+a\,\text{Sin}[c+d\,x])^m\right)\Big/\left(d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)$$

Result (type 6, 10 902 leaves):

$$-\left(\left(\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\,(a+a\,\text{Sin}[c+d\,x])^m\,\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(-1+m)}\right.\right.$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{-1+2\,m}\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$
$$\left(\left(63\,\text{AppellF1}\left[-\frac{1}{4},\frac{3}{2}-2\,m,2\,m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\Big/\right.$$
$$\left(-3\,\text{AppellF1}\left[-\frac{1}{4},\frac{3}{2}-2\,m,2\,m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2\,m,1+2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{3}{4},\frac{5}{2}-2\,m,2\,m,\frac{7}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(98\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2\,m,2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/$$
$$\left(7\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2\,m,2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2\,m,1+2\,m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{7}{4},\frac{5}{2}-2\,m,2\,m,\frac{11}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(33\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2\,m,2\,m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\right)\Big/$$

$$\left(11\,\text{AppellF1}\left[\frac{7}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{11}{4},\ \frac{3}{2}-2\,m,\ 1+2\,m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{11}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{15}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\right)\Bigg/$$

$$\left(21\,d\,(e\,\text{Cos}[c+d\,x])^{3/2}\left(-\frac{1}{42}(-1+2\,m)\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right.\right.$$

$$\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(-1+m)}\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{2\,m}$$
$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$
$$\left(\left(63\,\text{AppellF1}\left[-\frac{1}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{3}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\Bigg/\right.$$
$$\left(-3\,\text{AppellF1}\left[-\frac{1}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{3}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-\right.\right.\right.\right.$$
$$\left.\left.d\,x\right)\right]^2\right]+2\left(4\,m\,\text{AppellF1}\left[\frac{3}{4},\ \frac{3}{2}-2\,m,\ 1+2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{3}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{7}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(98\,\text{AppellF1}\left[\frac{3}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Bigg/$$
$$\left(7\,\text{AppellF1}\left[\frac{3}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{7}{4},\ \frac{3}{2}-2\,m,\ 1+2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{7}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{11}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$

$$\left(33\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^4\right)\Big/$$
$$\left(11\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]-\right.$$
$$2\left(4m\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2}-2m,1+2m,\frac{15}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+(-3+4m)\,\text{AppellF1}\left[\frac{11}{4},\frac{5}{2}-2m,2m,\frac{15}{4},\text{Tan}\left[\right.\right.$$
$$\left.\left.\left.\left.\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)\right)-$$
$$\frac{1}{21}(-1+m)\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)^{-1+2(-1+m)}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2}\right)^{-1+2m}$$
$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)^2}}$$
$$\left(\left(63\,\text{AppellF1}\left[-\frac{1}{4},\frac{3}{2}-2m,2m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\Big/\right.$$
$$\left(-3\,\text{AppellF1}\left[-\frac{1}{4},\frac{3}{2}-2m,2m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-\right.\right.\right.\right.$$
$$\left.\left.dx\right)\right]^2\right]+2\left(4m\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2m,1+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+(-3+4m)\,\text{AppellF1}\left[\frac{3}{4},\frac{5}{2}-2m,2m,\frac{7}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)+$$
$$\left(98\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2m,2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)\Big/$$
$$\left(7\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2m,2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]-\right.$$
$$2\left(4m\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,1+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+(-3+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{5}{2}-2m,2m,\frac{11}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)+$$
$$\left(33\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,\right.\right.$$

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

$$\Bigg(11\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-$$

$$2\,\Bigg(4\,m\,\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{15}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{11}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{15}{4},\,\text{Tan}\left[\right.\right.$$

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

$$\frac{1}{84}\,\text{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(-1+m)}$$

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

$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$

$$\Bigg(\Bigg(63\,\text{AppellF1}\left[-\frac{1}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{3}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Bigg)\Big/$$

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

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

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

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

$$\Bigg(98\,\text{AppellF1}\left[\frac{3}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

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

$$2\,\Bigg(4\,m\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

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

$$\Bigg(33\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\left(11\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]-2\left(4m\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2}-2m,1+2m,\frac{15}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+(-3+4m)\,\text{AppellF1}\left[\frac{11}{4},\frac{5}{2}-2m,2m,\frac{15}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)\right)+$$

$$\frac{1}{42\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)^2}}}\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]$$

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

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

$$\left(\left(63\,\text{AppellF1}\left[-\frac{1}{4},\frac{3}{2}-2m,2m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\Big/\left(-3\,\text{AppellF1}\left[-\frac{1}{4},\frac{3}{2}-2m,2m,\frac{3}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+2\left(4m\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2m,1+2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+(-3+4m)\,\text{AppellF1}\left[\frac{3}{4},\frac{5}{2}-2m,2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)+$$

$$\left(98\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2m,2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)\Big/$$

$$\left(7\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2m,2m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]-2\left(4m\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,1+2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]+(-3+4m)\,\text{AppellF1}\left[\frac{7}{4},\frac{5}{2}-2m,2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right)+$$

$$\left(33\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,2m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-dx\right)\right]^4\right)\Big/\left(11\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,2m,\frac{11}{4},\right.\right.$$

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

$$\frac{3}{2}-2\,m,\ 1+2\,m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$

$$\left(-3+4\,m\right)\,\text{AppellF1}\left[\frac{11}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

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

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

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

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

$$\frac{1}{21}\,\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\,\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{2\,(-1+m)}$$

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

$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$

$$\left(\left(63\left(\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{4},\ \frac{3}{2}-2\,m,\ 1+2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.\right.$$

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

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

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

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

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

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

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

$$\left(49\,\text{AppellF1}\left[\frac{3}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$

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

$$\left(7\,\text{AppellF1}\left[\frac{3}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{11}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(98\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(-\frac{3}{7}\,m\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{11}{4},\right.\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{3}{14}\left(\frac{3}{2}-2\,m\right)$$
$$\text{AppellF1}\left[\frac{7}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/$$
$$\left(7\,\text{AppellF1}\left[\frac{3}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{7}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{11}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(33\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3\right)\Big/$$
$$\left(11\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2}-2\,m,\,2\,m,\,\frac{11}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{15}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-3+4\,m)\,\text{AppellF1}\left[\frac{11}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{15}{4},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(33\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\left(-\frac{7}{11}\,m\,\text{AppellF1}\left[\frac{11}{4},\,\frac{3}{2}-2\,m,\,1+2\,m,\,\frac{15}{4},\right.\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{7}{22}\left(\frac{3}{2}-2\,m\right)$$
$$\text{AppellF1}\left[\frac{11}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{15}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\Big(11\ \text{AppellF1}\Big[\frac{7}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{11}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]-$$

$$2\ \Big(4\,m\ \text{AppellF1}\Big[\frac{11}{4},\ \frac{3}{2}-2\,m,\ 1+2\,m,\ \frac{15}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]+(-3+4\,m)\ \text{AppellF1}\Big[\frac{11}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{15}{4},$$

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

$$\Big(63\ \text{AppellF1}\Big[-\frac{1}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{3}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]$$

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

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

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

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

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

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

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

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

$$\Big(4\,m\ \Big(-\frac{3}{14}\ (1+2\,m)\ \text{AppellF1}\Big[\frac{7}{4},\ \frac{3}{2}-2\,m,\ 2+2\,m,\ \frac{11}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

$$d\,x\Big)\Big]+\frac{3}{14}\left(\frac{3}{2}-2\,m\right)\ \text{AppellF1}\Big[\frac{7}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{11}{4},\ \text{Tan}\Big[\frac{1}{4}$$

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

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

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

$$\text{Sec}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\ \text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]+\frac{3}{14}\left(\frac{5}{2}-2\,m\right)\ \text{AppellF1}\Big[$$

$$\frac{7}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{11}{4},\ \text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]$$

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

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

$$\left(98\,\text{AppellF1}\left[\frac{3}{4},\frac{3}{2}-2\,m,2\,m,\frac{7}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right.$$

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

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

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{3}{14}\left(\frac{3}{2}-2\,m\right)\text{AppellF1}\left[\frac{7}{4},\frac{5}{2}-2\,m,2\,m,\frac{11}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

$$\left(4\,m\left(-\frac{7}{22}\left(1+2\,m\right)\text{AppellF1}\left[\frac{11}{4},\frac{3}{2}-2\,m,2+2\,m,\frac{15}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right.\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{7}{22}\left(\frac{3}{2}-2\,m\right)\text{AppellF1}\left[\frac{11}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{15}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

$$\left(-\frac{7}{11}\,m\,\text{AppellF1}\left[\frac{11}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{15}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{7}{22}\left(\frac{5}{2}-2\,m\right)\text{AppellF1}\left[\frac{11}{4},\frac{7}{2}-2\,m,2\,m,\frac{15}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

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

$$2\Bigg(4m\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,1+2m,\frac{11}{4},\right.$$

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

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

$$\left.-\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\Bigg)\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\Bigg)^2-$$

$$\Bigg(33\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2}-2m,2m,\frac{11}{4},\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]$$

$$\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^4\Bigg(-\Bigg(4m\,\text{AppellF1}\left[\frac{11}{4},\frac{3}{2}-2m,1+2m,\frac{15}{4},\right.$$

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

$$\left.\frac{11}{4},\frac{5}{2}-2m,2m,\frac{15}{4},\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]\Bigg)$$

$$\operatorname{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]+11\Bigg(-\frac{7}{11}m\,\text{AppellF1}\Big[$$

$$\left.\frac{11}{4},\frac{3}{2}-2m,1+2m,\frac{15}{4},\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]$$

$$\operatorname{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]+\frac{7}{22}\left(\frac{3}{2}-2m\right)\text{AppellF1}\Big[$$

$$\left.\frac{11}{4},\frac{5}{2}-2m,2m,\frac{15}{4},\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]$$

$$\operatorname{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]\Bigg)-2\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2$$

$$\Bigg(4m\Bigg(-\frac{11}{30}(1+2m)\,\text{AppellF1}\left[\frac{15}{4},\frac{3}{2}-2m,2+2m,\frac{19}{4},\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\right.$$

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

$$\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]+\frac{11}{30}\left(\frac{3}{2}-2m\right)\text{AppellF1}\left[\frac{15}{4},\frac{5}{2}-2m,\right.$$

$$\left.1+2m,\frac{19}{4},\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,-\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\right]$$

$$\operatorname{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]\Bigg)+(-3+4m)$$

$$\Bigg(-\frac{11}{15}m\,\text{AppellF1}\left[\frac{15}{4},\frac{5}{2}-2m,1+2m,\frac{19}{4},\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]^2,\right.$$

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

$$\operatorname{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d x\right)\right]+\frac{11}{30}\left(\frac{5}{2}-2m\right)\text{AppellF1}\left[\frac{15}{4},\frac{7}{2}-2m,\right.$$

$$2\,m,\ \frac{19}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$
$$\Big(11\,\text{AppellF1}\left[\frac{7}{4},\ \frac{3}{2}-2\,m,\ 2\,m,\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\,\Big(4\,m\,\text{AppellF1}\left[\frac{11}{4},\ \frac{3}{2}-2\,m,\ 1+2\,m,\right.$$
$$\left.\frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(-3+4\,m)\ \text{AppellF1}\left[\frac{11}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big)\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)^2\Big)\Big)\Big)\Big)$$

Problem 359: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 5, 85 leaves, 3 steps):

$$\left(2^{\frac{1}{4}+m}\,\text{Hypergeometric2F1}\left[-\frac{3}{4},\ \frac{7}{4}-m,\ \frac{1}{4},\ \frac{1}{2}\,(1-\text{Sin}[c+d\,x])\right]\right.$$
$$\left.(1+\text{Sin}[c+d\,x])^{\frac{3}{4}-m}\,(a+a\,\text{Sin}[c+d\,x])^m\right)\Big/\left(3\,d\,e\,(e\,\text{Cos}[c+d\,x])^{3/2}\right)$$

Result (type 6, 16 046 leaves):

$$-\Bigg(\Bigg((a+a\,\text{Sin}[c+d\,x])^m\left(1-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-3+2\,m}$$
$$\left(\frac{1}{1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{-1+2\,m}\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$
$$\Bigg(-\Bigg(\Bigg(195\,\text{AppellF1}\left[-\frac{3}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{1}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\ \text{Cot}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big)\Big/$$

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

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

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

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

$$\Big(11\,700\ \text{AppellF1}\Big[\frac{1}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{5}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]\Big)\Big/$$

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

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

$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+(-5+4\,m)\ \text{AppellF1}\Big[\frac{5}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{9}{4},$$

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

$$\Big(6318\ \text{AppellF1}\Big[\frac{5}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$

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

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

$$2\,\Big(4\,m\,\text{AppellF1}\Big[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+(-5+4\,m)\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{13}{4},$$

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

$$\Big(3380\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$

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

$$\Big(13\ \text{AppellF1}\Big[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]-$$

$$2\,\Big(4\,m\,\text{AppellF1}\Big[\frac{13}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{17}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]+(-5+4\,m)\ \text{AppellF1}\Big[\frac{13}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{17}{4},$$

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

$$\Big(765\ \text{AppellF1}\Big[\frac{13}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{17}{4},\ \text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2,\ -\text{Tan}\Big[\frac{1}{4}\Big(-c+\frac{\pi}{2}-d\,x\Big)\Big]^2\Big]$$

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\Bigg) \Bigg/ \left(17\,\text{AppellF1}\left[\frac{13}{4},\frac{5}{2}-2\,m,2\,m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{17}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{21}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-5+4\,m)\,\text{AppellF1}\left[\frac{17}{4},\frac{7}{2}-2\,m,2\,m,\frac{21}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Bigg)\Bigg) \Bigg/$$

$$\Bigg(2340\,d\,(e\,\text{Cos}[c+d\,x])^{5/2}\Bigg(-\frac{1}{4680}(-1+2\,m)\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

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

$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$

$$\Bigg(-\Bigg(\Bigg(195\,\text{AppellF1}\left[-\frac{3}{4},\frac{5}{2}-2\,m,2\,m,\frac{1}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Bigg/\left(\text{AppellF1}\left[-\frac{3}{4},\frac{5}{2}-2\,m,2\,m,\frac{1}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{1}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-5+4\,m)\,\text{AppellF1}\left[\frac{1}{4},\frac{7}{2}-2\,m,2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Bigg)+\left(11700\,\text{AppellF1}\left[\frac{1}{4},\frac{5}{2}-2\,m,2\,m,\frac{5}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\Bigg/$$

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

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

$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+\Big(6318\,\mathrm{AppellF1}\Big[\frac{5}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{9}{4},$$

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

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

$$2\,\Big(4\,m\,\mathrm{AppellF1}\Big[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{13}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-5+4\,m)\ \mathrm{AppellF1}\Big[\frac{9}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \mathrm{Tan}\Big[\frac{1}{4}$$

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

$$\Big(3380\,\mathrm{AppellF1}\Big[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\Big(13\,\mathrm{AppellF1}\Big[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-2\,\Big(4\,m\,\mathrm{AppellF1}\Big[\frac{13}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{17}{4},$$

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

$$\frac{13}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{17}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+\Big(765\,\mathrm{AppellF1}\Big[\frac{13}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{17}{4},$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\Big)\Big/$$

$$\Big(17\,\mathrm{AppellF1}\Big[\frac{13}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{17}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-2\,\Big(4\,m\,\mathrm{AppellF1}\Big[\frac{17}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,$$

$$\frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$

$$(-5+4\,m)\ \mathrm{AppellF1}\Big[\frac{17}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\frac{1}{4680}\ (-3+2\,m)\ \mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]$$

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

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

$$\sqrt{\frac{\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$

$$\left(-\left(\left(195\,\text{AppellF1}\left[-\frac{3}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{1}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\text{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big/\left(\text{AppellF1}\left[-\frac{3}{4},\,\frac{5}{2}-2\,m,\right.\right.$$
$$2\,m,\,\frac{1}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-2\,\left(4\,m\,\text{AppellF1}\left[\frac{1}{4},\right.\right.$$
$$\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$(-5+4\,m)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big)+\left(11\,700\,\text{AppellF1}\left[\right.\right.$$
$$\frac{1}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\,\left(4\,m\,\text{AppellF1}\left[\frac{5}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-5+4\,m)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\left[\right.\right.$$
$$\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\left(6318\,\text{AppellF1}\left[\frac{5}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)\Big/$$
$$\left(9\,\text{AppellF1}\left[\frac{5}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\,\left(4\,m\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-5+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\left[\right.\right.$$
$$\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\left(3380\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\Big)\Big/\left(13\,\text{AppellF1}\left[\frac{9}{4},\right.\right.$$

$$\frac{5}{2}-2m,\,2m,\,\frac{13}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-2\left(4\,m\,\mathrm{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2m,\,1+2m,\,\frac{17}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-5+4m)\,\mathrm{AppellF1}\left[\frac{13}{4},\,\frac{7}{2}-2m,\,2m,\,\frac{17}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)+$$
$$\left(765\,\mathrm{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2m,\,2m,\,\frac{17}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\right)\Big/$$
$$\left(17\,\mathrm{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2m,\,2m,\,\frac{17}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\mathrm{AppellF1}\left[\frac{17}{4},\,\frac{5}{2}-2m,\,1+2m,\right.\right.\right.$$
$$\left.\frac{21}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-5+4m)\,\mathrm{AppellF1}\left[\frac{17}{4},\,\frac{7}{2}-2m,\,2m,\,\frac{21}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big)+$$
$$\frac{1}{4680\sqrt{\frac{\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}}\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-3+2m}$$
$$\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{-1+2m}$$
$$\left(-\left(\left(195\,\mathrm{AppellF1}\left[-\frac{3}{4},\,\frac{5}{2}-2m,\,2m,\,\frac{1}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.\right.$$
$$\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/\left(\mathrm{AppellF1}\left[-\frac{3}{4},\,\frac{5}{2}-2m,\right.\right.$$
$$\left.2m,\,\frac{1}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\mathrm{AppellF1}\left[\frac{1}{4},\right.\right.$$
$$\left.\frac{5}{2}-2m,\,1+2m,\,\frac{5}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(-5+4m)\,\mathrm{AppellF1}\left[\frac{1}{4},\,\frac{7}{2}-2m,\,2m,\,\frac{5}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big)+\Big(11\,700\,\mathrm{AppellF1}\Big[$$
$$\left.\frac{1}{4},\,\frac{5}{2}-2m,\,2m,\,\frac{5}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\Big)\Big/$$
$$\left(5\,\mathrm{AppellF1}\left[\frac{1}{4},\,\frac{5}{2}-2m,\,2m,\,\frac{5}{4},\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$

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

$$\left(6318\,\text{AppellF1}\left[\frac{5}{4},\frac{5}{2}-2\,m,2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/$$

$$\Bigg(9\,\text{AppellF1}\left[\frac{5}{4},\frac{5}{2}-2\,m,2\,m,\frac{9}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{9}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-5+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\frac{7}{2}-2\,m,2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)+$$

$$\left(3380\,\text{AppellF1}\left[\frac{9}{4},\frac{5}{2}-2\,m,2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\right)\Big/$$

$$\Bigg(13\,\text{AppellF1}\left[\frac{9}{4},\frac{5}{2}-2\,m,2\,m,\frac{13}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{13}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-5+4\,m)\,\text{AppellF1}\left[\frac{13}{4},\frac{7}{2}-2\,m,2\,m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)+$$

$$\left(765\,\text{AppellF1}\left[\frac{13}{4},\frac{5}{2}-2\,m,2\,m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\right)\Big/$$

$$\Bigg(17\,\text{AppellF1}\left[\frac{13}{4},\frac{5}{2}-2\,m,2\,m,\frac{17}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{17}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{21}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+(-5+4\,m)\,\text{AppellF1}\left[\frac{17}{4},\frac{7}{2}-2\,m,2\,m,\frac{21}{4},\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)\Bigg)$$

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

$$\frac{1}{2340}\left(1-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^{-3+2\,m}\left(\frac{1}{1+\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2}\right)^{-1+2\,m}\sqrt{\frac{\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3}{\left(1+\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)^2}}$$

$$\left(\left(195\,\mathrm{AppellF1}\left[-\frac{3}{4},\frac{5}{2}-2\,m,2\,m,\frac{1}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\mathrm{Csc}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)\Big/\right.$$

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

$$\left(195\,\mathrm{Cot}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\left(3\,m\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{5}{2}-2\,m,1+2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]-\frac{3}{2}\left(\frac{5}{2}-2\,m\right)\mathrm{AppellF1}\left[\frac{1}{4},\frac{7}{2}-2\,m,2\,m,\frac{5}{4},\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/$$

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

$$\Big(11700\,\Big(-\frac{1}{5}\,m\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{9}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

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

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

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

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

$$-\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]+(-5+4\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\Big[$$

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

$$\Big(3159\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

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

$$2\,\Big(4\,m\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]+(-5+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\Big[$$

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

$$\Big(6318\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\,\Big(-\frac{5}{9}\,m\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},$$

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

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

$$\frac{5}{18}\left(\frac{5}{2}-2\,m\right)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

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

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

$$2\,\Big(4\,m\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\,\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\Big]^2\Big]+(-5+4\,m)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\Big[$$

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

$$\left(3380\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^3\right)\Big/$$
$$\left(13\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\right.\right.$$
$$\left.\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(-5+4\,m)\,\text{AppellF1}\left[\frac{13}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(3380\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4\left(-\frac{9}{13}\,m\,\text{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{17}{4},\right.\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+$$
$$\frac{9}{26}\left(\frac{5}{2}-2\,m\right)\text{AppellF1}\left[\frac{13}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\Big/$$
$$\left(13\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\right.\right.$$
$$\left.\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(-5+4\,m)\,\text{AppellF1}\left[\frac{13}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right)+$$
$$\left(2295\,\text{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^5\right)\Big/$$
$$\left(2\left(17\,\text{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\text{AppellF1}\left[\frac{17}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\right.\right.$$
$$\left.\frac{21}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$
$$(-5+4\,m)\,\text{AppellF1}\left[\frac{17}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{21}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

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

$$\Big(765\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6\Big(-\frac{13}{17}\,m\,\text{AppellF1}\Big[\frac{17}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{21}{4},$$

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

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

$$\frac{13}{34}\left(\frac{5}{2}-2\,m\right)\,\text{AppellF1}\Big[\frac{17}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{21}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\Big(17\,\text{AppellF1}\Big[\frac{13}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-2\,\Big(4\,m\,\text{AppellF1}\Big[\frac{17}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,$$

$$\frac{21}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$

$$(-5+4\,m)\,\text{AppellF1}\Big[\frac{17}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{21}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\Big(195\,\text{AppellF1}\Big[-\frac{3}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{1}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

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

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

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

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

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

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

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

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

$$\Big(4\,m\,\Big(-\frac{1}{10}\,(1+2\,m)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{5}{2}-2\,m,\,2+2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(11\,700\,\text{AppellF1}\left[\frac{1}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{5}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$

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

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

$$\frac{5}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Bigg)$$

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

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

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{1}{10}\left(\frac{5}{2}-2\,m\right)\text{AppellF1}\Big[$$

$$\frac{5}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

$$\left(4\,m\left(-\frac{5}{18}\,(1+2\,m)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,2+2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{5}{18}\left(\frac{5}{2}-2\,m\right)\text{AppellF1}\Big[\frac{9}{4},\ \frac{7}{2}-2\,m,$$

$$1+2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

$$\Bigg(-\frac{5}{9}\,m\,\text{AppellF1}\Big[\frac{9}{4},\ \frac{7}{2}-2\,m,\ 1+2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{5}{18}\left(\frac{7}{2}-2\,m\right)\text{AppellF1}\Big[\frac{9}{4},\ \frac{9}{2}-2\,m,$$

$$2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

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

$$2\,\Bigg(4\,m\,\text{AppellF1}\Big[\frac{5}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{9}{4},$$

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

$$(-5+4\,m)\ \text{AppellF1}\Big[\frac{5}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$

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

$$\Bigg(6318\,\text{AppellF1}\Big[\frac{5}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{9}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg(-\Bigg(4\,m\,\text{AppellF1}\Big[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{13}{4},$$

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

$$\frac{9}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Bigg)$$

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+9\,\Bigg(-\frac{5}{9}\,m\,\text{AppellF1}\Big[\frac{9}{4},$$

$$\frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{5}{18}\left(\frac{5}{2}-2\,m\right)\text{AppellF1}\Big[$$

$$\frac{9}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

$$\left(4\,m\left(-\frac{9}{26}\,(1+2\,m)\,\text{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2\,m,\,2+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{9}{26}\left(\frac{5}{2}-2\,m\right)\text{AppellF1}\left[\frac{13}{4},\,\frac{7}{2}-2\,m,\right.$$
$$1+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\left.\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)+(-5+4\,m)$$
$$\left(-\frac{9}{13}\,m\,\text{AppellF1}\left[\frac{13}{4},\,\frac{7}{2}-2\,m,\,1+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{9}{26}\left(\frac{7}{2}-2\,m\right)\text{AppellF1}\left[\frac{13}{4},\,\frac{9}{2}-2\,m,\right.$$
$$2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\left.\left.\left.\left.\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\right)\right)\Big/$$
$$\left(9\,\text{AppellF1}\left[\frac{5}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{9}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-\right.$$
$$2\left(4\,m\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{13}{4},\right.\right.$$
$$\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$(-5+4\,m)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{7}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big)^2-$$
$$\left(3380\,\text{AppellF1}\left[\frac{9}{4},\,\frac{5}{2}-2\,m,\,2\,m,\,\frac{13}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^4$$
$$\left(-\left(4\,m\,\text{AppellF1}\left[\frac{13}{4},\,\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$
$$-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+(-5+4\,m)\,\text{AppellF1}\left[\frac{13}{4},\,\frac{7}{2}-2\,m,\right.$$
$$\left.\left.2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+13\left(-\frac{9}{13}\,m\,\text{AppellF1}\left[\frac{13}{4},\right.\right.$$
$$\frac{5}{2}-2\,m,\,1+2\,m,\,\frac{17}{4},\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{9}{26}\left(\frac{5}{2}-2\,m\right)\text{AppellF1}\Big[$$

$$\frac{13}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{17}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$

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

$$\Bigg(4\,m\left(-\frac{13}{34}\left(1+2\,m\right)\mathrm{AppellF1}\left[\frac{17}{4},\ \frac{5}{2}-2\,m,\ 2+2\,m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$

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

$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{13}{34}\left(\frac{5}{2}-2\,m\right)\mathrm{AppellF1}\left[\frac{17}{4},\ \frac{7}{2}-2\,m,\right.$$

$$\left.1+2\,m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

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

$$\left(-\frac{13}{17}\,m\,\mathrm{AppellF1}\left[\frac{17}{4},\ \frac{7}{2}-2\,m,\ 1+2\,m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{13}{34}\left(\frac{7}{2}-2\,m\right)\mathrm{AppellF1}\left[\frac{17}{4},\ \frac{9}{2}-2\,m,\right.$$

$$\left.2\,m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]$$

$$\left.\left.\left.\left.\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\right)\right)\right)\right)\Big/$$

$$\Bigg(13\,\mathrm{AppellF1}\left[\frac{9}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{13}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]-2\left(4\,m\,\mathrm{AppellF1}\left[\frac{13}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\right.\right.$$

$$\left.\frac{17}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+$$

$$\left(-5+4\,m\right)\mathrm{AppellF1}\left[\frac{13}{4},\ \frac{7}{2}-2\,m,\ 2\,m,\ \frac{17}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)^2-$$

$$\Bigg(765\,\mathrm{AppellF1}\left[\frac{13}{4},\ \frac{5}{2}-2\,m,\ 2\,m,\ \frac{17}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^6$$

$$\left(-\left(4\,m\,\mathrm{AppellF1}\left[\frac{17}{4},\ \frac{5}{2}-2\,m,\ 1+2\,m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\right.\right.\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]+\left(-5+4\,m\right)\mathrm{AppellF1}\left[\frac{17}{4},\ \frac{7}{2}-2\,m,\right.$$

$$\left.\left.2\,m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\right]\right)$$

$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+17\left(-\frac{13}{17}\,m\,\mathrm{AppellF1}\left[\frac{17}{4},\right.\right.$$

$$\frac{5}{2}-2m,\ 1+2m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{13}{34}\left(\frac{5}{2}-2m\right)\mathrm{AppellF1}\Big[$$
$$\frac{17}{4},\ \frac{7}{2}-2m,\ 2m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Bigg)-2\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\Bigg(4m\Bigg(-\frac{17}{42}(1+2m)\,\mathrm{AppellF1}\Big[\frac{21}{4},\ \frac{5}{2}-2m,\ 2+2m,\ \frac{25}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{17}{42}\left(\frac{5}{2}-2m\right)\mathrm{AppellF1}\Big[\frac{21}{4},\ \frac{7}{2}-2m,$$
$$1+2m,\ \frac{25}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Bigg)+(-5+4m)$$
$$\Bigg(-\frac{17}{21}m\,\mathrm{AppellF1}\Big[\frac{21}{4},\ \frac{7}{2}-2m,\ 1+2m,\ \frac{25}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\ \mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2$$
$$\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]+\frac{17}{42}\left(\frac{7}{2}-2m\right)\mathrm{AppellF1}\Big[\frac{21}{4},\ \frac{9}{2}-2m,$$
$$2m,\ \frac{25}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]$$
$$\mathrm{Sec}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(17\,\mathrm{AppellF1}\Big[\frac{13}{4},\ \frac{5}{2}-2m,\ 2m,\ \frac{17}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]-2\Bigg(4m\,\mathrm{AppellF1}\Big[\frac{17}{4},\ \frac{5}{2}-2m,\ 1+2m,$$
$$\frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]+$$
$$(-5+4m)\,\mathrm{AppellF1}\Big[\frac{17}{4},\ \frac{7}{2}-2m,\ 2m,\ \frac{21}{4},\ \mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2,$$
$$-\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{4}\left(-c+\frac{\pi}{2}-d\,x\right)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)$$

Problem 371: Result more than twice size of optimal antiderivative.

$$\int (e\,\mathrm{Cos}[c+d\,x])^{-3-2\,m}\,(a+a\,\mathrm{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 70 leaves, 3 steps):

$$\frac{1}{4\,a\,d\,e\,(1+m)}(e\,\mathrm{Cos}[c+d\,x])^{-2\,(1+m)}\,\mathrm{Hypergeometric2F1}\left[2,\,-1-m,\,-m,\,\frac{1}{2}\,(1-\mathrm{Sin}[c+d\,x])\right]\,(a+a\,\mathrm{Sin}[c+d\,x])^{1+m}$$

Result (type 5, 206 leaves):

$$\frac{1}{8\,d\,e^3\,m\,(-1+m^2)}(e\,\mathrm{Cos}[c+d\,x])^{-2\,m}\left(\mathrm{Sec}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right)^{-m}\,(a\,(1+\mathrm{Sin}[c+d\,x]))^m$$
$$\left(2\,(-1+m^2)\,\mathrm{Hypergeometric2F1}\left[-m,\,-m,\,1-m,\,-\mathrm{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right]+\right.$$
$$(-1+m)\,m\,\mathrm{Csc}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\left(\mathrm{Sec}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right)^m+m\,(1+m)$$
$$\left.\mathrm{Hypergeometric2F1}\left[1-m,\,-m,\,2-m,\,-\mathrm{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right]\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right)$$

Problem 372: Result more than twice size of optimal antiderivative.

$$\int (e\,\mathrm{Cos}[c+d\,x])^{4-2\,m}\,(a+a\,\mathrm{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 89 leaves, 4 steps):

$$\frac{1}{5\,d\,e}2^{\frac{5}{2}-m}\,(e\,\mathrm{Cos}[c+d\,x])^{5-2\,m}\,\mathrm{Hypergeometric2F1}\left[\frac{5}{2},\,\frac{1}{2}\,(-3+2\,m),\,\frac{7}{2},\,\frac{1}{2}\,(1+\mathrm{Sin}[c+d\,x])\right]$$
$$(1-\mathrm{Sin}[c+d\,x])^{-\frac{5}{2}+m}\,(a+a\,\mathrm{Sin}[c+d\,x])^m$$

Result (type 5, 200 leaves):

$$-\frac{1}{d\,(-1+2\,m)}$$
$$32\,e^4\,(e\,\mathrm{Cos}[c+d\,x])^{-2\,m}\left(\mathrm{Hypergeometric2F1}\left[\frac{1}{2}-m,\,3-m,\,\frac{3}{2}-m,\,-\mathrm{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right]-\right.$$
$$2\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}-m,\,4-m,\,\frac{3}{2}-m,\,-\mathrm{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right]+$$
$$\left.\mathrm{Hypergeometric2F1}\left[\frac{1}{2}-m,\,5-m,\,\frac{3}{2}-m,\,-\mathrm{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right]\right)$$
$$\left(\mathrm{Sec}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right)^{-m}\,(a\,(1+\mathrm{Sin}[c+d\,x]))^m\,\mathrm{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]$$

Problem 375: Result more than twice size of optimal antiderivative.

$$\int (e\,\mathrm{Cos}[c+d\,x])^{-2-2\,m}\,(a+a\,\mathrm{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 87 leaves, 4 steps):

$$-\frac{1}{d\,e}2^{-\frac{1}{2}-m}\left(e\,\text{Cos}[c+d\,x]\right)^{-1-2m}\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\frac{1}{2}\,(3+2\,m),\frac{1}{2},\frac{1}{2}\,(1+\text{Sin}[c+d\,x])\right]\left(1-\text{Sin}[c+d\,x]\right)^{\frac{1}{2}+m}\left(a+a\,\text{Sin}[c+d\,x]\right)^m$$

Result (type 5, 186 leaves):

$$\frac{1}{2\,d\,e^2\,(-1+4\,m^2)}\left(e\,\text{Cos}[c+d\,x]\right)^{-2m}\,\text{Cot}\left[\frac{1}{4}\,(2\,c+\pi+2\,d\,x)\right]\Bigg((-1+2\,m)\,\text{Cot}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\,\text{Hypergeometric2F1}\left[-\frac{1}{2}-m,-m,\frac{1}{2}-m,-\text{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right]+(1+2\,m)\,\text{Hypergeometric2F1}\left[\frac{1}{2}-m,-m,\frac{3}{2}-m,-\text{Tan}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right]\Bigg)\left(\text{Sec}\left[\frac{1}{4}\,(2\,c-\pi+2\,d\,x)\right]^2\right)^{-m}\left(a\,(1+\text{Sin}[c+d\,x])\right)^m$$

Problem 380: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\,\left(a+b\,\text{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 41 leaves, 3 steps):

$$\frac{a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}+\frac{\text{Sec}[c+d\,x]^2\,\left(b+a\,\text{Sin}[c+d\,x]\right)}{2\,d}$$

Result (type 3, 83 leaves):

$$\frac{1}{2\,d}\Bigg(a\left(-\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+b\,\text{Sec}[c+d\,x]^2+a\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\Bigg)$$

Problem 381: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)\,dx$$

Optimal (type 3, 61 leaves, 4 steps):

$$\frac{3\,a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{\text{Sec}[c+d\,x]^4\,\left(b+a\,\text{Sin}[c+d\,x]\right)}{4\,d}+\frac{3\,a\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{8\,d}$$

Result (type 3, 207 leaves):

$$-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{b\,\text{Sec}[c+d\,x]^4}{4\,d}+\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{3\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{3\,a}{16\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$

Problem 389: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 22 leaves, 2 steps):

$$\frac{(a+b\,\text{Sin}[c+d\,x])^3}{3\,b\,d}$$

Result (type 3, 46 leaves):

$$\frac{a^2\,\text{Sin}[c+d\,x]}{d}+\frac{a\,b\,\text{Sin}[c+d\,x]^2}{d}+\frac{b^2\,\text{Sin}[c+d\,x]^3}{3\,d}$$

Problem 391: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 3, 59 leaves, 3 steps):

$$\frac{(a^2-b^2)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}+\frac{\text{Sec}[c+d\,x]^2\,(b+a\,\text{Sin}[c+d\,x])\,(a+b\,\text{Sin}[c+d\,x])}{2\,d}$$

Result (type 3, 139 leaves):

$$\frac{1}{4\,d}\left(2\,(-a^2+b^2)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+2\,(a^2-b^2)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\frac{(a+b)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{(a-b)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 392: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^5 \left(a+b \,\text{Sin}[c+d x]\right)^2 \,dx$$

Optimal (type 3, 99 leaves, 4 steps):

$$\frac{\left(3 a^2-b^2\right) \text{ArcTanh}[\text{Sin}[c+d x]]}{8 d}+\frac{\text{Sec}[c+d x]^4 \left(b+a \,\text{Sin}[c+d x]\right) \left(a+b \,\text{Sin}[c+d x]\right)}{4 d}+\frac{\text{Sec}[c+d x]^2 \left(2 a b+\left(3 a^2-b^2\right) \text{Sin}[c+d x]\right)}{8 d}$$

Result (type 3, 219 leaves):

$$\frac{1}{16 d}\left(2 \left(-3 a^2+b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+2 \left(3 a^2-b^2\right) \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\frac{(a+b)^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{3 a^2+2 a b-b^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{(a-b)^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^4}+\frac{-3 a^2+2 a b+b^2}{\left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)$$

Problem 402: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x] \left(a+b \,\text{Sin}[c+d x]\right)^3 \,dx$$

Optimal (type 3, 22 leaves, 2 steps):

$$\frac{\left(a+b \,\text{Sin}[c+d x]\right)^4}{4 b d}$$

Result (type 3, 67 leaves):

$$\frac{a^3 \,\text{Sin}[c+d x]}{d}+\frac{3 a^2 b \,\text{Sin}[c+d x]^2}{2 d}+\frac{a b^2 \,\text{Sin}[c+d x]^3}{d}+\frac{b^3 \,\text{Sin}[c+d x]^4}{4 d}$$

Problem 405: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^5 \left(a+b \,\text{Sin}[c+d x]\right)^3 \,dx$$

Optimal (type 3, 94 leaves, 4 steps):

$$\frac{3\,a\,\left(a^2-b^2\right)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{3\,a\,\text{Sec}[c+d\,x]^2\,\left(b+a\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}{8\,d}+\frac{\text{Sec}[c+d\,x]^3\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3\,\text{Tan}[c+d\,x]}{4\,d}$$

