Mathematica 11.3 Integration Test Results

Test results for the 241 problems in "4.5.2.1 (a+b sec)^m (c+d sec)^n.m"

Problem 5: Result more than twice size of optimal antiderivative.

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

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

$$a^2\,c\,x+\frac{a^2\,c\,\mathrm{ArcTanh}[\mathrm{Sin}[e+f\,x]]}{2\,f}-\frac{c\,(2\,a^2+a^2\,\mathrm{Sec}[e+f\,x])\,\mathrm{Tan}[e+f\,x]}{2\,f}$$

Result (type 3, 141 leaves):

$$-\frac{1}{16\,f}a^2\,c\,(-1+\mathrm{Cos}[e+f\,x])\,(1+\mathrm{Cos}[e+f\,x])^2\,\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4$$
$$\mathrm{Sec}[e+f\,x]\,\left(\mathrm{Cos}[e+f\,x]\,\left(2\,e+2\,f\,x-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]+\right.\right.$$
$$\left.\left.\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]\right)-(1+2\,\mathrm{Cos}[e+f\,x])\,\mathrm{Tan}[e+f\,x]\right)$$

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

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

Optimal (type 3, 56 leaves, 8 steps):

$$\frac{a^2\,x}{c}-\frac{a^2\,\mathrm{ArcTanh}[\mathrm{Sin}[e+f\,x]]}{c\,f}-\frac{4\,a^2\,\mathrm{Tan}[e+f\,x]}{c\,f\,(1-\mathrm{Sec}[e+f\,x])}$$

Result (type 3, 169 leaves):

$$\left(a^2\,\mathrm{Csc}\left[\frac{e}{2}\right]\,\left(-\mathrm{Cos}\left[\frac{f\,x}{2}\right]\,\left(f\,x+\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]-\right.\right.\right.$$
$$\left.\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]\right)+\mathrm{Cos}\left[e+\frac{f\,x}{2}\right]$$
$$\left(f\,x+\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right]\right)+$$
$$\left.\left.8\,\mathrm{Sin}\left[\frac{f\,x}{2}\right]\right)\,\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\Big/\,(c\,f\,(-1+\mathrm{Cos}[e+f\,x]))$$

Problem 16: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 78 leaves, 15 steps):

$$\frac{a^3\,x}{c} - \frac{4\,a^3\,\text{ArcTanh}[\text{Sin}[e + f\,x]]}{c\,f} + \frac{8\,a^3\,\text{Cot}[e + f\,x]}{c\,f} + \frac{8\,a^3\,\text{Csc}[e + f\,x]}{c\,f} - \frac{a^3\,\text{Tan}[e + f\,x]}{c\,f}$$

Result (type 3, 240 leaves):

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

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

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

Optimal (type 3, 88 leaves, 13 steps):

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

Result (type 3, 177 leaves):

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

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

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

Optimal (type 3, 136 leaves, 26 steps):

$$\frac{c^5 x}{a^2}-\frac{47 c^5 \text{ArcTanh}[\text{Sin}[e+f x]]}{2 a^2 f}+\frac{13 c^5 \text{Tan}[e+f x]}{2 a^2 f}+\frac{112 c^5 \text{Tan}[e+f x]}{3 a^2 f (1+\text{Sec}[e+f x])}-\frac{32 c^5 \text{Tan}[e+f x]}{3 f (a+a \text{Sec}[e+f x])^2}+\frac{\left(c^5-c^5 \text{Sec}[e+f x]\right) \text{Tan}[e+f x]}{2 a^2 f}$$

Result (type 3, 384 leaves):

$$\frac{1}{96 a^2 (1+\text{Sec}[e+f x])^2}\text{Cos}[e+f x]^3 \text{Cot}\left[\frac{1}{2} (e+f x)\right] \text{Csc}\left[\frac{1}{2} (e+f x)\right]^6 (c-c \text{Sec}[e+f x])^5 \left(-\frac{320 \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2 \text{Csc}\left[\frac{1}{2} (e+f x)\right] \text{Sec}\left[\frac{e}{2}\right] \text{Sin}\left[\frac{f x}{2}\right]}{f}-\frac{64 \text{Csc}\left[\frac{1}{2} (e+f x)\right]^3 \text{Sec}\left[\frac{e}{2}\right] \text{Sin}\left[\frac{f x}{2}\right]}{f}+3 \text{Cot}\left[\frac{1}{2} (e+f x)\right]^3 \left(-4 x-\frac{94 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right]}{f}+\frac{94 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right]}{f}+\frac{1}{f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^2}-\frac{1}{f \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)^2}-(28 \text{Sin}[f x])\Big/\left(f \left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]-\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)\left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)\right)\right)-\frac{64 \text{Cot}\left[\frac{1}{2} (e+f x)\right] \text{Csc}\left[\frac{1}{2} (e+f x)\right]^2 \text{Tan}\left[\frac{e}{2}\right]}{f}\right)$$

Problem 22: Result more than twice size of optimal antiderivative.

$$\int \frac{(c-c \text{Sec}[e+f x])^4}{(a+a \text{Sec}[e+f x])^2} \, dx$$

Optimal (type 3, 102 leaves, 21 steps):

$$\frac{c^4 x}{a^2}-\frac{6 c^4 \text{ArcTanh}[\text{Sin}[e+f x]]}{a^2 f}-\frac{16 c^4 \text{Cot}[e+f x]}{a^2 f}-\frac{32 c^4 \text{Cot}[e+f x]^3}{3 a^2 f}+\frac{32 c^4 \text{Csc}[e+f x]^3}{3 a^2 f}+\frac{c^4 \text{Tan}[e+f x]}{a^2 f}$$

Result (type 3, 753 leaves):

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

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

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

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

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

$$\left(\text{Cos}[e+f x]^2\,\text{Cot}\left[\frac{e}{2}+\frac{f x}{2}\right]^4\,\text{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^4\,(c-c\,\text{Sec}[e+f x])^4\,\text{Sin}\left[\frac{f x}{2}\right]\right)\Big/\left(4 f\,(a+a\,\text{Sec}[e+f x])^2\,\left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{e}{2}+\frac{f x}{2}\right]-\text{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]\right)\right)+$$

$$\left(\text{Cos}[e+f x]^2\,\text{Cot}\left[\frac{e}{2}+\frac{f x}{2}\right]^4\,\text{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^4\,(c-c\,\text{Sec}[e+f x])^4\,\text{Sin}\left[\frac{f x}{2}\right]\right)\Big/\left(4 f\,(a+a\,\text{Sec}[e+f x])^2\,\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{e}{2}+\frac{f x}{2}\right]+\text{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]\right)\right)+$$

$$\left(2\,\text{Cos}[e+f x]^2\,\text{Cot}\left[\frac{e}{2}+\frac{f x}{2}\right]^2\,\text{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^6\,(c-c\,\text{Sec}[e+f x])^4\,\text{Tan}\left[\frac{e}{2}\right]\right)\Big/\left(3 f\,(a+a\,\text{Sec}[e+f x])^2\right)$$

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

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

Optimal (type 3, 85 leaves, 13 steps):

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

Result (type 3, 216 leaves):

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

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

$$\int \frac{1}{(a+a \text{Sec}[e+f x])^2 (c-c \text{Sec}[e+f x])^3} \, dx$$

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

$$\frac{x}{a^2 c^3}+\frac{\text{Cot}[e+f x]^5 (1+\text{Sec}[e+f x])}{5 a^2 c^3 f}-\frac{\text{Cot}[e+f x]^3 (5+4 \text{Sec}[e+f x])}{15 a^2 c^3 f}+\frac{\text{Cot}[e+f x] (15+8 \text{Sec}[e+f x])}{15 a^2 c^3 f}$$

Result (type 3, 257 leaves):

$$\frac{1}{30720 a^2 c^3 f} \text{Csc}\left[\frac{e}{2}\right] \text{Csc}\left[\frac{1}{2} (e+f x)\right]^5 \text{Sec}\left[\frac{e}{2}\right] \text{Sec}\left[\frac{1}{2} (e+f x)\right]^3 (360 f x \text{Cos}[f x]-360 f x \text{Cos}[2 e+f x]-120 f x \text{Cos}[e+2 f x]+120 f x \text{Cos}[3 e+2 f x]-120 f x \text{Cos}[2 e+3 f x]+120 f x \text{Cos}[4 e+3 f x]+60 f x \text{Cos}[3 e+4 f x]-60 f x \text{Cos}[5 e+4 f x]+200 \text{Sin}[e]-584 \text{Sin}[f x]-534 \text{Sin}[e+f x]+178 \text{Sin}[2 (e+f x)]+178 \text{Sin}[3 (e+f x)]-89 \text{Sin}[4 (e+f x)]-520 \text{Sin}[2 e+f x]+248 \text{Sin}[e+2 f x]+120 \text{Sin}[3 e+2 f x]+248 \text{Sin}[2 e+3 f x]+120 \text{Sin}[4 e+3 f x]-184 \text{Sin}[3 e+4 f x])$$

Problem 31: Result more than twice size of optimal antiderivative.

$$\int \frac{(c-c \text{Sec}[e+f x])^5}{(a+a \text{Sec}[e+f x])^3} \, dx$$

Optimal (type 3, 162 leaves, 29 steps):

$$\frac{c^5 x}{a^3}+\frac{8 c^5 \text{ArcTanh}[\text{Sin}[e+f x]]}{a^3 f}+\frac{32 c^5 \text{Cot}[e+f x]}{a^3 f}+\frac{128 c^5 \text{Cot}[e+f x]^3}{3 a^3 f}+\frac{128 c^5 \text{Cot}[e+f x]^5}{5 a^3 f}-\frac{16 c^5 \text{Csc}[e+f x]}{a^3 f}+\frac{64 c^5 \text{Csc}[e+f x]^3}{3 a^3 f}-\frac{128 c^5 \text{Csc}[e+f x]^5}{5 a^3 f}-\frac{c^5 \text{Tan}[e+f x]}{a^3 f}$$