Result (type 3, 213 leaves):

$$\frac{1}{16\,d}\left(-6\,a\,\left(a^2-b^2\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+6\,a\,\left(a^2-b^2\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\frac{(a+b)^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{3\,(a-b)\,(a+b)^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{(a-b)^3}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{3\,(a-b)^2\,(a+b)}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 413: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)^8\,dx$$

Optimal (type 3, 144 leaves, 3 steps):

$$\frac{\left(a^2-b^2\right)^2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^9}{9\,b^5\,d}-\frac{2\,a\,\left(a^2-b^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{10}}{5\,b^5\,d}+\frac{2\,\left(3\,a^2-b^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{11}}{11\,b^5\,d}-\frac{a\,\left(a+b\,\text{Sin}[c+d\,x]\right)^{12}}{3\,b^5\,d}+\frac{\left(a+b\,\text{Sin}[c+d\,x]\right)^{13}}{13\,b^5\,d}$$

Result (type 3, 572 leaves):

$$\frac{1}{26\,357\,760\,d}\left(-205\,920\,\left(80\,a^7\,b+168\,a^5\,b^3+70\,a^3\,b^5+5\,a\,b^7\right)\,\text{Cos}[2\,(c+d\,x)]-25\,740\,\left(256\,a^7\,b+224\,a^5\,b^3-5\,a\,b^7\right)\,\text{Cos}[4\,(c+d\,x)]-1\,098\,240\,a^7\,b\,\text{Cos}[6\,(c+d\,x)]+3\,843\,840\,a^5\,b^3\,\text{Cos}[6\,(c+d\,x)]+2\,402\,400\,a^3\,b^5\,\text{Cos}[6\,(c+d\,x)]+171\,600\,a\,b^7\,\text{Cos}[6\,(c+d\,x)]+1\,441\,440\,a^5\,b^3\,\text{Cos}[8\,(c+d\,x)]-51\,480\,a\,b^7\,\text{Cos}[8\,(c+d\,x)]-288\,288\,a^3\,b^5\,\text{Cos}[10\,(c+d\,x)]-20\,592\,a\,b^7\,\text{Cos}[10\,(c+d\,x)]+8580\,a\,b^7\,\text{Cos}[12\,(c+d\,x)]+16\,473\,600\,a^8\,\text{Sin}[c+d\,x]+57\,657\,600\,a^6\,b^2\,\text{Sin}[c+d\,x]+43\,243\,200\,a^4\,b^4\,\text{Sin}[c+d\,x]+7\,207\,200\,a^2\,b^6\,\text{Sin}[c+d\,x]+128\,700\,b^8\,\text{Sin}[c+d\,x]+2\,745\,600\,a^8\,\text{Sin}[3\,(c+d\,x)]-3\,843\,840\,a^6\,b^2\,\text{Sin}[3\,(c+d\,x)]-9\,609\,600\,a^4\,b^4\,\text{Sin}[3\,(c+d\,x)]-2\,402\,400\,a^2\,b^6\,\text{Sin}[3\,(c+d\,x)]-53\,625\,b^8\,\text{Sin}[3\,(c+d\,x)]+329\,472\,a^8\,\text{Sin}[5\,(c+d\,x)]-6\,918\,912\,a^6\,b^2\,\text{Sin}[5\,(c+d\,x)]-5\,765\,760\,a^4\,b^4\,\text{Sin}[5\,(c+d\,x)]-720\,720\,a^2\,b^6\,\text{Sin}[5\,(c+d\,x)]-6435\,b^8\,\text{Sin}[5\,(c+d\,x)]-1\,647\,360\,a^6\,b^2\,\text{Sin}[7\,(c+d\,x)]+1\,029\,600\,a^4\,b^4\,\text{Sin}[7\,(c+d\,x)]+514\,800\,a^2\,b^6\,\text{Sin}[7\,(c+d\,x)]+12\,870\,b^8\,\text{Sin}[7\,(c+d\,x)]+800\,800\,a^4\,b^4\,\text{Sin}[9\,(c+d\,x)]+80\,080\,a^2\,b^6\,\text{Sin}[9\,(c+d\,x)]-1430\,b^8\,\text{Sin}[9\,(c+d\,x)]-65\,520\,a^2\,b^6\,\text{Sin}[11\,(c+d\,x)]-1755\,b^8\,\text{Sin}[11\,(c+d\,x)]+495\,b^8\,\text{Sin}[13\,(c+d\,x)]\right)$$

Problem 414: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^8\,dx$$

Optimal (type 3, 77 leaves, 3 steps):

$$-\frac{(a^2-b^2)\,(a+b\,\text{Sin}[c+d\,x])^9}{9\,b^3\,d}+\frac{a\,(a+b\,\text{Sin}[c+d\,x])^{10}}{5\,b^3\,d}-\frac{(a+b\,\text{Sin}[c+d\,x])^{11}}{11\,b^3\,d}$$

Result (type 3, 438 leaves):

$$\frac{1}{506\,880\,d}\Big(-7920\,(64\,a^7\,b+168\,a^5\,b^3+84\,a^3\,b^5+7\,a\,b^7)\,\text{Cos}[2\,(c+d\,x)]-15\,840\,(8\,a^7\,b-7\,a^3\,b^5-a\,b^7)\,\text{Cos}[4\,(c+d\,x)]+147\,840\,a^5\,b^3\,\text{Cos}[6\,(c+d\,x)]+73\,920\,a^3\,b^5\,\text{Cos}[6\,(c+d\,x)]+3960\,a\,b^7\,\text{Cos}[6\,(c+d\,x)]-27\,720\,a^3\,b^5\,\text{Cos}[8\,(c+d\,x)]-3960\,a\,b^7\,\text{Cos}[8\,(c+d\,x)]+792\,a\,b^7\,\text{Cos}[10\,(c+d\,x)]+380\,160\,a^8\,\text{Sin}[c+d\,x]+1\,774\,080\,a^6\,b^2\,\text{Sin}[c+d\,x]+1\,663\,200\,a^4\,b^4\,\text{Sin}[c+d\,x]+332\,640\,a^2\,b^6\,\text{Sin}[c+d\,x]+6930\,b^8\,\text{Sin}[c+d\,x]+42\,240\,a^8\,\text{Sin}[3\,(c+d\,x)]-295\,680\,a^6\,b^2\,\text{Sin}[3\,(c+d\,x)]-554\,400\,a^4\,b^4\,\text{Sin}[3\,(c+d\,x)]-147\,840\,a^2\,b^6\,\text{Sin}[3\,(c+d\,x)]-3630\,b^8\,\text{Sin}[3\,(c+d\,x)]-177\,408\,a^6\,b^2\,\text{Sin}[5\,(c+d\,x)]-110\,880\,a^4\,b^4\,\text{Sin}[5\,(c+d\,x)]+495\,b^8\,\text{Sin}[5\,(c+d\,x)]+79\,200\,a^4\,b^4\,\text{Sin}[7\,(c+d\,x)]+23\,760\,a^2\,b^6\,\text{Sin}[7\,(c+d\,x)]+495\,b^8\,\text{Sin}[7\,(c+d\,x)]-6160\,a^2\,b^6\,\text{Sin}[9\,(c+d\,x)]-275\,b^8\,\text{Sin}[9\,(c+d\,x)]+45\,b^8\,\text{Sin}[11\,(c+d\,x)]\Big)$$

Problem 465: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d\,x]}{(a+b\,\text{Sin}[c+d\,x])^8}\,dx$$

Optimal (type 3, 385 leaves, 4 steps):

$$-\frac{\text{Log}[1-\text{Sin}[c+d\,x]]}{2\,(a+b)^8\,d}+\frac{\text{Log}[1+\text{Sin}[c+d\,x]]}{2\,(a-b)^8\,d}-\frac{8\,a\,b\,(a^2+b^2)\,(a^4+6\,a^2\,b^2+b^4)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{(a^2-b^2)^8\,d}+\frac{b}{7\,(a^2-b^2)\,d\,(a+b\,\text{Sin}[c+d\,x])^7}+\frac{a\,b}{3\,(a^2-b^2)^2\,d\,(a+b\,\text{Sin}[c+d\,x])^6}+\frac{b\,(3\,a^2+b^2)}{5\,(a^2-b^2)^3\,d\,(a+b\,\text{Sin}[c+d\,x])^5}+\frac{a\,b\,(a^2+b^2)}{(a^2-b^2)^4\,d\,(a+b\,\text{Sin}[c+d\,x])^4}+\frac{b\,(5\,a^4+10\,a^2\,b^2+b^4)}{3\,(a^2-b^2)^5\,d\,(a+b\,\text{Sin}[c+d\,x])^3}+\frac{a\,b\,(3\,a^2+b^2)\,(a^2+3\,b^2)}{(a^2-b^2)^6\,d\,(a+b\,\text{Sin}[c+d\,x])^2}+\frac{b\,(7\,a^6+35\,a^4\,b^2+21\,a^2\,b^4+b^6)}{(a^2-b^2)^7\,d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 3, 847 leaves):

$$\frac{16\,i\,\left(a^7 b+7 a^5 b^3+7 a^3 b^5+a b^7\right)\,(c+d x)}{(a-b)^8\,(a+b)^8\,d}+\frac{1}{(a-b)^8\,d}$$

$$i\,\text{ArcTan}\left[\text{Csc}[c+d x]\,\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right.$$

$$\left.\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right]-\frac{1}{(a+b)^8\,d}\,i\,\text{ArcTan}\Big[$$

$$\text{Csc}[c+d x]\,\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\Big]-$$

$$\frac{\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2\right]}{2\,(a+b)^8\,d}+\frac{\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2\right]}{2\,(a-b)^8\,d}-$$

$$\frac{8\,\left(a^7 b+7 a^5 b^3+7 a^3 b^5+a b^7\right)\,\text{Log}[a+b\,\text{Sin}[c+d x]]}{\left(a^2-b^2\right)^8\,d}+$$

$$\frac{1}{3360\,\left(a^2-b^2\right)^7\,d\,(a+b\,\text{Sin}[c+d x])^7}$$

$$\Big(46176\,a^{12} b+368176\,a^{10} b^3+1198292\,a^8 b^5+1066342\,a^6 b^7+403302\,a^4 b^9+20066\,a^2 b^{11}+2286\,b^{13}-$$
$$249648\,a^{10} b^3\,\text{Cos}[2\,(c+d x)]-1190224\,a^8 b^5\,\text{Cos}[2\,(c+d x)]-1321089\,a^6 b^7\,\text{Cos}[2\,(c+d x)]-$$
$$527429\,a^4 b^9\,\text{Cos}[2\,(c+d x)]-35539\,a^2 b^{11}\,\text{Cos}[2\,(c+d x)]-2471\,b^{13}\,\text{Cos}[2\,(c+d x)]+$$
$$51100\,a^8 b^5\,\text{Cos}[4\,(c+d x)]+239610\,a^6 b^7\,\text{Cos}[4\,(c+d x)]+137690\,a^4 b^9\,\text{Cos}[4\,(c+d x)]+$$
$$14350\,a^2 b^{11}\,\text{Cos}[4\,(c+d x)]+770\,b^{13}\,\text{Cos}[4\,(c+d x)]-735\,a^6 b^7\,\text{Cos}[6\,(c+d x)]-$$
$$3675\,a^4 b^9\,\text{Cos}[6\,(c+d x)]-2205\,a^2 b^{11}\,\text{Cos}[6\,(c+d x)]-105\,b^{13}\,\text{Cos}[6\,(c+d x)]+$$
$$229152\,a^{11} b^2\,\text{Sin}[c+d x]+1230376\,a^9 b^4\,\text{Sin}[c+d x]+2302916\,a^7 b^6\,\text{Sin}[c+d x]+$$
$$1297156\,a^5 b^8\,\text{Sin}[c+d x]+255276\,a^3 b^{10}\,\text{Sin}[c+d x]+7364\,a\,b^{12}\,\text{Sin}[c+d x]-$$
$$149240\,a^9 b^4\,\text{Sin}[3\,(c+d x)]-692370\,a^7 b^6\,\text{Sin}[3\,(c+d x)]-506170\,a^5 b^8\,\text{Sin}[3\,(c+d x)]-$$
$$127190\,a^3 b^{10}\,\text{Sin}[3\,(c+d x)]-3430\,a\,b^{12}\,\text{Sin}[3\,(c+d x)]+9450\,a^7 b^6\,\text{Sin}[5\,(c+d x)]+$$
$$45570\,a^5 b^8\,\text{Sin}[5\,(c+d x)]+24990\,a^3 b^{10}\,\text{Sin}[5\,(c+d x)]+630\,a\,b^{12}\,\text{Sin}[5\,(c+d x)]\Big)$$

Problem 466: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^3}{(a+b\,\text{Sin}[c+d x])^8}\,dx$$

Optimal (type 3, 527 leaves, 4 steps):

$$-\frac{(a+9b)\operatorname{Log}[1-\operatorname{Sin}[c+dx]]}{4(a+b)^9 d}+\frac{(a-9b)\operatorname{Log}[1+\operatorname{Sin}[c+dx]]}{4(a-b)^9 d}+$$
$$\frac{8ab^3\left(15a^6+63a^4b^2+45a^2b^4+5b^6\right)\operatorname{Log}[a+b\operatorname{Sin}[c+dx]]}{\left(a^2-b^2\right)^9 d}-$$
$$\frac{b\left(7a^2+9b^2\right)}{14\left(a^2-b^2\right)^2 d\,(a+b\operatorname{Sin}[c+dx])^7}-\frac{\operatorname{Sec}[c+dx]^2\,(b-a\operatorname{Sin}[c+dx])}{2\left(a^2-b^2\right) d\,(a+b\operatorname{Sin}[c+dx])^7}-$$
$$\frac{ab\left(3a^2+13b^2\right)}{6\left(a^2-b^2\right)^3 d\,(a+b\operatorname{Sin}[c+dx])^6}-\frac{b\left(5a^4+50a^2b^2+9b^4\right)}{10\left(a^2-b^2\right)^4 d\,(a+b\operatorname{Sin}[c+dx])^5}-$$
$$\frac{ab\left(a^4+20a^2b^2+11b^4\right)}{2\left(a^2-b^2\right)^5 d\,(a+b\operatorname{Sin}[c+dx])^4}-\frac{b\left(3a^6+115a^4b^2+129a^2b^4+9b^6\right)}{6\left(a^2-b^2\right)^6 d\,(a+b\operatorname{Sin}[c+dx])^3}-$$
$$\frac{ab\left(a^6+77a^4b^2+147a^2b^4+31b^6\right)}{2\left(a^2-b^2\right)^7 d\,(a+b\operatorname{Sin}[c+dx])^2}-\frac{b\left(a^8+196a^6b^2+574a^4b^4+244a^2b^6+9b^8\right)}{2\left(a^2-b^2\right)^8 d\,(a+b\operatorname{Sin}[c+dx])}$$

Result (type 3, 1237 leaves) :

$$-\frac{16\,i\,\left(15\,a^7\,b^3+63\,a^5\,b^5+45\,a^3\,b^7+5\,a\,b^9\right)\,(c+d\,x)}{(a-b)^9\,(a+b)^9\,d}+\frac{1}{2\,(a-b)^9\,d}$$

$$i\,(a-9\,b)\,\text{ArcTan}\left[\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right.$$

$$\left.\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right]+\frac{1}{2\,(a+b)^9\,d}i\,(-a-9\,b)\,\text{ArcTan}\Big[$$

$$\text{Csc}[c+d\,x]\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Big]+$$

$$\frac{(-a-9\,b)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{4\,(a+b)^9\,d}+$$

$$\frac{(a-9\,b)\,\text{Log}\left[\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\right]}{4\,(a-b)^9\,d}+$$

$$\frac{8\,\left(15\,a^7\,b^3+63\,a^5\,b^5+45\,a^3\,b^7+5\,a\,b^9\right)\,\text{Log}[a+b\,\text{Sin}[c+d\,x]]}{\left(a^2-b^2\right)^9\,d}+$$

$$\frac{1}{26\,880\,\left(a^2-b^2\right)^8\,d\,(a+b\,\text{Sin}[c+d\,x])^7}$$

$$\text{Sec}[c+d\,x]^2\,\Big(-60\,480\,a^{14}\,b-2\,155\,120\,a^{12}\,b^3-10\,531\,096\,a^{10}\,b^5-18\,656\,885\,a^8\,b^7-$$
$$11\,704\,100\,a^6\,b^9-2\,859\,110\,a^4\,b^{11}-153\,820\,a^2\,b^{13}-5469\,b^{15}-47\,040\,a^{14}\,b\,\text{Cos}[2\,(c+d\,x)]-$$
$$2\,190\,400\,a^{12}\,b^3\,\text{Cos}[2\,(c+d\,x)]-3\,544\,396\,a^{10}\,b^5\,\text{Cos}[2\,(c+d\,x)]+$$
$$128\,224\,a^8\,b^7\,\text{Cos}[2\,(c+d\,x)]+4\,162\,744\,a^6\,b^9\,\text{Cos}[2\,(c+d\,x)]+1\,322\,704\,a^4\,b^{11}\,\text{Cos}[2\,(c+d\,x)]+$$
$$171\,764\,a^2\,b^{13}\,\text{Cos}[2\,(c+d\,x)]-3600\,b^{15}\,\text{Cos}[2\,(c+d\,x)]+58\,800\,a^{12}\,b^3\,\text{Cos}[4\,(c+d\,x)]+$$
$$6\,695\,640\,a^{10}\,b^5\,\text{Cos}[4\,(c+d\,x)]+17\,845\,324\,a^8\,b^7\,\text{Cos}[4\,(c+d\,x)]+$$
$$11\,544\,064\,a^6\,b^9\,\text{Cos}[4\,(c+d\,x)]+2\,887\,864\,a^4\,b^{11}\,\text{Cos}[4\,(c+d\,x)]+$$
$$96\,264\,a^2\,b^{13}\,\text{Cos}[4\,(c+d\,x)]+9324\,b^{15}\,\text{Cos}[4\,(c+d\,x)]-8820\,a^{10}\,b^5\,\text{Cos}[6\,(c+d\,x)]-$$
$$1\,410\,080\,a^8\,b^7\,\text{Cos}[6\,(c+d\,x)]-3\,831\,800\,a^6\,b^9\,\text{Cos}[6\,(c+d\,x)]-$$
$$1\,515\,920\,a^4\,b^{11}\,\text{Cos}[6\,(c+d\,x)]-109\,620\,a^2\,b^{13}\,\text{Cos}[6\,(c+d\,x)]-5040\,b^{15}\,\text{Cos}[6\,(c+d\,x)]+$$
$$105\,a^8\,b^7\,\text{Cos}[8\,(c+d\,x)]+20\,580\,a^6\,b^9\,\text{Cos}[8\,(c+d\,x)]+60\,270\,a^4\,b^{11}\,\text{Cos}[8\,(c+d\,x)]+$$
$$25\,620\,a^2\,b^{13}\,\text{Cos}[8\,(c+d\,x)]+945\,b^{15}\,\text{Cos}[8\,(c+d\,x)]+13\,440\,a^{15}\,\text{Sin}[c+d\,x]-$$
$$164\,640\,a^{13}\,b^2\,\text{Sin}[c+d\,x]-5\,702\,480\,a^{11}\,b^4\,\text{Sin}[c+d\,x]-20\,202\,406\,a^9\,b^6\,\text{Sin}[c+d\,x]-$$
$$24\,081\,736\,a^7\,b^8\,\text{Sin}[c+d\,x]-9\,935\,716\,a^5\,b^{10}\,\text{Sin}[c+d\,x]-1\,391\,096\,a^3\,b^{12}\,\text{Sin}[c+d\,x]-$$
$$36\,806\,a\,b^{14}\,\text{Sin}[c+d\,x]-70\,560\,a^{13}\,b^2\,\text{Sin}[3\,(c+d\,x)]-5\,955\,320\,a^{11}\,b^4\,\text{Sin}[3\,(c+d\,x)]-$$
$$15\,658\,566\,a^9\,b^6\,\text{Sin}[3\,(c+d\,x)]-13\,417\,656\,a^7\,b^8\,\text{Sin}[3\,(c+d\,x)]-$$
$$3\,705\,156\,a^5\,b^{10}\,\text{Sin}[3\,(c+d\,x)]-326\,816\,a^3\,b^{12}\,\text{Sin}[3\,(c+d\,x)]-3206\,a\,b^{14}\,\text{Sin}[3\,(c+d\,x)]+$$
$$29\,400\,a^{11}\,b^4\,\text{Sin}[5\,(c+d\,x)]+4\,071\,970\,a^9\,b^6\,\text{Sin}[5\,(c+d\,x)]+10\,871\,560\,a^7\,b^8\,\text{Sin}[5\,(c+d\,x)]+$$
$$5\,210\,380\,a^5\,b^{10}\,\text{Sin}[5\,(c+d\,x)]+875\,280\,a^3\,b^{12}\,\text{Sin}[5\,(c+d\,x)]+$$
$$15\,330\,a\,b^{14}\,\text{Sin}[5\,(c+d\,x)]-1470\,a^9\,b^6\,\text{Sin}[7\,(c+d\,x)]-262\,920\,a^7\,b^8\,\text{Sin}[7\,(c+d\,x)]-$$
$$737\,940\,a^5\,b^{10}\,\text{Sin}[7\,(c+d\,x)]-283\,080\,a^3\,b^{12}\,\text{Sin}[7\,(c+d\,x)]-4830\,a\,b^{14}\,\text{Sin}[7\,(c+d\,x)]\Big)$$

Problem 495: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 83 leaves, 3 steps):

$$-\frac{2 \left(a^2-b^2\right) (a+b \operatorname{Sin}[c+d x])^{7/2}}{7 b^3 d}+\frac{4 a (a+b \operatorname{Sin}[c+d x])^{9/2}}{9 b^3 d}-\frac{2 (a+b \operatorname{Sin}[c+d x])^{11/2}}{11 b^3 d}$$

Result (type 3, 198 leaves):

$$\left(-2 a^2 \left(64 a^4-780 a^2 b^2-705 b^4\right) \sqrt{1+\frac{b \operatorname{Sin}[c+d x]}{a}} \left(-1+\sqrt{1+\frac{b \operatorname{Sin}[c+d x]}{a}}\right)+ b (a+b \operatorname{Sin}[c+d x]) \left(8 a b \left(3 a^2-136 b^2\right) \operatorname{Cos}[2 (c+d x)]-322 a b^3 \operatorname{Cos}[4 (c+d x)]+ 2 \left(32 a^4+1698 a^2 b^2+279 b^4\right) \operatorname{Sin}[c+d x]+b^2 \left(452 a^2-81 b^2\right) \operatorname{Sin}[3 (c+d x)]- 63 b^4 \operatorname{Sin}[5 (c+d x)]\right)\right) \Big/ \left(5544 b^3 d \sqrt{a+b \operatorname{Sin}[c+d x]}\right)$$

Problem 497: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x] (a+b \operatorname{Sin}[c+d x])^{5/2} \, dx$$

Optimal (type 3, 117 leaves, 7 steps):

$$-\frac{(a-b)^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Sin}[c+d x]}}{\sqrt{a-b}}\right]}{d}+\frac{(a+b)^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Sin}[c+d x]}}{\sqrt{a+b}}\right]}{d}- \frac{4 a b \sqrt{a+b \operatorname{Sin}[c+d x]}}{d}-\frac{2 b (a+b \operatorname{Sin}[c+d x])^{3/2}}{3 d}$$

Result (type 3, 286 leaves):

$$\frac{1}{6 d}\left(-\frac{\left(6 a^3-18 a^2 b+11 a b^2-6 b^3\right) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Sin}[c+d x]}}{\sqrt{a-b}}\right]}{\sqrt{a-b}}+ \left(\sqrt{-a-b} \sqrt{-a+b} \left(6 a^3+18 a^2 b+11 a b^2+6 b^3\right) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Sin}[c+d x]}}{\sqrt{a+b}}\right]- b \left(7 a b \sqrt{-a+b} \sqrt{a+b} \operatorname{ArcTan}\left[\frac{\sqrt{a+b \operatorname{Sin}[c+d x]}}{\sqrt{-a-b}}\right]+ \sqrt{-(a+b)^2} \left(-7 a b \operatorname{ArcTan}\left[\frac{\sqrt{a+b \operatorname{Sin}[c+d x]}}{\sqrt{-a+b}}\right]+4 \sqrt{-a+b} \sqrt{a+b \operatorname{Sin}[c+d x]} (7 a+b \operatorname{Sin}[c+d x])\right)\right)\right) \Big/ \left(\sqrt{-a+b} \sqrt{-(a+b)^2}\right)\right)$$

Problem 574: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \frac{(e\,\text{Cos}[c+d\,x])^{11/2}}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 4, 531 leaves, 15 steps):

$$-\frac{\left(-a^2+b^2\right)^{9/4} e^{11/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{b^{11/2}\,d}-\frac{\left(-a^2+b^2\right)^{9/4} e^{11/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{b^{11/2}\,d}+\frac{2\,e\,(e\,\text{Cos}[c+d\,x])^{9/2}}{9\,b\,d}+\left(2\,a\left(21\,a^4-49\,a^2\,b^2+33\,b^4\right)e^6\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}(c+d\,x),2\right]\right)\Big/\left(21\,b^6\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-\frac{a\left(a^2-b^2\right)^3 e^6\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{b^6\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{a\left(a^2-b^2\right)^3 e^6\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{b^6\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{2\,e^3\,(e\,\text{Cos}[c+d\,x])^{5/2}\left(7\left(a^2-b^2\right)-5\,a\,b\,\text{Sin}[c+d\,x]\right)}{35\,b^3\,d}+\frac{2\,e^5\sqrt{e\,\text{Cos}[c+d\,x]}\left(21\left(a^2-b^2\right)^2-a\,b\left(7\,a^2-12\,b^2\right)\text{Sin}[c+d\,x]\right)}{21\,b^5\,d}$$

Result (type 6, 2235 leaves):

$$\frac{1}{1680\,b^4\,d\,\text{Cos}[c+d\,x]^{11/2}}(e\,\text{Cos}[c+d\,x])^{11/2}\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,(a+b\,\text{Sin}[c+d\,x])}2\left(280\,a^4-636\,a^2\,b^2+721\,b^4\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(\left(5\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]+\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(-1+2\,\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$
$$\left(840\,a^4-1764\,a^2\,b^2+959\,b^4\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\text{Cos}\left[2\,(c+d\,x)\right]$$
$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,(-2\,a^2+b^2)\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]}{b^{3/2}\,(-a^2+b^2)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,(-2\,a^2+b^2)\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]}{b^{3/2}\,(-a^2+b^2)^{3/4}}+\frac{4\,\sqrt{\text{Cos}[c+d\,x]}}{b}+$$
$$\left(10\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-$$
$$\left(36\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.$$
$$\left.\text{Cos}[c+d\,x]^{5/2}\right)\Big/\left(5\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(9\,(a^2-b^2)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)$$
$$\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,(-2\,a^2+b^2)\,\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$
$$\left.\left.(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\Big/\left(b^{3/2}\,(-a^2+b^2)^{3/4}\right)-$$

$$\left(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+dx]}+i\,b\,\text{Cos}[c+dx]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[c+dx]-$$

$$\frac{1}{\left(1-\text{Cos}[c+dx]^2\right)\left(a+b\,\text{Sin}[c+dx]\right)}2\left(-392a^3b+722ab^3\right)\left(a+b\sqrt{1-\text{Cos}[c+dx]^2}\right)$$

$$\left(\left(\left(5b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+dx]^2,\frac{b^2\text{Cos}[c+dx]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+dx]}\sqrt{1-\text{Cos}[c+dx]^2}\right)\Big/\right.\right.$$

$$\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+dx]^2,\frac{b^2\text{Cos}[c+dx]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2b^2\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+dx]^2,\frac{b^2\text{Cos}[c+dx]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+dx]^2,\frac{b^2\text{Cos}[c+dx]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+dx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+dx]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+dx]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+dx]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+dx]}+b\,\text{Cos}[c+dx]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+dx]}+b\,\text{Cos}[c+dx]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\right)\text{Sin}[c+dx]^2\Bigg)+\frac{1}{d}$$

$$\left(e\,\text{Cos}[c+dx]\right)^{11/2}\text{Sec}[c+dx]^5\left(\frac{\left(-9a^2+14b^2\right)\text{Cos}\left[2\left(c+dx\right)\right]}{45b^3}+\frac{\text{Cos}\left[4\left(c+dx\right)\right]}{36b}-\frac{a\left(28a^2-51b^2\right)\text{Sin}[c+dx]}{42b^4}+\frac{a\,\text{Sin}\left[3\left(c+dx\right)\right]}{14b^2}\right)$$

Problem 575: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(e \operatorname{Cos}[c+d x])^{9/2}}{a+b \operatorname{Sin}[c+d x]} \, dx$$

Optimal (type 4, 446 leaves, 14 steps):

$$\frac{\left(-a^2+b^2\right)^{7/4} e^{9/2} \operatorname{ArcTan}\left[\frac{\sqrt{b} \sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{b^{9/2} d}-\frac{\left(-a^2+b^2\right)^{7/4} e^{9/2} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{b^{9/2} d}+$$
$$\frac{2 e (e \operatorname{Cos}[c+d x])^{7/2}}{7 b d}-\frac{2 a \left(5 a^2-8 b^2\right) e^4 \sqrt{e \operatorname{Cos}[c+d x]} \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{5 b^4 d \sqrt{\operatorname{Cos}[c+d x]}}+$$
$$\frac{a \left(a^2-b^2\right)^2 e^5 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]}{b^5 \left(b-\sqrt{-a^2+b^2}\right) d \sqrt{e \operatorname{Cos}[c+d x]}}+$$
$$\frac{a \left(a^2-b^2\right)^2 e^5 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]}{b^5 \left(b+\sqrt{-a^2+b^2}\right) d \sqrt{e \operatorname{Cos}[c+d x]}}-$$
$$\frac{2 e^3 (e \operatorname{Cos}[c+d x])^{3/2} \left(5 \left(a^2-b^2\right)-3 a b \operatorname{Sin}[c+d x]\right)}{15 b^3 d}$$

Result (type 6, 1228 leaves):

$$-\frac{1}{5 b^3 d \operatorname{Cos}[c+d x]^{9/2}} (e \operatorname{Cos}[c+d x])^{9/2}$$
$$\left(\frac{1}{12 \sqrt{1-\operatorname{Cos}[c+d x]^2} (a+b \operatorname{Sin}[c+d x])} \left(2 a^2 b-5 b^3\right) \left(a+b \sqrt{1-\operatorname{Cos}[c+d x]^2}\right)\right.$$
$$\left(-\left(\left(56 a \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2,\right.\right.\right.\right.$$
$$\left.\left.\frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right] \operatorname{Cos}[c+d x]^{3/2}\right) \Big/ \left(\sqrt{1-\operatorname{Cos}[c+d x]^2}\right.$$
$$\left(7 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]-\right.$$
$$2 \left(2 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\left.\operatorname{Cos}[c+d x]^2\right) \left(a^2+b^2 \left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\right)\right)-$$

$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,(a+b\,\text{Sin}[c+d\,x])}\,2\left(5\,a^3-8\,a\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(\left(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/\right.\right.$$

$$\left(3\left(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\right)\text{Sin}[c+d\,x]^2\right)+\frac{1}{d}$$

$$(e\,\text{Cos}[c+d\,x])^{9/2}\,\text{Sec}[c+d\,x]^4\left(\frac{\left(-28\,a^2+37\,b^2\right)\text{Cos}[c+d\,x]}{42\,b^3}+\frac{\text{Cos}[3\,(c+d\,x)]}{14\,b}+\frac{a\,\text{Sin}[2\,(c+d\,x)]}{5\,b^2}\right)$$

Problem 576: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(e\,\mathrm{Cos}[c+d\,x])^{7/2}}{a+b\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 4, 461 leaves, 14 steps):

$$-\frac{\left(-a^2+b^2\right)^{5/4} e^{7/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{b^{7/2}\,d}-\frac{\left(-a^2+b^2\right)^{5/4} e^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{b^{7/2}\,d}+$$
$$\frac{2\,e\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}}{5\,b\,d}-\frac{2\,a\,\left(3\,a^2-4\,b^2\right) e^4\,\sqrt{\mathrm{Cos}[c+d\,x]}\;\mathrm{EllipticF}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{3\,b^4\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}+$$
$$\frac{a\,\left(a^2-b^2\right)^2 e^4\,\sqrt{\mathrm{Cos}[c+d\,x]}\;\mathrm{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{b^4\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}+$$
$$\frac{a\,\left(a^2-b^2\right)^2 e^4\,\sqrt{\mathrm{Cos}[c+d\,x]}\;\mathrm{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{b^4\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}-$$
$$\frac{2\,e^3\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(3\,\left(a^2-b^2\right)-a\,b\,\mathrm{Sin}[c+d\,x]\right)}{3\,b^3\,d}$$

Result (type 6, 2155 leaves):

$$\frac{(e\,\mathrm{Cos}[c+d\,x])^{7/2}\,\mathrm{Sec}[c+d\,x]^3\,\left(\frac{\mathrm{Cos}[2\,(c+d\,x)]}{5\,b}+\frac{2\,a\,\mathrm{Sin}[c+d\,x]}{3\,b^2}\right)}{d}-$$
$$\frac{1}{60\,b^2\,d\,\mathrm{Cos}[c+d\,x]^{7/2}}\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}$$
$$\left(-\frac{1}{\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}\,2\,\left(10\,a^2-27\,b^2\right)\,\left(a+b\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\mathrm{Cos}[c+d\,x]^2,\,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\mathrm{Cos}[c+d\,x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right.$$
$$\left(5\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\mathrm{Cos}[c+d\,x]^2,\,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\mathrm{Cos}[c+d\,x]^2,\,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\mathrm{AppellF1}\left[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\mathrm{Cos}[c+d\,x]^2,\,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\mathrm{Cos}[c+d\,x]^2\Bigg)$$
$$\left.\left(a^2+b^2\,\left(-1+\mathrm{Cos}[c+d\,x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]+\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(-1+2\,\text{Cos}[c+d\,x]^2\right)\,(a+b\,\text{Sin}[c+d\,x])}$$
$$\left(30\,a^2-33\,b^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\,\text{Cos}[2\,(c+d\,x)]$$
$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,\left(-2\,a^2+b^2\right)\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\,\left(-a^2+b^2\right)^{3/4}}-\right.$$
$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,\left(-2\,a^2+b^2\right)\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\,\left(-a^2+b^2\right)^{3/4}}+\frac{4\,\sqrt{\text{Cos}[c+d\,x]}}{b}+$$
$$\left(10\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[c+d\,x]}\right)\Big/$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-$$
$$\left(36\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.$$
$$\left.\text{Cos}[c+d\,x]^{5/2}\right)\Big/\left(5\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(9\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)$$
$$\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$
$$\left.\left.(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\Big/\left(b^{3/2}\,\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+dx]}+i\,b\,\text{Cos}[c+dx]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[c+dx]+$$

$$\frac{1}{\left(1-\text{Cos}[c+dx]^2\right)\left(a+b\,\text{Sin}[c+dx]\right)}28\,a\,b\left(a+b\sqrt{1-\text{Cos}[c+dx]^2}\right)$$

$$\left(\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+dx]^2,\frac{b^2\,\text{Cos}[c+dx]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+dx]}\sqrt{1-\text{Cos}[c+dx]^2}\right)\Big/\right.$$

$$\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+dx]^2,\frac{b^2\,\text{Cos}[c+dx]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+dx]^2,\frac{b^2\,\text{Cos}[c+dx]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+dx]^2,\frac{b^2\,\text{Cos}[c+dx]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+dx]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+dx]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+dx]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+dx]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+dx]}+b\,\text{Cos}[c+dx]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+dx]}+b\,\text{Cos}[c+dx]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\text{Sin}[c+dx]^2\right)$$

Problem 577: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(e\,\text{Cos}[c+dx]\right)^{5/2}}{a+b\,\text{Sin}[c+dx]}\,dx$$

Optimal (type 4, 384 leaves, 13 steps):

$$\frac{\left(-a^2+b^2\right)^{3/4} e^{5/2} \operatorname{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{b^{5/2} d}-\frac{\left(-a^2+b^2\right)^{3/4} e^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{b^{5/2} d}+$$

$$\frac{2 e (e \operatorname{Cos}[c+d x])^{3/2}}{3 b d}+\frac{2 a e^2 \sqrt{e \operatorname{Cos}[c+d x]}\ \operatorname{EllipticE}\left[\frac{1}{2}(c+d x), 2\right]}{b^2 d \sqrt{\operatorname{Cos}[c+d x]}}-$$

$$\frac{a\left(a^2-b^2\right) e^3 \sqrt{\operatorname{Cos}[c+d x]}\ \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2}(c+d x), 2\right]}{b^3\left(b-\sqrt{-a^2+b^2}\right) d \sqrt{e \operatorname{Cos}[c+d x]}}-$$

$$\frac{a\left(a^2-b^2\right) e^3 \sqrt{\operatorname{Cos}[c+d x]}\ \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2}(c+d x), 2\right]}{b^3\left(b+\sqrt{-a^2+b^2}\right) d \sqrt{e \operatorname{Cos}[c+d x]}}$$

Result (type 6, 1151 leaves):

$$\frac{2 (e \operatorname{Cos}[c+d x])^{5/2} \operatorname{Sec}[c+d x]}{3 b d}+\frac{1}{b d \operatorname{Cos}[c+d x]^{5/2}}$$

$$(e \operatorname{Cos}[c+d x])^{5/2}\left(\frac{1}{12 \sqrt{1-\operatorname{Cos}[c+d x]^2}\ (a+b \operatorname{Sin}[c+d x])} b\left(a+b \sqrt{1-\operatorname{Cos}[c+d x]^2}\right)\right.$$

$$\left(-\left(\left(56 a\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right] \operatorname{Cos}[c+d x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\operatorname{Cos}[c+d x]^2}\left(7\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2,\right.\right.\right.$$

$$\left.\frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]-2\left(2 b^2 \operatorname{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[c+d x]^2,\right.\right.$$

$$\left.\frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \operatorname{Cos}[c+d x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]\right) \operatorname{Cos}[c+d x]^2\right)\left(a^2+b^2\left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\right)\right)-$$

$$\left((3+3 i)\left(2 \operatorname{ArcTan}\left[1-\frac{(1+i) \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2 \operatorname{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{(1+i) \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\operatorname{Log}\left[\sqrt{-a^2+b^2}-(1+i) \sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\operatorname{Cos}[c+d x]}+i b \operatorname{Cos}[c+d x]\right]+\operatorname{Log}\left[\sqrt{-a^2+b^2}+(1+i) \sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\left.\sqrt{\operatorname{Cos}[c+d x]}+i b \operatorname{Cos}[c+d x]\right]\right)\right/\left(\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right)\right) \operatorname{Sin}[c+d x]-$$

$$\frac{1}{\left(1-\operatorname{Cos}[c+d x]^2\right)(a+b \operatorname{Sin}[c+d x])} 2 a\left(a+b \sqrt{1-\operatorname{Cos}[c+d x]^2}\right)$$

$$\left(\left(7 b\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4},-\frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Bigg/$$
$$\Bigg(3\left(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$
$$\Bigg(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\Bigg)\Bigg/$$
$$\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 578: Result unnecessarily involves higher level functions.

$$\int\frac{\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 4, 397 leaves, 13 steps):

$$-\frac{\left(-a^2+b^2\right)^{1/4}e^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{b^{3/2}\,d}-\frac{\left(-a^2+b^2\right)^{1/4}e^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{b^{3/2}\,d}+$$
$$\frac{2\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}{b\,d}+\frac{2\,a\,e^2\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticF}\left[\frac{1}{2}(c+d\,x),2\right]}{b^2\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$
$$\frac{a\left(a^2-b^2\right)e^2\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{b^2\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$
$$\frac{a\left(a^2-b^2\right)e^2\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{b^2\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)d\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 624 leaves):

$$\frac{1}{20\,d\,\mathrm{Cos}[c+d\,x]^{3/2}\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}$$
$$\left(e\,\mathrm{Cos}[c+d\,x]\right)^{3/2}\left(a+b\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right)$$
$$\left(-\left(\left(72\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\mathrm{Cos}[c+d\,x]^{5/2}\right)\Big/\right.\right.$$
$$\left(\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\left(9\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.\right.$$
$$2\,\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\left.\mathrm{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\mathrm{Cos}[c+d\,x]^2\right)\right)\right)\right)+$$
$$\frac{1}{b^{3/2}}\,(5-5\,i)\,\left(2\,\left(-a^2+b^2\right)^{1/4}\,\mathrm{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\left(-a^2+b^2\right)^{1/4}\right.$$
$$\mathrm{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+(4+4\,i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}+\left(-a^2+b^2\right)^{1/4}$$
$$\mathrm{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+i\,b\,\mathrm{Cos}[c+d\,x]\right]-\left(-a^2+b^2\right)^{1/4}$$
$$\left.\left.\mathrm{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+i\,b\,\mathrm{Cos}[c+d\,x]\right]\right)\right)\,\mathrm{Sin}[c+d\,x]$$

Problem 579: Result unnecessarily involves higher level functions.

$$\int\frac{\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{a+b\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 4, 292 leaves, 9 steps):

$$\frac{\sqrt{e}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,d}-\frac{\sqrt{e}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,d}+$$
$$\frac{a\,e\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{b\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}+$$
$$\frac{a\,e\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{b\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}$$

Result (type 6, 565 leaves):

$$\frac{1}{12\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

$$\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[c+d\,x]^{3/2}\right)\Big/\right.\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)$$

$$\left.\left.\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-\left(\left(3+3\,i\right)\,\left(2\,\text{ArcTan}\left[1-\frac{\left(1+i\right)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\right.\right.$$

$$2\,\text{ArcTan}\left[1+\frac{\left(1+i\right)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+i\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+i\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$

$$\left.\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\,\text{Sin}[c+d\,x]$$

Problem 580: Result unnecessarily involves higher level functions.

$$\int\frac{1}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,dx$$

Optimal (type 4, 299 leaves, 9 steps):

$$-\frac{\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{3/4}\,d\,\sqrt{e}}-\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{3/4}\,d\,\sqrt{e}}+$$

$$\frac{a\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(c+d\,x\right),2\right]}{\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{a\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(c+d\,x\right),2\right]}{\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 567 leaves):

$$-\frac{1}{d\sqrt{e\,\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$
$$2\sqrt{\text{Cos}[c+d\,x]}\,\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.\right.$$
$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\Big)$$
$$\left.\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$
$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\text{Sin}[c+d\,x]$$

Problem 581: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,dx$$

Optimal (type 4, 411 leaves, 13 steps):

$$\frac{b^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{5/4}\,d\,e^{3/2}}-\frac{b^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{5/4}\,d\,e^{3/2}}-$$
$$\frac{2\,a\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{\left(a^2-b^2\right)\,d\,e^2\,\sqrt{\text{Cos}[c+d\,x]}}-$$
$$\frac{a\,b\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{\left(a^2-b^2\right)\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$
$$\frac{a\,b\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{\left(a^2-b^2\right)\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{2\,\left(b-a\,\text{Sin}[c+d\,x]\right)}{\left(a^2-b^2\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 1186 leaves):

$$\frac{2\,\text{Cos}[c+d\,x]\,\left(-b+a\,\text{Sin}[c+d\,x]\right)}{\left(a^2-b^2\right)\,d\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}-\frac{1}{(a-b)\,(a+b)\,d\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}$$

$$\text{Cos}[c+d\,x]^{3/2}\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\left(a^2+b^2\right)\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[c+d\,x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\,\left(2\,\text{ArcTan}\left[1-\frac{\left(1+i\right)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{\left(1+i\right)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+i\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+i\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\right/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\,\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\left.\left.\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right/$$

$$\left(3\,\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\right]\right)\right)\Big/$$
$$\left.\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\text{Sin}[c+d x]^2\right)$$

Problem 582: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{(e\,\text{Cos}[c+d x])^{5/2}\,(a+b\,\text{Sin}[c+d x])}\,dx$$

Optimal (type 4, 434 leaves, 13 steps):

$$-\frac{b^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{e\,\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{7/4}d\,e^{5/2}}-\frac{b^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{e\,\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{7/4}d\,e^{5/2}}+$$
$$\frac{2\,a\sqrt{\text{Cos}[c+d x]}\;\text{EllipticF}\left[\frac{1}{2}(c+d x),2\right]}{3\left(a^2-b^2\right)d\,e^2\sqrt{e\,\text{Cos}[c+d x]}}-$$
$$\frac{a\,b^2\sqrt{\text{Cos}[c+d x]}\;\text{EllipticPi}\left[\frac{2b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d x),2\right]}{\left(a^2-b^2\right)\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)d\,e^2\sqrt{e\,\text{Cos}[c+d x]}}-$$
$$\frac{a\,b^2\sqrt{\text{Cos}[c+d x]}\;\text{EllipticPi}\left[\frac{2b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d x),2\right]}{\left(a^2-b^2\right)\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)d\,e^2\sqrt{e\,\text{Cos}[c+d x]}}-\frac{2\left(b-a\,\text{Sin}[c+d x]\right)}{3\left(a^2-b^2\right)d\,e\,(e\,\text{Cos}[c+d x])^{3/2}}$$

Result (type 6, 1192 leaves):

$$\frac{2\,\text{Cos}[c+d x]\left(-b+a\,\text{Sin}[c+d x]\right)}{3\left(a^2-b^2\right)d\,(e\,\text{Cos}[c+d x])^{5/2}}+$$
$$\frac{1}{3\,(a-b)\,(a+b)\,d\,(e\,\text{Cos}[c+d x])^{5/2}}\text{Cos}[c+d x]^{5/2}\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d x]^2}\,\left(a+b\,\text{Sin}[c+d x]\right)}\right.$$
$$2\left(a^2-3b^2\right)\left(a+b\sqrt{1-\text{Cos}[c+d x]^2}\right)\left(\left(5a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$
$$\left.\left.\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d x]}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d x]^2}\right.$$
$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\Big)\,\text{Cos}[c+d\,x]^2\Big)$$
$$\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Big)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$
$$\Bigg(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$
$$\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\Bigg)\Bigg)$$
$$\text{Sin}[c+d\,x]-\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\,a\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\Bigg(\Bigg(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]$$
$$\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Big/$$
$$\Bigg(\Bigg(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+$$
$$2\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+$$
$$\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\Bigg)$$
$$\text{Cos}[c+d\,x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$
$$\Bigg(a\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$
$$\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\Bigg)\Bigg)\Big/$$
$$\left(4\sqrt{2}\,\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\Bigg)\,\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 583: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(e\,\text{Cos}[c+d\,x]\right)^{7/2}\left(a+b\,\text{Sin}[c+d\,x]\right)}\,dx$$

Optimal (type 4, 486 leaves, 14 steps):

$$\frac{b^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{9/4}\,d\,e^{7/2}}-\frac{b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{\left(-a^2+b^2\right)^{9/4}\,d\,e^{7/2}}-$$

$$\frac{2\,a\,\left(3\,a^2-8\,b^2\right)\sqrt{e\,\text{Cos}[c+d\,x]}\;\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{5\,\left(a^2-b^2\right)^2\,d\,e^4\,\sqrt{\text{Cos}[c+d\,x]}}+$$

$$\frac{a\,b^3\,\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{\left(a^2-b^2\right)^2\left(b-\sqrt{-a^2+b^2}\right)d\,e^3\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{a\,b^3\,\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{\left(a^2-b^2\right)^2\left(b+\sqrt{-a^2+b^2}\right)d\,e^3\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$

$$\frac{2\,\left(b-a\,\text{Sin}[c+d\,x]\right)}{5\,\left(a^2-b^2\right)d\,e\,\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}}+\frac{2\,\left(5\,b^3+a\,\left(3\,a^2-8\,b^2\right)\text{Sin}[c+d\,x]\right)}{5\,\left(a^2-b^2\right)^2\,d\,e^3\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 1275 leaves):

$$-\frac{1}{5\,(a-b)^2\,(a+b)^2\,d\,\left(e\,\text{Cos}[c+d\,x]\right)^{7/2}}$$

$$\text{Cos}[c+d\,x]^{7/2}\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\left(3\,a^4-8\,a^2\,b^2-5\,b^4\right)\right.$$

$$\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[c+d\,x]^2,\right.\right.\right.\right.$$

$$\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(7\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\right.$$

$$\left.\left.\left.\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\sqrt{\text{Cos}[c+d\,x]}\ +\text{i}\,b\,\text{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Bigg/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\left(3\,a^3\,b-8\,a\,b^3\right)\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(7\,b\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Bigg/$$

$$\left(3\left(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+2\right.\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-$$

$$\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+\right.$$

$$\left.\left.\left.b\,\text{Cos}[c+d\,x]\right]\right)\right)\Bigg/\left(4\,\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\text{Sin}[c+d\,x]^2\Bigg)+$$

$$\left(\text{Cos}[c+d\,x]^4\left(\frac{2\,\text{Sec}[c+d\,x]^3\left(-b+a\,\text{Sin}[c+d\,x]\right)}{5\left(a^2-b^2\right)}+\right.\right.$$

$$\left.\left.\frac{2\,\text{Sec}[c+d\,x]\left(5\,b^3+3\,a^3\,\text{Sin}[c+d\,x]-8\,a\,b^2\,\text{Sin}[c+d\,x]\right)}{5\left(a^2-b^2\right)^2}\right)\right)\Bigg/\Big(d$$

$$\left.\left(e\,\text{Cos}[c+d\,x]\right)^{7/2}\right)$$

Problem 584: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(e\,\text{Cos}[c+d\,x]\right)^{11/2}}{\left(a+b\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 4, 543 leaves, 15 steps):

$$-\frac{9\,a\,\left(-a^2+b^2\right)^{5/4}\,e^{11/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{2\,b^{11/2}\,d}-\frac{9\,a\,\left(-a^2+b^2\right)^{5/4}\,e^{11/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{2\,b^{11/2}\,d}-$$
$$\frac{3\,\left(21\,a^4-28\,a^2\,b^2+5\,b^4\right)\,e^6\,\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}\,(c+d\,x),2\right]}{7\,b^6\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$
$$\left(9\,a^2\,\left(a^2-b^2\right)^2\,e^6\,\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(2\,b^6\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$
$$\left(9\,a^2\,\left(a^2-b^2\right)^2\,e^6\,\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(2\,b^6\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$
$$\frac{9\,e^3\,\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\,\left(7\,a-5\,b\,\text{Sin}[c+d\,x]\right)}{35\,b^3\,d}-\frac{e\,\left(e\,\text{Cos}[c+d\,x]\right)^{9/2}}{b\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)}-$$
$$\frac{3\,e^5\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(21\,a\,\left(a^2-b^2\right)-b\,\left(7\,a^2-5\,b^2\right)\,\text{Sin}[c+d\,x]\right)}{7\,b^5\,d}$$

Result (type 6, 2230 leaves):

$$-\frac{1}{70\,b^5\,d\,\text{Cos}[c+d\,x]^{11/2}}\,\left(e\,\text{Cos}[c+d\,x]\right)^{11/2}$$
$$\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\,\left(70\,a^3\,b-93\,a\,b^3\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.$$
$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-$$
$$\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}\,\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\right.$$
$$2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{-a^2+b^2}-\right.$$
$$\left.(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-\text{Log}\left[\sqrt{-a^2+b^2}+\right.$$

$$\left.\left.(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\operatorname{Cos}[c+dx]}+i\,b\operatorname{Cos}[c+dx]\right]\right)\right)\operatorname{Sin}[c+dx]+$$

$$\frac{1}{\sqrt{1-\operatorname{Cos}[c+dx]^2}\left(-1+2\operatorname{Cos}[c+dx]^2\right)\left(a+b\operatorname{Sin}[c+dx]\right)}$$

$$\left(140\,a^3\,b-147\,a\,b^3\right)$$

$$\left(a+b\sqrt{1-\operatorname{Cos}[c+dx]^2}\right)\operatorname{Cos}\left[2\left(c+dx\right)\right]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2a^2+b^2\right)\operatorname{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\operatorname{Cos}[c+dx]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2a^2+b^2\right)\operatorname{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\operatorname{Cos}[c+dx]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\sqrt{\operatorname{Cos}[c+dx]}}{b}+$$

$$\left(10\,a\left(a^2-b^2\right)\operatorname{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\operatorname{Cos}[c+dx]^2,\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]\sqrt{\operatorname{Cos}[c+dx]}\right)\Big/$$

$$\left(\sqrt{1-\operatorname{Cos}[c+dx]^2}\left(5\left(a^2-b^2\right)\operatorname{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\operatorname{Cos}[c+dx]^2,\right.\right.\right.$$

$$\left.\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]-2\left(2b^2\operatorname{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\operatorname{Cos}[c+dx]^2,\right.\right.$$

$$\left.\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\operatorname{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\operatorname{Cos}[c+dx]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]\right)\operatorname{Cos}[c+dx]^2\right)\left(a^2+b^2\left(-1+\operatorname{Cos}[c+dx]^2\right)\right)\right)-$$

$$\left(36\,a\left(a^2-b^2\right)\operatorname{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\operatorname{Cos}[c+dx]^2,\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]\right.$$

$$\left.\operatorname{Cos}[c+dx]^{5/2}\right)\Big/\left(5\sqrt{1-\operatorname{Cos}[c+dx]^2}\right.$$

$$\left(9\left(a^2-b^2\right)\operatorname{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\operatorname{Cos}[c+dx]^2,\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2b^2\operatorname{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\operatorname{Cos}[c+dx]^2,\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\operatorname{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\operatorname{Cos}[c+dx]^2,\frac{b^2\operatorname{Cos}[c+dx]^2}{-a^2+b^2}\right]\right)\operatorname{Cos}[c+dx]^2\right)$$

$$\left.\left(a^2+b^2\left(-1+\operatorname{Cos}[c+dx]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2a^2+b^2\right)\operatorname{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$

$$\left.\left.(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\operatorname{Cos}[c+dx]}+i\,b\operatorname{Cos}[c+dx]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2a^2+b^2\right)\operatorname{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\operatorname{Cos}[c+dx]}+\right.\right.$$

$$\left.\left.\left.\left.\mathrm{i}\, b \operatorname{Cos}[c+d x]\right]\right) \middle/ \left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right) \operatorname{Sin}[c+d x]-\right.$$

$$\frac{1}{\left(1-\operatorname{Cos}[c+d x]^2\right)\left(a+b \operatorname{Sin}[c+d x]\right)} 2\left(35 a^4-126 a^2 b^2+75 b^4\right)$$

$$\left(a+b \sqrt{1-\operatorname{Cos}[c+d x]^2}\right)$$

$$\left(\left(\left(5 b\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4},-\frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\left.\sqrt{\operatorname{Cos}[c+d x]} \sqrt{1-\operatorname{Cos}[c+d x]^2}\right) \Big/$$

$$\left(\left(-5\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{1}{4},-\frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]+2\right.\right.$$

$$\left(2 b^2 \operatorname{AppellF1}\left[\frac{5}{4},-\frac{1}{2}, 2, \frac{9}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\operatorname{Cos}[c+d x]^2\right)\left(a^2+b^2\left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\right)+$$

$$\left(a\left(-2 \operatorname{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2 \operatorname{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\operatorname{Log}\left[\sqrt{a^2-b^2}-\sqrt{2} \sqrt{b}\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]}+b \operatorname{Cos}[c+d x]\right]+\operatorname{Log}\left[\right.$$

$$\left.\left.\left.\sqrt{a^2-b^2}+\sqrt{2} \sqrt{b}\left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]}+b \operatorname{Cos}[c+d x]\right]\right)\right) \Big/$$

$$\left.\left.\left(4 \sqrt{2} \sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\right) \operatorname{Sin}[c+d x]^2\right)+\frac{1}{d}$$

$$\left(e \operatorname{Cos}[c+d x]\right)^{11/2} \operatorname{Sec}[c+d x]^5\left(\frac{2 a \operatorname{Cos}[2(c+d x)]}{5 b^3}-\right.$$

$$\frac{\left(-28 a^2+17 b^2\right) \operatorname{Sin}[c+d x]}{14 b^4}-$$

$$\frac{\left(-a^2+b^2\right)^2}{b^5\left(a+b \operatorname{Sin}[c+d x]\right)}-$$

$$\left.\frac{\operatorname{Sin}[3(c+d x)]}{14 b^2}\right)$$

Problem 585: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \frac{(e\,\mathrm{Cos}[c+d\,x])^{9/2}}{(a+b\,\mathrm{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 4, 459 leaves, 14 steps):

$$\frac{7\,a\,(-a^2+b^2)^{3/4}\,e^{9/2}\,\mathrm{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\Big]}{2\,b^{9/2}\,d}-\frac{7\,a\,(-a^2+b^2)^{3/4}\,e^{9/2}\,\mathrm{ArcTanh}\Big[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\Big]}{2\,b^{9/2}\,d}+$$
$$\frac{7\,(5\,a^2-3\,b^2)\,e^4\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\;\mathrm{EllipticE}\Big[\frac{1}{2}\,(c+d\,x),2\Big]}{5\,b^4\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}}-$$
$$\frac{7\,a^2\,(a^2-b^2)\,e^5\,\sqrt{\mathrm{Cos}[c+d\,x]}\;\mathrm{EllipticPi}\Big[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\Big]}{2\,b^5\,\big(b-\sqrt{-a^2+b^2}\big)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}-$$
$$\frac{7\,a^2\,(a^2-b^2)\,e^5\,\sqrt{\mathrm{Cos}[c+d\,x]}\;\mathrm{EllipticPi}\Big[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\Big]}{2\,b^5\,\big(b+\sqrt{-a^2+b^2}\big)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}+$$
$$\frac{7\,e^3\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}\,(5\,a-3\,b\,\mathrm{Sin}[c+d\,x])}{15\,b^3\,d}-\frac{e\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}}{b\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}$$

Result (type 6, 1229 leaves):

$$\frac{1}{10\,b^3\,d\,\mathrm{Cos}[c+d\,x]^{9/2}}$$
$$7\,(e\,\mathrm{Cos}[c+d\,x])^{9/2}\,\Bigg(\frac{1}{6\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,(a+b\,\mathrm{Sin}[c+d\,x])}\,a\,b\,\Big(a+b\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\Big)$$
$$\Bigg(-\Bigg(\Bigg(56\,a\,(a^2-b^2)\,\mathrm{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\,\mathrm{Cos}[c+d\,x]^{3/2}\Bigg)\Big/$$
$$\Bigg(\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\Bigg(7\,(a^2-b^2)\,\mathrm{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\mathrm{Cos}[c+d\,x]^2,$$
$$\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]-2\,\Bigg(2\,b^2\,\mathrm{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\mathrm{Cos}[c+d\,x]^2,$$
$$\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+(-a^2+b^2)\,\mathrm{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\mathrm{Cos}[c+d\,x]^2,$$
$$\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Bigg)\,\mathrm{Cos}[c+d\,x]^2\Bigg)\,\Big(a^2+b^2\,\big(-1+\mathrm{Cos}[c+d\,x]^2\big)\Big)\Bigg)\Bigg)-$$
$$\Bigg((3+3\,i)\,\Bigg(2\,\mathrm{ArcTan}\Big[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\Big]-2\,\mathrm{ArcTan}\Big[$$
$$1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\Big]-\mathrm{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}$$

$$\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}$$

$$\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\Big)\,\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,(a+b\,\text{Sin}[c+d\,x])}\,2\,\left(5\,a^2-3\,b^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\Bigg(\Bigg(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]$$

$$\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Big/$$

$$\Bigg(3\,\Bigg(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+$$

$$2\,\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+$$

$$\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\Bigg)$$

$$\text{Cos}[c+d\,x]^2\Bigg)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\,\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-$$

$$\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\Bigg)\Bigg)\Big/$$

$$\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\,\text{Sin}[c+d\,x]^2\Bigg)+\frac{1}{d}$$

$$(e\,\text{Cos}[c+d\,x])^{9/2}\,\text{Sec}[c+d\,x]^4\,\Bigg(\frac{4\,a\,\text{Cos}[c+d\,x]}{3\,b^3}+$$

$$\frac{a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]}{b^3\,(a+b\,\text{Sin}[c+d\,x])}-$$

$$\frac{\text{Sin}[2\,(c+d\,x)]}{5\,b^2}\Bigg)$$

Problem 586: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^{7/2}}{(a+b\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 4, 473 leaves, 14 steps):

$$-\frac{5\,a\,\left(-a^2+b^2\right)^{1/4}\,e^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{2\,b^{7/2}\,d}-\frac{5\,a\,\left(-a^2+b^2\right)^{1/4}\,e^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{2\,b^{7/2}\,d}+$$

$$\frac{5\,\left(3\,a^2-b^2\right)\,e^4\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticF}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{3\,b^4\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$

$$\frac{5\,a^2\,\left(a^2-b^2\right)\,e^4\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{2\,b^4\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$

$$\frac{5\,a^2\,\left(a^2-b^2\right)\,e^4\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{2\,b^4\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{5\,e^3\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\,(3\,a-b\,\text{Sin}[c+d\,x])}{3\,b^3\,d}-\frac{e\,(e\,\text{Cos}[c+d\,x])^{5/2}}{b\,d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 6, 2156 leaves) :

$$\frac{(e\,\text{Cos}[c+d\,x])^{7/2}\,\text{Sec}[c+d\,x]^3\,\left(-\frac{2\,\text{Sin}[c+d\,x]}{3\,b^2}+\frac{a^2-b^2}{b^3\,(a+b\,\text{Sin}[c+d\,x])}\right)}{d}+$$

$$\frac{1}{6\,b^3\,d\,\text{Cos}[c+d\,x]^{7/2}}\,(e\,\text{Cos}[c+d\,x])^{7/2}\,\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\,(a+b\,\text{Sin}[c+d\,x])}\right.$$

$$8\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\,\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\right.\right.\right.$$

$$\left.\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[c+d\,x]}\Bigg)\Bigg/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)$$

$$\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\,\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\mathrm{Sin}[c+d\,x]+\frac{1}{\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\left(-1+2\,\mathrm{Cos}[c+d\,x]^2\right)\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}$$

$$6\,a\,b\,\left(a+b\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right)\,\mathrm{Cos}\left[2\,\left(c+d\,x\right)\right]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,\left(-2\,a^2+b^2\right)\,\mathrm{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\,\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\,\left(-2\,a^2+b^2\right)\,\mathrm{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\,\left(-a^2+b^2\right)^{3/4}}+\frac{4\,\sqrt{\mathrm{Cos}[c+d\,x]}}{b}+$$

$$\left(10\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\mathrm{Cos}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\mathrm{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\mathrm{Cos}[c+d\,x]^2\right)\right)\right)-$$

$$\left(36\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.$$

$$\left.\mathrm{Cos}[c+d\,x]^{5/2}\right)\Big/\left(5\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right.$$

$$\left(9\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\,\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\mathrm{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\mathrm{Cos}[c+d\,x]^2\right)$$

$$\left.\left(a^2+b^2\,\left(-1+\mathrm{Cos}[c+d\,x]^2\right)\right)\right)+\left(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,\left(-2\,a^2+b^2\right)\,\mathrm{Log}\left[\sqrt{-a^2+b^2}-\right.\right.\right.$$

$$\left.\left.\left.(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\mathrm{Cos}[c+d\,x]}+i\,b\,\mathrm{Cos}[c+d\,x]\right]\right)\Big/\left(b^{3/2}\,\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,\left(-2\,a^2+b^2\right)\,\mathrm{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\mathrm{Cos}[c+d\,x]}+\right.\right.\right.$$

$$\left.\left.\left.\left.i\,b\,\mathrm{Cos}[c+d\,x]\right]\right)\Big/\left(b^{3/2}\,\left(-a^2+b^2\right)^{3/4}\right)\right)\,\mathrm{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\,\left(3\,a^2-5\,b^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$
$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\,\text{Sin}[c+d\,x]^2\right)$$

Problem 587: Result unnecessarily involves higher level functions.

$$\int\frac{\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}}{\left(a+b\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 4, 390 leaves, 13 steps):

$$\frac{3\,a\,e^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{2\,b^{5/2}\,\left(-a^2+b^2\right)^{1/4}\,d}-\frac{3\,a\,e^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{2\,b^{5/2}\,\left(-a^2+b^2\right)^{1/4}\,d}-$$
$$\frac{3\,e^2\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{b^2\,d\,\sqrt{\text{Cos}[c+d\,x]}}+$$
$$\frac{3\,a^2\,e^3\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{2\,b^3\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$
$$\frac{3\,a^2\,e^3\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]}{2\,b^3\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{e\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}{b\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 6, 617 leaves):

$$-\frac{\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\,\text{Sec}[c+d\,x]}{b\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)}+$$
$$\frac{1}{b\,d\,\text{Cos}[c+d\,x]^{5/2}\,\left(1-\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,3\,\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}$$
$$\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\,\left(\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[c+d\,x]^2,\right.\right.\right.\right.$$
$$\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$
$$\left(3\,\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,-\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$
$$\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\,\text{Sin}[c+d\,x]^2$$

Problem 588: Result unnecessarily involves higher level functions.

$$\int \frac{(e \operatorname{Cos}[c+d x])^{3/2}}{(a+b \operatorname{Sin}[c+d x])^2} \, dx$$

Optimal (type 4, 404 leaves, 13 steps):

$$-\frac{a e^{3/2} \operatorname{ArcTan}\left[\frac{\sqrt{b} \sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{2 b^{3/2} \left(-a^2+b^2\right)^{3/4} d}-\frac{a e^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{2 b^{3/2} \left(-a^2+b^2\right)^{3/4} d}-\frac{e^2 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticF}\left[\frac{1}{2} (c+d x), 2\right]}{b^2 d \sqrt{e \operatorname{Cos}[c+d x]}}+$$
$$\frac{a^2 e^2 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]}{2 b^2 \left(a^2-b \left(b-\sqrt{-a^2+b^2}\right)\right) d \sqrt{e \operatorname{Cos}[c+d x]}}+$$
$$\frac{a^2 e^2 \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]}{2 b^2 \left(a^2-b \left(b+\sqrt{-a^2+b^2}\right)\right) d \sqrt{e \operatorname{Cos}[c+d x]}}-\frac{e \sqrt{e \operatorname{Cos}[c+d x]}}{b d (a+b \operatorname{Sin}[c+d x])}$$

Result (type 6, 614 leaves):

$$-\frac{(e\,\text{Cos}[c+d\,x])^{3/2}\,\text{Sec}[c+d\,x]}{b\,d\,(a+b\,\text{Sin}[c+d\,x])}+\frac{1}{b\,d\,\text{Cos}[c+d\,x]^{3/2}\,(1-\text{Cos}[c+d\,x]^2)\,(a+b\,\text{Sin}[c+d\,x])}(e\,\text{Cos}[c+d\,x])^{3/2}$$
$$\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(\left(5\,b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$
$$\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$
$$\left(\left(-5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.(a^2-b^2)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\right)\right)+$$
$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$
$$\left(4\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{3/4}\right)\right)\text{Sin}[c+d\,x]^2$$

Problem 589: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{(a+b\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 4, 422 leaves, 13 steps):

$$-\frac{a\sqrt{e}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{2\sqrt{b}\,\left(-a^2+b^2\right)^{5/4}d}+$$

$$\frac{a\sqrt{e}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{2\sqrt{b}\,\left(-a^2+b^2\right)^{5/4}d}+\frac{\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\left(c+d\,x\right),2\right]}{\left(a^2-b^2\right)d\sqrt{\text{Cos}[c+d\,x]}}+$$

$$\frac{a^2\,e\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(c+d\,x\right),2\right]}{2\,b\left(a^2-b^2\right)\left(b-\sqrt{-a^2+b^2}\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{a^2\,e\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(c+d\,x\right),2\right]}{2\,b\left(a^2-b^2\right)\left(b+\sqrt{-a^2+b^2}\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}+\frac{b\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}{\left(a^2-b^2\right)d\,e\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 6, 1182 leaves):

$$-\frac{b\,\text{Cos}[c+d\,x]\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)d\left(a+b\,\text{Sin}[c+d\,x]\right)}+\frac{1}{2\left(a-b\right)\left(a+b\right)d\sqrt{\text{Cos}[c+d\,x]}}$$

$$\sqrt{e\,\text{Cos}[c+d\,x]}\left(\frac{1}{6\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}a\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+i\right)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+i\right)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}2\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\Bigg(\Bigg(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\,\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Big/$$
$$\Bigg(3\,\Bigg(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Bigg)\,\text{Cos}[c+d\,x]^2\Bigg)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$
$$\Bigg(a\,\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]-\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Big/$$
$$\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\,\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 590: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 4, 429 leaves, 13 steps):

$$\frac{3\,a\,\sqrt{b}\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\Big]}{2\,\left(-a^2+b^2\right)^{7/4}\,d\,\sqrt{e}}+\frac{3\,a\,\sqrt{b}\,\text{ArcTanh}\Big[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\Big]}{2\,\left(-a^2+b^2\right)^{7/4}\,d\,\sqrt{e}}-\frac{\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticF}\Big[\frac{1}{2}\,(c+d\,x),2\Big]}{\left(a^2-b^2\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$
$$\frac{3\,a^2\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\Big[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\Big]}{2\,\left(a^2-b^2\right)\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$
$$\frac{3\,a^2\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\Big[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\Big]}{2\,\left(a^2-b^2\right)\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+\frac{b\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)\,d\,e\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 6, 1181 leaves):

$$\frac{b\,\text{Cos}[c+d\,x]}{\left(a^2-b^2\right) d\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}+$$

$$\frac{1}{2\,(a-b)\,(a+b)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}\sqrt{\text{Cos}[c+d\,x]}\,\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\right.$$

$$4\,a\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(\left(5\,a\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$

$$\left.\left.\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(5\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)$$

$$\left.\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]+\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}2\,b\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(5\,b\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$

$$\left(\left(-5\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\,\text{Sin}[c+d\,x]^2\right)$$

Problem 591: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{(e\,\text{Cos}[c+d\,x])^{3/2}\,(a+b\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 4, 492 leaves, 14 steps):

$$-\frac{5\,a\,b^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{2\,\left(-a^2+b^2\right)^{9/4}d\,e^{3/2}}+\frac{5\,a\,b^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{2\,\left(-a^2+b^2\right)^{9/4}d\,e^{3/2}}-$$
$$\frac{\left(2\,a^2+3\,b^2\right)\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{\left(a^2-b^2\right)^2 d\,e^2\,\sqrt{\text{Cos}[c+d\,x]}}-$$
$$\frac{5\,a^2\,b\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{2\,\left(a^2-b^2\right)^2\left(b-\sqrt{-a^2+b^2}\right)d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$
$$\frac{5\,a^2\,b\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{2\,\left(a^2-b^2\right)^2\left(b+\sqrt{-a^2+b^2}\right)d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$
$$\frac{b}{\left(a^2-b^2\right)d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\,(a+b\,\text{Sin}[c+d\,x])}-\frac{5\,a\,b-\left(2\,a^2+3\,b^2\right)\text{Sin}[c+d\,x]}{\left(a^2-b^2\right)^2 d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 1260 leaves):

$$-\frac{1}{2\,(a-b)^2\,(a+b)^2\,d\,(e\,\text{Cos}[c+d\,x])^{3/2}}$$
$$\text{Cos}[c+d\,x]^{3/2}\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,(a+b\,\text{Sin}[c+d\,x])}\left(2\,a^3+8\,a\,b^2\right)\right.$$
$$\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.\right.$$
$$\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(7\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-\text{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}$$

$$\sqrt{\text{Cos}[c+d x]}+i\,b\,\text{Cos}[c+d x]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}$$

$$\left.\left.\left.\sqrt{\text{Cos}[c+d x]}+i\,b\,\text{Cos}[c+d x]\Big]\right)\right)\Big/\left(\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right)\right)\text{Sin}[c+d x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d x]^2\right)\left(a+b\,\text{Sin}[c+d x]\right)}\,2\left(2a^2b+3b^3\right)\left(a+b\sqrt{1-\text{Cos}[c+d x]^2}\right)$$

$$\left(\left(7b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\text{Cos}[c+d x]^{3/2}\sqrt{1-\text{Cos}[c+d x]^2}\right)\Big/$$

$$\left(3\left(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+2\right.\right.$$

$$\left(2b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\Big]-\text{Log}\Big[$$

$$\left.\left.\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\Big]\right)\right)\Big/$$

$$\left.\left.\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\right)\text{Sin}[c+d x]^2\right)+\left(\text{Cos}[c+d x]^2\right.$$

$$\left.\left(-\frac{b^3\,\text{Cos}[c+d x]}{\left(a^2-b^2\right)^2\left(a+b\,\text{Sin}[c+d x]\right)}+\frac{2\,\text{Sec}[c+d x]\left(-2ab+a^2\,\text{Sin}[c+d x]+b^2\,\text{Sin}[c+d x]\right)}{\left(a^2-b^2\right)^2}\right)\right)\Big/$$

$$\Big(d$$

$$\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\Big)$$

Problem 592: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\left(a+b\,\text{Sin}[c+d\,x]\right)^2}\,dx$$

Optimal (type 4, 514 leaves, 14 steps):

$$\frac{7\,a\,b^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{2\left(-a^2+b^2\right)^{11/4}d\,e^{5/2}}+\frac{7\,a\,b^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{2\left(-a^2+b^2\right)^{11/4}d\,e^{5/2}}+$$
$$\frac{\left(2\,a^2+5\,b^2\right)\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}\left(c+d\,x\right),2\right]}{3\left(a^2-b^2\right)^2 d\,e^2\sqrt{e\,\text{Cos}[c+d\,x]}}-$$
$$\frac{7\,a^2\,b^2\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\left(c+d\,x\right),2\right]}{2\left(a^2-b^2\right)^2\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)d\,e^2\sqrt{e\,\text{Cos}[c+d\,x]}}-$$
$$\frac{7\,a^2\,b^2\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\left(c+d\,x\right),2\right]}{2\left(a^2-b^2\right)^2\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)d\,e^2\sqrt{e\,\text{Cos}[c+d\,x]}}+$$
$$\frac{b}{\left(a^2-b^2\right)d\,e\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\left(a+b\,\text{Sin}[c+d\,x]\right)}-\frac{7\,a\,b-\left(2\,a^2+5\,b^2\right)\text{Sin}[c+d\,x]}{3\left(a^2-b^2\right)^2 d\,e\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}$$

Result (type 6, 1258 leaves):

$$\frac{1}{6\left(a-b\right)^2\left(a+b\right)^2 d\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}}\text{Cos}[c+d\,x]^{5/2}$$
$$\Bigg(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\left(a+b\,\text{Sin}[c+d\,x]\right)}2\left(2\,a^3-16\,a\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\Bigg(\Bigg(5\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\Bigg)\Big/$$
$$\Bigg(\sqrt{1-\text{Cos}[c+d\,x]^2}$$
$$\Bigg(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2$$
$$\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)$$
$$\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\Bigg)\text{Cos}[c+d\,x]^2\Bigg)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Big) - \frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\Bigg(2\,\text{ArcTan}\Big[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\Big] - 2\,\text{ArcTan}\Big[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\Big] +$$

$$\text{Log}\Big[\sqrt{-a^2+b^2} - (1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]} + i\,b\,\text{Cos}[c+d\,x]\Big] -$$

$$\text{Log}\Big[\sqrt{-a^2+b^2} + (1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]} + i\,b\,\text{Cos}[c+d\,x]\Big]\Bigg)\Bigg)$$

$$\text{Sin}[c+d\,x] - \frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

$$2\left(2\,a^2\,b+5\,b^3\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\Bigg(\Bigg(5\,b\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]$$

$$\sqrt{\text{Cos}[c+d\,x]}\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Big/$$

$$\Bigg(\Bigg(-5\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$2\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Bigg)$$

$$\text{Cos}[c+d\,x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]-$$

$$\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]+$$

$$\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Big/$$

$$\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\Bigg)\text{Sin}[c+d\,x]^2\Bigg)+$$

$$\Bigg(\text{Cos}[c+d\,x]^3\Bigg(-\frac{b^3}{\left(a^2-b^2\right)^2\left(a+b\,\text{Sin}[c+d\,x]\right)}+$$

$$\frac{2\,\text{Sec}[c+d\,x]^2\left(-2\,a\,b+a^2\,\text{Sin}[c+d\,x]+b^2\,\text{Sin}[c+d\,x]\right)}{3\left(a^2-b^2\right)^2}\Bigg)\Bigg)\Big/\Big(d$$

$$\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\Big)$$

Problem 593: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \frac{1}{(e\,\text{Cos}[c+d\,x])^{7/2}\,(a+b\,\text{Sin}[c+d\,x])^2}\,dx$$