Result (type 3, 908 leaves):

$$-\frac{x \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^6 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^4 (c-c \sec[e+f x])^5}{4 (a+a \sec[e+f x])^3}+$$
$$\left(2 \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^6 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^4 \text{Log}\left[\cos\left[\frac{e}{2}+\frac{f x}{2}\right]-\sin\left[\frac{e}{2}+\frac{f x}{2}\right]\right] (c-c \sec[e+f x])^5\right) \Big/ \left(f (a+a \sec[e+f x])^3\right)-$$
$$\left(2 \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^6 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^4 \text{Log}\left[\cos\left[\frac{e}{2}+\frac{f x}{2}\right]+\sin\left[\frac{e}{2}+\frac{f x}{2}\right]\right] (c-c \sec[e+f x])^5\right) \Big/ \left(f (a+a \sec[e+f x])^3\right)+$$
$$\left(56 \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^5 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^5 \sec\left[\frac{e}{2}\right] (c-c \sec[e+f x])^5 \sin\left[\frac{f x}{2}\right]\right) \Big/ \left(15 f (a+a \sec[e+f x])^3\right)-$$
$$\left(2 \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^3 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^7 \sec\left[\frac{e}{2}\right] (c-c \sec[e+f x])^5 \sin\left[\frac{f x}{2}\right]\right) \Big/ \left(15 f (a+a \sec[e+f x])^3\right)+$$
$$\left(2 \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right] \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^9 \sec\left[\frac{e}{2}\right] (c-c \sec[e+f x])^5 \sin\left[\frac{f x}{2}\right]\right) \Big/ \left(5 f (a+a \sec[e+f x])^3\right)+$$
$$\left(\cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^6 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^4 (c-c \sec[e+f x])^5 \sin\left[\frac{f x}{2}\right]\right) \Big/ \left(4 f (a+a \sec[e+f x])^3 \left(\cos\left[\frac{e}{2}\right]-\sin\left[\frac{e}{2}\right]\right) \left(\cos\left[\frac{e}{2}+\frac{f x}{2}\right]-\sin\left[\frac{e}{2}+\frac{f x}{2}\right]\right)\right)+$$
$$\left(\cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^6 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^4 (c-c \sec[e+f x])^5 \sin\left[\frac{f x}{2}\right]\right) \Big/ \left(4 f (a+a \sec[e+f x])^3 \left(\cos\left[\frac{e}{2}\right]+\sin\left[\frac{e}{2}\right]\right) \left(\cos\left[\frac{e}{2}+\frac{f x}{2}\right]+\sin\left[\frac{e}{2}+\frac{f x}{2}\right]\right)\right)-$$
$$\left(2 \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^4 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^6 (c-c \sec[e+f x])^5 \tan\left[\frac{e}{2}\right]\right) \Big/ \left(15 f (a+a \sec[e+f x])^3\right)+$$
$$\left(2 \cos[e+f x]^2 \cot\left[\frac{e}{2}+\frac{f x}{2}\right]^2 \csc\left[\frac{e}{2}+\frac{f x}{2}\right]^8 (c-c \sec[e+f x])^5 \tan\left[\frac{e}{2}\right]\right) \Big/ \left(5 f (a+a \sec[e+f x])^3\right)$$

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

$$\int \frac{1}{(a+a \sec[e+f x])^3 (c-c \sec[e+f x])^2} \, dx$$

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

$$\frac{x}{a^3 c^2}+\frac{\cot[e+f x] (15-8 \sec[e+f x])}{15 a^3 c^2 f}-\frac{\cot[e+f x]^3 (5-4 \sec[e+f x])}{15 a^3 c^2 f}+\frac{\cot[e+f x]^5 (1-\sec[e+f x])}{5 a^3 c^2 f}$$

Result (type 3, 257 leaves):

$$\frac{1}{30720\, a^3\, c^2\, f} \operatorname{Csc}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^3 \operatorname{Sec}\left[\frac{e}{2}\right] \operatorname{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^5 \left(360\, f\, x \operatorname{Cos}[f\,x] - 360\, f\, x \operatorname{Cos}[2\,e+f\,x] + 120\, f\, x \operatorname{Cos}[e+2\,f\,x] - 120\, f\, x \operatorname{Cos}[3\,e+2\,f\,x] - 120\, f\, x \operatorname{Cos}[2\,e+3\,f\,x] + 120\, f\, x \operatorname{Cos}[4\,e+3\,f\,x] - 60\, f\, x \operatorname{Cos}[3\,e+4\,f\,x] + 60\, f\, x \operatorname{Cos}[5\,e+4\,f\,x] - 200 \operatorname{Sin}[e] - 584 \operatorname{Sin}[f\,x] + 534 \operatorname{Sin}[e+f\,x] + 178 \operatorname{Sin}[2\,(e+f\,x)] - 178 \operatorname{Sin}[3\,(e+f\,x)] - 89 \operatorname{Sin}[4\,(e+f\,x)] - 520 \operatorname{Sin}[2\,e+f\,x] - 248 \operatorname{Sin}[e+2\,f\,x] - 120 \operatorname{Sin}[3\,e+2\,f\,x] + 248 \operatorname{Sin}[2\,e+3\,f\,x] + 120 \operatorname{Sin}[4\,e+3\,f\,x] + 184 \operatorname{Sin}[3\,e+4\,f\,x]\right)$$

Problem 39: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+a \operatorname{Sec}[e+f\,x])^3\,(c-c \operatorname{Sec}[e+f\,x])^4}\, dx$$

Optimal (type 3, 129 leaves, 6 steps):

$$\frac{x}{a^3\, c^4} - \frac{\operatorname{Cot}[e+f\,x]^7\,(1+\operatorname{Sec}[e+f\,x])}{7\, a^3\, c^4\, f} + \frac{\operatorname{Cot}[e+f\,x]^5\,(7+6 \operatorname{Sec}[e+f\,x])}{35\, a^3\, c^4\, f} + \frac{\operatorname{Cot}[e+f\,x]\,(35+16 \operatorname{Sec}[e+f\,x])}{35\, a^3\, c^4\, f} - \frac{\operatorname{Cot}[e+f\,x]^3\,(35+24 \operatorname{Sec}[e+f\,x])}{105\, a^3\, c^4\, f}$$

Result (type 3, 362 leaves):

$$\frac{1}{6881280\, a^3\, c^4\, f} \operatorname{Csc}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^7 \operatorname{Sec}\left[\frac{e}{2}\right] \operatorname{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^5 \left(16800\, f\, x \operatorname{Cos}[f\,x] - 16800\, f\, x \operatorname{Cos}[2\,e+f\,x] - 4200\, f\, x \operatorname{Cos}[e+2\,f\,x] + 4200\, f\, x \operatorname{Cos}[3\,e+2\,f\,x] - 8400\, f\, x \operatorname{Cos}[2\,e+3\,f\,x] + 8400\, f\, x \operatorname{Cos}[4\,e+3\,f\,x] + 3360\, f\, x \operatorname{Cos}[3\,e+4\,f\,x] - 3360\, f\, x \operatorname{Cos}[5\,e+4\,f\,x] + 1680\, f\, x \operatorname{Cos}[4\,e+5\,f\,x] - 1680\, f\, x \operatorname{Cos}[6\,e+5\,f\,x] - 840\, f\, x \operatorname{Cos}[5\,e+6\,f\,x] + 840\, f\, x \operatorname{Cos}[7\,e+6\,f\,x] + 3136 \operatorname{Sin}[e] - 30112 \operatorname{Sin}[f\,x] - 22860 \operatorname{Sin}[e+f\,x] + 5715 \operatorname{Sin}[2\,(e+f\,x)] + 11430 \operatorname{Sin}[3\,(e+f\,x)] - 4572 \operatorname{Sin}[4\,(e+f\,x)] - 2286 \operatorname{Sin}[5\,(e+f\,x)] + 1143 \operatorname{Sin}[6\,(e+f\,x)] - 26208 \operatorname{Sin}[2\,e+f\,x] + 14080 \operatorname{Sin}[e+2\,f\,x] + 16400 \operatorname{Sin}[2\,e+3\,f\,x] + 11760 \operatorname{Sin}[4\,e+3\,f\,x] - 7904 \operatorname{Sin}[3\,e+4\,f\,x] - 3360 \operatorname{Sin}[5\,e+4\,f\,x] - 3952 \operatorname{Sin}[4\,e+5\,f\,x] - 1680 \operatorname{Sin}[6\,e+5\,f\,x] + 2816 \operatorname{Sin}[5\,e+6\,f\,x]\right)$$

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

$$\int \frac{1}{(a+a \operatorname{Sec}[e+f\,x])^3\,(c-c \operatorname{Sec}[e+f\,x])^5}\, dx$$

Optimal (type 3, 210 leaves, 14 steps):

$$\frac{x}{a^3\, c^5} + \frac{\operatorname{Cot}[e+f\,x]}{a^3\, c^5\, f} - \frac{\operatorname{Cot}[e+f\,x]^3}{3\, a^3\, c^5\, f} + \frac{\operatorname{Cot}[e+f\,x]^5}{5\, a^3\, c^5\, f} - \frac{\operatorname{Cot}[e+f\,x]^7}{7\, a^3\, c^5\, f} + \frac{2 \operatorname{Cot}[e+f\,x]^9}{9\, a^3\, c^5\, f} + \frac{2 \operatorname{Csc}[e+f\,x]}{a^3\, c^5\, f} - \frac{8 \operatorname{Csc}[e+f\,x]^3}{3\, a^3\, c^5\, f} + \frac{12 \operatorname{Csc}[e+f\,x]^5}{5\, a^3\, c^5\, f} - \frac{8 \operatorname{Csc}[e+f\,x]^7}{7\, a^3\, c^5\, f} + \frac{2 \operatorname{Csc}[e+f\,x]^9}{9\, a^3\, c^5\, f}$$

Result (type 3, 441 leaves):

$$\frac{1}{2580480\, a^3 c^5 f \left(-1+\text{Sec}[e+f x]\right)^5 \left(1+\text{Sec}[e+f x]\right)^3}$$
$$\text{Csc}\left[\frac{e}{2}\right] \text{Sec}\left[\frac{e}{2}\right] \text{Sec}[e+f x]^7 \left(453600\, f x \,\text{Cos}[f x] - 453600\, f x\,\text{Cos}[2 e+f x] - 201600\, f x\,\text{Cos}[e+2 f x] + 201600\, f x\,\text{Cos}[3 e+2 f x] - 191520\, f x\,\text{Cos}[2 e+3 f x] + 191520\, f x\,\text{Cos}[4 e+3 f x] + 161280\, f x\,\text{Cos}[3 e+4 f x] - 161280\, f x\,\text{Cos}[5 e+4 f x] + 10080\, f x\,\text{Cos}[4 e+5 f x] - 10080\, f x\,\text{Cos}[6 e+5 f x] - 40320\, f x\,\text{Cos}[5 e+6 f x] + 40320\, f x\,\text{Cos}[7 e+6 f x] + 10080\, f x\,\text{Cos}[6 e+7 f x] - 10080\, f x\,\text{Cos}[8 e+7 f x] + 259584\,\text{Sin}[e] - 897024\,\text{Sin}[f x] - 1152405\,\text{Sin}[e+f x] + 512180\,\text{Sin}[2 (e+f x)] + 486571\,\text{Sin}[3 (e+f x)] - 409744\,\text{Sin}[4 (e+f x)] - 25609\,\text{Sin}[5 (e+f x)] + 102436\,\text{Sin}[6 (e+f x)] - 25609\,\text{Sin}[7 (e+f x)] - 825216\,\text{Sin}[2 e+f x] + 622976\,\text{Sin}[e+2 f x] + 142464\,\text{Sin}[3 e+2 f x] + 297088\,\text{Sin}[2 e+3 f x] + 430080\,\text{Sin}[4 e+3 f x] - 424192\,\text{Sin}[3 e+4 f x] - 188160\,\text{Sin}[5 e+4 f x] + 2048\,\text{Sin}[4 e+5 f x] - 40320\,\text{Sin}[6 e+5 f x] + 112768\,\text{Sin}[5 e+6 f x] + 40320\,\text{Sin}[7 e+6 f x] - 38272\,\text{Sin}[6 e+7 f x]\right) \text{Tan}[e+f x]$$

Problem 47: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+a\,\text{Sec}[e+f x]}}{\left(c-c\,\text{Sec}[e+f x]\right)^2}\, dx$$

Optimal (type 3, 104 leaves, 5 steps):

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

Result (type 4, 471 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]\text{Sec}[e+fx]^2\sqrt{a(1+\text{Sec}[e+fx])}\,\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^4\right.$$
$$\left.\left(\frac{20}{3}\text{Csc}\left[\frac{1}{2}(e+fx)\right]-\frac{2}{3}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^3-\frac{32}{3}\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/\left(f\,(c-c\,\text{Sec}[e+fx])^2\right)-$$
$$\frac{1}{f\,(c-c\,\text{Sec}[e+fx])^2}\,32\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+fx)\right]^4$$
$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}$$
$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+\right.$$
$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$
$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\text{Sec}\left[\frac{1}{4}(e+fx)\right]^2\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]}$$
$$\text{Sec}[e+fx]^3\sqrt{a(1+\text{Sec}[e+fx])}\,\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^4\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(e+fx)\right]^2}$$

Problem 48: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{a+a\,\text{Sec}[e+fx]}}{(c-c\,\text{Sec}[e+fx])^3}\,dx$$

Optimal (type 3, 139 leaves, 6 steps):

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

Result (type 4, 487 leaves):

$$\left(\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right] \mathrm{Sec}[e+f x]^3 \sqrt{a(1+\mathrm{Sec}[e+f x])} \,\mathrm{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^6 \left(-\frac{272}{15}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]+\frac{56}{15}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^3-\frac{2}{5}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^5+\frac{368}{15}\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right) \Big/ \left(f (c-c\,\mathrm{Sec}[e+f x])^3\right)+\frac{1}{f (c-c\,\mathrm{Sec}[e+f x])^3} 64\left(-3-2\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{4}(e+f x)\right]^4$$

$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$

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

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

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

$$\mathrm{Sec}[e+f x]^4\sqrt{a(1+\mathrm{Sec}[e+f x])}\,\mathrm{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^6\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]^2}$$

Problem 49: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+a\,\mathrm{Sec}[e+f x]}}{(c-c\,\mathrm{Sec}[e+f x])^4}\,dx$$

Optimal (type 3, 174 leaves, 7 steps):

$$\frac{2\sqrt{a}\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\mathrm{Tan}[e+f x]}{\sqrt{a+a\,\mathrm{Sec}[e+f x]}}\right]}{c^4 f}+\frac{2\,\mathrm{Cot}[e+f x]\sqrt{a+a\,\mathrm{Sec}[e+f x]}}{c^4 f}-\frac{2\,\mathrm{Cot}[e+f x]^3(a+a\,\mathrm{Sec}[e+f x])^{3/2}}{3 a c^4 f}+\frac{2\,\mathrm{Cot}[e+f x]^5(a+a\,\mathrm{Sec}[e+f x])^{5/2}}{5 a^2 c^4 f}-\frac{2\,\mathrm{Cot}[e+f x]^7(a+a\,\mathrm{Sec}[e+f x])^{7/2}}{7 a^3 c^4 f}$$

Result (type 4, 503 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]\text{Sec}[e+fx]^4\sqrt{a(1+\text{Sec}[e+fx])}\right.$$
$$\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^8\left(\frac{4768}{105}\text{Csc}\left[\frac{1}{2}(e+fx)\right]-\frac{1504}{105}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^3+\right.$$
$$\left.\left.\frac{108}{35}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^5-\frac{2}{7}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^7-\frac{5632}{105}\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left(f(c-c\,\text{Sec}[e+fx])^4\right)-\frac{1}{f(c-c\,\text{Sec}[e+fx])^4}128\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+fx)\right]^4$$
$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}$$
$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+\right.$$
$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$
$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\text{Sec}\left[\frac{1}{4}(e+fx)\right]^2\text{Sec}\left[\frac{1}{2}(e+fx)\right]}$$
$$\text{Sec}[e+fx]^5\sqrt{a(1+\text{Sec}[e+fx])}\,\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^8\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(e+fx)\right]^2}$$

Problem 54: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{(a+a\,\text{Sec}[e+fx])^{3/2}}{(c-c\,\text{Sec}[e+fx])^2}\,dx$$

Optimal (type 3, 102 leaves, 5 steps):

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

Result (type 4, 473 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]^3 \text{Sec}[e+fx]\,(a\,(1+\text{Sec}[e+fx]))^{3/2}\,\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^4 \left(\frac{14}{3}\text{Csc}\left[\frac{1}{2}(e+fx)\right]-\frac{2}{3}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^3-\frac{20}{3}\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/\left(f\,(c-c\,\text{Sec}[e+fx])^2\right)-$$

$$\frac{1}{f\,(c-c\,\text{Sec}[e+fx])^2}\,16\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+fx)\right]^4 \sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}\,\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}$$

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

$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$

$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\text{Sec}\left[\frac{1}{4}(e+fx)\right]^2}\;\text{Sec}\left[\frac{1}{2}(e+fx)\right]^3$$

$$\text{Sec}[e+fx]^2\,(a\,(1+\text{Sec}[e+fx]))^{3/2}\,\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^4 \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(e+fx)\right]^2}$$

Problem 55: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+a\,\text{Sec}[e+fx])^{3/2}}{(c-c\,\text{Sec}[e+fx])^3}\,dx$$

Optimal (type 3, 137 leaves, 6 steps):

$$\frac{2\,a^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+fx]}{\sqrt{a+a\,\text{Sec}[e+fx]}}\right]}{c^3 f}+\frac{2\,a\,\text{Cot}[e+fx]\,\sqrt{a+a\,\text{Sec}[e+fx]}}{c^3 f}-\frac{2\,\text{Cot}[e+fx]^3\,(a+a\,\text{Sec}[e+fx])^{3/2}}{3\,c^3 f}+\frac{4\,\text{Cot}[e+fx]^5\,(a+a\,\text{Sec}[e+fx])^{5/2}}{5\,a\,c^3 f}$$