Optimal (type 4, 574 leaves, 15 steps):

$$-\frac{9\,a\,b^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\right]}{2\,(-a^2+b^2)^{13/4}\,d\,e^{7/2}}+\frac{9\,a\,b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\right]}{2\,(-a^2+b^2)^{13/4}\,d\,e^{7/2}}-\frac{3\,(2\,a^4-10\,a^2\,b^2-7\,b^4)\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{5\,(a^2-b^2)^3\,d\,e^4\,\sqrt{\text{Cos}[c+d\,x]}}+\frac{9\,a^2\,b^3\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{2\,(a^2-b^2)^3\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,e^3\,\sqrt{e\,\text{Cos}[c+d\,x]}}+\frac{9\,a^2\,b^3\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]}{2\,(a^2-b^2)^3\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,e^3\,\sqrt{e\,\text{Cos}[c+d\,x]}}+\frac{b}{(a^2-b^2)\,d\,e\,(e\,\text{Cos}[c+d\,x])^{5/2}\,(a+b\,\text{Sin}[c+d\,x])}-\frac{9\,a\,b-(2\,a^2+7\,b^2)\,\text{Sin}[c+d\,x]}{5\,(a^2-b^2)^2\,d\,e\,(e\,\text{Cos}[c+d\,x])^{5/2}}+\frac{3\,\left(15\,a\,b^3+(2\,a^4-10\,a^2\,b^2-7\,b^4)\,\text{Sin}[c+d\,x]\right)}{5\,(a^2-b^2)^3\,d\,e^3\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 1343 leaves):

$$-\frac{1}{10\,(a-b)^3\,(a+b)^3\,d\,(e\,\text{Cos}[c+d\,x])^{7/2}}$$

$$3\,\text{Cos}[c+d\,x]^{7/2}\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,(a+b\,\text{Sin}[c+d\,x])}\right.$$

$$(2\,a^5-10\,a^3\,b^2-22\,a\,b^4)\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(-\left(\left(56\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\right.\right.\right.\right.$$

$$\left.\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\Bigg)\Bigg/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left.(-a^2+b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\right.$$

$$\left.\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+i\right)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+\left(1+i\right)\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\left(2\,a^4\,b-10\,a^2\,b^3-7\,b^5\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(7\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/\right.$$

$$\left(3\left(-7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\right)\text{Sin}[c+d\,x]^2\right)+\left(\text{Cos}[c+d\,x]^4\right.$$

$$\left(\frac{b^5\,\text{Cos}[c+d\,x]}{\left(a^2-b^2\right)^3\left(a+b\,\text{Sin}[c+d\,x]\right)}+\frac{2\,\text{Sec}[c+d\,x]^3\left(-2\,a\,b+a^2\,\text{Sin}[c+d\,x]+b^2\,\text{Sin}[c+d\,x]\right)}{5\left(a^2-b^2\right)^2}+\right.$$

$$\frac{1}{5\left(a^2-b^2\right)^3}\,2\,\text{Sec}[c+d\,x]\left(20\,a\,b^3+3\,a^4\,\text{Sin}[c+d\,x]-15\,a^2\,b^2\,\text{Sin}[c+d\,x]-\right.$$

$$8\,b^4\,\text{Sin}[c+d\,x]\Big)\Big)\Big/\left(d\,(e\,\text{Cos}[c+d\,x])^{7/2}\right)$$

Problem 594: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(e\,\text{Cos}[c+d\,x])^{13/2}}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 4, 575 leaves, 15 steps):

$$-\frac{11\,(9\,a^4-11\,a^2\,b^2+2\,b^4)\,e^{13/2}\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\Big]}{8\,b^{13/2}\,(-a^2+b^2)^{1/4}\,d}+\frac{11\,(9\,a^4-11\,a^2\,b^2+2\,b^4)\,e^{13/2}\,\text{ArcTanh}\Big[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\Big]}{8\,b^{13/2}\,(-a^2+b^2)^{1/4}\,d}+\frac{11\,a\,(45\,a^2-37\,b^2)\,e^6\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\Big[\frac{1}{2}\,(c+d\,x),2\Big]}{20\,b^6\,d\,\sqrt{\text{Cos}[c+d\,x]}}-\left(11\,a\,(9\,a^4-11\,a^2\,b^2+2\,b^4)\,e^7\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\Big[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\Big]\right)\Big/\left(8\,b^7\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-\left(11\,a\,(9\,a^4-11\,a^2\,b^2+2\,b^4)\,e^7\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\Big[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\Big]\right)\Big/\left(8\,b^7\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-\frac{e\,(e\,\text{Cos}[c+d\,x])^{11/2}}{2\,b\,d\,(a+b\,\text{Sin}[c+d\,x])^2}-\frac{11\,e^3\,(e\,\text{Cos}[c+d\,x])^{7/2}\,(9\,a+2\,b\,\text{Sin}[c+d\,x])}{28\,b^3\,d\,(a+b\,\text{Sin}[c+d\,x])}+\frac{11\,e^5\,(e\,\text{Cos}[c+d\,x])^{3/2}\,\left(5\,(9\,a^2-2\,b^2)-27\,a\,b\,\text{Sin}[c+d\,x]\right)}{60\,b^5\,d}$$

Result (type 6, 1326 leaves):

$$\frac{1}{40\,b^5\,d\,\text{Cos}[c+d\,x]^{13/2}}\,11\,(e\,\text{Cos}[c+d\,x])^{13/2}\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,(a+b\,\text{Sin}[c+d\,x])}\,(18\,a^2\,b-10\,b^3)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\,\text{Cos}[c+d\,x]^{3/2}\right)\Big/\right.\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$

$$\frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] - 2 \Big(2 b^2 \operatorname{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] + \left(-a^2+b^2\right) \operatorname{AppellF1}\Big[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big]\Big) \operatorname{Cos}[c+d x]^2\Big) \left(a^2+b^2\left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\Big)\Big) -$$

$$\Big(\left(3+3 i\right) \Big(2 \operatorname{ArcTan}\Big[1-\frac{\left(1+i\right) \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\Big] - 2 \operatorname{ArcTan}\Big[1+\frac{\left(1+i\right) \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\Big] - \operatorname{Log}\Big[\sqrt{-a^2+b^2} - \left(1+i\right) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]} + i\, b \operatorname{Cos}[c+d x]\Big] + \operatorname{Log}\Big[\sqrt{-a^2+b^2} + \left(1+i\right) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]} + i\, b \operatorname{Cos}[c+d x]\Big]\Big)\Big) \Big/ \left(\sqrt{b} \left(-a^2+b^2\right)^{1/4}\right)\Big)$$

$$\operatorname{Sin}[c+d x] - \frac{1}{\left(1-\operatorname{Cos}[c+d x]^2\right) \left(a+b \operatorname{Sin}[c+d x]\right)} 2 \left(45 a^3 - 37 a b^2\right) \left(a+b \sqrt{1-\operatorname{Cos}[c+d x]^2}\right)$$

$$\Big(\Big(7 b \left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{3}{4}, -\frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] \operatorname{Cos}[c+d x]^{3/2} \sqrt{1-\operatorname{Cos}[c+d x]^2}\Big) \Big/$$

$$\Big(3 \Big(-7 \left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{3}{4}, -\frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] + 2 \Big(2 b^2 \operatorname{AppellF1}\Big[\frac{7}{4}, -\frac{1}{2}, 2, \frac{11}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] + \left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{7}{4}, \frac{1}{2}, 1, \frac{11}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big]\Big) \operatorname{Cos}[c+d x]^2\Big) \left(a^2+b^2\left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\Big) +$$

$$\Big(a \Big(-2 \operatorname{ArcTan}\Big[1-\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\Big] + 2 \operatorname{ArcTan}\Big[1+\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\Big] + \operatorname{Log}\Big[\sqrt{a^2-b^2} - \sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]} + b \operatorname{Cos}[c+d x]\Big] - \operatorname{Log}\Big[\sqrt{a^2-b^2} + \sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]} + b \operatorname{Cos}[c+d x]\Big]\Big)\Big) \Big/$$

$$\left(4 \sqrt{2}\, b^{3/2} \left(a^2-b^2\right)^{1/4}\right)\Big) \operatorname{Sin}[c+d x]^2\Big) + \frac{1}{d}$$

$$\left(e \operatorname{Cos}[c+d x]\right)^{13/2} \operatorname{Sec}[c+d x]^6 \Big(-\frac{\left(-168 a^2+65 b^2\right) \operatorname{Cos}[c+d x]}{42 b^5} -$$

$$\frac{\operatorname{Cos}[3\,(c+d\,x)]}{14\,b^3}+\frac{-a^4\operatorname{Cos}[c+d\,x]+2\,a^2\,b^2\operatorname{Cos}[c+d\,x]-b^4\operatorname{Cos}[c+d\,x]}{2\,b^5\,(a+b\operatorname{Sin}[c+d\,x])^2}+\frac{19\,(a^3\operatorname{Cos}[c+d\,x]-a\,b^2\operatorname{Cos}[c+d\,x])}{4\,b^5\,(a+b\operatorname{Sin}[c+d\,x])}-\frac{3\,a\operatorname{Sin}[2\,(c+d\,x)]}{5\,b^4}\Bigg)$$

Problem 595: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(e\operatorname{Cos}[c+d\,x])^{11/2}}{(a+b\operatorname{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 4, 589 leaves, 15 steps):

$$\frac{9\,(7\,a^4-9\,a^2\,b^2+2\,b^4)\,e^{11/2}\operatorname{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\operatorname{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\right]}{8\,b^{11/2}\,(-a^2+b^2)^{3/4}\,d}+\frac{9\,(7\,a^4-9\,a^2\,b^2+2\,b^4)\,e^{11/2}\operatorname{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\operatorname{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\right]}{8\,b^{11/2}\,(-a^2+b^2)^{3/4}\,d}+\frac{3\,a\,(21\,a^2-13\,b^2)\,e^6\,\sqrt{\operatorname{Cos}[c+d\,x]}\operatorname{EllipticF}\left[\frac{1}{2}\,(c+d\,x),2\right]}{4\,b^6\,d\,\sqrt{e\operatorname{Cos}[c+d\,x]}}-$$
$$\left(9\,a\,(7\,a^4-9\,a^2\,b^2+2\,b^4)\,e^6\,\sqrt{\operatorname{Cos}[c+d\,x]}\operatorname{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/\left(8\,b^6\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\operatorname{Cos}[c+d\,x]}\right)-$$
$$\left(9\,a\,(7\,a^4-9\,a^2\,b^2+2\,b^4)\,e^6\,\sqrt{\operatorname{Cos}[c+d\,x]}\operatorname{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/\left(8\,b^6\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\operatorname{Cos}[c+d\,x]}\right)-$$
$$\frac{e\,(e\operatorname{Cos}[c+d\,x])^{9/2}}{2\,b\,d\,(a+b\operatorname{Sin}[c+d\,x])^2}-\frac{9\,e^3\,(e\operatorname{Cos}[c+d\,x])^{5/2}\,(7\,a+2\,b\operatorname{Sin}[c+d\,x])}{20\,b^3\,d\,(a+b\operatorname{Sin}[c+d\,x])}+\frac{3\,e^5\,\sqrt{e\operatorname{Cos}[c+d\,x]}\,(3\,(7\,a^2-2\,b^2)-7\,a\,b\operatorname{Sin}[c+d\,x])}{4\,b^5\,d}$$

Result (type 6, 2224 leaves):

$$\frac{1}{d}(e\operatorname{Cos}[c+d\,x])^{11/2}\operatorname{Sec}[c+d\,x]^5$$

$$\left(-\frac{\text{Cos}[2\,(c+d\,x)]}{5\,b^3}-\frac{2\,a\,\text{Sin}[c+d\,x]}{b^4}-\frac{\left(-a^2+b^2\right)^2}{2\,b^5\,(a+b\,\text{Sin}[c+d\,x])^2}+\frac{17\,a\,\left(a^2-b^2\right)}{4\,b^5\,(a+b\,\text{Sin}[c+d\,x])}\right)+$$

$$\frac{1}{40\,b^5\,d\,\text{Cos}[c+d\,x]^{11/2}}\,3\,(e\,\text{Cos}[c+d\,x])^{11/2}$$

$$\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,(a+b\,\text{Sin}[c+d\,x])}\,2\,\left(30\,a^2\,b-16\,b^3\right)\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$

$$\left(\left(5\,a\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\right/$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(5\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)$$

$$\left.\left.\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]+\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(-1+2\,\text{Cos}[c+d\,x]^2\right)(a+b\,\text{Sin}[c+d\,x])}$$

$$\left(40\,a^2\,b-14\,b^3\right)\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\text{Cos}[2\,(c+d\,x)]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\,\sqrt{\text{Cos}[c+d\,x]}}{b}+$$

$$\left(10\,a\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-$$

$$\left(36\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[c+d\,x]^{5/2}\right)\Big/\left(5\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(9\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\,\frac{1}{2},\,2,\,\frac{13}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{9}{4},\,\frac{3}{2},\,1,\,\frac{13}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\Big/\left(b^{3/2}\,\left(-a^2+b^2\right)^{3/4}\right)-\left(\left(\frac{1}{4}-\frac{i}{4}\right)\,\left(-2\,a^2+b^2\right)\,\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\Big/\left(b^{3/2}\,\left(-a^2+b^2\right)^{3/4}\right)\right)\,\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\,\left(25\,a^3-37\,a\,b^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,-\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,-\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\,-\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\,\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 596: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^{9/2}}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 4, 483 leaves, 14 steps):

$$\frac{7\left(5\,a^2-2\,b^2\right)e^{9/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\,b^{9/2}\left(-a^2+b^2\right)^{1/4}d}-\frac{7\left(5\,a^2-2\,b^2\right)e^{9/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\,b^{9/2}\left(-a^2+b^2\right)^{1/4}d}-\frac{35\,a\,e^4\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}(c+d\,x),2\right]}{4\,b^4\,d\,\sqrt{\text{Cos}[c+d\,x]}}+\left(7\,a\left(5\,a^2-2\,b^2\right)e^5\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]\right)\Big/\left(8\,b^5\left(b-\sqrt{-a^2+b^2}\right)d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+\left(7\,a\left(5\,a^2-2\,b^2\right)e^5\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]\right)\Big/\left(8\,b^5\left(b+\sqrt{-a^2+b^2}\right)d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-\frac{e\,(e\,\text{Cos}[c+d\,x])^{7/2}}{2\,b\,d\,(a+b\,\text{Sin}[c+d\,x])^2}-\frac{7\,e^3\,(e\,\text{Cos}[c+d\,x])^{3/2}\,(5\,a+2\,b\,\text{Sin}[c+d\,x])}{12\,b^3\,d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 6, 1231 leaves):

$$\frac{1}{d}(e\,\text{Cos}[c+d\,x])^{9/2}\,\text{Sec}[c+d\,x]^4\left(-\frac{2\,\text{Cos}[c+d\,x]}{3\,b^3}+\frac{a^2\,\text{Cos}[c+d\,x]-b^2\,\text{Cos}[c+d\,x]}{2\,b^3\,(a+b\,\text{Sin}[c+d\,x])^2}-\frac{11\,a\,\text{Cos}[c+d\,x]}{4\,b^3\,(a+b\,\text{Sin}[c+d\,x])}\right)-\frac{1}{8\,b^3\,d\,\text{Cos}[c+d\,x]^{9/2}}\,7\,(e\,\text{Cos}[c+d\,x])^{9/2}$$

$$\left(\frac{1}{6\sqrt{1-\text{Cos}[c+d\,x]^2}\;(a+b\,\text{Sin}[c+d\,x])}\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\;\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\;\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\right.$$

$$\left.\left.\left.\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\right/\left(\sqrt{b}\,(-a^2+b^2)^{1/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{(1-\text{Cos}[c+d\,x]^2)\;(a+b\,\text{Sin}[c+d\,x])}\,10\,a\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(\left(7\,b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\left.\left.\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right/$$

$$\left(3\left(-7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.(a^2-b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d\,x]^2\right)\;\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\right/$$

$$\left.\left(4\sqrt{2}\ b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\ \text{Sin}[c+d\,x]^2\right)$$

Problem 597: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^{7/2}}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 4, 497 leaves, 14 steps):

$$-\frac{5\left(3a^2-2b^2\right)e^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\,b^{7/2}\left(-a^2+b^2\right)^{3/4}d}-\frac{5\left(3a^2-2b^2\right)e^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\,b^{7/2}\left(-a^2+b^2\right)^{3/4}d}-\frac{15\,a\,e^4\sqrt{\text{Cos}[c+d\,x]}\ \text{EllipticF}\left[\frac{1}{2}(c+d\,x),2\right]}{4\,b^4\,d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$
$$\left(5\,a\left(3a^2-2b^2\right)e^4\sqrt{\text{Cos}[c+d\,x]}\ \text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]\right)\Big/\left(8\,b^4\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)d\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$
$$\left(5\,a\left(3a^2-2b^2\right)e^4\sqrt{\text{Cos}[c+d\,x]}\ \text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]\right)\Big/\left(8\,b^4\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)d\sqrt{e\,\text{Cos}[c+d\,x]}\right)-$$
$$\frac{e\,(e\,\text{Cos}[c+d\,x])^{5/2}}{2\,b\,d\,(a+b\,\text{Sin}[c+d\,x])^2}-\frac{5\,e^3\sqrt{e\,\text{Cos}[c+d\,x]}\ (3\,a+2\,b\,\text{Sin}[c+d\,x])}{4\,b^3\,d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 6, 2154 leaves):

$$\frac{(e\,\text{Cos}[c+d\,x])^{7/2}\,\text{Sec}[c+d\,x]^3\left(\frac{a^2-b^2}{2\,b^3\,(a+b\,\text{Sin}[c+d\,x])^2}-\frac{9\,a}{4\,b^3\,(a+b\,\text{Sin}[c+d\,x])}\right)}{d}-$$
$$\frac{1}{8\,b^3\,d\,\text{Cos}[c+d\,x]^{7/2}}(e\,\text{Cos}[c+d\,x])^{7/2}\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\ (a+b\,\text{Sin}[c+d\,x])}\right.$$
$$12\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(\left(5\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$
$$\left.\left.\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2 b^2 \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] + \left(-a^2+b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right) \text{Cos}[c+d x]^2\Big)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\Bigg) - \frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\Bigg(2 \text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right] - 2 \text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right] +$$

$$\text{Log}\left[\sqrt{-a^2+b^2} - (1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]} + i\, b\, \text{Cos}[c+d x]\right] -$$

$$\text{Log}\left[\sqrt{-a^2+b^2} + (1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]} + i\, b\, \text{Cos}[c+d x]\right]\Bigg)\Bigg)$$

$$\text{Sin}[c+d x] + \frac{1}{\sqrt{1-\text{Cos}[c+d x]^2}\left(-1+2 \text{Cos}[c+d x]^2\right)\left(a+b \text{Sin}[c+d x]\right)}$$

$$4 b\left(a+b\sqrt{1-\text{Cos}[c+d x]^2}\right) \text{Cos}[2(c+d x)]$$

$$\Bigg(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2 a^2+b^2\right) \text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}} -$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2 a^2+b^2\right) \text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}} + \frac{4\sqrt{\text{Cos}[c+d x]}}{b} +$$

$$\left(10 a\left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d x]}\right) \Big/$$

$$\Bigg(\sqrt{1-\text{Cos}[c+d x]^2}\,\Bigg(5\left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4}, \frac{1}{2}, 1, \frac{5}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] - 2\Bigg(2 b^2 \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 2, \frac{9}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] + \left(-a^2+b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]\Bigg) \text{Cos}[c+d x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\Bigg) -$$

$$\left(36 a\left(a^2-b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] \text{Cos}[c+d x]^{5/2}\right) \Big/ \Bigg(5\sqrt{1-\text{Cos}[c+d x]^2}$$

$$\Bigg(9\left(a^2-b^2\right) \text{AppellF1}\left[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] -$$

$$2\left(2 b^2 \text{AppellF1}\left[\frac{9}{4}, \frac{1}{2}, 2, \frac{13}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] + \left(-a^2+b^2\right)\right.$$

$$\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d x]^2\Big)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\Bigg)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$

$$\left.\left.(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+i\,b\,\text{Cos}[c+d x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2 a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+\right.\right.$$

$$\left.\left.\left.i\,b\,\text{Cos}[c+d x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[c+d x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d x]^2\right)\left(a+b\,\text{Sin}[c+d x]\right)}14\,a\left(a+b\sqrt{1-\text{Cos}[c+d x]^2}\right)$$

$$\left(\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\sqrt{\text{Cos}[c+d x]}\sqrt{1-\text{Cos}[c+d x]^2}\right)\Big/$$

$$\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\text{Sin}[c+d x]^2\right)$$

Problem 598: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(e\,\text{Cos}[c+d x]\right)^{5/2}}{\left(a+b\,\text{Sin}[c+d x]\right)^3}\,dx$$

Optimal (type 4, 505 leaves, 14 steps):

$$\frac{3\left(a^2-2 b^2\right) e^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\,b^{5/2}\left(-a^2+b^2\right)^{5/4} d}-\frac{3\left(a^2-2 b^2\right) e^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\,b^{5/2}\left(-a^2+b^2\right)^{5/4} d}+\frac{3\,a\,e^2\sqrt{e\,\text{Cos}[c+d x]}\;\text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{4\,b^2\left(a^2-b^2\right) d\sqrt{\text{Cos}[c+d x]}}-$$

$$\left(3\,a\left(a^2-2 b^2\right) e^3\sqrt{\text{Cos}[c+d x]}\;\text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d x),2\right]\right)\Big/\left(8\,b^3\left(a^2-b^2\right)\left(b-\sqrt{-a^2+b^2}\right) d\sqrt{e\,\text{Cos}[c+d x]}\right)-$$

$$\left(3\,a\left(a^2-2 b^2\right) e^3\sqrt{\text{Cos}[c+d x]}\;\text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d x),2\right]\right)\Big/\left(8\,b^3\left(a^2-b^2\right)\left(b+\sqrt{-a^2+b^2}\right) d\sqrt{e\,\text{Cos}[c+d x]}\right)-$$

$$\frac{e\left(e\,\text{Cos}[c+d x]\right)^{3/2}}{2\,b\,d\left(a+b\,\text{Sin}[c+d x]\right)^2}+\frac{3\,a\,e\left(e\,\text{Cos}[c+d x]\right)^{3/2}}{4\,b\left(a^2-b^2\right) d\left(a+b\,\text{Sin}[c+d x]\right)}$$

Result (type 6, 1225 leaves):

$$\frac{1}{d}\left(e\,\text{Cos}[c+d x]\right)^{5/2}\text{Sec}[c+d x]^2\left(-\frac{\text{Cos}[c+d x]}{2\,b\left(a+b\,\text{Sin}[c+d x]\right)^2}-\frac{3\,a\,\text{Cos}[c+d x]}{4\,b\left(-a^2+b^2\right)\left(a+b\,\text{Sin}[c+d x]\right)}\right)+$$

$$\frac{1}{8\,(a-b)\,b\,(a+b)\,d\,\text{Cos}[c+d x]^{5/2}}$$

$$3\left(e\,\text{Cos}[c+d x]\right)^{5/2}\left(\frac{1}{6\sqrt{1-\text{Cos}[c+d x]^2}\left(a+b\,\text{Sin}[c+d x]\right)}\,b\left(a+b\sqrt{1-\text{Cos}[c+d x]^2}\right)\right.$$

$$\left(-\left(\left(56\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\text{Cos}[c+d x]^{3/2}\right)\Big/\right.\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\right)\right)-$$

$$\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{\left(1+i\right)\sqrt{b}\,\sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+i\right)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\sqrt{\text{Cos}[c+d\,x]}+\text{i}\,b\,\text{Cos}[c+d\,x]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+(1+\text{i})\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}$$

$$\sqrt{\text{Cos}[c+d\,x]}+\text{i}\,b\,\text{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\Big)\,\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,(a+b\,\text{Sin}[c+d\,x])}\,2\,a\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\Bigg(\Bigg(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]$$

$$\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Big/$$

$$\Bigg(3\,\Bigg(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$2\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Bigg)$$

$$\text{Cos}[c+d\,x]^2\Bigg)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\,\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+$$

$$\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]-$$

$$\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Big/$$

$$\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\,\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 599: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^{3/2}}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 4, 519 leaves, 14 steps):

$$\frac{\left(a^2+2 b^2\right) e^{3/2} \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{e \text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{8 b^{3/2} \left(-a^2+b^2\right)^{7/4} d}+$$

$$\frac{\left(a^2+2 b^2\right) e^{3/2} \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{e \text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{8 b^{3/2} \left(-a^2+b^2\right)^{7/4} d}-\frac{a e^2 \sqrt{\text{Cos}[c+d x]} \text{EllipticF}\left[\frac{1}{2} (c+d x),2\right]}{4 b^2 \left(a^2-b^2\right) d \sqrt{e \text{Cos}[c+d x]}}+$$

$$\frac{a \left(a^2+2 b^2\right) e^2 \sqrt{\text{Cos}[c+d x]} \text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}},\frac{1}{2} (c+d x),2\right]}{8 b^2 \left(a^2-b^2\right) \left(a^2-b \left(b-\sqrt{-a^2+b^2}\right)\right) d \sqrt{e \text{Cos}[c+d x]}}+$$

$$\frac{a \left(a^2+2 b^2\right) e^2 \sqrt{\text{Cos}[c+d x]} \text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}},\frac{1}{2} (c+d x),2\right]}{8 b^2 \left(a^2-b^2\right) \left(a^2-b \left(b+\sqrt{-a^2+b^2}\right)\right) d \sqrt{e \text{Cos}[c+d x]}}-$$

$$\frac{e \sqrt{e \text{Cos}[c+d x]}}{2 b d (a+b \text{Sin}[c+d x])^2}+\frac{a e \sqrt{e \text{Cos}[c+d x]}}{4 b \left(a^2-b^2\right) d (a+b \text{Sin}[c+d x])}$$

Result (type 6, 1211 leaves):

$$\frac{1}{d}(e \text{Cos}[c+d x])^{3/2} \text{Sec}[c+d x] \left(-\frac{1}{2 b (a+b \text{Sin}[c+d x])^2}-\frac{a}{4 b \left(-a^2+b^2\right) (a+b \text{Sin}[c+d x])}\right)-$$

$$\frac{1}{8 (a-b) b (a+b) d \text{Cos}[c+d x]^{3/2}}$$

$$(e \text{Cos}[c+d x])^{3/2} \left(\frac{1}{\sqrt{1-\text{Cos}[c+d x]^2} (a+b \text{Sin}[c+d x])} 4 b \left(a+b \sqrt{1-\text{Cos}[c+d x]^2}\right)\right.$$

$$\left(\left(5 a \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] \sqrt{\text{Cos}[c+d x]}\right)\right/$$

$$\left(\sqrt{1-\text{Cos}[c+d x]^2} \left(5 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d x]^2,\right.\right.\right.$$

$$\left.\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]-2 \left(2 b^2 \text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d x]^2,\right.\right.$$

$$\left.\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d x]^2,\right.$$

$$\left.\left.\left.\left.\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right) \text{Cos}[c+d x]^2\right) \left(a^2+b^2 \left(-1+\text{Cos}[c+d x]^2\right)\right)\right)-$$

$$\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right) \sqrt{b} \left(2 \text{ArcTan}\left[1-\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\right.$$

$$2 \text{ArcTan}\left[1+\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[c+d x]}+i b \text{Cos}[c+d x]\right]-$$

$$\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+i\, b\,\text{Cos}[c+d x]\right]\Bigg)\Bigg)$$

$$\text{Sin}[c+d x]-\frac{1}{\left(1-\text{Cos}[c+d x]^2\right)\left(a+b\,\text{Sin}[c+d x]\right)}2 a\left(a+b\sqrt{1-\text{Cos}[c+d x]^2}\right)$$
$$\Bigg(\Bigg(5 b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]$$
$$\sqrt{\text{Cos}[c+d x]}\sqrt{1-\text{Cos}[c+d x]^2}\Bigg)\Bigg/$$
$$\Bigg(\Bigg(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+$$
$$2\Bigg(2 b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]+$$
$$\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d x]^2,\frac{b^2\,\text{Cos}[c+d x]^2}{-a^2+b^2}\right]\Bigg)$$
$$\text{Cos}[c+d x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[c+d x]^2\right)\right)\Bigg)+$$
$$\Bigg(a\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]-$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\right]+$$
$$\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d x]}+b\,\text{Cos}[c+d x]\right]\Bigg)\Bigg)\Bigg/$$
$$\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\Bigg)\,\text{Sin}[c+d x]^2\Bigg)$$

Problem 600: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{e\,\text{Cos}[c+d x]}}{\left(a+b\,\text{Sin}[c+d x]\right)^3}\,dx$$

Optimal (type 4, 514 leaves, 14 steps):

$$\frac{\left(3 a^2+2 b^2\right) \sqrt{e}\ \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{e \text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{8 \sqrt{b} \left(-a^2+b^2\right)^{9/4} d}-$$

$$\frac{\left(3 a^2+2 b^2\right) \sqrt{e}\ \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{e \text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{8 \sqrt{b} \left(-a^2+b^2\right)^{9/4} d}+\frac{5 a \sqrt{e \text{Cos}[c+d x]}\ \text{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{4 \left(a^2-b^2\right)^2 d \sqrt{\text{Cos}[c+d x]}}+$$

$$\frac{a \left(3 a^2+2 b^2\right) e \sqrt{\text{Cos}[c+d x]}\ \text{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]}{8 b \left(a^2-b^2\right)^2 \left(b-\sqrt{-a^2+b^2}\right) d \sqrt{e \text{Cos}[c+d x]}}+$$

$$\frac{a \left(3 a^2+2 b^2\right) e \sqrt{\text{Cos}[c+d x]}\ \text{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]}{8 b \left(a^2-b^2\right)^2 \left(b+\sqrt{-a^2+b^2}\right) d \sqrt{e \text{Cos}[c+d x]}}+$$

$$\frac{b (e \text{Cos}[c+d x])^{3/2}}{2 \left(a^2-b^2\right) d e (a+b \text{Sin}[c+d x])^2}+\frac{5 a b (e \text{Cos}[c+d x])^{3/2}}{4 \left(a^2-b^2\right)^2 d e (a+b \text{Sin}[c+d x])}$$

Result (type 6, 1232 leaves):

$$\frac{\sqrt{e \text{Cos}[c+d x]} \left(\frac{b \text{Cos}[c+d x]}{2 \left(a^2-b^2\right) (a+b \text{Sin}[c+d x])^2}+\frac{5 a b \text{Cos}[c+d x]}{4 \left(a^2-b^2\right)^2 (a+b \text{Sin}[c+d x])}\right)}{d}+$$

$$\frac{1}{8 (a-b)^2 (a+b)^2 d \sqrt{\text{Cos}[c+d x]}} \sqrt{e \text{Cos}[c+d x]}$$

$$\left(\frac{1}{12 \sqrt{1-\text{Cos}[c+d x]^2} (a+b \text{Sin}[c+d x])} \left(8 a^2+2 b^2\right) \left(a+b \sqrt{1-\text{Cos}[c+d x]^2}\right)\right.$$

$$\left(-\left(\left(56 a \left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Cos}[c+d x]^2, \frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] \text{Cos}[c+d x]^{3/2}\right)\right/\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d x]^2} \left(7 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \text{Cos}[c+d x]^2,\right.\right.\right.$$

$$\left.\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]-2 \left(2 b^2 \text{AppellF1}\left[\frac{7}{4}, \frac{1}{2}, 2, \frac{11}{4}, \text{Cos}[c+d x]^2,\right.\right.$$

$$\left.\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \text{AppellF1}\left[\frac{7}{4}, \frac{3}{2}, 1, \frac{11}{4}, \text{Cos}[c+d x]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right) \text{Cos}[c+d x]^2\right) \left(a^2+b^2 \left(-1+\text{Cos}[c+d x]^2\right)\right)\right)\right)-$$

$$\left((3+3 i) \left(2 \text{ArcTan}\left[1-\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2 \text{ArcTan}\left[\right.\right.\right.$$

$$\left.1+\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\sqrt{\text{Cos}[c+d x]}+i b \text{Cos}[c+d x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4}\right.$$

$$\left.\left.\left.\sqrt{\text{Cos}[c+d\,x]}+\mathrm{i}\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,10\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(7\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$

$$\left(3\,\left(-7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$

$$\left.\left(4\,\sqrt{2}\,b^{3/2}\,\left(a^2-b^2\right)^{1/4}\right)\right)\text{Sin}[c+d\,x]^2\right)$$

Problem 601: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 4, 520 leaves, 14 steps):

$$-\frac{3\sqrt{b}\left(5a^2+2b^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\left(-a^2+b^2\right)^{11/4}d\sqrt{e}}-$$

$$\frac{3\sqrt{b}\left(5a^2+2b^2\right)\text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{8\left(-a^2+b^2\right)^{11/4}d\sqrt{e}}-\frac{7a\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}(c+d\,x),2\right]}{4\left(a^2-b^2\right)^2d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{3a\left(5a^2+2b^2\right)\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{8\left(a^2-b^2\right)^2\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{3a\left(5a^2+2b^2\right)\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{8\left(a^2-b^2\right)^2\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{b\sqrt{e\,\text{Cos}[c+d\,x]}}{2\left(a^2-b^2\right)d\,e\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{7a\,b\sqrt{e\,\text{Cos}[c+d\,x]}}{4\left(a^2-b^2\right)^2d\,e\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 6, 1226 leaves):

$$\frac{\text{Cos}[c+d\,x]\left(\frac{b}{2\left(a^2-b^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{7a\,b}{4\left(a^2-b^2\right)^2\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)}{d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{1}{8(a-b)^2(a+b)^2d\sqrt{e\,\text{Cos}[c+d\,x]}}\sqrt{\text{Cos}[c+d\,x]}\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\left(a+b\,\text{Sin}[c+d\,x]\right)}\right.$$
$$2\left(8a^2+6b^2\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(\left(5a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$
$$\left.\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\Bigg)\Bigg/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\Bigg)$$
$$\left.\left.\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$
$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]+\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}14\,a\,b\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$
$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\right)\,\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 602: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}\,dx$$

Optimal (type 4, 596 leaves, 15 steps):

$$\frac{5\,b^{3/2}\,\left(7\,a^2+2\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{8\,\left(-a^2+b^2\right)^{13/4}\,d\,e^{3/2}}-\frac{5\,b^{3/2}\,\left(7\,a^2+2\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{8\,\left(-a^2+b^2\right)^{13/4}\,d\,e^{3/2}}-$$

$$\frac{a\,\left(8\,a^2+37\,b^2\right)\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{4\,\left(a^2-b^2\right)^3\,d\,e^2\,\sqrt{\text{Cos}[c+d\,x]}}-$$

$$\left(5\,a\,b\,\left(7\,a^2+2\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]\right)\Big/$$
$$\left(8\,\left(a^2-b^2\right)^3\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-$$
$$\left(5\,a\,b\,\left(7\,a^2+2\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]\right)\Big/$$
$$\left(8\,\left(a^2-b^2\right)^3\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$
$$\frac{b}{2\,\left(a^2-b^2\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+$$
$$\frac{9\,a\,b}{4\,\left(a^2-b^2\right)^2\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}-\frac{5\,b\,\left(7\,a^2+2\,b^2\right)-a\,\left(8\,a^2+37\,b^2\right)\,\text{Sin}[c+d\,x]}{4\,\left(a^2-b^2\right)^3\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 1316 leaves):

$$-\frac{1}{8\,(a-b)^3\,(a+b)^3\,d\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}$$
$$\text{Cos}[c+d\,x]^{3/2}\,\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\left(8\,a^4+72\,a^2\,b^2+10\,b^4\right)\right.$$
$$\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\,\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[c+d\,x]^2,\right.\right.\right.\right.$$
$$\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[c+d\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{3}{2},\,1,\,\frac{11}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-$$
$$\left(\left(3+3\,\mathbb{i}\right)\,\left(2\,\text{ArcTan}\left[1-\frac{\left(1+\mathbb{i}\right)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$
$$1+\frac{\left(1+\mathbb{i}\right)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-\left(1+\mathbb{i}\right)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right.$$

$$\sqrt{\text{Cos}[c+d\,x]}+\text{i}\,b\,\text{Cos}[c+d\,x]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+(1+\text{i})\sqrt{b}\,(-a^2+b^2)^{1/4}$$

$$\sqrt{\text{Cos}[c+d\,x]}+\text{i}\,b\,\text{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\Big(\sqrt{b}\,(-a^2+b^2)^{1/4}\Big)\Big)\,\text{Sin}[c+d\,x]-$$

$$\frac{1}{(1-\text{Cos}[c+d\,x]^2)\,(a+b\,\text{Sin}[c+d\,x])}\,2\,(8\,a^3\,b+37\,a\,b^3)\,\Big(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\Big)$$

$$\Big(\Big(7\,b\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]$$

$$\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\Big)\Big/$$

$$\Big(3\,\Big(-7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+2$$

$$\Big(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Big)$$

$$\text{Cos}[c+d\,x]^2\Big)\,\big(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\big)\Big)+$$

$$\Big(a\,\Big(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]+$$

$$\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]-$$

$$\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+$$

$$b\,\text{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\Big(4\sqrt{2}\,b^{3/2}\,(a^2-b^2)^{1/4}\Big)\Big)\,\text{Sin}[c+d\,x]^2\Big)+$$

$$\Big(\text{Cos}[c+d\,x]^2\,\Big(-\frac{b^3\,\text{Cos}[c+d\,x]}{2\,(a^2-b^2)^2\,(a+b\,\text{Sin}[c+d\,x])^2}-\frac{13\,a\,b^3\,\text{Cos}[c+d\,x]}{4\,(a^2-b^2)^3\,(a+b\,\text{Sin}[c+d\,x])}+$$

$$\frac{1}{(a^2-b^2)^3}$$

$$2$$

$$\text{Sec}[c+d\,x]$$

$$(-3\,a^2\,b-b^3+a^3\,\text{Sin}[c+d\,x]+3\,a\,b^2\,\text{Sin}[c+d\,x])\Big)\Big)\Big/\Big(d\,\big(e$$

$$\text{Cos}[c+d\,x]\big)^{3/2}\Big)$$

Problem 603: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{(e\,\text{Cos}[c+d\,x])^{5/2}\,(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 4, 614 leaves, 15 steps):

$$-\frac{7\,b^{5/2}\,\left(9\,a^2+2\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{8\,\left(-a^2+b^2\right)^{15/4}\,d\,e^{5/2}}-\frac{7\,b^{5/2}\,\left(9\,a^2+2\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{8\,\left(-a^2+b^2\right)^{15/4}\,d\,e^{5/2}}+$$
$$\frac{a\,\left(8\,a^2+69\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticF}\left[\frac{1}{2}\,(c+d\,x),2\right]}{12\,\left(a^2-b^2\right)^3\,d\,e^2\,\sqrt{e\,\text{Cos}[c+d\,x]}}-$$
$$\left(7\,a\,b^2\,\left(9\,a^2+2\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(8\,\left(a^2-b^2\right)^3\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,e^2\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-$$
$$\left(7\,a\,b^2\,\left(9\,a^2+2\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(8\,\left(a^2-b^2\right)^3\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,e^2\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$
$$\frac{b}{2\,\left(a^2-b^2\right)\,d\,e\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+$$
$$\frac{11\,a\,b}{4\,\left(a^2-b^2\right)^2\,d\,e\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}-$$
$$\frac{7\,b\,\left(9\,a^2+2\,b^2\right)-a\,\left(8\,a^2+69\,b^2\right)\,\text{Sin}[c+d\,x]}{12\,\left(a^2-b^2\right)^3\,d\,e\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}$$