Result (type 4, 491 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]^3 \text{Sec}[e+fx]^2 \left(a\left(1+\text{Sec}[e+fx]\right)\right)^{3/2} \text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^6 \left(-\frac{172}{15}\text{Csc}\left[\frac{1}{2}(e+fx)\right]+\frac{46}{15}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^3-\frac{2}{5}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^5+\frac{208}{15}\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right) \Big/ \left(f\left(c-c\,\text{Sec}[e+fx]\right)^3\right)+\frac{1}{f\left(c-c\,\text{Sec}[e+fx]\right)^3} 32\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+fx)\right]^4$$

$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}$$

$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$

$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\text{Sec}\left[\frac{1}{4}(e+fx)\right]^2}\;\text{Sec}\left[\frac{1}{2}(e+fx)\right]^3$$

$$\text{Sec}[e+fx]^3\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{3/2}\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^6\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(e+fx)\right]^2}$$

Problem 56: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\left(a+a\,\text{Sec}[e+fx]\right)^{3/2}}{\left(c-c\,\text{Sec}[e+fx]\right)^4}\,dx$$

Optimal (type 3, 172 leaves, 7 steps):

$$\frac{2a^{3/2}\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+fx]}{\sqrt{a+a\,\text{Sec}[e+fx]}}\right]}{c^4 f}+\frac{2a\,\text{Cot}[e+fx]\sqrt{a+a\,\text{Sec}[e+fx]}}{c^4 f}-\frac{2\,\text{Cot}[e+fx]^3\left(a+a\,\text{Sec}[e+fx]\right)^{3/2}}{3c^4 f}+\frac{2\,\text{Cot}[e+fx]^5\left(a+a\,\text{Sec}[e+fx]\right)^{5/2}}{5ac^4 f}-\frac{4\,\text{Cot}[e+fx]^7\left(a+a\,\text{Sec}[e+fx]\right)^{7/2}}{7a^2c^4 f}$$

Result (type 4, 507 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]^3\text{Sec}[e+fx]^3\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{3/2}\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^8\left(\frac{2864}{105}\text{Csc}\left[\frac{1}{2}(e+fx)\right]-\frac{1112}{105}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^3+\frac{94}{35}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^5-\frac{2}{7}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^7-\frac{3056}{105}\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/\left(f\left(c-c\,\text{Sec}[e+fx]\right)^4\right)-\frac{1}{f\left(c-c\,\text{Sec}[e+fx]\right)^4}64\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+fx)\right]^4$$

$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}$$

$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$

$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\text{Sec}\left[\frac{1}{4}(e+fx)\right]^2}\;\text{Sec}\left[\frac{1}{2}(e+fx)\right]^3$$

$$\text{Sec}[e+fx]^4\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{3/2}\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^8\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(e+fx)\right]^2}$$

Problem 61: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 74 leaves, 5 steps):

$$\frac{2a^{5/2}\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+fx]}{\sqrt{a+a\,\text{Sec}[e+fx]}}\right]}{c^2 f}-\frac{8a\,\text{Cot}[e+fx]^3\left(a+a\,\text{Sec}[e+fx]\right)^{3/2}}{3c^2 f}$$

Result (type 4, 465 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]^5 \left(a\left(1+\text{Sec}[e+fx]\right)\right)^{5/2} \text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^4 \left(\frac{8}{3}\text{Csc}\left[\frac{1}{2}(e+fx)\right]-\frac{2}{3}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^3-\frac{8}{3}\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right) \Big/ \left(f\left(c-c\,\text{Sec}[e+fx]\right)^2\right) -$$

$$\frac{1}{f\left(c-c\,\text{Sec}[e+fx]\right)^2} 8\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+fx)\right]^4 \sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}$$

$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}} \left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)$$

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

$$\left. 2\,\text{EllipticPi}\left[-3+2\sqrt{2}, -\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right]\right)$$

$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\text{Sec}\left[\frac{1}{4}(e+fx)\right]^2}\ \text{Sec}\left[\frac{1}{2}(e+fx)\right]^5$$

$$\text{Sec}[e+fx]\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{5/2}\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^4 \sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(e+fx)\right]^2}$$

Problem 62: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 104 leaves, 5 steps):

$$\frac{2a^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+fx]}{\sqrt{a+a\,\text{Sec}[e+fx]}}\right]}{c^3 f} + \frac{2a^2\,\text{Cot}[e+fx]\sqrt{a+a\,\text{Sec}[e+fx]}}{c^3 f} + \frac{8\,\text{Cot}[e+fx]^5\left(a+a\,\text{Sec}[e+fx]\right)^{5/2}}{5c^3 f}$$

Result (type 4, 489 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]^5 \text{Sec}[e+fx] \left(a\left(1+\text{Sec}[e+fx]\right)\right)^{5/2} \text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^6 \left(-\frac{34}{5}\text{Csc}\left[\frac{1}{2}(e+fx)\right]+\frac{12}{5}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^3-\frac{2}{5}\text{Csc}\left[\frac{1}{2}(e+fx)\right]^5+\frac{36}{5}\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right) \Big/ \left(f\left(c-c\,\text{Sec}[e+fx]\right)^3\right)+\frac{1}{f\left(c-c\,\text{Sec}[e+fx]\right)^3} 16\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+fx)\right]^4$$

$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+fx)\right]}}$$

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

$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+fx)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$

$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right)\text{Sec}\left[\frac{1}{4}(e+fx)\right]^2}\ \text{Sec}\left[\frac{1}{2}(e+fx)\right]^5$$

$$\text{Sec}[e+fx]^2\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{5/2}\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^6\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}(e+fx)\right]^2}$$

Problem 63: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\left(a+a\,\text{Sec}[e+fx]\right)^{5/2}}{\left(c-c\,\text{Sec}[e+fx]\right)^4}\,dx$$

Optimal (type 3, 140 leaves, 5 steps):

$$\frac{2a^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+fx]}{\sqrt{a+a\,\text{Sec}[e+fx]}}\right]}{c^4 f}+\frac{2a^2\,\text{Cot}[e+fx]\sqrt{a+a\,\text{Sec}[e+fx]}}{c^4 f}-\frac{2a\,\text{Cot}[e+fx]^3\left(a+a\,\text{Sec}[e+fx]\right)^{3/2}}{3c^4 f}-\frac{8\,\text{Cot}[e+fx]^7\left(a+a\,\text{Sec}[e+fx]\right)^{7/2}}{7a\,c^4 f}$$

Result (type 4, 507 leaves):

$$\left(\text{Sec}\left[\frac{1}{2}(e+f x)\right]^5 \text{Sec}[e+f x]^2 \left(a\left(1+\text{Sec}[e+f x]\right)\right)^{5/2}\right.$$

$$\text{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^8 \left(\frac{332}{21}\text{Csc}\left[\frac{1}{2}(e+f x)\right]-\frac{158}{21}\text{Csc}\left[\frac{1}{2}(e+f x)\right]^3+\right.$$

$$\left.\left.\frac{16}{7}\text{Csc}\left[\frac{1}{2}(e+f x)\right]^5-\frac{2}{7}\text{Csc}\left[\frac{1}{2}(e+f x)\right]^7-\frac{320}{21}\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$

$$\left(f\left(c-c\,\text{Sec}[e+f x]\right)^4\right)-\frac{1}{f\left(c-c\,\text{Sec}[e+f x]\right)^4}\,32\left(-3-2\sqrt{2}\right)\text{Cos}\left[\frac{1}{4}(e+f x)\right]^4$$

$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$

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

$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$

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

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

Problem 64: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 172 leaves, 5 steps):

$$\frac{2\,a^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+f x]}{\sqrt{a+a\,\text{Sec}[e+f x]}}\right]}{c^5 f}+$$

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

$$\frac{2\,\text{Cot}[e+f x]^5\left(a+a\,\text{Sec}[e+f x]\right)^{5/2}}{5\,c^5 f}+\frac{8\,\text{Cot}[e+f x]^9\left(a+a\,\text{Sec}[e+f x]\right)^{9/2}}{9\,a^2 c^5 f}$$

Result (type 4, 523 leaves):

$$\left(\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^5 \mathrm{Sec}[e+f x]^3 \left(a\left(1+\mathrm{Sec}[e+f x]\right)\right)^{5/2} \mathrm{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^{10} \left(-\frac{1616}{45}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]+\frac{968}{45}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^3-\frac{418}{45}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^5+\frac{20}{9}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^7-\frac{2}{9}\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^9+\frac{1424}{45}\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right) \Big/ \left(f\left(c-c\,\mathrm{Sec}[e+f x]\right)^5\right)+\frac{1}{f\left(c-c\,\mathrm{Sec}[e+f x]\right)^5} 64\left(-3-2\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{4}(e+f x)\right]^4 \sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}} \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}} \left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]\right) \left(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+2\,\mathrm{EllipticPi}\left[-3+2\sqrt{2},-\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right) \sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]\right)\mathrm{Sec}\left[\frac{1}{4}(e+f x)\right]^2} \mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^5 \mathrm{Sec}[e+f x]^4 \left(a\left(1+\mathrm{Sec}[e+f x]\right)\right)^{5/2} \mathrm{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^{10} \sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]^2}$$

Problem 73: Result more than twice size of optimal antiderivative.

$$\int \frac{\left(c-c\,\mathrm{Sec}[e+f x]\right)^3}{\left(a+a\,\mathrm{Sec}[e+f x]\right)^{3/2}}\,dx$$

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

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

Result (type 3, 564 leaves):

$$\left(\mathrm{Cos}[e+f x]^3\,\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^6\,(1+\mathrm{Sec}[e+f x])^{3/2}\right.$$

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

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

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

$$\left(\left(\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{2}}{\sqrt{-1+\mathrm{Sec}[e+f x]}}\right]+\mathrm{ArcTan}\left[\frac{-2+\sqrt{1+\mathrm{Sec}[e+f x]}}{\sqrt{-1+\mathrm{Sec}[e+f x]}}\right]-\right.\right.$$

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

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

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

$$\left(8\,(a\,(1+\mathrm{Sec}[e+f x]))^{3/2}\right)+\left(\mathrm{Cos}[e+f x]^3\,\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^6\right.$$

$$\sqrt{(1+\mathrm{Cos}[e+f x])\,\mathrm{Sec}[e+f x]}$$

$$(1+\mathrm{Sec}[e+f x])^{3/2}$$

$$(c-c\,\mathrm{Sec}[e+f x])^3$$

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

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

Problem 79: Result more than twice size of optimal antiderivative.

$$\int\frac{(c-c\,\mathrm{Sec}[e+f x])^5}{(a+a\,\mathrm{Sec}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 260 leaves, 9 steps):

$$\frac{2 c^5 \text{ArcTan}\left[\frac{\sqrt{a} \text{ Tan}[e+f x]}{\sqrt{a+a \text{ Sec}[e+f x]}}\right]}{a^{5/2} f}-\frac{23 \sqrt{2} c^5 \text{ArcTan}\left[\frac{\sqrt{a} \text{ Tan}[e+f x]}{\sqrt{2} \sqrt{a+a \text{ Sec}[e+f x]}}\right]}{a^{5/2} f}+$$
$$\frac{21 c^5 \text{Tan}[e+f x]}{a^2 f \sqrt{a+a \text{ Sec}[e+f x]}}-\frac{19 c^5 \text{Tan}[e+f x]^3}{6 a f (a+a \text{ Sec}[e+f x])^{3/2}}+$$
$$\frac{3 c^5 \text{Sec}\left[\frac{1}{2} (e+f x)\right]^2 \text{Sin}[e+f x] \text{ Tan}[e+f x]^4}{4 f (a+a \text{ Sec}[e+f x])^{5/2}}+\frac{a c^5 \text{Sec}\left[\frac{1}{2} (e+f x)\right]^4 \text{Sin}[e+f x]^2 \text{ Tan}[e+f x]^5}{4 f (a+a \text{ Sec}[e+f x])^{7/2}}$$

Result (type 3, 667 leaves) :

$$\left(\text{Cos}[e+f x]^5\,\text{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^{10}(1+\text{Sec}[e+f x])^{5/2}(c-c\,\text{Sec}[e+f x])^5\left(-\left(\left(22\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{2}}{\sqrt{-1+\text{Sec}[e+f x]}}\right]\text{Cos}[e+f x]^2\sqrt{-1+\text{Sec}[e+f x]}\,(1+\text{Sec}[e+f x])^{3/2}\,\text{Sin}[e+f x]\right)\Big/\left(f\,(1+\text{Cos}[e+f x])\sqrt{1-\text{Cos}[e+f x]^2}\sqrt{\text{Cos}[e+f x]^2(-1+\text{Sec}[e+f x])(1+\text{Sec}[e+f x])}\right)\right)-\left(\left(\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{2}}{\sqrt{-1+\text{Sec}[e+f x]}}\right]+\text{ArcTan}\left[\frac{-2+\sqrt{1+\text{Sec}[e+f x]}}{\sqrt{-1+\text{Sec}[e+f x]}}\right]-\text{ArcTan}\left[\frac{2+\sqrt{1+\text{Sec}[e+f x]}}{\sqrt{-1+\text{Sec}[e+f x]}}\right]\right)\text{Cos}[e+f x]^2\sqrt{-1+\text{Sec}[e+f x]}\,(1+\text{Sec}[e+f x])^{3/2}\,\text{Sin}[e+f x]\right)\Big/\left(f\,(1+\text{Cos}[e+f x])\sqrt{1-\text{Cos}[e+f x]^2}\sqrt{\text{Cos}[e+f x]^2(-1+\text{Sec}[e+f x])(1+\text{Sec}[e+f x])}\right)\right)\right)\Big/$$

$$\left(32\,(a\,(1+\text{Sec}[e+f x]))^{5/2}\right)+\left(\text{Cos}[e+f x]^5\,\text{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^{10}\sqrt{(1+\text{Cos}[e+f x])\,\text{Sec}[e+f x]}\,(1+\text{Sec}[e+f x])^{5/2}(c-c\,\text{Sec}[e+f x])^5\left(-\frac{(-1+37\,\text{Cos}[e])\,\text{Sin}\left[\frac{e}{2}\right]}{24 f\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Cos}\left[\frac{3e}{2}\right]\right)}-\frac{19\,\text{Sec}\left[\frac{e}{2}\right]\text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]\text{Sin}\left[\frac{f x}{2}\right]}{24 f}+\frac{\text{Sec}\left[\frac{e}{2}\right]\text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^3\text{Sin}\left[\frac{f x}{2}\right]}{32 f}+\frac{\text{Sec}\left[\frac{e}{2}\right]\text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^5\text{Sin}\left[\frac{f x}{2}\right]}{16 f}+\frac{\text{Sec}[e]\,\text{Sec}[e+f x]\,\text{Sin}[f x]}{48 f}+\frac{\text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^2\text{Tan}\left[\frac{e}{2}\right]}{32 f}+\frac{\text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^4\text{Tan}\left[\frac{e}{2}\right]}{16 f}\right)\right)\Big/(a\,(1+\text{Sec}[e+f x]))^{5/2}$$

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

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

Optimal (type 3, 229 leaves, 8 steps):

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

Result (type 3, 627 leaves) :

$$\left(\text{Cos}[e+f x]^4 \text{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^8 (1+\text{Sec}[e+f x])^{5/2}\right.$$
$$(c-c \text{Sec}[e+f x])^4 \left(\left(9 \sqrt{2} \text{ArcTan}\left[\frac{\sqrt{2}}{\sqrt{-1+\text{Sec}[e+f x]}}\right] \text{Cos}[e+f x]^2\right.\right.$$
$$\left.\sqrt{-1+\text{Sec}[e+f x]} (1+\text{Sec}[e+f x])^{3/2} \text{Sin}[e+f x]\right) \Big/ \left(f (1+\text{Cos}[e+f x])\right.$$
$$\left.\sqrt{1-\text{Cos}[e+f x]^2} \sqrt{\text{Cos}[e+f x]^2 (-1+\text{Sec}[e+f x]) (1+\text{Sec}[e+f x])}\right)+$$
$$\left(2 \left(\sqrt{2} \text{ArcTan}\left[\frac{\sqrt{2}}{\sqrt{-1+\text{Sec}[e+f x]}}\right]+\text{ArcTan}\left[\frac{-2+\sqrt{1+\text{Sec}[e+f x]}}{\sqrt{-1+\text{Sec}[e+f x]}}\right]-\right.\right.$$
$$\left.\text{ArcTan}\left[\frac{2+\sqrt{1+\text{Sec}[e+f x]}}{\sqrt{-1+\text{Sec}[e+f x]}}\right]\right) \text{Cos}[e+f x]^2 \sqrt{-1+\text{Sec}[e+f x]}$$
$$\left.(1+\text{Sec}[e+f x])^{3/2} \text{Sin}[e+f x]\right) \Big/ \left(f (1+\text{Cos}[e+f x]) \sqrt{1-\text{Cos}[e+f x]^2}\right.$$
$$\left.\left.\left.\sqrt{\text{Cos}[e+f x]^2 (-1+\text{Sec}[e+f x]) (1+\text{Sec}[e+f x])}\right)\right)\right) \Big/$$
$$\left(32 (a (1+\text{Sec}[e+f x]))^{5/2}\right)+\left(\text{Cos}[e+f x]^4 \text{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^8\right.$$
$$\sqrt{(1+\text{Cos}[e+f x]) \text{Sec}[e+f x]}$$
$$(1+\text{Sec}[e+f x])^{5/2}$$
$$(c-c \text{Sec}[e+f x])^4$$
$$\left(\frac{3 \text{Sec}\left[\frac{e}{2}\right] \text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right] \text{Sin}\left[\frac{f x}{2}\right]}{16 f}+\frac{3 \text{Sec}\left[\frac{e}{2}\right] \text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^3 \text{Sin}\left[\frac{f x}{2}\right]}{32 f}-\right.$$
$$\frac{\text{Sec}\left[\frac{e}{2}\right] \text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^5 \text{Sin}\left[\frac{f x}{2}\right]}{16 f}+\frac{3 \text{Tan}\left[\frac{e}{2}\right]}{16 f}+\frac{3 \text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^2 \text{Tan}\left[\frac{e}{2}\right]}{32 f}-$$
$$\left.\left.\frac{\text{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]^4 \text{Tan}\left[\frac{e}{2}\right]}{16 f}\right)\right) \Big/ (a (1+\text{Sec}[e+f x]))^{5/2}$$

Problem 86: Result unnecessarily involves imaginary or complex numbers.

$$\int \sqrt{a+a\,\text{Sec}[e+f\,x]}\,\left(c-c\,\text{Sec}[e+f\,x]\right)^{7/2}\,dx$$

Optimal (type 3, 185 leaves, 5 steps):

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

Result (type 3, 149 leaves):

$$\frac{1}{24\,f}c^3\,\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]\,\left(-22-18\,\text{Cos}[2\,(e+f\,x)]+3\,i\,f\,x\,\text{Cos}[3\,(e+f\,x)]+9\,\text{Cos}[e+f\,x]\,\left(2+i\,f\,x-\text{Log}\left[1+e^{2\,i\,(e+f\,x)}\right]\right)-3\,\text{Cos}[3\,(e+f\,x)]\,\text{Log}\left[1+e^{2\,i\,(e+f\,x)}\right]\right)\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\text{Sec}[e+f\,x]^2\,\sqrt{a\,(1+\text{Sec}[e+f\,x])}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}$$

Problem 87: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 139 leaves, 4 steps):

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

Result (type 3, 162 leaves):

$$-\left(\left(c^2\,e^{-3\,i\,(e+f\,x)}\,\left(1+e^{2\,i\,(e+f\,x)}\right)^3\,\left(i+\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\left(-1-i\,f\,x+4\,\text{Cos}[e+f\,x]+\text{Log}\left[1+e^{2\,i\,(e+f\,x)}\right]+\text{Cos}[2\,(e+f\,x)]\,\left(-i\,f\,x+\text{Log}\left[1+e^{2\,i\,(e+f\,x)}\right]\right)\right)\text{Sec}[e+f\,x]^4\,\sqrt{a\,(1+\text{Sec}[e+f\,x])}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}\right)\Big/\left(16\,\left(1+e^{i\,(e+f\,x)}\right)\,f\right)\right)$$

Problem 88: Result unnecessarily involves imaginary or complex numbers.