Result (type 6, 1308 leaves):

$$\frac{1}{24\,(a-b)^3\,(a+b)^3\,d\,\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}}\text{Cos}[c+d\,x]^{5/2}$$
$$\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\,\left(a+b\,\text{Sin}[c+d\,x]\right)}2\,\left(8\,a^4-120\,a^2\,b^2-42\,b^4\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)$$
$$\left.\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+\mathbb{i})\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+\mathbb{i})\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+\mathbb{i})\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+\mathbb{i}\,b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+\mathbb{i})\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+\mathbb{i}\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]-\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,(a+b\,\text{Sin}[c+d\,x])}$$
$$2\,\left(8\,a^3\,b+69\,a\,b^3\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$
$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\right)\,\text{Sin}[c+d\,x]^2\right)+$$
$$\left(\text{Cos}[c+d\,x]^3\,\left(-\frac{b^3}{2\,\left(a^2-b^2\right)^2\,(a+b\,\text{Sin}[c+d\,x])^2}-\right.\right.$$
$$\frac{15\,a\,b^3}{4\,\left(a^2-b^2\right)^3\,(a+b\,\text{Sin}[c+d\,x])}+$$
$$\frac{1}{3\,\left(a^2-b^2\right)^3}$$
$$2\,\text{Sec}[c+d\,x]^2$$
$$\left.\left.\left(-3\,a^2\,b-b^3+a^3\,\text{Sin}[c+d\,x]+3\,a\,b^2\,\text{Sin}[c+d\,x]\right)\right)\right)\Big/\left(d\,(e\,\text{Cos}[c+d\,x])^{5/2}\right)$$

Problem 604: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{(e \operatorname{Cos}[c+d x])^{7/2} (a+b \operatorname{Sin}[c+d x])^3} \, dx$$

Optimal (type 4, 685 leaves, 16 steps):

$$\frac{9 b^{7/2} \left(11 a^2+2 b^2\right) \operatorname{ArcTan}\left[\frac{\sqrt{b} \sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{8 \left(-a^2+b^2\right)^{17/4} d\, e^{7/2}}-\frac{9 b^{7/2} \left(11 a^2+2 b^2\right) \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{e \operatorname{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4} \sqrt{e}}\right]}{8 \left(-a^2+b^2\right)^{17/4} d\, e^{7/2}}-$$
$$\left(3 a \left(8 a^4-64 a^2 b^2-139 b^4\right) \sqrt{e \operatorname{Cos}[c+d x]} \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]\right) \Big/$$
$$\left(20 \left(a^2-b^2\right)^4 d\, e^4 \sqrt{\operatorname{Cos}[c+d x]}\right)+$$
$$\left(9 a b^3 \left(11 a^2+2 b^2\right) \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticPi}\left[\frac{2 b}{b-\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]\right) \Big/$$
$$\left(8 \left(a^2-b^2\right)^4 \left(b-\sqrt{-a^2+b^2}\right) d\, e^3 \sqrt{e \operatorname{Cos}[c+d x]}\right)+$$
$$\left(9 a b^3 \left(11 a^2+2 b^2\right) \sqrt{\operatorname{Cos}[c+d x]} \operatorname{EllipticPi}\left[\frac{2 b}{b+\sqrt{-a^2+b^2}}, \frac{1}{2} (c+d x), 2\right]\right) \Big/$$
$$\left(8 \left(a^2-b^2\right)^4 \left(b+\sqrt{-a^2+b^2}\right) d\, e^3 \sqrt{e \operatorname{Cos}[c+d x]}\right)+$$
$$\frac{b}{2 \left(a^2-b^2\right) d\, e\, (e \operatorname{Cos}[c+d x])^{5/2} (a+b \operatorname{Sin}[c+d x])^2}+$$
$$\frac{13 a b}{4 \left(a^2-b^2\right)^2 d\, e\, (e \operatorname{Cos}[c+d x])^{5/2} (a+b \operatorname{Sin}[c+d x])}-$$
$$\frac{9 b \left(11 a^2+2 b^2\right)-a \left(8 a^2+109 b^2\right) \operatorname{Sin}[c+d x]}{20 \left(a^2-b^2\right)^3 d\, e\, (e \operatorname{Cos}[c+d x])^{5/2}}+$$
$$\frac{3 \left(15 b^3 \left(11 a^2+2 b^2\right)+a \left(8 a^4-64 a^2 b^2-139 b^4\right) \operatorname{Sin}[c+d x]\right)}{20 \left(a^2-b^2\right)^4 d\, e^3 \sqrt{e \operatorname{Cos}[c+d x]}}$$

Result (type 6, 1408 leaves):

$$-\frac{1}{40 (a-b)^4 (a+b)^4 d\, (e \operatorname{Cos}[c+d x])^{7/2}}$$
$$3 \operatorname{Cos}[c+d x]^{7/2} \left(\frac{1}{12 \sqrt{1-\operatorname{Cos}[c+d x]^2}\, (a+b \operatorname{Sin}[c+d x])}\right.$$
$$\left(8 a^6-64 a^4 b^2-304 a^2 b^4-30 b^6\right) \left(a+b \sqrt{1-\operatorname{Cos}[c+d x]^2}\right)$$
$$\left(-\left(\left(56 a \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{4}, \frac{1}{2}, 1, \frac{7}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\text{Cos}[c+d\,x]^{3/2}\Big)\Big/\Big(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\Big(7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]-2\,\Big(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+(-a^2+b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Big)\,\text{Cos}[c+d\,x]^2\Big)\,\Big(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\Big)\Big)\Big)-$$

$$\Big(\Big((3+3\,i)\,\Big(2\,\text{ArcTan}\Big[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\Big]-2\,\text{ArcTan}\Big[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\Big]-\text{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\Big]+\text{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\Big(\sqrt{b}\,(-a^2+b^2)^{1/4}\Big)\Big)\,\text{Sin}[c+d\,x]-$$

$$\frac{1}{(1-\text{Cos}[c+d\,x]^2)\,(a+b\,\text{Sin}[c+d\,x])}\,2\,(8\,a^5\,b-64\,a^3\,b^3-139\,a\,b^5)\,\Big(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\Big)$$

$$\Big(\Big(\Big(7\,b\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\,\text{Cos}[c+d\,x]^{3/2}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\Big)\Big/$$

$$\Big(3\,\Big(-7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+2\,\Big(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Big)\,\text{Cos}[c+d\,x]^2\Big)\,\Big(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\Big)\Big)+$$

$$\Big(a\,\Big(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]+\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]-\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\Big(4\,\sqrt{2}\,b^{3/2}\,(a^2-b^2)^{1/4}\Big)\Big)\,\text{Sin}[c+d\,x]^2\Big)+$$

$$\left(\text{Cos}[c+d\,x]^4\left(\frac{b^5\,\text{Cos}[c+d\,x]}{2\left(a^2-b^2\right)^3\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{21\,a\,b^5\,\text{Cos}[c+d\,x]}{4\left(a^2-b^2\right)^4\left(a+b\,\text{Sin}[c+d\,x]\right)}+\frac{1}{5\left(a^2-b^2\right)^3}2\,\text{Sec}[c+d\,x]^3\left(-3\,a^2\,b-b^3+a^3\,\text{Sin}[c+d\,x]+3\,a\,b^2\,\text{Sin}[c+d\,x]\right)+\frac{1}{5\left(a^2-b^2\right)^4}2\,\text{Sec}[c+d\,x]\left(50\,a^2\,b^3+10\,b^5+3\,a^5\,\text{Sin}[c+d\,x]-24\,a^3\,b^2\,\text{Sin}[c+d\,x]-39\,a\,b^4\,\text{Sin}[c+d\,x]\right)\right)\right)\Big/\left(d\left(e\,\text{Cos}[c+d\,x]\right)^{7/2}\right)$$

Problem 605: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(e\,\text{Cos}[c+d\,x]\right)^{15/2}}{\left(a+b\,\text{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 4, 671 leaves, 16 steps):

$$\frac{39\,a\,\left(11\,a^4-17\,a^2\,b^2+6\,b^4\right)\,e^{15/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{15/2}\,\left(-a^2+b^2\right)^{3/4}\,d}+$$

$$\frac{39\,a\,\left(11\,a^4-17\,a^2\,b^2+6\,b^4\right)\,e^{15/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{15/2}\,\left(-a^2+b^2\right)^{3/4}\,d}+$$

$$\left(13\,\left(231\,a^4-203\,a^2\,b^2+20\,b^4\right)\,e^8\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticF}\left[\frac{1}{2}\,(c+d\,x),\,2\right]\right)\Big/$$
$$\left(56\,b^8\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-$$
$$\left(39\,a^2\,\left(11\,a^4-17\,a^2\,b^2+6\,b^4\right)\,e^8\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]\right)\Big/$$
$$\left(16\,b^8\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-$$
$$\left(39\,a^2\,\left(11\,a^4-17\,a^2\,b^2+6\,b^4\right)\,e^8\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]\right)\Big/$$
$$\left(16\,b^8\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-$$
$$\frac{e\,\left(e\,\text{Cos}[c+d\,x]\right)^{13/2}}{3\,b\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}-\frac{13\,e^3\,\left(e\,\text{Cos}[c+d\,x]\right)^{9/2}\,\left(11\,a+4\,b\,\text{Sin}[c+d\,x]\right)}{84\,b^3\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}-$$
$$\frac{39\,e^5\,\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\,\left(77\,a^2-20\,b^2+22\,a\,b\,\text{Sin}[c+d\,x]\right)}{280\,b^5\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)}+\frac{1}{56\,b^7\,d}$$
$$13\,e^7\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\,\left(21\,a\,\left(11\,a^2-6\,b^2\right)-b\,\left(77\,a^2-20\,b^2\right)\,\text{Sin}[c+d\,x]\right)$$

Result (type 6, 2302 leaves):

$$\frac{1}{560\,b^7\,d\,\text{Cos}[c+d\,x]^{15/2}}\,\left(e\,\text{Cos}[c+d\,x]\right)^{15/2}$$
$$\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\,\left(4410\,a^3\,b-3418\,a\,b^3\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$
$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Cos}[c+d\,x]^2,\,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)$$

$$\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Big) - \frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$

$$\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\Bigg)$$

$$\text{Sin}[c+d\,x]+\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\left(-1+2\,\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

$$\left(5600\,a^3\,b-3472\,a\,b^3\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\text{Cos}\left[2\,(c+d\,x)\right]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(-2\,a^2+b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]}{b^{3/2}\left(-a^2+b^2\right)^{3/4}}+\frac{4\sqrt{\text{Cos}[c+d\,x]}}{b}+$$

$$\left(10\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.$$

$$\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)-$$

$$\left(36\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.$$

$$\left.\text{Cos}[c+d\,x]^{5/2}\right)\Big/\left(5\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)$$

$$\left.\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2\,a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}-\right.\right.$$

$$(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\Big]\Big)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)-$$

$$\left(\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(-2\,a^2+b^2\right)\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+\right.\right.\right.$$

$$\left.\left.\left.i\,b\,\text{Cos}[c+d\,x]\right]\right)\Big/\left(b^{3/2}\left(-a^2+b^2\right)^{3/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\left(3815\,a^4-6251\,a^2\,b^2+1300\,b^4\right)$$

$$\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$

$$\left.\sqrt{\text{Cos}[c+d\,x]}\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$

$$\left(\left(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$

$$\left.\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$

$$\left.\left.\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$

$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$

$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$

$$\left.\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\right)\text{Sin}[c+d\,x]^2\Bigg)+\frac{1}{d}$$

$$\left(e\,\text{Cos}[c+d\,x]\right)^{15/2}\text{Sec}[c+d\,x]^7\left(-\frac{4\,a\,\text{Cos}\left[2\left(c+d\,x\right)\right]}{5\,b^5}+\right.$$

$$\frac{\left(-280\,a^2+79\,b^2\right)\text{Sin}[c+d\,x]}{42\,b^6}-$$

$$\frac{\left(-a^2+b^2\right)^3}{3\,b^7\left(a+b\,\text{Sin}[c+d\,x]\right)^3}-$$

$$\left.\frac{37\,a\,\left(a^2-b^2\right)^2}{12\,b^7\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^2}+\frac{\left(-a^2+b^2\right)\,\left(-393\,a^2+76\,b^2\right)}{24\,b^7\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}+\frac{\mathrm{Sin}\left[3\,\left(c+d\,x\right)\right]}{14\,b^4}\right)$$

Problem 606: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(e\,\mathrm{Cos}[c+d\,x]\right)^{13/2}}{\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 4, 557 leaves, 15 steps):

$$\frac{77\,a\,\left(3\,a^2-2\,b^2\right)\,e^{13/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{13/2}\,\left(-a^2+b^2\right)^{1/4}\,d}-\frac{77\,a\,\left(3\,a^2-2\,b^2\right)\,e^{13/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{13/2}\,\left(-a^2+b^2\right)^{1/4}\,d}-$$
$$\frac{77\,\left(15\,a^2-4\,b^2\right)\,e^6\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticE}\left[\frac{1}{2}\,\left(c+d\,x\right),2\right]}{40\,b^6\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}}+$$
$$\left(77\,a^2\,\left(3\,a^2-2\,b^2\right)\,e^7\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(c+d\,x\right),2\right]\right)\Big/$$
$$\left(16\,b^7\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\right)+$$
$$\left(77\,a^2\,\left(3\,a^2-2\,b^2\right)\,e^7\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(c+d\,x\right),2\right]\right)\Big/$$
$$\left(16\,b^7\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\right)-$$
$$\frac{e\,\left(e\,\mathrm{Cos}[c+d\,x]\right)^{11/2}}{3\,b\,d\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^3}-\frac{11\,e^3\,\left(e\,\mathrm{Cos}[c+d\,x]\right)^{7/2}\,\left(9\,a+4\,b\,\mathrm{Sin}[c+d\,x]\right)}{60\,b^3\,d\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^2}-$$
$$\frac{77\,e^5\,\left(e\,\mathrm{Cos}[c+d\,x]\right)^{3/2}\,\left(15\,a^2-4\,b^2+6\,a\,b\,\mathrm{Sin}[c+d\,x]\right)}{120\,b^5\,d\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}$$

Result (type 6, 1331 leaves):

$$-\frac{1}{80\,b^5\,d\,\mathrm{Cos}[c+d\,x]^{13/2}}$$
$$77\,\left(e\,\mathrm{Cos}[c+d\,x]\right)^{13/2}\left(\frac{1}{2\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}\,a\,b\,\left(a+b\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.\right.$$

$$\text{Cos}[c+d x]^{3/2}\Bigg) \Bigg/ \left(\sqrt{1-\text{Cos}[c+d x]^2} \left(7 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]-2 \left(2 b^2 \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right) \text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right) \text{Cos}[c+d x]^2\right) \left(a^2+b^2 \left(-1+\text{Cos}[c+d x]^2\right)\right)\right)\Bigg) -$$

$$\left(\left(3+3 i\right) \left(2 \text{ArcTan}\left[1-\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2 \text{ArcTan}\left[1+\frac{(1+i) \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[c+d x]}+i b \text{Cos}[c+d x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\text{Cos}[c+d x]}+i b \text{Cos}[c+d x]\right]\right)\right) \Bigg/ \left(\sqrt{b} \left(-a^2+b^2\right)^{1/4}\right)\Bigg) \text{Sin}[c+d x] -$$

$$\frac{1}{\left(1-\text{Cos}[c+d x]^2\right) \left(a+b \text{Sin}[c+d x]\right)} 2 \left(15 a^2-4 b^2\right) \left(a+b \sqrt{1-\text{Cos}[c+d x]^2}\right)$$

$$\Bigg(\Bigg(\left(7 b \left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right] \text{Cos}[c+d x]^{3/2} \sqrt{1-\text{Cos}[c+d x]^2}\right) \Bigg/$$

$$\left(3 \left(-7 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]+2 \left(2 b^2 \text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right) \text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d x]^2,\frac{b^2 \text{Cos}[c+d x]^2}{-a^2+b^2}\right]\right) \text{Cos}[c+d x]^2\right) \left(a^2+b^2 \left(-1+\text{Cos}[c+d x]^2\right)\right)\right) +$$

$$\left(a \left(-2 \text{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2 \text{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{b} \sqrt{\text{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Cos}[c+d x]}+b \text{Cos}[c+d x]\right]-\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\text{Cos}[c+d x]}+b \text{Cos}[c+d x]\right]\right)\right) \Bigg/$$

$$\left(4 \sqrt{2} b^{3/2} \left(a^2-b^2\right)^{1/4}\right)\Bigg) \text{Sin}[c+d x]^2\Bigg) + \frac{1}{d}$$

$$\left(e \text{Cos}[c+d x]\right)^{13/2} \text{Sec}[c+d x]^6 \left(-\frac{8 a \text{Cos}[c+d x]}{3 b^5} +\right.$$

$$\frac{-a^4\,\text{Cos}[c+d\,x]+2\,a^2\,b^2\,\text{Cos}[c+d\,x]-b^4\,\text{Cos}[c+d\,x]}{3\,b^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}+\frac{9\,\left(a^3\,\text{Cos}[c+d\,x]-a\,b^2\,\text{Cos}[c+d\,x]\right)}{4\,b^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{-71\,a^2\,\text{Cos}[c+d\,x]+20\,b^2\,\text{Cos}[c+d\,x]}{8\,b^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)}+\frac{\text{Sin}\left[2\,\left(c+d\,x\right)\right]}{5\,b^4}\Bigg)$$

Problem 607: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(e\,\text{Cos}[c+d\,x]\right)^{11/2}}{\left(a+b\,\text{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 4, 571 leaves, 15 steps):

$$-\frac{15\,a\,\left(7\,a^2-6\,b^2\right)\,e^{11/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{11/2}\,\left(-a^2+b^2\right)^{3/4}\,d}-\frac{15\,a\,\left(7\,a^2-6\,b^2\right)\,e^{11/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{11/2}\,\left(-a^2+b^2\right)^{3/4}\,d}-\frac{5\,\left(21\,a^2-4\,b^2\right)\,e^6\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticF}\left[\frac{1}{2}\,\left(c+d\,x\right),2\right]}{8\,b^6\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+\left(15\,a^2\,\left(7\,a^2-6\,b^2\right)\,e^6\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(c+d\,x\right),2\right]\right)\Big/\left(16\,b^6\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+\left(15\,a^2\,\left(7\,a^2-6\,b^2\right)\,e^6\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(c+d\,x\right),2\right]\right)\Big/\left(16\,b^6\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-\frac{e\,\left(e\,\text{Cos}[c+d\,x]\right)^{9/2}}{3\,b\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}-\frac{e^3\,\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\,\left(7\,a+4\,b\,\text{Sin}[c+d\,x]\right)}{4\,b^3\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}-\frac{5\,e^5\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(21\,a^2-4\,b^2+14\,a\,b\,\text{Sin}[c+d\,x]\right)}{8\,b^5\,d\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 6, 2220 leaves):

$$\frac{1}{d}\left(e\,\text{Cos}[c+d\,x]\right)^{11/2}\,\text{Sec}[c+d\,x]^5\,\left(\frac{2\,\text{Sin}[c+d\,x]}{3\,b^4}-\frac{\left(-a^2+b^2\right)^2}{3\,b^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}+\frac{25\,a\,\left(a^2-b^2\right)}{12\,b^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{-165\,a^2+52\,b^2}{24\,b^5\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)-$$

$$\frac{1}{16\,b^5\,d\,\text{Cos}[c+d\,x]^{11/2}}\,(e\,\text{Cos}[c+d\,x])^{11/2}\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,(a+b\,\text{Sin}[c+d\,x])}\right.$$

$$76\,a\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(\left(5\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$

$$\left.\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\Big)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)$$

$$\left.\left(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\right)\Big)\right)-\frac{1}{(-a^2+b^2)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\,(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$

$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\,(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]+\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,(-1+2\,\text{Cos}[c+d\,x]^2)\,(a+b\,\text{Sin}[c+d\,x])}$$

$$32\,a\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\text{Cos}[2\,(c+d\,x)]$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)(-2\,a^2+b^2)\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]}{b^{3/2}\,(-a^2+b^2)^{3/4}}-\right.$$

$$\frac{\left(\frac{1}{2}-\frac{i}{2}\right)(-2\,a^2+b^2)\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]}{b^{3/2}\,(-a^2+b^2)^{3/4}}+\frac{4\sqrt{\text{Cos}[c+d\,x]}}{b}+$$

$$\left(10\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$

$$\frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] + \left(-a^2+b^2\right) \operatorname{AppellF1}\Big[\frac{5}{4}, \frac{3}{2}, 1, \frac{9}{4}, \operatorname{Cos}[c+d x]^2,$$

$$\frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big]\Big) \operatorname{Cos}[c+d x]^2\Big) \left(a^2+b^2 \left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\Big) -$$

$$\Big(36 a \left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big]$$

$$\operatorname{Cos}[c+d x]^{5/2}\Big) \Big/ \Big(5 \sqrt{1-\operatorname{Cos}[c+d x]^2}$$

$$\Big(9 \left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] -$$

$$2 \Big(2 b^2 \operatorname{AppellF1}\Big[\frac{9}{4}, \frac{1}{2}, 2, \frac{13}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] + \left(-a^2+b^2\right)$$

$$\operatorname{AppellF1}\Big[\frac{9}{4}, \frac{3}{2}, 1, \frac{13}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big]\Big) \operatorname{Cos}[c+d x]^2\Big)$$

$$\left(a^2+b^2 \left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\Big) + \Big(\Big(\left(\frac{1}{4}-\frac{i}{4}\right) \left(-2 a^2+b^2\right) \operatorname{Log}\Big[\sqrt{-a^2+b^2} -$$

$$(1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]} + i b \operatorname{Cos}[c+d x]\Big]\Big) \Big/ \left(b^{3/2} \left(-a^2+b^2\right)^{3/4}\right) -$$

$$\Big(\left(\frac{1}{4}-\frac{i}{4}\right) \left(-2 a^2+b^2\right) \operatorname{Log}\Big[\sqrt{-a^2+b^2} + (1+i) \sqrt{b} \left(-a^2+b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]} +$$

$$i b \operatorname{Cos}[c+d x]\Big]\Big) \Big/ \left(b^{3/2} \left(-a^2+b^2\right)^{3/4}\right)\Big) \operatorname{Sin}[c+d x] -$$

$$\frac{1}{\left(1-\operatorname{Cos}[c+d x]^2\right) \left(a+b \operatorname{Sin}[c+d x]\right)} 2 \left(41 a^2-20 b^2\right) \left(a+b \sqrt{1-\operatorname{Cos}[c+d x]^2}\right)$$

$$\Big(\Big(5 b \left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{1}{4}, -\frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big]$$

$$\sqrt{\operatorname{Cos}[c+d x]} \sqrt{1-\operatorname{Cos}[c+d x]^2}\Big) \Big/$$

$$\Big(\Big(-5 \left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{1}{4}, -\frac{1}{2}, 1, \frac{5}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] +$$

$$2 \Big(2 b^2 \operatorname{AppellF1}\Big[\frac{5}{4}, -\frac{1}{2}, 2, \frac{9}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big] +$$

$$\left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{5}{4}, \frac{1}{2}, 1, \frac{9}{4}, \operatorname{Cos}[c+d x]^2, \frac{b^2 \operatorname{Cos}[c+d x]^2}{-a^2+b^2}\Big]\Big)$$

$$\operatorname{Cos}[c+d x]^2\Big) \left(a^2+b^2 \left(-1+\operatorname{Cos}[c+d x]^2\right)\right)\Big) +$$

$$\Big(a \Big(-2 \operatorname{ArcTan}\Big[1-\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\Big] + 2 \operatorname{ArcTan}\Big[1+\frac{\sqrt{2} \sqrt{b} \sqrt{\operatorname{Cos}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\Big] -$$

$$\operatorname{Log}\Big[\sqrt{a^2-b^2} - \sqrt{2} \sqrt{b} \left(a^2-b^2\right)^{1/4} \sqrt{\operatorname{Cos}[c+d x]} + b \operatorname{Cos}[c+d x]\Big] +$$

$$\left.\left.\mathrm{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+b\,\mathrm{Cos}[c+d\,x]\right]\right)\right)\Big/\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\,\mathrm{Sin}[c+d\,x]^2\right)$$

Problem 608: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(e\,\mathrm{Cos}[c+d\,x])^{9/2}}{(a+b\,\mathrm{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 4, 591 leaves, 15 steps):

$$\frac{7\,a\,\left(5\,a^2-6\,b^2\right)\,e^{9/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{16\,b^{9/2}\,\left(-a^2+b^2\right)^{5/4}\,d}-\frac{7\,a\,\left(5\,a^2-6\,b^2\right)\,e^{9/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{16\,b^{9/2}\,\left(-a^2+b^2\right)^{5/4}\,d}+$$
$$\frac{7\,\left(5\,a^2-4\,b^2\right)\,e^4\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{8\,b^4\,\left(a^2-b^2\right)\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}}-$$
$$\left(7\,a^2\,\left(5\,a^2-6\,b^2\right)\,e^5\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]\right)\Big/$$
$$\left(16\,b^5\,\left(a^2-b^2\right)\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\right)-$$
$$\left(7\,a^2\,\left(5\,a^2-6\,b^2\right)\,e^5\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\,\frac{1}{2}\,(c+d\,x),\,2\right]\right)\Big/$$
$$\left(16\,b^5\,\left(a^2-b^2\right)\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\right)-\frac{e\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}}{3\,b\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}+$$
$$\frac{7\,\left(5\,a^2-4\,b^2\right)\,e^3\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}}{8\,b^3\,\left(a^2-b^2\right)\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}-\frac{7\,e^3\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}\,(5\,a+4\,b\,\mathrm{Sin}[c+d\,x])}{12\,b^3\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^2}$$

Result (type 6, 1294 leaves):

$$\frac{1}{d}(e\,\mathrm{Cos}[c+d\,x])^{9/2}\,\mathrm{Sec}[c+d\,x]^4\left(\frac{a^2\,\mathrm{Cos}[c+d\,x]-b^2\,\mathrm{Cos}[c+d\,x]}{3\,b^3\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-\frac{5\,a\,\mathrm{Cos}[c+d\,x]}{4\,b^3\,(a+b\,\mathrm{Sin}[c+d\,x])^2}+\right.$$
$$\left.\frac{-19\,a^2\,\mathrm{Cos}[c+d\,x]+12\,b^2\,\mathrm{Cos}[c+d\,x]}{8\,b^3\,\left(-a^2+b^2\right)\,(a+b\,\mathrm{Sin}[c+d\,x])}\right)+\frac{1}{16\,(a-b)\,b^3\,(a+b)\,d\,\mathrm{Cos}[c+d\,x]^{9/2}}$$
$$7\,(e\,\mathrm{Cos}[c+d\,x])^{9/2}\left(\frac{1}{6\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,(a+b\,\mathrm{Sin}[c+d\,x])}\,a\,b\,\left(a+b\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},\,\frac{1}{2},\,1,\,\frac{7}{4},\,\mathrm{Cos}[c+d\,x]^2,\,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\mathrm{Cos}[c+d\,x]^{3/2}\right)\Big/\right.\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\right)\right)\right)-$$

$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,(-a^2+b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,(-a^2+b^2)^{1/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{(1-\text{Cos}[c+d\,x]^2)\,(a+b\,\text{Sin}[c+d\,x])}\,2\,(5\,a^2-4\,b^2)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(7\,b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/\right.$$

$$\left(3\left(-7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(a^2-b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]+\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\,\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$

$$\left.\left(4\,\sqrt{2}\,b^{3/2}\,(a^2-b^2)^{1/4}\right)\text{Sin}[c+d\,x]^2\right)$$

Problem 609: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \frac{(e\,\mathrm{Cos}[c+d\,x])^{7/2}}{(a+b\,\mathrm{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 4, 597 leaves, 15 steps):

$$-\frac{5\,a\,\left(a^2-2\,b^2\right)\,e^{7/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{7/2}\,\left(-a^2+b^2\right)^{7/4}\,d}-\frac{5\,a\,\left(a^2-2\,b^2\right)\,e^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,b^{7/2}\,\left(-a^2+b^2\right)^{7/4}\,d}+$$
$$\frac{5\,\left(3\,a^2-4\,b^2\right)\,e^4\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticF}\left[\frac{1}{2}\,(c+d\,x),2\right]}{24\,b^4\,\left(a^2-b^2\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}-$$
$$\left(5\,a^2\,\left(a^2-2\,b^2\right)\,e^4\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(16\,b^4\,\left(a^2-b^2\right)\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\right)-$$
$$\left(5\,a^2\,\left(a^2-2\,b^2\right)\,e^4\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\mathrm{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(16\,b^4\,\left(a^2-b^2\right)\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\right)-\frac{e\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}}{3\,b\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-$$
$$\frac{5\,\left(3\,a^2-4\,b^2\right)\,e^3\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}{24\,b^3\,\left(a^2-b^2\right)\,d\,(a+b\,\mathrm{Sin}[c+d\,x])}+\frac{5\,e^3\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,(3\,a+4\,b\,\mathrm{Sin}[c+d\,x])}{12\,b^3\,d\,(a+b\,\mathrm{Sin}[c+d\,x])^2}$$

Result (type 6, 1263 leaves):

$$\frac{1}{d}(e\,\mathrm{Cos}[c+d\,x])^{7/2}\,\mathrm{Sec}[c+d\,x]^3$$
$$\left(\frac{a^2-b^2}{3\,b^3\,(a+b\,\mathrm{Sin}[c+d\,x])^3}-\frac{13\,a}{12\,b^3\,(a+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{-33\,a^2+28\,b^2}{24\,b^3\,\left(-a^2+b^2\right)\,(a+b\,\mathrm{Sin}[c+d\,x])}\right)+$$
$$\frac{1}{48\,(a-b)\,b^3\,(a+b)\,d\,\mathrm{Cos}[c+d\,x]^{7/2}}$$
$$5\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}\left(-\frac{1}{\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,(a+b\,\mathrm{Sin}[c+d\,x])}4\,a\,b\,\left(a+b\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\mathrm{Cos}[c+d\,x]}\right)\Big/\right.$$
$$\left(\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[c+d\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\right.$$

$$
\begin{aligned}
&\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Big)\;\mathrm{Cos}[c+d\,x]^2\Big)\;\Big(a^2+b^2\,\big(-1+\mathrm{Cos}[c+d\,x]^2\big)\Big)\Big)-\\
&\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}\;\Big(2\,\mathrm{ArcTan}\Big[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]-\\
&2\,\mathrm{ArcTan}\Big[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\Big]+\mathrm{Log}\Big[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\\
&\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+i\,b\,\mathrm{Cos}[c+d\,x]\Big]-\mathrm{Log}\Big[\sqrt{-a^2+b^2}+(1+i)\\
&\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+i\,b\,\mathrm{Cos}[c+d\,x]\Big]\Big)\Big)\;\mathrm{Sin}[c+d\,x]-\\
&\frac{1}{\left(1-\mathrm{Cos}[c+d\,x]^2\right)\;\left(a+b\,\mathrm{Sin}[c+d\,x]\right)}\;2\,\left(3\,a^2-4\,b^2\right)\;\Big(a+b\,\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\Big)\\
&\Big(\Big(5\,b\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\\
&\sqrt{\mathrm{Cos}[c+d\,x]}\;\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\Big)\Big/\\
&\Big(\Big(-5\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+\\
&2\,\Big(2\,b^2\,\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+\\
&\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Big)\\
&\mathrm{Cos}[c+d\,x]^2\Big)\;\Big(a^2+b^2\,\big(-1+\mathrm{Cos}[c+d\,x]^2\big)\Big)\Big)+\\
&\Big(a\,\Big(-2\,\mathrm{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\,\mathrm{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\mathrm{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]-\\
&\mathrm{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+b\,\mathrm{Cos}[c+d\,x]\Big]+\\
&\mathrm{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+b\,\mathrm{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\\
&\Big(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\Big)\Big)\;\mathrm{Sin}[c+d\,x]^2\Big)
\end{aligned}
$$

Problem 610: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\left(e\,\mathrm{Cos}[c+d\,x]\right)^{5/2}}{\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 4, 574 leaves, 15 steps):

$$-\frac{a\left(a^2-6b^2\right)e^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{16\,b^{5/2}\left(-a^2+b^2\right)^{9/4}d}+\frac{a\left(a^2-6b^2\right)e^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{16\,b^{5/2}\left(-a^2+b^2\right)^{9/4}d}+$$

$$\frac{\left(a^2+4b^2\right)e^2\sqrt{e\,\text{Cos}[c+d\,x]}\;\text{EllipticE}\left[\frac{1}{2}(c+d\,x),2\right]}{8\,b^2\left(a^2-b^2\right)^2d\sqrt{\text{Cos}[c+d\,x]}}-$$

$$\frac{a^2\left(a^2-6b^2\right)e^3\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{16\,b^3\left(a^2-b^2\right)^2\left(b-\sqrt{-a^2+b^2}\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}-$$

$$\frac{a^2\left(a^2-6b^2\right)e^3\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{16\,b^3\left(a^2-b^2\right)^2\left(b+\sqrt{-a^2+b^2}\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{e\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}{3\,b\,d\left(a+b\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{a\,e\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}{4\,b\left(a^2-b^2\right)d\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{\left(a^2+4b^2\right)e\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}{8\,b\left(a^2-b^2\right)^2d\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 6, 1286 leaves):

$$\frac{1}{d}\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\text{Sec}[c+d\,x]^2\left(-\frac{\text{Cos}[c+d\,x]}{3\,b\left(a+b\,\text{Sin}[c+d\,x]\right)^3}-\frac{a\,\text{Cos}[c+d\,x]}{4\,b\left(-a^2+b^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\right.$$
$$\left.\frac{a^2\,\text{Cos}[c+d\,x]+4\,b^2\,\text{Cos}[c+d\,x]}{8\,b\left(-a^2+b^2\right)^2\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)+\frac{1}{16\,(a-b)^2\,b\,(a+b)^2\,d\,\text{Cos}[c+d\,x]^{5/2}}$$
$$\left(e\,\text{Cos}[c+d\,x]\right)^{5/2}\left(\frac{1}{6\sqrt{1-\text{Cos}[c+d\,x]^2}\left(a+b\,\text{Sin}[c+d\,x]\right)}5\,a\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\right)\right/\right.$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.$$
$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-$$
$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$
$$\left.1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$
$$\left.\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\right.$$

$$\sqrt{\text{Cos}[c+d\,x]}+\text{i}\,b\,\text{Cos}[c+d\,x]\Big]\Big)\Big)\Big/\left(\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,(a+b\,\text{Sin}[c+d\,x])}\,2\left(a^2+4\,b^2\right)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\Bigg(\Bigg(7\,b\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]$$

$$\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Bigg/$$

$$\Bigg(3\Bigg(-7\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$2\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Bigg)$$

$$\text{Cos}[c+d\,x]^2\Bigg)\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(a\Bigg(-2\,\text{ArcTan}\Big[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+2\,\text{ArcTan}\Big[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+$$

$$\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]-$$

$$\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Bigg/$$

$$\left(4\sqrt{2}\,b^{3/2}\left(a^2-b^2\right)^{1/4}\right)\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 611: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^{3/2}}{(a+b\,\text{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 4, 592 leaves, 15 steps):

$$-\frac{a\left(a^2+6b^2\right)e^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{16\,b^{3/2}\left(-a^2+b^2\right)^{11/4}d}-\frac{a\left(a^2+6b^2\right)e^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\sqrt{e}}\right]}{16\,b^{3/2}\left(-a^2+b^2\right)^{11/4}d}-$$

$$\frac{\left(3a^2+4b^2\right)e^2\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}(c+d\,x),2\right]}{24\,b^2\left(a^2-b^2\right)^2 d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{a^2\left(a^2+6b^2\right)e^2\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{16\,b^2\left(a^2-b^2\right)^2\left(a^2-b\left(b-\sqrt{-a^2+b^2}\right)\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\frac{a^2\left(a^2+6b^2\right)e^2\sqrt{\text{Cos}[c+d\,x]}\;\text{EllipticPi}\left[\frac{2b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}(c+d\,x),2\right]}{16\,b^2\left(a^2-b^2\right)^2\left(a^2-b\left(b+\sqrt{-a^2+b^2}\right)\right)d\sqrt{e\,\text{Cos}[c+d\,x]}}-\frac{e\sqrt{e\,\text{Cos}[c+d\,x]}}{3\,b\,d\,(a+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{a\,e\sqrt{e\,\text{Cos}[c+d\,x]}}{12\,b\left(a^2-b^2\right)d\,(a+b\,\text{Sin}[c+d\,x])^2}+\frac{\left(3a^2+4b^2\right)e\sqrt{e\,\text{Cos}[c+d\,x]}}{24\,b\left(a^2-b^2\right)^2 d\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 6, 1263 leaves):

$$\frac{1}{d}(e\,\text{Cos}[c+d\,x])^{3/2}\,\text{Sec}[c+d\,x]\left(-\frac{1}{3\,b\,(a+b\,\text{Sin}[c+d\,x])^3}-\right.$$

$$\left.\frac{a}{12\,b\left(-a^2+b^2\right)(a+b\,\text{Sin}[c+d\,x])^2}+\frac{3a^2+4b^2}{24\,b\left(-a^2+b^2\right)^2(a+b\,\text{Sin}[c+d\,x])}\right)-$$

$$\frac{1}{48\,(a-b)^2\,b\,(a+b)^2\,d\,\text{Cos}[c+d\,x]^{3/2}}(e\,\text{Cos}[c+d\,x])^{3/2}\left(\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\;(a+b\,\text{Sin}[c+d\,x])}\right.$$

$$28\,a\,b\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\left(\left(5\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\right.\right.\right.$$

$$\left.\left.\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$

$$2\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)$$

$$\left.\left.\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$

$$\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\Bigg)\Bigg)$$

$$\text{Sin}[c+d\,x]-\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\left(a+b\,\text{Sin}[c+d\,x]\right)}2\left(3\,a^2+4\,b^2\right)$$
$$\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\Bigg(\Bigg(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]$$
$$\sqrt{\text{Cos}[c+d\,x]}\sqrt{1-\text{Cos}[c+d\,x]^2}\Bigg)\Bigg/$$
$$\Bigg(\Bigg(-5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+$$
$$2\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(a^2-b^2\right)$$
$$\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\Bigg)\text{Cos}[c+d\,x]^2\Bigg)$$
$$\left(a^2+b^2\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\Bigg)+\Bigg(a\Bigg(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+$$
$$2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\text{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}$$
$$\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]+\text{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{1/4}$$
$$\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Bigg/\left(4\sqrt{2}\sqrt{b}\left(a^2-b^2\right)^{3/4}\right)\text{Sin}[c+d\,x]^2\Bigg)$$