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

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

$$\frac{a\,c^2\,\text{Log}[\text{Cos}[e+f\,x]]\,\text{Tan}[e+f\,x]}{f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}-\frac{a\,c\,\sqrt{c-c\,\text{Sec}[e+f\,x]}\,\text{Tan}[e+f\,x]}{f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}}$$

Result (type 3, 99 leaves):

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

Problem 89: Result unnecessarily involves imaginary or complex numbers.

$$\int \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]} \, dx$$

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

$$\frac{a c \text{Log}[\text{Cos}[e+f x]] \text{Tan}[e+f x]}{f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}$$

Result (type 3, 84 leaves):

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

Problem 90: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{a+a \text{Sec}[e+f x]}}{\sqrt{c-c \text{Sec}[e+f x]}} \, dx$$

Optimal (type 3, 51 leaves, 2 steps):

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

Result (type 3, 86 leaves):

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

Problem 91: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 3, 107 leaves):

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

Problem 92: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 142 leaves, 4 steps):

$$-\frac{a \text{Tan}[e+f x]}{2 f \sqrt{a+a \text{Sec}[e+f x]} (c-c \text{Sec}[e+f x])^{5/2}}-\frac{a \text{Tan}[e+f x]}{c f \sqrt{a+a \text{Sec}[e+f x]} (c-c \text{Sec}[e+f x])^{3/2}}+\frac{a \text{Log}[1-\text{Cos}[e+f x]] \text{Tan}[e+f x]}{c^2 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}$$

Result (type 3, 152 leaves):

$$\left(\left(3-3 i f x+\text{Cos}[e+f x] \left(-4+4 i f x-8 \text{Log}\left[1-e^{i (e+f x)}\right]\right)+6 \text{Log}\left[1-e^{i (e+f x)}\right]+\text{Cos}[2 (e+f x)] \left(-i f x+2 \text{Log}\left[1-e^{i (e+f x)}\right]\right)\right) \sqrt{a (1+\text{Sec}[e+f x])} \text{Tan}\left[\frac{1}{2} (e+f x)\right]\right)\Big/\left(2 c^2 f (-1+\text{Cos}[e+f x])^2 \sqrt{c-c \text{Sec}[e+f x]}\right)$$

Problem 93: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 188 leaves, 5 steps):

$$-\frac{a \text{Tan}[e+f x]}{3 f \sqrt{a+a \text{Sec}[e+f x]} (c-c \text{Sec}[e+f x])^{7/2}}-\frac{a \text{Tan}[e+f x]}{2 c f \sqrt{a+a \text{Sec}[e+f x]} (c-c \text{Sec}[e+f x])^{5/2}}-\frac{a \text{Tan}[e+f x]}{c^2 f \sqrt{a+a \text{Sec}[e+f x]} (c-c \text{Sec}[e+f x])^{3/2}}+\frac{a \text{Log}[1-\text{Cos}[e+f x]] \text{Tan}[e+f x]}{c^3 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}$$

Result (type 3, 198 leaves):

$$\left(\left(-40+30 i f x-3 i f x \text{Cos}[3 (e+f x)]+18 i \text{Cos}[2 (e+f x)] \left(i+f x+2 i \text{Log}\left[1-e^{i (e+f x)}\right]\right)-60 \text{Log}\left[1-e^{i (e+f x)}\right]+6 \text{Cos}[3 (e+f x)] \text{Log}\left[1-e^{i (e+f x)}\right]+9 \text{Cos}[e+f x] \left(6-5 i f x+10 \text{Log}\left[1-e^{i (e+f x)}\right]\right)\right) \sqrt{a (1+\text{Sec}[e+f x])} \text{Tan}\left[\frac{1}{2} (e+f x)\right]\right)\Big/\left(12 c^3 f (-1+\text{Cos}[e+f x])^3 \sqrt{c-c \text{Sec}[e+f x]}\right)$$

Problem 94: Result unnecessarily involves imaginary or complex numbers.

$$\int (a + a \operatorname{Sec}[e + f x])^{3/2} (c - c \operatorname{Sec}[e + f x])^{5/2} \, dx$$

Optimal (type 3, 190 leaves, 5 steps):

$$\frac{a^2 c^3 \operatorname{Log}[\operatorname{Cos}[e + f x]] \operatorname{Tan}[e + f x]}{f \sqrt{a + a \operatorname{Sec}[e + f x]} \sqrt{c - c \operatorname{Sec}[e + f x]}} - \frac{a^2 c^2 \sqrt{c - c \operatorname{Sec}[e + f x]} \operatorname{Tan}[e + f x]}{f \sqrt{a + a \operatorname{Sec}[e + f x]}} - \frac{a^2 c (c - c \operatorname{Sec}[e + f x])^{3/2} \operatorname{Tan}[e + f x]}{2 f \sqrt{a + a \operatorname{Sec}[e + f x]}} + \frac{a^2 (c - c \operatorname{Sec}[e + f x])^{5/2} \operatorname{Tan}[e + f x]}{3 f \sqrt{a + a \operatorname{Sec}[e + f x]}}$$

Result (type 3, 157 leaves):

$$\frac{1}{24 f} i a c^2 \operatorname{Csc}\left[\frac{1}{2} (e + f x)\right] \left(2 i + 6 i \operatorname{Cos}[2 (e + f x)] + 3 f x \operatorname{Cos}[3 (e + f x)] + \operatorname{Cos}[e + f x] \left(6 i + 9 f x + 9 i \operatorname{Log}\left[1 + e^{2 i (e+f x)}\right]\right) + 3 i \operatorname{Cos}[3 (e + f x)] \operatorname{Log}\left[1 + e^{2 i (e+f x)}\right]\right) \operatorname{Sec}\left[\frac{1}{2} (e + f x)\right] \operatorname{Sec}[e + f x]^2 \sqrt{a (1 + \operatorname{Sec}[e + f x])} \sqrt{c - c \operatorname{Sec}[e + f x]}$$

Problem 95: Result unnecessarily involves imaginary or complex numbers.

$$\int (a + a \operatorname{Sec}[e + f x])^{3/2} (c - c \operatorname{Sec}[e + f x])^{3/2} \, dx$$

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

$$\frac{a^2 c^2 \operatorname{Log}[\operatorname{Cos}[e + f x]] \operatorname{Tan}[e + f x]}{f \sqrt{a + a \operatorname{Sec}[e + f x]} \sqrt{c - c \operatorname{Sec}[e + f x]}} + \frac{a^2 c^2 \operatorname{Tan}[e + f x]^3}{2 f \sqrt{a + a \operatorname{Sec}[e + f x]} \sqrt{c - c \operatorname{Sec}[e + f x]}}$$

Result (type 3, 159 leaves):

$$\frac{1}{8 \left(1 + e^{i (e+f x)}\right) f} i a c e^{-2 i (e+f x)} \left(1 + e^{2 i (e+f x)}\right)^2 \left(i + \operatorname{Cot}\left[\frac{1}{2} (e + f x)\right]\right) \left(i + f x + \operatorname{Cos}[2 (e + f x)] \left(f x + i \operatorname{Log}\left[1 + e^{2 i (e+f x)}\right]\right) + i \operatorname{Log}\left[1 + e^{2 i (e+f x)}\right]\right) \operatorname{Sec}[e + f x]^3 \sqrt{a (1 + \operatorname{Sec}[e + f x])} \sqrt{c - c \operatorname{Sec}[e + f x]}$$

Problem 96: Result unnecessarily involves imaginary or complex numbers.

$$\int (a + a \operatorname{Sec}[e + f x])^{3/2} \sqrt{c - c \operatorname{Sec}[e + f x]} \, dx$$

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

$$\frac{a^2 c \operatorname{Log}[\operatorname{Cos}[e + f x]] \operatorname{Tan}[e + f x]}{f \sqrt{a + a \operatorname{Sec}[e + f x]} \sqrt{c - c \operatorname{Sec}[e + f x]}} - \frac{a c \sqrt{a + a \operatorname{Sec}[e + f x]} \operatorname{Tan}[e + f x]}{f \sqrt{c - c \operatorname{Sec}[e + f x]}}$$

Result (type 3, 128 leaves):

$$\frac{1}{2\left(1+e^{i(e+fx)}\right)f}a\,e^{-i(e+fx)}\left(1+e^{2i(e+fx)}\right)\left(i+\text{Cot}\left[\frac{1}{2}(e+fx)\right]\right)\left(1+\text{Cos}[e+fx]\right)\left(i\,fx-\text{Log}\left[1+e^{2i(e+fx)}\right]\right)\text{Sec}[e+fx]\sqrt{a\left(1+\text{Sec}[e+fx]\right)}\sqrt{c-c\,\text{Sec}[e+fx]}$$

Problem 97: Result unnecessarily involves imaginary or complex numbers.

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

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

$$\frac{a^2\,\text{Log}[\text{Cos}[e+fx]]\,\text{Tan}[e+fx]}{f\sqrt{a+a\,\text{Sec}[e+fx]}\sqrt{c-c\,\text{Sec}[e+fx]}}+\frac{2a^2\,\text{Log}[1-\text{Sec}[e+fx]]\,\text{Tan}[e+fx]}{f\sqrt{a+a\,\text{Sec}[e+fx]}\sqrt{c-c\,\text{Sec}[e+fx]}}$$

Result (type 3, 105 leaves):

$$-\left(\left(a\left(-1+e^{i(e+fx)}\right)\left(fx+4\,i\,\text{Log}\left[1-e^{i(e+fx)}\right]-i\,\text{Log}\left[1+e^{2i(e+fx)}\right]\right)\sqrt{a\left(1+\text{Sec}[e+fx]\right)}\right)\Big/\left(\left(1+e^{i(e+fx)}\right)f\sqrt{c-c\,\text{Sec}[e+fx]}\right)\right)$$

Problem 98: Result unnecessarily involves imaginary or complex numbers.

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

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

$$-\frac{2a^2\,\text{Tan}[e+fx]}{f\sqrt{a+a\,\text{Sec}[e+fx]}\left(c-c\,\text{Sec}[e+fx]\right)^{3/2}}+\frac{a^2\,\text{Log}[1-\text{Cos}[e+fx]]\,\text{Tan}[e+fx]}{c\,f\sqrt{a+a\,\text{Sec}[e+fx]}\sqrt{c-c\,\text{Sec}[e+fx]}}$$

Result (type 3, 115 leaves):

$$\left(a\left(-2+i\,fx-2\,\text{Log}\left[1-e^{i(e+fx)}\right]+\text{Cos}[e+fx]\left(-i\,fx+2\,\text{Log}\left[1-e^{i(e+fx)}\right]\right)\right)\sqrt{a\left(1+\text{Sec}[e+fx]\right)}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Big/\left(c\,f\left(-1+\text{Cos}[e+fx]\right)\sqrt{c-c\,\text{Sec}[e+fx]}\right)$$

Problem 99: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 146 leaves, 4 steps):

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

Result (type 3, 153 leaves):

$$\left(a \left(4-3\,i\,f\,x+\text{Cos}[e+f\,x]\left(-6+4\,i\,f\,x-8\,\text{Log}\left[1-e^{i\,(e+f\,x)}\right]\right)+6\,\text{Log}\left[1-e^{i\,(e+f\,x)}\right]+\text{Cos}\left[2\,(e+f\,x)\right]\left(-i\,f\,x+2\,\text{Log}\left[1-e^{i\,(e+f\,x)}\right]\right)\right)\sqrt{a\,(1+\text{Sec}[e+f\,x])}\;\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\Big/\left(2\,c^2\,f\,(-1+\text{Cos}[e+f\,x])^2\sqrt{c-c\,\text{Sec}[e+f\,x]}\right)$$

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

$$\int \frac{(a+a\,\text{Sec}[e+f\,x])^{3/2}}{(c-c\,\text{Sec}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 196 leaves, 5 steps):

$$-\frac{2\,a^2\,\text{Tan}[e+f\,x]}{3\,f\sqrt{a+a\,\text{Sec}[e+f\,x]}\;(c-c\,\text{Sec}[e+f\,x])^{7/2}}-\frac{a^2\,\text{Tan}[e+f\,x]}{2\,c\,f\sqrt{a+a\,\text{Sec}[e+f\,x]}\;(c-c\,\text{Sec}[e+f\,x])^{5/2}}-\frac{a^2\,\text{Tan}[e+f\,x]}{c^2\,f\sqrt{a+a\,\text{Sec}[e+f\,x]}\;(c-c\,\text{Sec}[e+f\,x])^{3/2}}+\frac{a^2\,\text{Log}[1-\text{Cos}[e+f\,x]]\,\text{Tan}[e+f\,x]}{c^3\,f\sqrt{a+a\,\text{Sec}[e+f\,x]}\;\sqrt{c-c\,\text{Sec}[e+f\,x]}}$$

Result (type 3, 489 leaves):

$$\left(8\,i\,\sqrt{2}\,e^{\frac{1}{2}i(e+fx)}\sqrt{\frac{\left(1+e^{i(e+fx)}\right)^2}{1+e^{2i(e+fx)}}}\right.$$

$$\left.\left(fx+2\,i\,\text{Log}\left[1-e^{i(e+fx)}\right]\right)\text{Sec}[e+fx]^{7/2}\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{3/2}\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^7\right)\Big/$$

$$\left(\left(1+e^{i(e+fx)}\right)\sqrt{\frac{e^{i(e+fx)}}{1+e^{2i(e+fx)}}}\;f\left(1+\text{Sec}[e+fx]\right)^{3/2}\left(c-c\,\text{Sec}[e+fx]\right)^{7/2}\right)+$$

$$\left(\text{Sec}[e+fx]^4\sqrt{\left(1+\text{Cos}[e+fx]\right)\text{Sec}[e+fx]}\;\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{3/2}\right.$$

$$\left(-\frac{61\,\text{Cot}\left[\frac{e}{2}\right]\text{Csc}\left[\frac{e}{2}+\frac{fx}{2}\right]}{3f}+\frac{17\,\text{Cot}\left[\frac{e}{2}\right]\text{Csc}\left[\frac{e}{2}+\frac{fx}{2}\right]^3}{3f}-\right.$$

$$\frac{2\,\text{Cot}\left[\frac{e}{2}\right]\text{Csc}\left[\frac{e}{2}+\frac{fx}{2}\right]^5}{3f}+\frac{35\,\text{Sec}\left[\frac{e}{2}+\frac{fx}{2}\right]}{3f}+\frac{61\,\text{Csc}\left[\frac{e}{2}\right]\text{Csc}\left[\frac{e}{2}+\frac{fx}{2}\right]^2\text{Sin}\left[\frac{fx}{2}\right]}{3f}-$$

$$\left.\frac{17\,\text{Csc}\left[\frac{e}{2}\right]\text{Csc}\left[\frac{e}{2}+\frac{fx}{2}\right]^4\text{Sin}\left[\frac{fx}{2}\right]}{3f}+\frac{2\,\text{Csc}\left[\frac{e}{2}\right]\text{Csc}\left[\frac{e}{2}+\frac{fx}{2}\right]^6\text{Sin}\left[\frac{fx}{2}\right]}{3f}\right)$$

$$\left.\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]^7\right)\Big/\left(\left(1+\text{Sec}[e+fx]\right)^{3/2}\left(c-c\,\text{Sec}[e+fx]\right)^{7/2}\right)$$

Problem 101: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 153 leaves, 4 steps):

$$\frac{a^3c^3\,\text{Log}[\text{Cos}[e+fx]]\,\text{Tan}[e+fx]}{f\sqrt{a+a\,\text{Sec}[e+fx]}\;\sqrt{c-c\,\text{Sec}[e+fx]}}+$$

$$\frac{a^3c^3\,\text{Tan}[e+fx]^3}{2f\sqrt{a+a\,\text{Sec}[e+fx]}\;\sqrt{c-c\,\text{Sec}[e+fx]}}-\frac{a^3c^3\,\text{Tan}[e+fx]^5}{4f\sqrt{a+a\,\text{Sec}[e+fx]}\;\sqrt{c-c\,\text{Sec}[e+fx]}}$$

Result (type 3, 164 leaves):

$$\frac{1}{16f}i\,a^2c^2\,\text{Csc}\left[\frac{1}{2}(e+fx)\right]\left(2\,i+3fx+\text{Cos}[4(e+fx)]\left(fx+i\,\text{Log}\left[1+e^{2i(e+fx)}\right]\right)+\right.$$

$$\left.4\,\text{Cos}[2(e+fx)]\left(i+fx+i\,\text{Log}\left[1+e^{2i(e+fx)}\right]\right)+3\,i\,\text{Log}\left[1+e^{2i(e+fx)}\right]\right)$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]\text{Sec}[e+fx]^3\sqrt{a\left(1+\text{Sec}[e+fx]\right)}\;\sqrt{c-c\,\text{Sec}[e+fx]}$$

Problem 102: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 190 leaves, 5 steps):

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

Result (type 3, 149 leaves):

$$\frac{1}{24\,f}a^2\,c\,\text{Csc}\left[\frac{1}{2}\,(e + f\,x)\right]\,\left(2 + 6\,\text{Cos}[2\,(e + f\,x)] + 3\,i\,f\,x\,\text{Cos}[3\,(e + f\,x)] + \text{Cos}[e + f\,x]\,\left(-6 + 9\,i\,f\,x - 9\,\text{Log}\left[1 + e^{2\,i\,(e+f\,x)}\right]\right) - 3\,\text{Cos}[3\,(e + f\,x)]\,\text{Log}\left[1 + e^{2\,i\,(e+f\,x)}\right]\right)\,\text{Sec}\left[\frac{1}{2}\,(e + f\,x)\right]\,\text{Sec}[e + f\,x]^2\,\sqrt{a\,(1 + \text{Sec}[e + f\,x])}\,\sqrt{c - c\,\text{Sec}[e + f\,x]}$$