Problem 612: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(a+b\,\text{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 4, 579 leaves, 15 steps):

$$-\frac{5\,a\,(a^2+2\,b^2)\,\sqrt{e}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\right]}{16\,\sqrt{b}\,(-a^2+b^2)^{13/4}\,d}+\frac{5\,a\,(a^2+2\,b^2)\,\sqrt{e}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}\,\sqrt{e}}\right]}{16\,\sqrt{b}\,(-a^2+b^2)^{13/4}\,d}+$$
$$\frac{(11\,a^2+4\,b^2)\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{8\,(a^2-b^2)^3\,d\,\sqrt{\text{Cos}[c+d\,x]}}+$$
$$\left(5\,a^2\,(a^2+2\,b^2)\,e\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(16\,b\,(a^2-b^2)^3\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$
$$\left(5\,a^2\,(a^2+2\,b^2)\,e\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(16\,b\,(a^2-b^2)^3\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+\frac{b\,(e\,\text{Cos}[c+d\,x])^{3/2}}{3\,(a^2-b^2)\,d\,e\,(a+b\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{3\,a\,b\,(e\,\text{Cos}[c+d\,x])^{3/2}}{4\,(a^2-b^2)^2\,d\,e\,(a+b\,\text{Sin}[c+d\,x])^2}+\frac{b\,(11\,a^2+4\,b^2)\,(e\,\text{Cos}[c+d\,x])^{3/2}}{8\,(a^2-b^2)^3\,d\,e\,(a+b\,\text{Sin}[c+d\,x])}$$

Result (type 6, 1294 leaves):

$$\frac{1}{d}\sqrt{e\,\text{Cos}[c+d\,x]}\,\left(\frac{b\,\text{Cos}[c+d\,x]}{3\,(a^2-b^2)\,(a+b\,\text{Sin}[c+d\,x])^3}+\right.$$
$$\left.\frac{3\,a\,b\,\text{Cos}[c+d\,x]}{4\,(a^2-b^2)^2\,(a+b\,\text{Sin}[c+d\,x])^2}-\frac{-11\,a^2\,b\,\text{Cos}[c+d\,x]-4\,b^3\,\text{Cos}[c+d\,x]}{8\,(a^2-b^2)^3\,(a+b\,\text{Sin}[c+d\,x])}\right)+$$
$$\frac{1}{16\,(a-b)^3\,(a+b)^3\,d\,\sqrt{\text{Cos}[c+d\,x]}}\,\sqrt{e\,\text{Cos}[c+d\,x]}$$
$$\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,(a+b\,\text{Sin}[c+d\,x])}\,(16\,a^3+14\,a\,b^2)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$
$$\left(-\left(\left(56\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[c+d\,x]^{3/2}\right)\Big/\right.\right.$$
$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\right.\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.\right.$$
$$\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(-a^2+b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\right.$$
$$\left.\left.\left.\left.\left.\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\,\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\right)\right)\right)-$$
$$\left((3+3\,\text{i})\,\left(2\,\text{ArcTan}\left[1-\frac{(1+\text{i})\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[\right.\right.\right.$$

$$1+\frac{(1+\mathrm{i})\sqrt{b}\sqrt{\mathrm{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\Big]-\mathrm{Log}\Big[\sqrt{-a^2+b^2}-(1+\mathrm{i})\sqrt{b}\,(-a^2+b^2)^{1/4}$$

$$\sqrt{\mathrm{Cos}[c+d\,x]}+\mathrm{i}\,b\,\mathrm{Cos}[c+d\,x]\Big]+\mathrm{Log}\Big[\sqrt{-a^2+b^2}+(1+\mathrm{i})\sqrt{b}\,(-a^2+b^2)^{1/4}$$

$$\sqrt{\mathrm{Cos}[c+d\,x]}+\mathrm{i}\,b\,\mathrm{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Bigg/\left(\sqrt{b}\,(-a^2+b^2)^{1/4}\right)\Bigg)\,\mathrm{Sin}[c+d\,x]-$$

$$\frac{1}{(1-\mathrm{Cos}[c+d\,x]^2)\,(a+b\,\mathrm{Sin}[c+d\,x])}\,2\,(11\,a^2\,b+4\,b^3)\left(a+b\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\right)$$

$$\Bigg(\Bigg(7\,b\,(a^2-b^2)\,\mathrm{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]$$

$$\mathrm{Cos}[c+d\,x]^{3/2}\sqrt{1-\mathrm{Cos}[c+d\,x]^2}\Bigg)\Bigg/$$

$$\Bigg(3\,\Bigg(-7\,(a^2-b^2)\,\mathrm{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$2\,\Bigg(2\,b^2\,\mathrm{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]+$$

$$(a^2-b^2)\,\mathrm{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\mathrm{Cos}[c+d\,x]^2,\frac{b^2\,\mathrm{Cos}[c+d\,x]^2}{-a^2+b^2}\Big]\Bigg)$$

$$\mathrm{Cos}[c+d\,x]^2\Bigg)\,\left(a^2+b^2\,(-1+\mathrm{Cos}[c+d\,x]^2)\right)\Bigg)+$$

$$\Bigg(a\,\Bigg(-2\,\mathrm{ArcTan}\Big[1-\frac{\sqrt{2}\sqrt{b}\sqrt{\mathrm{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]+2\,\mathrm{ArcTan}\Big[1+\frac{\sqrt{2}\sqrt{b}\sqrt{\mathrm{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]+$$

$$\mathrm{Log}\Big[\sqrt{a^2-b^2}-\sqrt{2}\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+b\,\mathrm{Cos}[c+d\,x]\Big]-$$

$$\mathrm{Log}\Big[\sqrt{a^2-b^2}+\sqrt{2}\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\mathrm{Cos}[c+d\,x]}+b\,\mathrm{Cos}[c+d\,x]\Big]\Bigg)\Bigg)\Bigg/$$

$$\left(4\sqrt{2}\,b^{3/2}\,(a^2-b^2)^{1/4}\right)\,\mathrm{Sin}[c+d\,x]^2\Bigg)$$

Problem 613: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,(a+b\,\mathrm{Sin}[c+d\,x])^4}\,dx$$

Optimal (type 4, 593 leaves, 15 steps) :

$$\frac{7\,a\,\sqrt{b}\,\left(5\,a^2+6\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,\left(-a^2+b^2\right)^{15/4}\,d\,\sqrt{e}}+\frac{7\,a\,\sqrt{b}\,\left(5\,a^2+6\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,\left(-a^2+b^2\right)^{15/4}\,d\,\sqrt{e}}-$$

$$\frac{\left(57\,a^2+20\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticF}\left[\frac{1}{2}\,\left(c+d\,x\right),2\right]}{24\,\left(a^2-b^2\right)^3\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+$$

$$\left(7\,a^2\,\left(5\,a^2+6\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(c+d\,x\right),2\right]\right)\Big/$$

$$\left(16\,\left(a^2-b^2\right)^3\,\left(a^2-b\,\left(b-\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$

$$\left(7\,a^2\,\left(5\,a^2+6\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,\left(c+d\,x\right),2\right]\right)\Big/$$

$$\left(16\,\left(a^2-b^2\right)^3\,\left(a^2-b\,\left(b+\sqrt{-a^2+b^2}\right)\right)\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+\frac{b\,\sqrt{e\,\text{Cos}[c+d\,x]}}{3\,\left(a^2-b^2\right)\,d\,e\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{11\,a\,b\,\sqrt{e\,\text{Cos}[c+d\,x]}}{12\,\left(a^2-b^2\right)^2\,d\,e\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{b\,\left(57\,a^2+20\,b^2\right)\,\sqrt{e\,\text{Cos}[c+d\,x]}}{24\,\left(a^2-b^2\right)^3\,d\,e\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$

Result (type 6, 1276 leaves):

$$\left(\text{Cos}[c+d\,x]\,\left(\frac{b}{3\,\left(a^2-b^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}+\right.\right.$$

$$\left.\left.\frac{11\,a\,b}{12\,\left(a^2-b^2\right)^2\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+\frac{b\,\left(57\,a^2+20\,b^2\right)}{24\,\left(a^2-b^2\right)^3\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\right)\right)\Big/$$

$$\left(d\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+\frac{1}{48\,\left(a-b\right)^3\,\left(a+b\right)^3\,d\,\sqrt{e\,\text{Cos}[c+d\,x]}}\,\sqrt{\text{Cos}[c+d\,x]}$$

$$\left(-\frac{1}{\sqrt{1-\text{Cos}[c+d\,x]^2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\,2\,\left(48\,a^3+106\,a\,b^2\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\right.$$

$$\left(\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\sqrt{\text{Cos}[c+d\,x]}\right)\Big/\right.$$

$$\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$

$$\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-2\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\Big)$$

$$\left.\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)-\frac{1}{\left(-a^2+b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{b}$$

$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]-$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\,\sqrt{b}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)$$

$$\text{Sin}[c+d\,x]-\frac{1}{\left(1-\text{Cos}[c+d\,x]^2\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)}$$
$$2\,\left(-57\,a^2\,b-20\,b^3\right)\,\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$
$$\left(\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right.\right.$$
$$\left.\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/$$
$$\left(\left(-5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)+$$
$$\left(a\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\right]-\right.\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/$$
$$\left.\left(4\,\sqrt{2}\,\sqrt{b}\,\left(a^2-b^2\right)^{3/4}\right)\,\text{Sin}[c+d\,x]^2\right)$$

Problem 614: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}\,\left(a+b\,\text{Sin}[c+d\,x]\right)^4}\,dx$$

Optimal (type 4, 674 leaves, 16 steps):

$$-\frac{15\,a\,b^{3/2}\,\left(7\,a^2+6\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,\left(-a^2+b^2\right)^{17/4}\,d\,e^{3/2}}+\frac{15\,a\,b^{3/2}\,\left(7\,a^2+6\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{e\,\text{Cos}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}\,\sqrt{e}}\right]}{16\,\left(-a^2+b^2\right)^{17/4}\,d\,e^{3/2}}-$$

$$\frac{\left(16\,a^4+151\,a^2\,b^2+28\,b^4\right)\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{8\,\left(a^2-b^2\right)^4\,d\,e^2\,\sqrt{\text{Cos}[c+d\,x]}}-$$

$$\left(15\,a^2\,b\,\left(7\,a^2+6\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b-\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(16\,\left(a^2-b^2\right)^4\,\left(b-\sqrt{-a^2+b^2}\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)-$$
$$\left(15\,a^2\,b\,\left(7\,a^2+6\,b^2\right)\,\sqrt{\text{Cos}[c+d\,x]}\,\,\text{EllipticPi}\left[\frac{2\,b}{b+\sqrt{-a^2+b^2}},\frac{1}{2}\,(c+d\,x),2\right]\right)\Big/$$
$$\left(16\,\left(a^2-b^2\right)^4\,\left(b+\sqrt{-a^2+b^2}\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)+$$

$$\frac{b}{3\,\left(a^2-b^2\right)\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\,\left(a+b\,\text{Sin}[c+d\,x]\right)^3}+$$

$$\frac{13\,a\,b}{12\,\left(a^2-b^2\right)^2\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\,\left(a+b\,\text{Sin}[c+d\,x]\right)^2}+$$

$$\frac{b\,\left(89\,a^2+28\,b^2\right)}{24\,\left(a^2-b^2\right)^3\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\,\left(a+b\,\text{Sin}[c+d\,x]\right)}-$$

$$\frac{15\,a\,b\,\left(7\,a^2+6\,b^2\right)-\left(16\,a^4+151\,a^2\,b^2+28\,b^4\right)\,\text{Sin}[c+d\,x]}{8\,\left(a^2-b^2\right)^4\,d\,e\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 6, 1390 leaves):

$$-\frac{1}{16\,(a-b)^4\,(a+b)^4\,d\,\left(e\,\text{Cos}[c+d\,x]\right)^{3/2}}$$
$$\text{Cos}[c+d\,x]^{3/2}\,\left(\frac{1}{12\,\sqrt{1-\text{Cos}[c+d\,x]^2}\,\,\left(a+b\,\text{Sin}[c+d\,x]\right)}\left(16\,a^5+256\,a^3\,b^2+118\,a\,b^4\right)\right.$$
$$\left(a+b\,\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\,\left(-\left(\left(56\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\right.\right.\right.\right.$$
$$\left.\left.\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\,\text{Cos}[c+d\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Cos}[c+d\,x]^2}\right.$$
$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]-\right.$$
$$2\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)$$
$$\left.\left.\left.\text{Cos}[c+d\,x]^2\right)\,\left(a^2+b^2\,\left(-1+\text{Cos}[c+d\,x]^2\right)\right)\right)\right)-$$

$$\left((3+3\,i)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-\text{Log}\left[\sqrt{-a^2+b^2}-(1+i)\sqrt{b}\,(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]+\text{Log}\left[\sqrt{-a^2+b^2}+(1+i)\sqrt{b}\,(-a^2+b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+i\,b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{b}\,(-a^2+b^2)^{1/4}\right)\right)\text{Sin}[c+d\,x]-$$

$$\frac{1}{(1-\text{Cos}[c+d\,x]^2)\,(a+b\,\text{Sin}[c+d\,x])}\,2\,(16\,a^4\,b+151\,a^2\,b^3+28\,b^5)\left(a+b\sqrt{1-\text{Cos}[c+d\,x]^2}\right)$$

$$\left(\left(7\,b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\text{Cos}[c+d\,x]^{3/2}\sqrt{1-\text{Cos}[c+d\,x]^2}\right)\Big/\right.$$

$$\left(3\left(-7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+2\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]+(a^2-b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Cos}[c+d\,x]^2,\frac{b^2\,\text{Cos}[c+d\,x]^2}{-a^2+b^2}\right]\right)\text{Cos}[c+d\,x]^2\right)\left(a^2+b^2\,(-1+\text{Cos}[c+d\,x]^2)\right)\right)+$$

$$\left(a\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{b}\,\sqrt{\text{Cos}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]+\text{Log}\left[\sqrt{a^2-b^2}-\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]-\text{Log}\left[\sqrt{a^2-b^2}+\sqrt{2}\,\sqrt{b}\,(a^2-b^2)^{1/4}\sqrt{\text{Cos}[c+d\,x]}+b\,\text{Cos}[c+d\,x]\right]\right)\right)\Big/\left(4\sqrt{2}\,b^{3/2}\,(a^2-b^2)^{1/4}\right)\right)\text{Sin}[c+d\,x]^2\Bigg)+$$

$$\left(\text{Cos}[c+d\,x]^2\left(-\frac{b^3\,\text{Cos}[c+d\,x]}{3\,(a^2-b^2)^2\,(a+b\,\text{Sin}[c+d\,x])^3}-\frac{7\,a\,b^3\,\text{Cos}[c+d\,x]}{4\,(a^2-b^2)^3\,(a+b\,\text{Sin}[c+d\,x])^2}+\right.\right.$$

$$\frac{-55\,a^2\,b^3\,\text{Cos}[c+d\,x]-12\,b^5\,\text{Cos}[c+d\,x]}{8\,(a^2-b^2)^4\,(a+b\,\text{Sin}[c+d\,x])}+$$

$$\frac{1}{(a^2-b^2)^4}$$

2

$$\text{Sec}[c+d\,x]$$

$$\left(-4\,a^3\,b-4\,a\,b^3+a^4\,\text{Sin}[c+d\,x]+6\,a^2\,b^2\,\text{Sin}[c+d\,x]+\right.$$

$$b^4 \operatorname{Sin}[c+d x]\Big)\Big)\Big) \Big/ \left(d\,(e \operatorname{Cos}[c+d x])^{3/2}\right)$$

Problem 615: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{c \operatorname{Cos}[e+f x]}\, \sqrt{a+b \operatorname{Sin}[e+f x]}}\, dx$$

Optimal (type 4, 183 leaves, 2 steps):

$$\left(2\sqrt{2}\, (-a+b)^{1/4} \sqrt{c \operatorname{Cos}[e+f x]}\ \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{(a+b)^{1/4} \sqrt{\frac{1+\operatorname{Cos}[e+f x]+\operatorname{Sin}[e+f x]}{1+\operatorname{Cos}[e+f x]-\operatorname{Sin}[e+f x]}}}{(-a+b)^{1/4}}\right], -1\right] \sqrt{\frac{a+b \operatorname{Sin}[e+f x]}{(a-b)\,(1-\operatorname{Sin}[e+f x])}}\right) \Big/ \left((a+b)^{1/4}\, c\, f \sqrt{\frac{1+\operatorname{Cos}[e+f x]+\operatorname{Sin}[e+f x]}{1+\operatorname{Cos}[e+f x]-\operatorname{Sin}[e+f x]}}\, \sqrt{a+b \operatorname{Sin}[e+f x]}\right)$$

Result (type 4, 4001 leaves):

$$-\left(\left(\left(4 \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right], -1\right]\right.\right.\right.$$

$$\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right) \sqrt{\frac{b-\sqrt{-a^2+b^2}+a \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left.\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right) \Big/ \left(f \sqrt{\operatorname{Cos}[e+f x]}\right.$$

$$\left.\sqrt{c \operatorname{Cos}[e+f x]}\, (a+b \operatorname{Sin}[e+f x]) \sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)$$

$$\left(-\left(\left(2 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right], -1\right]\right.\right.\right.$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}\Bigg)\Bigg/$$

$$\left(\sqrt{\text{Cos}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\,\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}\right)-$$

$$\Bigg(2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}\right],-1\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}\Bigg)\Bigg/$$

$$\left(\sqrt{\text{Cos}[e+f x]}\,\sqrt{a+b\,\text{Sin}[e+f x]}\,\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}\right)+$$

$$\Bigg(2\,b\,\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]^2\sqrt{\text{Cos}[e+f x]}\,\text{EllipticF}\Big[$$

$$\text{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}\right],-1\Big]\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)}}\Bigg)\Bigg/$$

$$\left((a+b\,\mathrm{Sin}[e+f\,x])^{3/2}\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right)+$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right],\right.\right.$$

$$\left.-1\right]\mathrm{Sin}\left[\frac{1}{2}(e+f\,x)\right]\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left.\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right)\Big/$$

$$\left(\sqrt{\mathrm{Cos}[e+f\,x]}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\,\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right)-$$

$$\left(2\,\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right],\right.\right.$$

$$\left.-1\right]\mathrm{Sin}[e+f\,x]\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left.\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right)\Big/$$

$$\left(\mathrm{Cos}[e+f\,x]^{3/2}\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\,\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right)+$$

$$\left(2\,\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right],\right.\right.$$

$$-1]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\right.$$

$$\left(\left(-a-b+\sqrt{-a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$

$$\left.\left(2\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\right)\right)\Bigg)\Big/$$

$$\left(\sqrt{\text{Cos}[e+f x]}\sqrt{a+b\,\text{Sin}[e+f x]}\left(\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)^{3/2}\right)-$$

$$\left(2\left(a-b+\sqrt{-a^2+b^2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\right.$$

$$\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\right.$$

$$\left(\left(-a-b+\sqrt{-a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$

$$\left.\left(2\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\right)\right)\Bigg)\Big/\left(\left(-a-b+\sqrt{-a^2+b^2}\right)\right.$$

$$\sqrt{\text{Cos}[e+f\,x]}\ \sqrt{a+b\,\text{Sin}[e+f\,x]}\ \sqrt{1-\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}$$

$$\left.\sqrt{1+\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}\ \right)-$$

$$\left(2\,\text{Cos}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}\ \right],\right.\right.$$

$$\left.-1\right]\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)$$

$$\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2}{2\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\left(b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}{2\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\text{Cos}[e+f\,x]}\ \sqrt{a+b\,\text{Sin}[e+f\,x]}\ \sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}\right.$$

$$\left.\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}\ \right)-$$

$$\left(2\,\text{Cos}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}\ \right],\right.\right.$$

$$\left.-1\right]\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)$$

$$\sqrt{\frac{b-\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}+\right.$$
$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\right)\Big/$$
$$\left(\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\,\sqrt{\frac{\left(-a-b+\sqrt{-a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(a-b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\right.$$
$$\left.\left.\left.\left.\sqrt{-\frac{b+\sqrt{-a^2+b^2}+a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\left(-a+b+\sqrt{-a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\right)\right)\right)\right)$$

Problem 617: Result unnecessarily involves imaginary or complex numbers.

$$\int(e\,\text{Cos}[c+d\,x])^p\,(a+b\,\text{Sin}[c+d\,x])^2\,dx$$

Optimal (type 5, 157 leaves, 3 steps):

$$-\frac{a\,b\,(3+p)\,(e\,\text{Cos}[c+d\,x])^{1+p}}{d\,e\,(1+p)\,(2+p)}-$$
$$\left(\left(b^2+a^2\,(2+p)\right)(e\,\text{Cos}[c+d\,x])^{1+p}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+p}{2},\frac{3+p}{2},\text{Cos}[c+d\,x]^2\right]\right.$$
$$\left.\text{Sin}[c+d\,x]\right)\Big/\left(d\,e\,(1+p)\,(2+p)\,\sqrt{\text{Sin}[c+d\,x]^2}\right)-\frac{b\,(e\,\text{Cos}[c+d\,x])^{1+p}\,(a+b\,\text{Sin}[c+d\,x])}{d\,e\,(2+p)}$$

Result (type 5, 288 leaves):

$$\frac{1}{d\,(1+p)\,\sqrt{\text{Sin}[c+d\,x]^2}}$$
$$(e\,\text{Cos}[c+d\,x])^p\left(\frac{1}{-1+p}2^{-p}\,a\,b\,\left(1+e^{2\,i\,(c+d\,x)}\right)^{-1-p}\left(e^{-i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)\right)^{1+p}\right.$$
$$\text{Cos}[c+d\,x]^{-p}\left(-(-1+p)\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,(-1-p),-p,\frac{1-p}{2},-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$\left.e^{2\,i\,(c+d\,x)}\,(1+p)\,\text{Hypergeometric2F1}\left[\frac{1-p}{2},-p,\frac{3-p}{2},-e^{2\,i\,(c+d\,x)}\right]\right)\sqrt{\text{Sin}[c+d\,x]^2}-$$
$$\frac{1}{2}\,b^2\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\frac{1+p}{2},\frac{3+p}{2},\text{Cos}[c+d\,x]^2\right]\text{Sin}[2\,(c+d\,x)]-$$
$$\left.\frac{1}{2}\,a^2\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+p}{2},\frac{3+p}{2},\text{Cos}[c+d\,x]^2\right]\text{Sin}[2\,(c+d\,x)]\right)$$

Problem 618: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int (e\,\mathrm{Cos}[c+d\,x])^p\,(a+b\,\mathrm{Sin}[c+d\,x])\,dx$$

Optimal (type 5, 97 leaves, 2 steps):

$$-\frac{b\,(e\,\mathrm{Cos}[c+d\,x])^{1+p}}{d\,e\,(1+p)}-\left(a\,(e\,\mathrm{Cos}[c+d\,x])^{1+p}\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+p}{2},\frac{3+p}{2},\mathrm{Cos}[c+d\,x]^2\right]\mathrm{Sin}[c+d\,x]\right)\Big/\left(d\,e\,(1+p)\,\sqrt{\mathrm{Sin}[c+d\,x]^2}\right)$$

Result (type 5, 233 leaves):

$$\frac{1}{2\,d\,(1+p)}(e\,\mathrm{Cos}[c+d\,x])^p\left(\frac{1}{-1+p}2^{-p}\,b\,\left(1+e^{2\,i\,(c+d\,x)}\right)^{-1-p}\left(e^{-i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)\right)^{1+p}\mathrm{Cos}[c+d\,x]^{-p}\left(-(-1+p)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}(-1-p),-p,\frac{1-p}{2},-e^{2\,i\,(c+d\,x)}\right]+e^{2\,i\,(c+d\,x)}\,(1+p)\,\mathrm{Hypergeometric2F1}\left[\frac{1-p}{2},-p,\frac{3-p}{2},-e^{2\,i\,(c+d\,x)}\right]\right)-\frac{a\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+p}{2},\frac{3+p}{2},\mathrm{Cos}[c+d\,x]^2\right]\mathrm{Sin}[2\,(c+d\,x)]}{\sqrt{\mathrm{Sin}[c+d\,x]^2}}\right)$$

Problem 619: Result more than twice size of optimal antiderivative.

$$\int \frac{(e\,\mathrm{Cos}[c+d\,x])^p}{a+b\,\mathrm{Sin}[c+d\,x]}\,dx$$

Optimal (type 6, 158 leaves, 1 step):

$$-\frac{1}{b\,d\,(1-p)}e\,\mathrm{AppellF1}\left[1-p,\frac{1-p}{2},\frac{1-p}{2},2-p,\frac{a+b}{a+b\,\mathrm{Sin}[c+d\,x]},\frac{a-b}{a+b\,\mathrm{Sin}[c+d\,x]}\right](e\,\mathrm{Cos}[c+d\,x])^{-1+p}\left(-\frac{b\,(1-\mathrm{Sin}[c+d\,x])}{a+b\,\mathrm{Sin}[c+d\,x]}\right)^{\frac{1-p}{2}}\left(\frac{b\,(1+\mathrm{Sin}[c+d\,x])}{a+b\,\mathrm{Sin}[c+d\,x]}\right)^{\frac{1-p}{2}}$$

Result (type 6, 6000 leaves):

$$\left(a^2\,(e\,\mathrm{Cos}[c+d\,x])^p\,\mathrm{Tan}[c+d\,x]\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)^{-1-\frac{p}{2}}\left(b\,\mathrm{Tan}[c+d\,x]+a\,\sqrt{1+\mathrm{Tan}[c+d\,x]^2}\right)\right.$$
$$\left(-\left(\left(3\,a\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]\sqrt{1+\mathrm{Tan}[c+d\,x]^2}\right)\Big/\right.\right.$$
$$\left(-3\,a^2\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\mathrm{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\mathrm{Tan}[c+d\,x]^2\right]+\left(2\,(a^2-b^2)\right.\right.$$

$$\text{AppellF1}\left[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] + a^2 p \, \text{AppellF1}\left[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right]\right) \text{Tan}[c+d x]^2\Bigg)\Bigg) +$$

$$\left(2 b \, \text{AppellF1}\left[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\right] \text{Tan}[c+d x]\right) \Bigg/$$

$$\Bigg(-4 a^2 \, \text{AppellF1}\left[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\left[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] + a^2 (1+p) \, \text{AppellF1}\left[2, \frac{3+p}{2}, 1, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right]\Bigg) \text{Tan}[c+d x]^2\Bigg)\Bigg)\Bigg) \Bigg/$$

$$\left(d \left(a+b \, \text{Sin}[c+d x]\right) \left(a+\frac{b \, \text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right) \left(-b^2 \text{Tan}[c+d x]^2 + a^2 \left(1+\text{Tan}[c+d x]^2\right)\right)\right.$$

$$\Bigg(-\frac{1}{\left(a+\frac{b \, \text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}\right) \left(-b^2 \text{Tan}[c+d x]^2 + a^2 \left(1+\text{Tan}[c+d x]^2\right)\right)^2}$$

$$a^2 \, \text{Tan}[c+d x] \left(2 a^2 \, \text{Sec}[c+d x]^2 \, \text{Tan}[c+d x] - 2 b^2 \, \text{Sec}[c+d x]^2 \, \text{Tan}[c+d x]\right)$$

$$\left(1+\text{Tan}[c+d x]^2\right)^{-1-\frac{p}{2}} \left(b \, \text{Tan}[c+d x] + a \sqrt{1+\text{Tan}[c+d x]^2}\right)$$

$$\Bigg(-\Bigg(\Bigg(3 a \, \text{AppellF1}\left[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] \sqrt{1+\text{Tan}[c+d x]^2}\Bigg) \Bigg/ \Bigg(-3 a^2 \, \text{AppellF1}\left[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] + a^2 p \, \text{AppellF1}\left[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right]\Bigg) \text{Tan}[c+d x]^2\Bigg)\Bigg) +$$

$$\left(2 b \, \text{AppellF1}\left[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\right] \text{Tan}[c+d x]\right) \Bigg/$$

$$\Bigg(-4 a^2 \, \text{AppellF1}\left[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\left[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\right] +$$

$$a^2\,(1+p)\,\text{AppellF1}\left[2,\,\frac{3+p}{2},\,1,\,3,\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\frac{1}{\left(a+\frac{b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)}a^2\,\text{Tan}[c+d\,x]$$

$$\left(1+\text{Tan}[c+d\,x]^2\right)^{-1-\frac{p}{2}}\left(b\,\text{Sec}[c+d\,x]^2+\frac{a\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)$$

$$\Bigg(-\Bigg(\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$

$$\sqrt{1+\text{Tan}[c+d\,x]^2}\Bigg)\Bigg/\Bigg(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\Bigg(2\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{2},\,\frac{p}{2},\,2,\,\frac{5}{2},\right.$$

$$\left.-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\,\frac{2+p}{2},\right.$$

$$\left.1,\,\frac{5}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\Bigg)\text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,b\,\text{AppellF1}\left[1,\,\frac{1+p}{2},\,1,\,2,\,-\text{Tan}[c+d\,x]^2,\,\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Tan}[c+d\,x]\Bigg)\Bigg/$$

$$\Bigg(-4\,a^2\,\text{AppellF1}\left[1,\,\frac{1+p}{2},\,1,\,2,\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+$$

$$\Bigg(2\,(a^2-b^2)\,\text{AppellF1}\left[2,\,\frac{1+p}{2},\,2,\,3,\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+$$

$$a^2\,(1+p)\,\text{AppellF1}\left[2,\,\frac{3+p}{2},\,1,\,3,\,-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\Bigg)\text{Tan}[c+d\,x]^2\Bigg)\Bigg)-$$

$$\frac{1}{\left(a+\frac{b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^2\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)}$$

$$a^2\,\text{Tan}[c+d\,x]\,\left(1+\text{Tan}[c+d\,x]^2\right)^{-1-\frac{p}{2}}$$

$$\left(-\frac{b\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{b\,\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)$$

$$\left(b\,\text{Tan}[c+d\,x]+a\,\sqrt{1+\text{Tan}[c+d\,x]^2}\right)$$

$$\Bigg(-\Bigg(\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,\frac{p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[c+d\,x]^2,\,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$

$$\sqrt{1+\text{Tan}[c+d\,x]^2}\Bigg)\Bigg/\Bigg(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)\text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,b\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]\text{Tan}[c+d\,x]\Bigg)\Bigg/\Bigg(-4\,a^2\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\,(1+p)\,\text{AppellF1}\Big[2,\frac{3+p}{2},1,3,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)\text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\frac{1}{\left(a+\frac{b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)}$$

$$2\,a^2\left(-1-\frac{p}{2}\right)\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2\left(1+\text{Tan}[c+d\,x]^2\right)^{-2-\frac{p}{2}}\left(b\,\text{Tan}[c+d\,x]+a\sqrt{1+\text{Tan}[c+d\,x]^2}\right)$$

$$\Bigg(-\Bigg(\Bigg(3\,a\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\sqrt{1+\text{Tan}[c+d\,x]^2}\Bigg)\Bigg/\Bigg(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)\text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,b\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]\text{Tan}[c+d\,x]\Bigg)\Bigg/\Bigg(-4\,a^2\,\text{AppellF1}\Big[1,\frac{1+p}{2},1,2,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+\Bigg(2\left(a^2-b^2\right)\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\ (1+p)\ \text{AppellF1}\left[2,\ \frac{3+p}{2},\ 1,\ 3,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]\ \text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\frac{1}{\left(a+\frac{b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\ \left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\ \left(1+\text{Tan}[c+d\,x]^2\right)\right)}$$

$$a^2\,\text{Sec}[c+d\,x]^2\ \left(1+\text{Tan}[c+d\,x]^2\right)^{-1-\frac{p}{2}}\ \left(b\,\text{Tan}[c+d\,x]+a\,\sqrt{1+\text{Tan}[c+d\,x]^2}\right)$$

$$\Bigg(-\Bigg(\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]\ \sqrt{1+\text{Tan}[c+d\,x]^2}\Bigg)\Bigg/\Bigg(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]+\Bigg(2\ \left(a^2-b^2\right)\ \text{AppellF1}\left[\frac{3}{2},\ \frac{p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]+a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\ \frac{2+p}{2},\ 1,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]\Bigg)\ \text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\left(2\,b\,\text{AppellF1}\left[1,\ \frac{1+p}{2},\ 1,\ 2,\ -\text{Tan}[c+d\,x]^2,\ \frac{\left(-a^2+b^2\right)\ \text{Tan}[c+d\,x]^2}{a^2}\right]\ \text{Tan}[c+d\,x]\right)\Bigg/$$

$$\Bigg(-4\,a^2\,\text{AppellF1}\left[1,\ \frac{1+p}{2},\ 1,\ 2,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]+\Bigg(2\ \left(a^2-b^2\right)\ \text{AppellF1}\left[2,\ \frac{1+p}{2},\ 2,\ 3,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]+a^2\ (1+p)\ \text{AppellF1}\left[2,\ \frac{3+p}{2},\ 1,\ 3,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]\Bigg)\ \text{Tan}[c+d\,x]^2\Bigg)\Bigg)+$$

$$\frac{1}{\left(a+\frac{b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\ \left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\ \left(1+\text{Tan}[c+d\,x]^2\right)\right)}$$

$$a^2\,\text{Tan}[c+d\,x]\ \left(1+\text{Tan}[c+d\,x]^2\right)^{-1-\frac{p}{2}}\ \left(b\,\text{Tan}[c+d\,x]+a\,\sqrt{1+\text{Tan}[c+d\,x]^2}\right)$$

$$\Bigg(-\Bigg(\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\ \text{Tan}[c+d\,x]^2\right]\ \text{Sec}[c+d\,x]^2\ \text{Tan}[c+d\,x]\Bigg)\Bigg/\Bigg(\sqrt{1+\text{Tan}[c+d\,x]^2}\ \Bigg(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\right.$$

$$-\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\Big[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + a^2 p\, \text{AppellF1}\Big[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\Bigg) \text{Tan}[c+d x]^2\Bigg)\Bigg)\Bigg) -$$

$$\Bigg(3 a \Bigg(-\frac{1}{3} p\, \text{AppellF1}\Big[\frac{3}{2}, 1+\frac{p}{2}, 1, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] \text{Sec}[c+d x]^2 \text{Tan}[c+d x] + \frac{2}{3} \left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\Big[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] \text{Sec}[c+d x]^2 \text{Tan}[c+d x]\Bigg) \sqrt{1+\text{Tan}[c+d x]^2}\Bigg) \Big/$$

$$\Bigg(-3 a^2 \text{AppellF1}\Big[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\Big[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + a^2 p\, \text{AppellF1}\Big[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\Bigg) \text{Tan}[c+d x]^2\Bigg) +$$

$$\Bigg(2 b\, \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big] \text{Sec}[c+d x]^2\Bigg) \Big/$$

$$\Bigg(-4 a^2 \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\Big[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + a^2 (1+p)\, \text{AppellF1}\Big[2, \frac{3+p}{2}, 1, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\Bigg) \text{Tan}[c+d x]^2\Bigg) + \Bigg(2 b\, \text{Tan}[c+d x] \Bigg(\frac{1}{a^2}\left(-a^2+b^2\right) \text{AppellF1}\Big[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big] \text{Sec}[c+d x]^2 \text{Tan}[c+d x] - \frac{1}{2} (1+p)\, \text{AppellF1}\Big[2, 1+\frac{1+p}{2}, 1, 3, -\text{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big] \text{Sec}[c+d x]^2 \text{Tan}[c+d x]\Bigg)\Bigg) \Big/$$

$$\Bigg(-4 a^2 \text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + \Bigg(2 \left(a^2-b^2\right) \text{AppellF1}\Big[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + a^2 (1+p)\, \text{AppellF1}\Big[2, \frac{3+p}{2}, 1, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\Bigg) \text{Tan}[c+d x]^2\Bigg) +$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\sqrt{1+\text{Tan}[c+d\,x]^2}\right.$$

$$\left(2\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\left.a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-3\,a^2\left(-\frac{1}{3}\,p\,\text{AppellF1}\left[\frac{3}{2},1+\frac{p}{2},1,\frac{5}{2},\right.\right.$$

$$\left.-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+$$

$$\frac{2}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$

$$\left.\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+\text{Tan}[c+d\,x]^2\left(2\left(a^2-b^2\right)\left(-\frac{3}{5}\,p\,\text{AppellF1}\left[\frac{5}{2},\right.\right.\right.$$

$$1+\frac{p}{2},2,\frac{7}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2$$

$$\text{Tan}[c+d\,x]+\frac{12}{5}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[\frac{5}{2},\frac{p}{2},3,\frac{7}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+a^2\,p\left(\frac{6}{5}\left(-1+\frac{b^2}{a^2}\right)\right.$$

$$\text{AppellF1}\left[\frac{5}{2},\frac{2+p}{2},2,\frac{7}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$

$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-\frac{3}{5}\,(2+p)\,\text{AppellF1}\left[\frac{5}{2},1+\frac{2+p}{2},1,\frac{7}{2},\right.$$

$$\left.\left.\left.\left.\left.-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\right)\right)\right)\Big/$$

$$\left(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.$$

$$a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)\text{Tan}[c+d\,x]^2\Bigg)^2-$$

$$\left(2\,b\,\text{AppellF1}\left[1,\frac{1+p}{2},1,2,-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Tan}[c+d\,x]\right.$$

$$\left(2\left(2\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1+p}{2},2,3,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+\right.\right.$$

$$\left.a^2\,(1+p)\,\text{AppellF1}\left[2,\frac{3+p}{2},1,3,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\right)$$

$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-4\,a^2\left(\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[2,\frac{1+p}{2},2,3,\right.\right.$$

$$-\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] \text{Sec}[c+d x]^2 \text{Tan}[c+d x] -$$
$$\frac{1}{2}(1+p)\,\text{AppellF1}\Big[2, 1+\frac{1+p}{2}, 1, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]$$
$$\text{Sec}[c+d x]^2 \text{Tan}[c+d x]\Bigg) + \text{Tan}[c+d x]^2 \left(2\left(a^2-b^2\right)\left(\frac{8}{3}\left(-1+\frac{b^2}{a^2}\right) \text{AppellF1}\Big[\right.\right.$$
$$3, \frac{1+p}{2}, 3, 4, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] \text{Sec}[c+d x]^2$$
$$\text{Tan}[c+d x] - \frac{2}{3}(1+p)\,\text{AppellF1}\Big[3, 1+\frac{1+p}{2}, 2, 4, -\text{Tan}[c+d x]^2,$$
$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] \text{Sec}[c+d x]^2 \text{Tan}[c+d x]\Bigg) + a^2 (1+p) \left(\frac{4}{3}\left(-1+\right.\right.$$
$$\left.\frac{b^2}{a^2}\right) \text{AppellF1}\Big[3, \frac{3+p}{2}, 2, 4, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]$$
$$\text{Sec}[c+d x]^2 \text{Tan}[c+d x] - \frac{2}{3}(3+p)\,\text{AppellF1}\Big[3, 1+\frac{3+p}{2}, 1, 4,$$
$$\left.\left.\left.\left.-\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] \text{Sec}[c+d x]^2 \text{Tan}[c+d x]\right)\right)\right)\right) \Big/$$
$$\left(-4 a^2\,\text{AppellF1}\Big[1, \frac{1+p}{2}, 1, 2, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + \right.$$
$$\left(2\left(a^2-b^2\right) \text{AppellF1}\Big[2, \frac{1+p}{2}, 2, 3, -\text{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big] + \right.$$
$$a^2 (1+p)\,\text{AppellF1}\Big[2, \frac{3+p}{2}, 1, 3, -\text{Tan}[c+d x]^2,$$
$$\left.\left.\left.\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\right) \text{Tan}[c+d x]^2\right)^2\right)\right)$$

Problem 620: Result more than twice size of optimal antiderivative.

$$\int \frac{(e\,\text{Cos}[c+d x])^p}{(a+b\,\text{Sin}[c+d x])^2}\,dx$$

Optimal (type 6, 170 leaves, 1 step):

$$-\left(\left(e\,\text{AppellF1}\Big[2-p, \frac{1-p}{2}, \frac{1-p}{2}, 3-p, \frac{a+b}{a+b\,\text{Sin}[c+d x]}, \frac{a-b}{a+b\,\text{Sin}[c+d x]}\Big] (e\,\text{Cos}[c+d x])^{-1+p}\right.\right.$$
$$\left.\left.\left(-\frac{b\,(1-\text{Sin}[c+d x])}{a+b\,\text{Sin}[c+d x]}\right)^{\frac{1-p}{2}} \left(\frac{b\,(1+\text{Sin}[c+d x])}{a+b\,\text{Sin}[c+d x]}\right)^{\frac{1-p}{2}}\right) \Big/ \left(b\,d\,(2-p)\,(a+b\,\text{Sin}[c+d x])\right)\right)$$

Result (type 6, 6875 leaves):

$$\Bigg(a^2\,(e\,\text{Cos}[c+d\,x])^p\,\text{Tan}[c+d\,x]\,\left(1+\text{Tan}[c+d\,x]^2\right)^{-p/2}$$

$$\Bigg(\Bigg(3\,(a^2+b^2)\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\Big]\Bigg)\Big/$$

$$\Bigg(\Bigg(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\Bigg(2\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\,p$$

$$\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)\text{Tan}[c+d\,x]^2\Bigg)$$

$$\left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\,\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Bigg)+\frac{1}{\left(b^2\,\text{Tan}[c+d\,x]^2-a^2\,\left(1+\text{Tan}[c+d\,x]^2\right)\right)^2}$$

$$2\,a\,b\,\Bigg(-\Bigg(\Bigg(3\,a\,b\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},2,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\Big]\Bigg)\Big/$$

$$\Bigg(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},2,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\Bigg(4\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{2},\frac{p}{2},3,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\frac{2+p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)$$

$$\text{Tan}[c+d\,x]^2\Bigg)\Bigg)+\Bigg(2\,(-a^2+b^2)\,\text{AppellF1}\Big[1,\frac{1}{2}\,(-1+p),2,2,$$

$$-\text{Tan}[c+d\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\Big]\,\text{Tan}[c+d\,x]\,\sqrt{1+\text{Tan}[c+d\,x]^2}\Bigg)\Big/$$

$$\Bigg(-4\,a^2\,\text{AppellF1}\Big[1,\frac{1}{2}\,(-1+p),2,2,-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\Bigg(4\,(a^2-b^2)\,\text{AppellF1}\Big[2,\frac{1}{2}\,(-1+p),3,3,-\text{Tan}[c+d\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\,(-1+p)\,\text{AppellF1}\Big[2,\frac{1+p}{2},2,3,$$

$$-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)\text{Tan}[c+d\,x]^2\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg((-a^2+b^2)\,d\,(a+b\,\text{Sin}[c+d\,x])^2\,\Bigg(-\frac{1}{-a^2+b^2}\,a^2\,p\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^2$$

$$\left(1+\text{Tan}[c+d\,x]^2\right)^{-1-\frac{p}{2}}$$

$$\Bigg(\Bigg(3\,(a^2+b^2)\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\frac{(-a^2+b^2)\,\text{Tan}[c+d\,x]^2}{a^2}\Big]\Bigg)\Big/$$

$$\Bigg(\Bigg(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.$$

$$\left.a^2 p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\right)+$$

$$\frac{1}{\left(b^2\,\text{Tan}[c+d x]^2-a^2\left(1+\text{Tan}[c+d x]^2\right)\right)^2}2\,a\,b$$

$$\left(-\left(\left(3\,a\,b\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},2,\frac{3}{2},-\text{Tan}[c+d x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\right)\right/\right.$$

$$\left(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},2,\frac{3}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.$$

$$\left(4\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},3,\frac{5}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.$$

$$\left.a^2 p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},2,\frac{5}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)\right)+\left(2\left(-a^2+b^2\right)\text{AppellF1}\left[1,\frac{1}{2}(-1+p),2,2,\right.\right.$$

$$\left.\left.-\text{Tan}[c+d x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\text{Tan}[c+d x]\sqrt{1+\text{Tan}[c+d x]^2}\right)\right/$$

$$\left(-4\,a^2\,\text{AppellF1}\left[1,\frac{1}{2}(-1+p),2,2,-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.$$

$$\left(4\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1}{2}(-1+p),3,3,-\text{Tan}[c+d x]^2,\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+a^2(-1+p)\,\text{AppellF1}\left[2,\frac{1+p}{2},2,3,\right.$$

$$\left.\left.\left.\left.-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)\text{Tan}[c+d x]^2\right)\right)\right)+$$

$$\frac{1}{-a^2+b^2}a^2\,\text{Sec}[c+d x]^2\left(1+\text{Tan}[c+d x]^2\right)^{-p/2}\left(\left(3\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},\right.\right.\right.$$

$$\left.\left.1,\frac{3}{2},-\text{Tan}[c+d x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\right]\right)\right/$$

$$\left(\left(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},1,\frac{3}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},2,\frac{5}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]+\right.$$

$$\left.a^2 p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},1,\frac{5}{2},-\text{Tan}[c+d x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\right)+$$

$$\frac{1}{\left(b^2 \operatorname{Tan}[c+d x]^2-a^2\left(1+\operatorname{Tan}[c+d x]^2\right)\right)^2} 2 a b$$

$$\left(-\left(\left(3 a b \operatorname{AppellF1}\left[\frac{1}{2}, \frac{p}{2}, 2, \frac{3}{2}, -\operatorname{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \operatorname{Tan}[c+d x]^2}{a^2}\right]\right) \Big/\right.\right.$$

$$\left(-3 a^2 \operatorname{AppellF1}\left[\frac{1}{2}, \frac{p}{2}, 2, \frac{3}{2}, -\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]+\right.$$

$$\left(4\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{2}, \frac{p}{2}, 3, \frac{5}{2}, -\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]+\right.$$

$$\left.a^2 p \operatorname{AppellF1}\left[\frac{3}{2}, \frac{2+p}{2}, 2, \frac{5}{2}, -\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\operatorname{Tan}[c+d x]^2\right)\right)+\left(2\left(-a^2+b^2\right) \operatorname{AppellF1}\left[1, \frac{1}{2}(-1+p), 2, 2,\right.\right.$$

$$\left.\left.-\operatorname{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \operatorname{Tan}[c+d x]^2}{a^2}\right] \operatorname{Tan}[c+d x] \sqrt{1+\operatorname{Tan}[c+d x]^2}\right) \Big/$$

$$\left(-4 a^2 \operatorname{AppellF1}\left[1, \frac{1}{2}(-1+p), 2, 2, -\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]+\right.$$

$$\left(4\left(a^2-b^2\right) \operatorname{AppellF1}\left[2, \frac{1}{2}(-1+p), 3, 3, -\operatorname{Tan}[c+d x]^2,\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]+a^2(-1+p) \operatorname{AppellF1}\left[2, \frac{1+p}{2}, 2, 3,\right.$$

$$\left.\left.\left.\left.-\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]\right) \operatorname{Tan}[c+d x]^2\right)\right)\right)+$$

$$\frac{1}{-a^2+b^2} a^2 \operatorname{Tan}[c+d x]\left(1+\operatorname{Tan}[c+d x]^2\right)^{-p/2}\left(-\left(\left(3\left(a^2+b^2\right) \operatorname{AppellF1}\left[\frac{1}{2}, \frac{p}{2},\right.\right.\right.\right.$$

$$\left.1, \frac{3}{2}, -\operatorname{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \operatorname{Tan}[c+d x]^2}{a^2}\right]$$

$$\left.\left(2 a^2 \operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]-2 b^2 \operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]\right)\right) \Big/$$

$$\left(\left(-3 a^2 \operatorname{AppellF1}\left[\frac{1}{2}, \frac{p}{2}, 1, \frac{3}{2}, -\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]+\right.\right.$$

$$\left(2\left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2}, -\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]+\right.$$

$$\left.a^2 p \operatorname{AppellF1}\left[\frac{3}{2}, \frac{2+p}{2}, 1, \frac{5}{2}, -\operatorname{Tan}[c+d x]^2, \left(-1+\frac{b^2}{a^2}\right) \operatorname{Tan}[c+d x]^2\right]\right)$$

$$\left.\left.\left.\operatorname{Tan}[c+d x]^2\right)\left(-b^2 \operatorname{Tan}[c+d x]^2+a^2\left(1+\operatorname{Tan}[c+d x]^2\right)\right)^2\right)\right)+$$

$$\left(3\left(a^2+b^2\right)\left(-\frac{1}{3} p \operatorname{AppellF1}\left[\frac{3}{2}, 1+\frac{p}{2}, 1, \frac{5}{2}, -\operatorname{Tan}[c+d x]^2, \frac{\left(-a^2+b^2\right) \operatorname{Tan}[c+d x]^2}{a^2}\right]\right.\right.$$

$$\operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]+\frac{1}{3 a^2} 2\left(-a^2+b^2\right) \operatorname{AppellF1}\left[\frac{3}{2}, \frac{p}{2}, 2, \frac{5}{2},\right.$$

$$-\text{Tan}[c+d\,x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]\ \text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\Big)\Big)\Big/$$

$$\Big(\Big(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\Big(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\ \frac{2+p}{2},\ 1,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Big)$$

$$\text{Tan}[c+d\,x]^2\Big)\ \left(-b^2\,\text{Tan}[c+d\,x]^2+a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)\Big)-$$

$$\frac{1}{\left(b^2\,\text{Tan}[c+d\,x]^2-a^2\left(1+\text{Tan}[c+d\,x]^2\right)\right)^3}\,4\,a\,b\,\Big(-2\,a^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+$$

$$2\,b^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\Big)$$

$$\Big(-\Big(\Big(3\,a\,b\,\text{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 2,\ \frac{3}{2},\ -\text{Tan}[c+d\,x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]\Big)\Big/$$

$$\Big(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 2,\ \frac{3}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\Big(4\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 3,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\ \frac{2+p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Big)$$

$$\text{Tan}[c+d\,x]^2\Big)\Big)+\Big(2\left(-a^2+b^2\right)\text{AppellF1}\Big[1,\ \frac{1}{2}\left(-1+p\right),\ 2,\ 2,$$

$$-\text{Tan}[c+d\,x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]\ \text{Tan}[c+d\,x]\ \sqrt{1+\text{Tan}[c+d\,x]^2}\Big)\Big/$$

$$\Big(-4\,a^2\,\text{AppellF1}\Big[1,\ \frac{1}{2}\left(-1+p\right),\ 2,\ 2,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\Big(4\left(a^2-b^2\right)\text{AppellF1}\Big[2,\ \frac{1}{2}\left(-1+p\right),\ 3,\ 3,\ -\text{Tan}[c+d\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\left(-1+p\right)\text{AppellF1}\Big[2,\ \frac{1+p}{2},\ 2,$$

$$3,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Big)\ \text{Tan}[c+d\,x]^2\Big)\Big)-$$

$$\Big(3\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\ -\text{Tan}[c+d\,x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\Big]$$

$$\Big(2\,\Big(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\ \frac{2+p}{2},\ 1,\ \frac{5}{2},\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Big)$$

$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-3\,a^2\,\Big(-\frac{1}{3}\,p\,\text{AppellF1}\Big[\frac{3}{2},\ 1+\frac{p}{2},\ 1,\ \frac{5}{2},$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+$$

$$\frac{2}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]$$

$$\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\Bigg)+\text{Tan}[c+d x]^2\left(2\left(a^2-b^2\right)\left(-\frac{3}{5}\,p\,\text{AppellF1}\Big[\frac{5}{2},\right.\right.$$

$$1+\frac{p}{2},\ 2,\ \frac{7}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2$$

$$\text{Tan}[c+d x]+\frac{12}{5}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[\frac{5}{2},\ \frac{p}{2},\ 3,\ \frac{7}{2},\ -\text{Tan}[c+d x]^2,$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)+a^2\,p\left(\frac{6}{5}\left(-1+\frac{b^2}{a^2}\right)\right.$$

$$\text{AppellF1}\Big[\frac{5}{2},\ \frac{2+p}{2},\ 2,\ \frac{7}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]$$

$$\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]-\frac{3}{5}\left(2+p\right)\text{AppellF1}\Big[\frac{5}{2},\ 1+\frac{2+p}{2},\ 1,\ \frac{7}{2},$$

$$\left.\left.\left.\left.-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\right)\right)\right)\Big/$$

$$\left(\left(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 1,\ \frac{3}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+\right.\right.$$

$$\left(2\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+\right.$$

$$\left.a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\ \frac{2+p}{2},\ 1,\ \frac{5}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)^2\left(-b^2\,\text{Tan}[c+d x]^2+a^2\left(1+\text{Tan}[c+d x]^2\right)\right)\right)+$$

$$\frac{1}{\left(b^2\,\text{Tan}[c+d x]^2-a^2\left(1+\text{Tan}[c+d x]^2\right)\right)^2}\,2\,a\,b$$

$$\left(-\left(\left(3\,a\,b\left(-\frac{1}{3}\,p\,\text{AppellF1}\Big[\frac{3}{2},\ 1+\frac{p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\Big]\right.\right.\right.\right.$$

$$\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]+\frac{1}{3\,a^2}4\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 3,\ \frac{5}{2},$$

$$\left.\left.-\text{Tan}[c+d x]^2,\ \frac{\left(-a^2+b^2\right)\text{Tan}[c+d x]^2}{a^2}\Big]\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\right)\Big/$$

$$\left(-3\,a^2\,\text{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 2,\ \frac{3}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+\right.$$

$$\left(4\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 3,\ \frac{5}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]+\right.$$

$$\left.a^2\,p\,\text{AppellF1}\Big[\frac{3}{2},\ \frac{2+p}{2},\ 2,\ \frac{5}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d x]^2\Big]\right)$$

$$\left.\left.\text{Tan}[c+d x]^2\right)\right)+\left(2\left(-a^2+b^2\right)\text{AppellF1}\Big[1,\ \frac{1}{2}\left(-1+p\right),\ 2,\ 2,\right.$$

$$-\text{Tan}[c+d x]^2,\ \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big]\ \text{Sec}[c+d x]^2\ \text{Tan}[c+d x]^2\Bigg)\Bigg/$$

$$\Bigg(\sqrt{1+\text{Tan}[c+d x]^2}\ \Bigg(-4 a^2\ \text{AppellF1}\Big[1,\ \frac{1}{2}\ (-1+p),\ 2,\ 2,\ -\text{Tan}[c+d x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]+\Bigg(4\ \left(a^2-b^2\right)\ \text{AppellF1}\Big[2,\ \frac{1}{2}\ (-1+p),\ 3,\ 3,$$

$$-\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]+a^2\ (-1+p)\ \text{AppellF1}\Big[2,$$

$$\frac{1+p}{2},\ 2,\ 3,\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\Bigg)\ \text{Tan}[c+d x]^2\Bigg)\Bigg)+$$

$$\Bigg(2\ \left(-a^2+b^2\right)\ \text{AppellF1}\Big[1,\ \frac{1}{2}\ (-1+p),\ 2,\ 2,\ -\text{Tan}[c+d x]^2,$$

$$\frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big]\ \text{Sec}[c+d x]^2 \sqrt{1+\text{Tan}[c+d x]^2}\Bigg)\Bigg/$$

$$\Bigg(-4 a^2\ \text{AppellF1}\Big[1,\ \frac{1}{2}\ (-1+p),\ 2,\ 2,\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]+$$

$$\Bigg(4\ \left(a^2-b^2\right)\ \text{AppellF1}\Big[2,\ \frac{1}{2}\ (-1+p),\ 3,\ 3,\ -\text{Tan}[c+d x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]+a^2\ (-1+p)\ \text{AppellF1}\Big[2,\ \frac{1+p}{2},\ 2,$$

$$3,\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\Bigg)\ \text{Tan}[c+d x]^2\Bigg)+$$

$$\Bigg(2\ \left(-a^2+b^2\right)\ \text{Tan}[c+d x]\ \Bigg(-\frac{1}{2}\ (-1+p)\ \text{AppellF1}\Big[2,\ 1+\frac{1}{2}\ (-1+p),\ 2,$$

$$3,\ -\text{Tan}[c+d x]^2,\ \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big]\ \text{Sec}[c+d x]^2\ \text{Tan}[c+d x]+$$

$$\frac{1}{a^2} 2\ \left(-a^2+b^2\right)\ \text{AppellF1}\Big[2,\ \frac{1}{2}\ (-1+p),\ 3,\ 3,\ -\text{Tan}[c+d x]^2,$$

$$\frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big]\ \text{Sec}[c+d x]^2\ \text{Tan}[c+d x]\Bigg)\ \sqrt{1+\text{Tan}[c+d x]^2}\Bigg)\Bigg/$$

$$\Bigg(-4 a^2\ \text{AppellF1}\Big[1,\ \frac{1}{2}\ (-1+p),\ 2,\ 2,\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]+$$

$$\Bigg(4\ \left(a^2-b^2\right)\ \text{AppellF1}\Big[2,\ \frac{1}{2}\ (-1+p),\ 3,\ 3,\ -\text{Tan}[c+d x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]+a^2\ (-1+p)\ \text{AppellF1}\Big[2,\ \frac{1+p}{2},\ 2,$$

$$3,\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]\Bigg)\ \text{Tan}[c+d x]^2\Bigg)+$$

$$\Bigg(3\ a\ b\ \text{AppellF1}\Big[\frac{1}{2},\ \frac{p}{2},\ 2,\ \frac{3}{2},\ -\text{Tan}[c+d x]^2,\ \frac{\left(-a^2+b^2\right) \text{Tan}[c+d x]^2}{a^2}\Big]$$

$$\Bigg(2\ \Bigg(4\ \left(a^2-b^2\right)\ \text{AppellF1}\Big[\frac{3}{2},\ \frac{p}{2},\ 3,\ \frac{5}{2},\ -\text{Tan}[c+d x]^2,\ \left(-1+\frac{b^2}{a^2}\right) \text{Tan}[c+d x]^2\Big]+$$

$$a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\Bigg)$$

$$\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-3\,a^2\left(-\frac{1}{3}\,p\,\text{AppellF1}\left[\frac{3}{2},1+\frac{p}{2},2,\frac{5}{2},\right.\right.$$

$$\left.-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+$$

$$\frac{4}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},3,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+\text{Tan}[c+d\,x]^2$$

$$\Bigg(4\left(a^2-b^2\right)\left(-\frac{3}{5}\,p\,\text{AppellF1}\left[\frac{5}{2},1+\frac{p}{2},3,\frac{7}{2},-\text{Tan}[c+d\,x]^2,\right.\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+\frac{18}{5}\left(-1+\frac{b^2}{a^2}\right)$$

$$\text{AppellF1}\left[\frac{5}{2},\frac{p}{2},4,\frac{7}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]$$

$$\left.\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)+a^2\,p\left(\frac{12}{5}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\left[\frac{5}{2},\frac{2+p}{2},\right.\right.$$

$$\left.3,\frac{7}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2$$

$$\text{Tan}[c+d\,x]-\frac{3}{5}\left(2+p\right)\text{AppellF1}\left[\frac{5}{2},1+\frac{2+p}{2},2,\frac{7}{2},-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left.\left.\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\right)\Bigg)\Bigg/$$

$$\Bigg(-3\,a^2\,\text{AppellF1}\left[\frac{1}{2},\frac{p}{2},2,\frac{3}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+$$

$$\Bigg(4\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{p}{2},3,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+$$

$$a^2\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+p}{2},2,\frac{5}{2},-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\Bigg)$$

$$\text{Tan}[c+d\,x]^2\Bigg)^2-\Bigg(2\left(-a^2+b^2\right)\text{AppellF1}\left[1,\frac{1}{2}\left(-1+p\right),2,2,\right.$$

$$\left.-\text{Tan}[c+d\,x]^2,\frac{\left(-a^2+b^2\right)\text{Tan}[c+d\,x]^2}{a^2}\right]\text{Tan}[c+d\,x]\sqrt{1+\text{Tan}[c+d\,x]^2}$$

$$\Bigg(2\Bigg(4\left(a^2-b^2\right)\text{AppellF1}\left[2,\frac{1}{2}\left(-1+p\right),3,3,-\text{Tan}[c+d\,x]^2,\right.$$

$$\left.\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]+a^2\left(-1+p\right)\text{AppellF1}\left[2,\frac{1+p}{2},2,3,\right.$$

$$\left.-\text{Tan}[c+d\,x]^2,\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\right]\Bigg)\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-$$

$$4\,a^2\left(-\frac{1}{2}\left(-1+p\right)\text{AppellF1}\left[2,1+\frac{1}{2}\left(-1+p\right),2,3,-\text{Tan}[c+d\,x]^2,\right.\right.$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]+$$

$$2\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[2,\ \frac{1}{2}\,(-1+p),\ 3,\ 3,\ -\text{Tan}[c+d\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\Big)+$$

$$\text{Tan}[c+d\,x]^2\,\Bigg(4\,(a^2-b^2)\,\Bigg(-\frac{2}{3}\,(-1+p)\,\text{AppellF1}\Big[3,\ 1+\frac{1}{2}\,(-1+p),$$

$$3,\ 4,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2$$

$$\text{Tan}[c+d\,x]+4\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[3,\ \frac{1}{2}\,(-1+p),\ 4,\ 4,$$

$$-\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\Bigg)+$$

$$a^2\,(-1+p)\,\Bigg(\frac{8}{3}\left(-1+\frac{b^2}{a^2}\right)\text{AppellF1}\Big[3,\ \frac{1+p}{2},\ 3,\ 4,\ -\text{Tan}[c+d\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]-$$

$$\frac{2}{3}\,(1+p)\,\text{AppellF1}\Big[3,\ 1+\frac{1+p}{2},\ 2,\ 4,\ -\text{Tan}[c+d\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(-4\,a^2\,\text{AppellF1}\Big[1,\ \frac{1}{2}\,(-1+p),\ 2,\ 2,\ -\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+$$

$$\Bigg(4\,(a^2-b^2)\,\text{AppellF1}\Big[2,\ \frac{1}{2}\,(-1+p),\ 3,\ 3,\ -\text{Tan}[c+d\,x]^2,$$

$$\left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]+a^2\,(-1+p)\,\text{AppellF1}\Big[2,\ \frac{1+p}{2},\ 2,\ 3,$$

$$-\text{Tan}[c+d\,x]^2,\ \left(-1+\frac{b^2}{a^2}\right)\text{Tan}[c+d\,x]^2\Big]\Bigg)\,\text{Tan}[c+d\,x]^2\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 621: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^p}{(a+b\,\text{Sin}[c+d\,x])^3}\,dx$$

Optimal (type 6, 170 leaves, 1 step):

$$-\Bigg(\Bigg(e\,\text{AppellF1}\Big[3-p,\ \frac{1-p}{2},\ \frac{1-p}{2},\ 4-p,\ \frac{a+b}{a+b\,\text{Sin}[c+d\,x]},\ \frac{a-b}{a+b\,\text{Sin}[c+d\,x]}\Big]\,(e\,\text{Cos}[c+d\,x])^{-1+p}$$

$$\left(-\frac{b\,(1-\text{Sin}[c+d\,x])}{a+b\,\text{Sin}[c+d\,x]}\right)^{\frac{1-p}{2}}\left(\frac{b\,(1+\text{Sin}[c+d\,x])}{a+b\,\text{Sin}[c+d\,x]}\right)^{\frac{1-p}{2}}\Bigg)\Bigg/\left(b\,d\,(3-p)\,(a+b\,\text{Sin}[c+d\,x])^2\right)\Bigg)$$

Result (type 6, 20 626 leaves): Display of huge result suppressed!

Problem 622: Unable to integrate problem.

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+b \operatorname{Sin}[c+d x])^8} \, dx$$

Optimal (type 6, 170 leaves, 1 step):

$$-\left(\left(e \operatorname{AppellF1}\left[8-p, \frac{1-p}{2}, \frac{1-p}{2}, 9-p, \frac{a+b}{a+b \operatorname{Sin}[c+d x]}, \frac{a-b}{a+b \operatorname{Sin}[c+d x]}\right] (e \operatorname{Cos}[c+d x])^{-1+p} \left(-\frac{b (1-\operatorname{Sin}[c+d x])}{a+b \operatorname{Sin}[c+d x]}\right)^{\frac{1-p}{2}} \left(\frac{b (1+\operatorname{Sin}[c+d x])}{a+b \operatorname{Sin}[c+d x]}\right)^{\frac{1-p}{2}}\right) \Big/ \left(b d (8-p) (a+b \operatorname{Sin}[c+d x])^7\right)\right)$$

Result (type 8, 25 leaves):

$$\int \frac{(e \operatorname{Cos}[c+d x])^p}{(a+b \operatorname{Sin}[c+d x])^8} \, dx$$

Problem 623: Result more than twice size of optimal antiderivative.

$$\int (e \operatorname{Cos}[c+d x])^p (a+b \operatorname{Sin}[c+d x])^{5/2} \, dx$$

Optimal (type 6, 156 leaves, 2 steps):

$$\frac{1}{7 b d} 2 e \operatorname{AppellF1}\left[\frac{7}{2}, \frac{1-p}{2}, \frac{1-p}{2}, \frac{9}{2}, \frac{a+b \operatorname{Sin}[c+d x]}{a-b}, \frac{a+b \operatorname{Sin}[c+d x]}{a+b}\right] (e \operatorname{Cos}[c+d x])^{-1+p} (a+b \operatorname{Sin}[c+d x])^{7/2} \left(1-\frac{a+b \operatorname{Sin}[c+d x]}{a-b}\right)^{\frac{1-p}{2}} \left(1-\frac{a+b \operatorname{Sin}[c+d x]}{a+b}\right)^{\frac{1-p}{2}}$$

Result (type 6, 2612 leaves):

$$\frac{1}{2 d} \operatorname{Cos}[c+d x]^{-p} (e \operatorname{Cos}[c+d x])^p$$

$$\left(-\left(\left(10 \left(a^2-b^2\right)^2 \left(2 a^2+b^2\right) \operatorname{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{p}{2}, \frac{1}{2}-\frac{p}{2}, \frac{5}{2}, \frac{a+b \operatorname{Sin}[c+d x]}{a-\sqrt{b^2}}, \frac{a+b \operatorname{Sin}[c+d x]}{a+\sqrt{b^2}}\right] \operatorname{Cos}[c+d x]^{1+p} (a+b \operatorname{Sin}[c+d x])^{3/2} \left(-\sqrt{b^2}+b \operatorname{Sin}[c+d x]\right) \left(\sqrt{b^2}+b \operatorname{Sin}[c+d x]\right) \left(1-\operatorname{Sin}[c+d x]^2\right)^{-\frac{1}{2}-\frac{p}{2}} \left(-\frac{a^2-b^2-2 a (a+b \operatorname{Sin}[c+d x])+(a+b \operatorname{Sin}[c+d x])^2}{b^2}\right)^{\frac{1}{2}(-3+p)}\right) \Big/\right.\right.$$

$$\left(3 b^3 \left(a-\sqrt{b^2}\right) \left(a+\sqrt{b^2}\right) \left(5 \left(a^2-b^2\right) \operatorname{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{p}{2}, \frac{1}{2}-\frac{p}{2}, \frac{5}{2}, \frac{a+b \operatorname{Sin}[c+d x]}{a-\sqrt{b^2}},\right.\right.\right.$$

$$\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\Big]+(-1+p)\left(\left(-a+\sqrt{b^2}\right)\mathrm{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{p}{2},\frac{3}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\left(a+\sqrt{b^2}\right)\mathrm{AppellF1}\left[\frac{5}{2},\frac{3}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)(a+b\,\mathrm{Sin}[c+d\,x])\Big)\Big)\Big)-$$

$$\frac{1}{15\,b^3}8\,a\,(a^2-b^2)\,\mathrm{Cos}[c+d\,x]^{1+p}\,(a+b\,\mathrm{Sin}[c+d\,x])^{3/2}\left(-\sqrt{b^2}+b\,\mathrm{Sin}[c+d\,x]\right)\left(\sqrt{b^2}+b\,\mathrm{Sin}[c+d\,x]\right)\left(1-\mathrm{Sin}[c+d\,x]^2\right)^{-\frac{1}{2}-\frac{p}{2}}$$

$$\left(-\frac{a^2-b^2-2\,a\,(a+b\,\mathrm{Sin}[c+d\,x])+(a+b\,\mathrm{Sin}[c+d\,x])^2}{b^2}\right)^{\frac{1}{2}(-3+p)}$$

$$\Bigg(-\Bigg(\Bigg(25\,a\,\mathrm{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{5}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\Bigg)\Bigg/$$

$$\Bigg(5\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{5}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+(-1+p)\left(\left(-a+\sqrt{b^2}\right)\mathrm{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{p}{2},\frac{3}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\left(a+\sqrt{b^2}\right)\mathrm{AppellF1}\left[\frac{5}{2},\frac{3}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)(a+b\,\mathrm{Sin}[c+d\,x])\Bigg)\Bigg)+$$

$$\Bigg(21\,\mathrm{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right](a+b\,\mathrm{Sin}[c+d\,x])\Bigg)\Bigg/$$

$$\Bigg(7\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+(-1+p)\left(\left(-a+\sqrt{b^2}\right)\mathrm{AppellF1}\left[\frac{7}{2},\frac{1}{2}-\frac{p}{2},\frac{3}{2}-\frac{p}{2},\frac{9}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\left(a+\sqrt{b^2}\right)\mathrm{AppellF1}\left[\frac{7}{2},\frac{3}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{9}{2},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\mathrm{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)(a+b\,\mathrm{Sin}[c+d\,x])\Bigg)\Bigg)+$$

$$\left(1\Big/\left(105\,b\left(-2\,a^2+b^2+4\,a\,(a+b\,\mathrm{Sin}[c+d\,x])-2\,(a+b\,\mathrm{Sin}[c+d\,x])^2\right)\right)\right)$$

$$2\,(a^2-b^2)\,\mathrm{Cos}[c+d\,x]^{1+p}\,\mathrm{Cos}[2\,(c+d\,x)]\,(a+b\,\mathrm{Sin}[c+d\,x])^{3/2}$$

$$\left(-\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)$$
$$\left(\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)$$
$$\left(1-\text{Sin}[c+d\,x]^2\right)^{-\frac{1}{2}-\frac{p}{2}}$$
$$\left(-\frac{a^2-b^2-2\,a\,\left(a+b\,\text{Sin}[c+d\,x]\right)+\left(a+b\,\text{Sin}[c+d\,x]\right)^2}{b^2}\right)^{\frac{1}{2}\,(-3+p)}$$
$$\left(-\left(\left(175\,\left(2\,a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{5}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)\Big/\right.\right.$$
$$\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{5}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+\right.$$
$$(-1+p)\,\left(\left(-a+\sqrt{b^2}\right)\,\text{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{p}{2},\frac{3}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\right.\right.$$
$$\left.\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\left(a+\sqrt{b^2}\right)\,\text{AppellF1}\left[\frac{5}{2},\frac{3}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{7}{2},\right.$$
$$\left.\left.\left.\left.\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)\right)\right)+$$
$$\left(588\,a\,\text{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right.$$
$$\left.\left(a+b\,\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+\right.$$
$$(-1+p)\,\left(\left(-a+\sqrt{b^2}\right)\,\text{AppellF1}\left[\frac{7}{2},\frac{1}{2}-\frac{p}{2},\frac{3}{2}-\frac{p}{2},\frac{9}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\right.\right.$$
$$\left.\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\left(a+\sqrt{b^2}\right)\,\text{AppellF1}\left[\frac{7}{2},\frac{3}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{9}{2},\right.$$
$$\left.\left.\left.\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)\,\left(a+b\,\text{Sin}[c+d\,x]\right)\right)-$$
$$\left(270\,\text{AppellF1}\left[\frac{7}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{9}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right.$$
$$\left.\left(a+b\,\text{Sin}[c+d\,x]\right)^2\right)\Big/$$
$$\left(9\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{7}{2},\frac{1}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{9}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+\right.$$
$$(-1+p)\,\left(\left(-a+\sqrt{b^2}\right)\,\text{AppellF1}\left[\frac{9}{2},\frac{1}{2}-\frac{p}{2},\frac{3}{2}-\frac{p}{2},\frac{11}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\right.\right.$$
$$\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\Big]-\left(a+\sqrt{b^2}\right)\,\text{AppellF1}\left[\frac{9}{2},\frac{3}{2}-\frac{p}{2},\frac{1}{2}-\frac{p}{2},\frac{11}{2},\right.$$

$$\left.\left.\left.\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)\left(a+b\,\text{Sin}[c+d\,x]\right)\right)\right)\right)$$

Problem 624: Result more than twice size of optimal antiderivative.

$$\int(e\,\text{Cos}[c+d\,x])^p\,(a+b\,\text{Sin}[c+d\,x])^{3/2}\,dx$$

Optimal (type 6, 156 leaves, 2 steps):

$$\frac{1}{5\,b\,d}2\,e\,\text{AppellF1}\left[\frac{5}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]$$
$$(e\,\text{Cos}[c+d\,x])^{-1+p}\,(a+b\,\text{Sin}[c+d\,x])^{5/2}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{\frac{1-p}{2}}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{\frac{1-p}{2}}$$

Result (type 6, 447 leaves):

$$-\left(\left(14\,\left(a^2-b^2\right)^2\,\text{AppellF1}\left[\frac{5}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right.\right.$$
$$(e\,\text{Cos}[c+d\,x])^p\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^{5/2}\left(-\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)$$
$$\left.\left(\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)\right)\Big/\left(5\,b^3\left(a-\sqrt{b^2}\right)\left(a+\sqrt{b^2}\right)d\right.$$
$$\left(7\,\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+(-1+p)\right.$$
$$\left(\left(\left(-a+\sqrt{b^2}\right)\text{AppellF1}\left[\frac{7}{2},\frac{1-p}{2},\frac{3-p}{2},\frac{9}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\right.\right.$$
$$\left.\left(a+\sqrt{b^2}\right)\text{AppellF1}\left[\frac{7}{2},\frac{3-p}{2},\frac{1-p}{2},\frac{9}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)(a+$$
$$\left.\left.\left.\left.b\,\text{Sin}[c+d\,x])\right)\right)\right)\right)$$

Problem 625: Result more than twice size of optimal antiderivative.

$$\int(e\,\text{Cos}[c+d\,x])^p\,\sqrt{a+b\,\text{Sin}[c+d\,x]}\,dx$$

Optimal (type 6, 156 leaves, 2 steps):

$$\frac{1}{3\,b\,d}2\,e\,\text{AppellF1}\left[\frac{3}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{5}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]$$
$$(e\,\text{Cos}[c+d\,x])^{-1+p}\,(a+b\,\text{Sin}[c+d\,x])^{3/2}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{\frac{1-p}{2}}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{\frac{1-p}{2}}$$

Result (type 6, 447 leaves):

$$-\left(\left(10\left(a^2-b^2\right)^2 \text{AppellF1}\left[\frac{3}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{5}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right] (e\,\text{Cos}[c+d\,x])^p\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^{3/2}\left(-\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)\left(\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)\right)\Big/\left(3\,b^3\left(a-\sqrt{b^2}\right)\left(a+\sqrt{b^2}\right)d\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{5}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+(-1+p)\left(\left(-a+\sqrt{b^2}\right)\text{AppellF1}\left[\frac{5}{2},\frac{1-p}{2},\frac{3-p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\left(a+\sqrt{b^2}\right)\text{AppellF1}\left[\frac{5}{2},\frac{3-p}{2},\frac{1-p}{2},\frac{7}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)(a+b\,\text{Sin}[c+d\,x])\right)\right)$$

Problem 626: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Cos}[c+d\,x])^p}{\sqrt{a+b\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 6, 154 leaves, 2 steps):

$$\frac{1}{b\,d}2\,e\,\text{AppellF1}\left[\frac{1}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{3}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right](e\,\text{Cos}[c+d\,x])^{-1+p}\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{\frac{1-p}{2}}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{\frac{1-p}{2}}$$

Result (type 6, 445 leaves):

$$-\left(\left(6\left(a^2-b^2\right)^2 \text{AppellF1}\left[\frac{1}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{3}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right] (e\,\text{Cos}[c+d\,x])^p\,\text{Sec}[c+d\,x]^3\sqrt{a+b\,\text{Sin}[c+d\,x]}\left(-\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)\left(\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)\right)\Big/\left(b^3\left(a-\sqrt{b^2}\right)\left(a+\sqrt{b^2}\right)d\left(3\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{3}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]+(-1+p)\left(\left(-a+\sqrt{b^2}\right)\text{AppellF1}\left[\frac{3}{2},\frac{1-p}{2},\frac{3-p}{2},\frac{5}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\left(a+\sqrt{b^2}\right)\text{AppellF1}\left[\frac{3}{2},\frac{3-p}{2},\frac{1-p}{2},\frac{5}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)(a+b\,\text{Sin}[c+d\,x])\right)\right)$$

Problem 627: Result more than twice size of optimal antiderivative.

$$\int \frac{(e \cos[c+d x])^p}{(a+b \sin[c+d x])^{3/2}} \, dx$$

Optimal (type 6, 154 leaves, 2 steps):

$$-\left(\left(2 e \,\text{AppellF1}\left[-\frac{1}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{1}{2},\frac{a+b \sin[c+d x]}{a-b},\frac{a+b \sin[c+d x]}{a+b}\right] (e \cos[c+d x])^{-1+p} \left(1-\frac{a+b \sin[c+d x]}{a-b}\right)^{\frac{1-p}{2}} \left(1-\frac{a+b \sin[c+d x]}{a+b}\right)^{\frac{1-p}{2}}\right) \Big/ \left(b d \sqrt{a+b \sin[c+d x]}\right)\right)$$

Result (type 6, 444 leaves):

$$\left(2 \left(a^2-b^2\right)^2 \text{AppellF1}\left[-\frac{1}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{1}{2},\frac{a+b \sin[c+d x]}{a-\sqrt{b^2}},\frac{a+b \sin[c+d x]}{a+\sqrt{b^2}}\right] (e \cos[c+d x])^p \sec[c+d x]^3 \left(\sqrt{b^2}-b \sin[c+d x]\right) \left(\sqrt{b^2}+b \sin[c+d x]\right)\right) \Big/ \left(b^3 \left(a-\sqrt{b^2}\right) \left(a+\sqrt{b^2}\right) d \sqrt{a+b \sin[c+d x]} \left(\left(-a^2+b^2\right) \text{AppellF1}\left[-\frac{1}{2},\frac{1-p}{2},\frac{1-p}{2},\frac{1}{2},\frac{a+b \sin[c+d x]}{a-\sqrt{b^2}},\frac{a+b \sin[c+d x]}{a+\sqrt{b^2}}\right] - (-1+p) \left(\left(-a+\sqrt{b^2}\right) \text{AppellF1}\left[\frac{1}{2},\frac{1-p}{2},\frac{3-p}{2},\frac{3}{2},\frac{a+b \sin[c+d x]}{a-\sqrt{b^2}},\frac{a+b \sin[c+d x]}{a+\sqrt{b^2}}\right] - \left(a+\sqrt{b^2}\right) \text{AppellF1}\left[\frac{1}{2},\frac{3-p}{2},\frac{1-p}{2},\frac{3}{2},\frac{a+b \sin[c+d x]}{a-\sqrt{b^2}},\frac{a+b \sin[c+d x]}{a+\sqrt{b^2}}\right]\right) (a+b \sin[c+d x])\right)\right)$$

Problem 628: Result more than twice size of optimal antiderivative.

$$\int \frac{(e \cos[c+d x])^p}{(a+b \sin[c+d x])^{5/2}} \, dx$$

Optimal (type 6, 156 leaves, 2 steps):

$$-\left(\left(2 e \,\text{AppellF1}\left[-\frac{3}{2},\frac{1-p}{2},\frac{1-p}{2},-\frac{1}{2},\frac{a+b \sin[c+d x]}{a-b},\frac{a+b \sin[c+d x]}{a+b}\right] (e \cos[c+d x])^{-1+p} \left(1-\frac{a+b \sin[c+d x]}{a-b}\right)^{\frac{1-p}{2}} \left(1-\frac{a+b \sin[c+d x]}{a+b}\right)^{\frac{1-p}{2}}\right) \Big/ \left(3 b d (a+b \sin[c+d x])^{3/2}\right)\right)$$

Result (type 6, 446 leaves):

$$-\left(\left(2\left(a^2-b^2\right)^2 \text{AppellF1}\left[-\frac{3}{2},\frac{1-p}{2},\frac{1-p}{2},-\frac{1}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right.\right.$$
$$\left.(e\,\text{Cos}[c+d\,x])^p\,\text{Sec}[c+d\,x]^3\left(\sqrt{b^2}-b\,\text{Sin}[c+d\,x]\right)\left(\sqrt{b^2}+b\,\text{Sin}[c+d\,x]\right)\right)\Big/$$
$$\left(3\,b^3\left(a-\sqrt{b^2}\right)\left(a+\sqrt{b^2}\right)d\,(a+b\,\text{Sin}[c+d\,x])^{3/2}\right.$$
$$\left(\left(a^2-b^2\right)\text{AppellF1}\left[-\frac{3}{2},\frac{1-p}{2},\frac{1-p}{2},-\frac{1}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-(-1+p)\right.$$
$$\left(\left(-a+\sqrt{b^2}\right)\text{AppellF1}\left[-\frac{1}{2},\frac{1-p}{2},\frac{3-p}{2},\frac{1}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]-\right.$$
$$\left.\left(a+\sqrt{b^2}\right)\text{AppellF1}\left[-\frac{1}{2},\frac{3-p}{2},\frac{1-p}{2},\frac{1}{2},\frac{a+b\,\text{Sin}[c+d\,x]}{a-\sqrt{b^2}},\frac{a+b\,\text{Sin}[c+d\,x]}{a+\sqrt{b^2}}\right]\right)(a+$$
$$\left.\left.\left.b\,\text{Sin}[c+d\,x])\right)\right)\right)$$

Problem 629: Unable to integrate problem.

$$\int (e\,\text{Cos}[c+d\,x])^p\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 6, 158 leaves, 2 steps):

$$\frac{1}{b\,d\,(1+m)}e\,\text{AppellF1}\left[1+m,\frac{1-p}{2},\frac{1-p}{2},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]$$
$$(e\,\text{Cos}[c+d\,x])^{-1+p}\,(a+b\,\text{Sin}[c+d\,x])^{1+m}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{\frac{1-p}{2}}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{\frac{1-p}{2}}$$

Result (type 8, 25 leaves):

$$\int (e\,\text{Cos}[c+d\,x])^p\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 630: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^7\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 3, 254 leaves, 3 steps):

$$-\frac{\left(a^2-b^2\right)^3(a+b\,\text{Sin}[c+d\,x])^{1+m}}{b^7\,d\,(1+m)}+\frac{6\,a\left(a^2-b^2\right)^2(a+b\,\text{Sin}[c+d\,x])^{2+m}}{b^7\,d\,(2+m)}-$$
$$\frac{3\left(5\,a^4-6\,a^2\,b^2+b^4\right)(a+b\,\text{Sin}[c+d\,x])^{3+m}}{b^7\,d\,(3+m)}+\frac{4\,a\left(5\,a^2-3\,b^2\right)(a+b\,\text{Sin}[c+d\,x])^{4+m}}{b^7\,d\,(4+m)}-$$
$$\frac{3\left(5\,a^2-b^2\right)(a+b\,\text{Sin}[c+d\,x])^{5+m}}{b^7\,d\,(5+m)}+\frac{6\,a\,(a+b\,\text{Sin}[c+d\,x])^{6+m}}{b^7\,d\,(6+m)}-\frac{(a+b\,\text{Sin}[c+d\,x])^{7+m}}{b^7\,d\,(7+m)}$$

Result (type 3, 1639 leaves) :

$$\frac{1}{d}\left(a+b\,\mathrm{Sin}[c+d\,x]\right)^m$$

$$\Bigg(-\Big(\big(a\,\big(11520\,a^6-48384\,a^4\,b^2+80640\,a^2\,b^4-80640\,b^6-12096\,a^4\,b^2\,m+50232\,a^2\,b^4\,m-112224\,b^6\,m+1728\,a^4\,b^2\,m^2+3324\,a^2\,b^4\,m^2-54542\,b^6\,m^2-840\,a^2\,b^4\,m^3-13125\,b^6\,m^3-12\,a^2\,b^4\,m^4-1829\,b^6\,m^4-147\,b^6\,m^5-5\,b^6\,m^6\big)\big)\Big/\left(16\,b^7\,(1+m)\,(2+m)\,(3+m)\,(4+m)\,(5+m)\,(6+m)\,(7+m)\right)\Big)+$$

$$\Big(\big(176400\,b^6+46080\,a^6\,m-182016\,a^4\,b^2\,m+279936\,a^2\,b^4\,m+194868\,b^6\,m-42624\,a^4\,b^2\,m^2+169440\,a^2\,b^4\,m^2+78968\,b^6\,m^2+1152\,a^4\,b^2\,m^3+29328\,a^2\,b^4\,m^3+16299\,b^6\,m^3+1632\,a^2\,b^4\,m^4+2027\,b^6\,m^4+48\,a^2\,b^4\,m^5+153\,b^6\,m^5+5\,b^6\,m^6\big)\left(-\frac{\mathrm{i}\,\mathrm{Cos}[c+d\,x]}{128\,b^6}+\frac{\mathrm{Sin}[c+d\,x]}{128\,b^6}\right)\Big)\Big/$$

$$\left((1+m)\,(2+m)\,(3+m)\,(4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$

$$\Big(\big(176400\,b^6+46080\,a^6\,m-182016\,a^4\,b^2\,m+279936\,a^2\,b^4\,m+194868\,b^6\,m-42624\,a^4\,b^2\,m^2+169440\,a^2\,b^4\,m^2+78968\,b^6\,m^2+1152\,a^4\,b^2\,m^3+29328\,a^2\,b^4\,m^3+16299\,b^6\,m^3+1632\,a^2\,b^4\,m^4+2027\,b^6\,m^4+48\,a^2\,b^4\,m^5+153\,b^6\,m^5+5\,b^6\,m^6\big)\left(\frac{\mathrm{i}\,\mathrm{Cos}[c+d\,x]}{128\,b^6}+\frac{\mathrm{Sin}[c+d\,x]}{128\,b^6}\right)\Big)\Big/$$

$$\left((1+m)\,(2+m)\,(3+m)\,(4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$

$$\Big(\big(1920\,a^4\,m-7104\,a^2\,b^2\,m+10008\,b^4\,m-1696\,a^2\,b^2\,m^2+6370\,b^4\,m^2-32\,a^2\,b^2\,m^3+1411\,b^4\,m^3+134\,b^4\,m^4+5\,b^4\,m^5\big)\left(\frac{3\,a\,\mathrm{Cos}[2\,(c+d\,x)]}{64\,b^5}-\frac{3\,\mathrm{i}\,a\,\mathrm{Sin}[2\,(c+d\,x)]}{64\,b^5}\right)\Big)\Big/$$

$$\left((2+m)\,(3+m)\,(4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$

$$\Big(\big(1920\,a^4\,m-7104\,a^2\,b^2\,m+10008\,b^4\,m-1696\,a^2\,b^2\,m^2+6370\,b^4\,m^2-32\,a^2\,b^2\,m^3+1411\,b^4\,m^3+134\,b^4\,m^4+5\,b^4\,m^5\big)\left(\frac{3\,a\,\mathrm{Cos}[2\,(c+d\,x)]}{64\,b^5}+\frac{3\,\mathrm{i}\,a\,\mathrm{Sin}[2\,(c+d\,x)]}{64\,b^5}\right)\Big)\Big/$$

$$\left((2+m)\,(3+m)\,(4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$

$$\Big(\big(5880\,b^4-640\,a^4\,m+2208\,a^2\,b^2\,m+3602\,b^4\,m+552\,a^2\,b^2\,m^2+797\,b^4\,m^2+24\,a^2\,b^2\,m^3+78\,b^4\,m^3+3\,b^4\,m^4\big)\left(-\frac{3\,\mathrm{i}\,\mathrm{Cos}[3\,(c+d\,x)]}{128\,b^4}+\frac{3\,\mathrm{Sin}[3\,(c+d\,x)]}{128\,b^4}\right)\Big)\Big/$$

$$\left((3+m)\,(4+m)\,(5+m)\,(6+m)\,(7+m)\right)+\Big(\big(5880\,b^4-640\,a^4\,m+2208\,a^2\,b^2\,m+3602\,b^4\,m+552\,a^2\,b^2\,m^2+797\,b^4\,m^2+24\,a^2\,b^2\,m^3+78\,b^4\,m^3+3\,b^4\,m^4\big)\left(\frac{3\,\mathrm{i}\,\mathrm{Cos}[3\,(c+d\,x)]}{128\,b^4}+\frac{3\,\mathrm{Sin}[3\,(c+d\,x)]}{128\,b^4}\right)\Big)\Big/\left((3+m)\,(4+m)\,(5+m)\,(6+m)\,(7+m)\right)+$$

$$\Big(\big(20\,a^2\,m-64\,b^2\,m-17\,b^2\,m^2-b^2\,m^3\big)\left(-\frac{3\,a\,\mathrm{Cos}[4\,(c+d\,x)]}{32\,b^3}-\frac{3\,\mathrm{i}\,a\,\mathrm{Sin}[4\,(c+d\,x)]}{32\,b^3}\right)\Big)\Big/$$

$$((4+m)(5+m)(6+m)(7+m)) +$$

$$\left(\left(20 a^2 m - 64 b^2 m - 17 b^2 m^2 - b^2 m^3\right)\left(-\frac{3 a \operatorname{Cos}[4(c+d x)]}{32 b^3}+\frac{3 i a \operatorname{Sin}[4(c+d x)]}{32 b^3}\right)\right) /$$

$$((4+m)(5+m)(6+m)(7+m)) +$$

$$\frac{\left(294 b^2+24 a^2 m+79 b^2 m+5 b^2 m^2\right)\left(-\frac{i \operatorname{Cos}[5(c+d x)]}{128 b^2}+\frac{\operatorname{Sin}[5(c+d x)]}{128 b^2}\right)}{(5+m)(6+m)(7+m)}+$$

$$\frac{\left(294 b^2+24 a^2 m+79 b^2 m+5 b^2 m^2\right)\left(\frac{i \operatorname{Cos}[5(c+d x)]}{128 b^2}+\frac{\operatorname{Sin}[5(c+d x)]}{128 b^2}\right)}{(5+m)(6+m)(7+m)}+$$

$$\frac{\frac{a m \operatorname{Cos}[6(c+d x)]}{64 b}-\frac{i a m \operatorname{Sin}[6(c+d x)]}{64 b}}{(6+m)(7+m)}+$$

$$\frac{\frac{a m \operatorname{Cos}[6(c+d x)]}{64 b}+\frac{i a m \operatorname{Sin}[6(c+d x)]}{64 b}}{(6+m)(7+m)}+$$

$$\frac{-\frac{1}{128} i \operatorname{Cos}[7(c+d x)]+\frac{1}{128} \operatorname{Sin}[7(c+d x)]}{7+m}+$$

$$\left.\frac{\frac{1}{128} i \operatorname{Cos}[7(c+d x)]+\frac{1}{128} \operatorname{Sin}[7(c+d x)]}{7+m}\right)$$

Problem 634: Unable to integrate problem.

$$\int \operatorname{Sec}[c+d x] (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Optimal (type 5, 115 leaves, 5 steps):

$$-\left(\left(\text{Hypergeometric2F1}\left[1, 1+m, 2+m, \frac{a+b \operatorname{Sin}[c+d x]}{a-b}\right](a+b \operatorname{Sin}[c+d x])^{1+m}\right) / \left(2(a-b) d (1+m)\right)\right)+$$

$$\left(\text{Hypergeometric2F1}\left[1, 1+m, 2+m, \frac{a+b \operatorname{Sin}[c+d x]}{a+b}\right](a+b \operatorname{Sin}[c+d x])^{1+m}\right) / \left(2(a+b) d (1+m)\right)$$

Result (type 8, 21 leaves):

$$\int \operatorname{Sec}[c+d x] (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Problem 635: Unable to integrate problem.

$$\int \operatorname{Sec}[c+d x]^3 (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Optimal (type 5, 183 leaves, 6 steps):

$$-\left(\left(\left(a-b\,(1-m)\right)\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right]\left(a+b\,\text{Sin}[c+d\,x]\right)^{1+m}\right)\Big/\left(4\,(a-b)^2\,d\,(1+m)\right)\right)+\left(\left(a+b-b\,m\right)\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]\left(a+b\,\text{Sin}[c+d\,x]\right)^{1+m}\right)\Big/\left(4\,(a+b)^2\,d\,(1+m)\right)-\frac{\text{Sec}[c+d\,x]^2\left(b-a\,\text{Sin}[c+d\,x]\right)\left(a+b\,\text{Sin}[c+d\,x]\right)^{1+m}}{2\left(a^2-b^2\right)d}$$

Result (type 8, 23 leaves):

$$\int \text{Sec}[c+d\,x]^3\left(a+b\,\text{Sin}[c+d\,x]\right)^m\,dx$$

Problem 636: Unable to integrate problem.

$$\int \text{Sec}[c+d\,x]^5\left(a+b\,\text{Sin}[c+d\,x]\right)^m\,dx$$

Optimal (type 5, 305 leaves, 7 steps):

$$-\left(\left(\left(3\,a^2-3\,a\,b\,(2-m)+b^2\left(3-4\,m+m^2\right)\right)\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right]\left(a+b\,\text{Sin}[c+d\,x]\right)^{1+m}\right)\Big/\left(16\,(a-b)^3\,d\,(1+m)\right)\right)+\left(\left(3\,a^2+3\,a\,b\,(2-m)+b^2\left(3-4\,m+m^2\right)\right)\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]\left(a+b\,\text{Sin}[c+d\,x]\right)^{1+m}\right)\Big/\left(16\,(a+b)^3\,d\,(1+m)\right)-\frac{\text{Sec}[c+d\,x]^4\left(b-a\,\text{Sin}[c+d\,x]\right)\left(a+b\,\text{Sin}[c+d\,x]\right)^{1+m}}{4\left(a^2-b^2\right)d}+\frac{1}{8\left(a^2-b^2\right)^2d}\text{Sec}[c+d\,x]^2\left(a+b\,\text{Sin}[c+d\,x]\right)^{1+m}\left(b\left(b^2\,(3-m)-a^2\,(1+m)\right)+a\left(3\,a^2-b^2\,(5-2\,m)\right)\text{Sin}[c+d\,x]\right)$$

Result (type 8, 23 leaves):

$$\int \text{Sec}[c+d\,x]^5\left(a+b\,\text{Sin}[c+d\,x]\right)^m\,dx$$

Problem 637: Unable to integrate problem.

$$\int \text{Cos}[c+d\,x]^4\left(a+b\,\text{Sin}[c+d\,x]\right)^m\,dx$$

Optimal (type 6, 129 leaves, 2 steps):

$$\left(\text{AppellF1}\left[1+m,-\frac{3}{2},-\frac{3}{2},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]\text{Cos}[c+d\,x]^3\right.$$
$$\left.(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left(b\,d\,(1+m)\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{3/2}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{3/2}\right)$$

Result (type 8, 23 leaves):

$$\int \text{Cos}[c+d\,x]^4\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 638: Unable to integrate problem.

$$\int \text{Cos}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 6, 127 leaves, 2 steps):

$$\left(\text{AppellF1}\left[1+m,-\frac{1}{2},-\frac{1}{2},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]\text{Cos}[c+d\,x]\right.$$
$$\left.(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left(b\,d\,(1+m)\sqrt{1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}}\sqrt{1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}}\right)$$

Result (type 8, 23 leaves):

$$\int \text{Cos}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 639: Unable to integrate problem.

$$\int \text{Sec}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 6, 129 leaves, 2 steps):

$$\frac{1}{b\,d\,(1+m)}\text{AppellF1}\left[1+m,\frac{3}{2},\frac{3}{2},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]$$
$$\text{Sec}[c+d\,x]^3\,(a+b\,\text{Sin}[c+d\,x])^{1+m}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{3/2}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{3/2}$$

Result (type 8, 23 leaves):

$$\int \text{Sec}[c+d\,x]^2\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 640: Unable to integrate problem.

$$\int \text{Sec}[c+d\,x]^4\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 6, 129 leaves, 2 steps):

$$\frac{1}{b\,d\,(1+m)}\text{AppellF1}\left[1+m,\frac{5}{2},\frac{5}{2},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]$$
$$\text{Sec}[c+d\,x]^5\,(a+b\,\text{Sin}[c+d\,x])^{1+m}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{5/2}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{5/2}$$

Result (type 8, 23 leaves):

$$\int \text{Sec}[c+d\,x]^4\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 641: Unable to integrate problem.

$$\int (e\,\text{Cos}[c+d\,x])^{5/2}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 6, 134 leaves, 2 steps):

$$\left(e\,\text{AppellF1}\left[1+m,-\frac{3}{4},-\frac{3}{4},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right](e\,\text{Cos}[c+d\,x])^{3/2}\right.$$
$$\left.(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left(b\,d\,(1+m)\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{3/4}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{3/4}\right)$$

Result (type 8, 27 leaves):

$$\int (e\,\text{Cos}[c+d\,x])^{5/2}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 642: Unable to integrate problem.

$$\int (e\,\text{Cos}[c+d\,x])^{3/2}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 6, 134 leaves, 2 steps):

$$\left(e\,\text{AppellF1}\left[1+m,-\frac{1}{4},-\frac{1}{4},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]\sqrt{e\,\text{Cos}[c+d\,x]}\right.$$
$$\left.(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left(b\,d\,(1+m)\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{1/4}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{1/4}\right)$$

Result (type 8, 27 leaves):

$$\int (e\,\text{Cos}[c+d\,x])^{3/2}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 643: Unable to integrate problem.

$$\int \sqrt{e\,\text{Cos}[c+d\,x]}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 6, 134 leaves, 2 steps):

$$\left(e\,\text{AppellF1}\left[1+m,\frac{1}{4},\frac{1}{4},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right](a+b\,\text{Sin}[c+d\,x])^{1+m}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{1/4}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{1/4}\right)\Big/\left(b\,d\,(1+m)\,\sqrt{e\,\text{Cos}[c+d\,x]}\right)$$

Result (type 8, 27 leaves):

$$\int\sqrt{e\,\text{Cos}[c+d\,x]}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 644: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Sin}[c+d\,x])^m}{\sqrt{e\,\text{Cos}[c+d\,x]}}\,dx$$

Optimal (type 6, 134 leaves, 2 steps):

$$\left(e\,\text{AppellF1}\left[1+m,\frac{3}{4},\frac{3}{4},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right](a+b\,\text{Sin}[c+d\,x])^{1+m}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{3/4}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{3/4}\right)\Big/\left(b\,d\,(1+m)\,(e\,\text{Cos}[c+d\,x])^{3/2}\right)$$

Result (type 8, 27 leaves):

$$\int\frac{(a+b\,\text{Sin}[c+d\,x])^m}{\sqrt{e\,\text{Cos}[c+d\,x]}}\,dx$$

Problem 645: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Sin}[c+d\,x])^m}{(e\,\text{Cos}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 6, 134 leaves, 2 steps):

$$\left(e\,\text{AppellF1}\left[1+m,\frac{5}{4},\frac{5}{4},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right](a+b\,\text{Sin}[c+d\,x])^{1+m}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{5/4}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{5/4}\right)\Big/\left(b\,d\,(1+m)\,(e\,\text{Cos}[c+d\,x])^{5/2}\right)$$

Result (type 8, 27 leaves):

$$\int\frac{(a+b\,\text{Sin}[c+d\,x])^m}{(e\,\text{Cos}[c+d\,x])^{3/2}}\,dx$$

Problem 646: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Sin}[c+d\,x])^m}{(e\,\text{Cos}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 6, 134 leaves, 2 steps):

$$\left(e\,\text{AppellF1}\left[1+m,\frac{7}{4},\frac{7}{4},2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right](a+b\,\text{Sin}[c+d\,x])^{1+m}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{7/4}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{7/4}\right)\Big/\left(b\,d\,(1+m)\,(e\,\text{Cos}[c+d\,x])^{7/2}\right)$$

Result (type 8, 27 leaves):

$$\int\frac{(a+b\,\text{Sin}[c+d\,x])^m}{(e\,\text{Cos}[c+d\,x])^{5/2}}\,dx$$

Problem 647: Unable to integrate problem.

$$\int(e\,\text{Cos}[c+d\,x])^{-4-m}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 598 leaves, 9 steps):

$$-\frac{(e\,\text{Cos}[c+d\,x])^{-3-m}\,(a+b\,\text{Sin}[c+d\,x])^{1+m}}{(a-b)\,d\,e\,(3+m)}+\frac{2\,b\,(e\,\text{Cos}[c+d\,x])^{-1-m}\,(a+b\,\text{Sin}[c+d\,x])^{1+m}}{(a-b)^2\,d\,e^3\,(1+m)\,(3+m)}+\frac{a\,(e\,\text{Cos}[c+d\,x])^{-3-m}\,(1+\text{Sin}[c+d\,x])\,(a+b\,\text{Sin}[c+d\,x])^{1+m}}{(a^2-b^2)\,d\,e\,(3+m)}+$$
$$\left(a\,(3\,b+a\,(2+m))\,(e\,\text{Cos}[c+d\,x])^{-3-m}\,(1-\text{Sin}[c+d\,x])\,(1+\text{Sin}[c+d\,x])\,(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left((a-b)\,(a+b)^2\,d\,e\,(1+m)\,(3+m)\right)-$$
$$\left(2^{\frac{3}{2}-\frac{m}{2}}\,a\,b\,(e\,\text{Cos}[c+d\,x])^{-1-m}\,\text{Hypergeometric2F1}\left[\frac{1}{2}(-1-m),\frac{1+m}{2},\frac{1-m}{2},\frac{(a-b)\,(1-\text{Sin}[c+d\,x])}{2\,(a+b\,\text{Sin}[c+d\,x])}\right]\left(\frac{(a+b)\,(1+\text{Sin}[c+d\,x])}{a+b\,\text{Sin}[c+d\,x]}\right)^{\frac{1+m}{2}}(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/$$
$$\left((a-b)^2\,(a+b)\,d\,e^3\,(1+m)\,(3+m)\right)-\left(2^{-\frac{1}{2}-\frac{m}{2}}\,a\,(2\,a\,b-b^2+a^2\,(2+m))\,(e\,\text{Cos}[c+d\,x])^{-3-m}\right.$$
$$\text{Hypergeometric2F1}\left[\frac{1-m}{2},\frac{3+m}{2},\frac{3-m}{2},\frac{(a-b)\,(1-\text{Sin}[c+d\,x])}{2\,(a+b\,\text{Sin}[c+d\,x])}\right](1-\text{Sin}[c+d\,x])^2$$
$$\left.\left(\frac{(a+b)\,(1+\text{Sin}[c+d\,x])}{a+b\,\text{Sin}[c+d\,x]}\right)^{\frac{3+m}{2}}(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left((a-b)\,(a+b)^3\,d\,e\,(1-m)\,(3+m)\right)$$

Result (type 8, 29 leaves):

$$\int(e\,\text{Cos}[c+d\,x])^{-4-m}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 648: Unable to integrate problem.

$$\int(e\,\text{Cos}[c+d\,x])^{-3-m}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 311 leaves, ? steps):

$$\left((e\,\text{Cos}[c+d\,x])^{-m}\,\text{Sec}[c+d\,x]^4\,(-1+\text{Sin}[c+d\,x])\,(1+\text{Sin}[c+d\,x])\,(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left((a-b)\,d\,e^3\,(2+m)\right)+\left((-2\,b+a\,(2+m))\,(e\,\text{Cos}[c+d\,x])^{-m}\,\text{Sec}[c+d\,x]^4\,(-1+\text{Sin}[c+d\,x])\,(1+\text{Sin}[c+d\,x])^2\,(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left((a-b)^2\,d\,e^3\,m\,(2+m)\right)-\left((-b^2+a^2\,(1+m))\,(e\,\text{Cos}[c+d\,x])^{-m}\,\text{Hypergeometric2F1}\left[\frac{m}{2},1+m,2+m,-\frac{2\,(a+b\,\text{Sin}[c+d\,x])}{(a-b)\,(-1+\text{Sin}[c+d\,x])}\right]\,\text{Sec}[c+d\,x]^4\,(1+\text{Sin}[c+d\,x])^3\left(\frac{(a+b)\,(1+\text{Sin}[c+d\,x])}{(a-b)\,(-1+\text{Sin}[c+d\,x])}\right)^{\frac{1}{2}(-2+m)}(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left((a-b)^3\,d\,e^3\,m\,(1+m)\right)$$

Result (type 8, 29 leaves):

$$\int(e\,\text{Cos}[c+d\,x])^{-3-m}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 649: Unable to integrate problem.

$$\int(e\,\text{Cos}[c+d\,x])^{-2-m}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 201 leaves, 3 steps):

$$-\frac{(e\,\text{Cos}[c+d\,x])^{-1-m}\,(a+b\,\text{Sin}[c+d\,x])^{1+m}}{(a-b)\,d\,e\,(1+m)}+\left(2^{\frac{1}{2}-\frac{m}{2}}\,a\,(e\,\text{Cos}[c+d\,x])^{-1-m}\,\text{Hypergeometric2F1}\left[\frac{1}{2}(-1-m),\frac{1+m}{2},\frac{1-m}{2},\frac{(a-b)\,(1-\text{Sin}[c+d\,x])}{2\,(a+b\,\text{Sin}[c+d\,x])}\right]\left(\frac{(a+b)\,(1+\text{Sin}[c+d\,x])}{a+b\,\text{Sin}[c+d\,x]}\right)^{\frac{1+m}{2}}(a+b\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/\left((a^2-b^2)\,d\,e\,(1+m)\right)$$

Result (type 8, 29 leaves):

$$\int(e\,\text{Cos}[c+d\,x])^{-2-m}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Problem 650: Unable to integrate problem.

$$\int(e\,\text{Cos}[c+d\,x])^{-1-m}\,(a+b\,\text{Sin}[c+d\,x])^m\,dx$$

Optimal (type 5, 132 leaves, 1 step):

$$\frac{1}{(a+b)\, d\, (1+m)} e\, (e \operatorname{Cos}[c+d x])^{-2-m} \operatorname{Hypergeometric2F1}\left[1+m, \frac{2+m}{2}, 2+m, \frac{2\, (a+b \operatorname{Sin}[c+d x])}{(a+b)\, (1+\operatorname{Sin}[c+d x])}\right] (1-\operatorname{Sin}[c+d x]) \left(-\frac{(a-b)\, (1-\operatorname{Sin}[c+d x])}{(a+b)\, (1+\operatorname{Sin}[c+d x])}\right)^{m/2} (a+b \operatorname{Sin}[c+d x])^{1+m}$$

Result (type 8, 29 leaves):

$$\int (e \operatorname{Cos}[c+d x])^{-1-m} (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Problem 651: Unable to integrate problem.

$$\int (e \operatorname{Cos}[c+d x])^{-m} (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Optimal (type 6, 152 leaves, 2 steps):

$$\frac{1}{b\, d\, (1+m)} e \operatorname{AppellF1}\left[1+m, \frac{1+m}{2}, \frac{1+m}{2}, 2+m, \frac{a+b \operatorname{Sin}[c+d x]}{a-b}, \frac{a+b \operatorname{Sin}[c+d x]}{a+b}\right] (e \operatorname{Cos}[c+d x])^{-1-m} (a+b \operatorname{Sin}[c+d x])^{1+m} \left(1-\frac{a+b \operatorname{Sin}[c+d x]}{a-b}\right)^{\frac{1+m}{2}} \left(1-\frac{a+b \operatorname{Sin}[c+d x]}{a+b}\right)^{\frac{1+m}{2}}$$

Result (type 8, 27 leaves):

$$\int (e \operatorname{Cos}[c+d x])^{-m} (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Problem 652: Unable to integrate problem.

$$\int (e \operatorname{Cos}[c+d x])^{1-m} (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Optimal (type 6, 142 leaves, 2 steps):

$$\frac{1}{b\, d\, (1+m)} e \operatorname{AppellF1}\left[1+m, \frac{m}{2}, \frac{m}{2}, 2+m, \frac{a+b \operatorname{Sin}[c+d x]}{a-b}, \frac{a+b \operatorname{Sin}[c+d x]}{a+b}\right] (e \operatorname{Cos}[c+d x])^{-m} (a+b \operatorname{Sin}[c+d x])^{1+m} \left(1-\frac{a+b \operatorname{Sin}[c+d x]}{a-b}\right)^{m/2} \left(1-\frac{a+b \operatorname{Sin}[c+d x]}{a+b}\right)^{m/2}$$

Result (type 8, 29 leaves):

$$\int (e \operatorname{Cos}[c+d x])^{1-m} (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Problem 653: Unable to integrate problem.

$$\int (e \operatorname{Cos}[c+d x])^{2-m} (a+b \operatorname{Sin}[c+d x])^m \, dx$$

Optimal (type 6, 152 leaves, 2 steps):

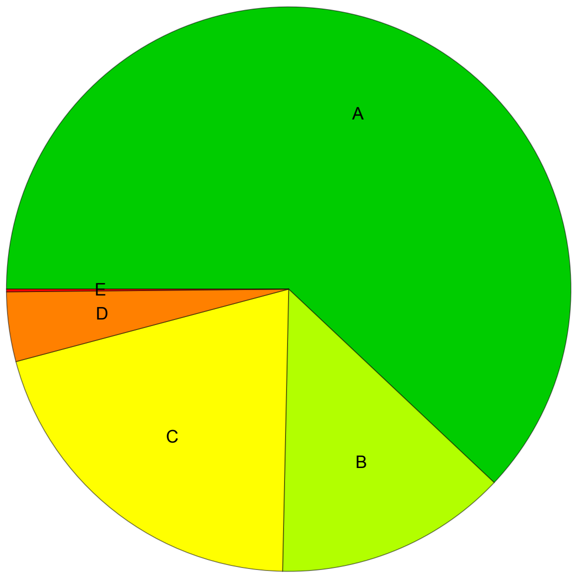
$$\frac{1}{b\,d\,(1+m)}e\,\text{AppellF1}\left[1+m,\frac{1}{2}(-1+m),\frac{1}{2}(-1+m),2+m,\frac{a+b\,\text{Sin}[c+d\,x]}{a-b},\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right]$$
$$(e\,\text{Cos}[c+d\,x])^{1-m}\,(a+b\,\text{Sin}[c+d\,x])^{1+m}$$
$$\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a-b}\right)^{\frac{1}{2}(-1+m)}\left(1-\frac{a+b\,\text{Sin}[c+d\,x]}{a+b}\right)^{\frac{1}{2}(-1+m)}$$

Result (type 8, 29 leaves) :

$$\int(e\,\text{Cos}[c+d\,x])^{2-m}\,(a+b\,\text{Sin}[c+d\,x])^{m}\,dx$$

Summary of Integration Test Results

653 integration problems



A - 405 optimal antiderivatives

B - 87 more than twice size of optimal antiderivatives

C - 134 unnecessarily complex antiderivatives

D - 26 unable to integrate problems

E - 1 integration timeouts