Problem 103: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 139 leaves, 4 steps):

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

Result (type 3, 164 leaves):

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

Problem 104: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 152 leaves, 3 steps):

$$\frac{a^3 \,\text{Log}[\text{Cos}[e+f x]]\, \text{Tan}[e+f x]}{f \sqrt{a+a \,\text{Sec}[e+f x]}\, \sqrt{c-c \,\text{Sec}[e+f x]}}+\frac{4 a^3 \,\text{Log}[1-\text{Sec}[e+f x]]\, \text{Tan}[e+f x]}{f \sqrt{a+a \,\text{Sec}[e+f x]}\, \sqrt{c-c \,\text{Sec}[e+f x]}}+\frac{a^3 \,\text{Sec}[e+f x]\, \text{Tan}[e+f x]}{f \sqrt{a+a \,\text{Sec}[e+f x]}\, \sqrt{c-c \,\text{Sec}[e+f x]}}$$

Result (type 3, 198 leaves):

$$\left(\left(1+\text{Cos}[e+f x]\right) \left(-i f x+8 \,\text{Log}\left[1-e^{i (e+f x)}\right]-3 \,\text{Log}\left[1+e^{2 i (e+f x)}\right]\right)\right) \sqrt{\text{Sec}\left[\frac{1}{2} (e+f x)\right]^2}\, \text{Sec}[e+f x] \left(a \left(1+\text{Sec}[e+f x]\right)\right)^{5/2} \left(\text{Cos}\left[\frac{1}{2} (e+f x)\right]+i \,\text{Sin}\left[\frac{1}{2} (e+f x)\right]\right) \text{Sin}\left[\frac{1}{2} (e+f x)\right]\Bigg/ \left(\left(1+e^{i (e+f x)}\right) \sqrt{\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}}\, f \left(1+\text{Sec}[e+f x]\right)^{3/2} \sqrt{c-c \,\text{Sec}[e+f x]}\right)$$

Problem 105: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 3, 111 leaves):

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

Problem 106: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 3, 155 leaves):

$$\left(a^2 \left(4-3\,i\,f\,x+\text{Cos}[e+f\,x]\,\left(-8+4\,i\,f\,x-8\,\text{Log}\left[1-e^{i\,(e+f\,x)}\right]\right)+6\,\text{Log}\left[1-e^{i\,(e+f\,x)}\right]+\text{Cos}[2\,(e+f\,x)]\,\left(-i\,f\,x+2\,\text{Log}\left[1-e^{i\,(e+f\,x)}\right]\right)\right)\sqrt{a\,(1+\text{Sec}[e+f\,x])}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\Big/\left(2\,c^2\,f\,(-1+\text{Cos}[e+f\,x])^2\,\sqrt{c-c\,\text{Sec}[e+f\,x]}\right)$$

Problem 107: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+a\,\text{Sec}[e+f\,x])^{5/2}}{(c-c\,\text{Sec}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 148 leaves, 4 steps):

$$-\frac{4\,a^3\,\text{Tan}[e+f\,x]}{3\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,(c-c\,\text{Sec}[e+f\,x])^{7/2}}-\frac{a^3\,\text{Tan}[e+f\,x]}{c^2\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,(c-c\,\text{Sec}[e+f\,x])^{3/2}}+\frac{a^3\,\text{Log}[1-\text{Cos}[e+f\,x]]\,\text{Tan}[e+f\,x]}{c^3\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}$$

Result (type 3, 489 leaves):

$$\left(8 i \sqrt{2}\, e^{\frac{1}{2} i (e+f x)} \sqrt{\frac{\left(1+e^{i (e+f x)}\right)^2}{1+e^{2 i (e+f x)}}}\right.$$

$$\left.\left(f x+2 i \operatorname{Log}\left[1-e^{i (e+f x)}\right]\right) \operatorname{Sec}[e+f x]^{7/2} \left(a \left(1+\operatorname{Sec}[e+f x]\right)\right)^{5/2} \operatorname{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^7\right) \Big/$$

$$\left(\left(1+e^{i (e+f x)}\right) \sqrt{\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}}\; f \left(1+\operatorname{Sec}[e+f x]\right)^{5/2} \left(c-c \operatorname{Sec}[e+f x]\right)^{7/2}\right) +$$

$$\left(\operatorname{Sec}[e+f x]^4 \sqrt{\left(1+\operatorname{Cos}[e+f x]\right) \operatorname{Sec}[e+f x]} \left(a \left(1+\operatorname{Sec}[e+f x]\right)\right)^{5/2}\right.$$

$$\left(-\frac{80 \operatorname{Cot}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]}{3 f}+\frac{28 \operatorname{Cot}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^3}{3 f}-\right.$$

$$\frac{4 \operatorname{Cot}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^5}{3 f}+\frac{40 \operatorname{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]}{3 f}+\frac{80 \operatorname{Csc}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^2 \operatorname{Sin}\left[\frac{f x}{2}\right]}{3 f}-$$

$$\left.\frac{28 \operatorname{Csc}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^4 \operatorname{Sin}\left[\frac{f x}{2}\right]}{3 f}+\frac{4 \operatorname{Csc}\left[\frac{e}{2}\right] \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^6 \operatorname{Sin}\left[\frac{f x}{2}\right]}{3 f}\right)$$

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

Problem 108: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\left(a+a \operatorname{Sec}[e+f x]\right)^{5/2}}{\left(c-c \operatorname{Sec}[e+f x]\right)^{9/2}} \, dx$$

Optimal (type 3, 194 leaves, 5 steps):

$$-\frac{a^3 \operatorname{Tan}[e+f x]}{f \sqrt{a+a \operatorname{Sec}[e+f x]} \left(c-c \operatorname{Sec}[e+f x]\right)^{9/2}}-\frac{a^3 \operatorname{Tan}[e+f x]}{2 c^2 f \sqrt{a+a \operatorname{Sec}[e+f x]} \left(c-c \operatorname{Sec}[e+f x]\right)^{5/2}}-$$

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

Result (type 3, 285 leaves):

$$\left(\text{Sec}[e+f x]^{9/2}\left(a\left(1+\text{Sec}[e+f x]\right)\right)^{5/2}\left(\frac{16\sqrt{2}\, e^{\frac{1}{2} i (e+f x)}\sqrt{\frac{\left(1+e^{i (e+f x)}\right)^2}{1+e^{2 i (e+f x)}}}\left(-i f x+2\,\text{Log}\left[1-e^{i (e+f x)}\right]\right)}{\left(1+e^{i (e+f x)}\right)\sqrt{\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}}\, f}+\frac{1}{8 f}\left(-54+89\,\text{Cos}[e+f x]-60\,\text{Cos}[2 (e+f x)]+23\,\text{Cos}[3 (e+f x)]-6\,\text{Cos}[4 (e+f x)]\right)\text{Csc}\left[\frac{1}{2}(e+f x)\right]^8\text{Sec}\left[\frac{1}{2}(e+f x)\right]\sqrt{\text{Sec}[e+f x]}\sqrt{1+\text{Sec}[e+f x]}\right)\text{Sin}\left[\frac{1}{2}(e+f x)\right]^9\right)\Big/\left(\left(1+\text{Sec}[e+f x]\right)^{5/2}\left(c-c\,\text{Sec}[e+f x]\right)^{9/2}\right)$$

Problem 109: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 244 leaves, 6 steps):

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

Result (type 3, 615 leaves):

$$\left(32\,\mathrm{i}\,\sqrt{2}\,e^{\frac{1}{2}\mathrm{i}(e+f x)}\sqrt{\frac{\left(1+e^{\mathrm{i}(e+f x)}\right)^2}{1+e^{2\mathrm{i}(e+f x)}}}\left(f x+2\,\mathrm{i}\,\mathrm{Log}\left[1-e^{\mathrm{i}(e+f x)}\right]\right)\right.$$

$$\left.\mathrm{Sec}[e+f x]^{11/2}\left(a\left(1+\mathrm{Sec}[e+f x]\right)\right)^{5/2}\mathrm{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^{11}\right)\Big/$$

$$\left(\left(1+e^{\mathrm{i}(e+f x)}\right)\sqrt{\frac{e^{\mathrm{i}(e+f x)}}{1+e^{2\mathrm{i}(e+f x)}}}\,f\left(1+\mathrm{Sec}[e+f x]\right)^{5/2}\left(c-c\,\mathrm{Sec}[e+f x]\right)^{11/2}\right)+$$

$$\frac{1}{\left(1+\mathrm{Sec}[e+f x]\right)^{5/2}\left(c-c\,\mathrm{Sec}[e+f x]\right)^{11/2}}$$

$$\mathrm{Sec}[e+f x]^6\sqrt{\left(1+\mathrm{Cos}[e+f x]\right)\mathrm{Sec}[e+f x]}\left(a\left(1+\mathrm{Sec}[e+f x]\right)\right)^{5/2}$$

$$\left(-\frac{2428\,\mathrm{Cot}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]}{15 f}+\frac{1532\,\mathrm{Cot}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^3}{15 f}-\frac{608\,\mathrm{Cot}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^5}{15 f}+\right.$$

$$\frac{44\,\mathrm{Cot}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^7}{5 f}-\frac{4\,\mathrm{Cot}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^9}{5 f}+\frac{932\,\mathrm{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right]}{15 f}+$$

$$\frac{2428\,\mathrm{Csc}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^2\mathrm{Sin}\left[\frac{f x}{2}\right]}{15 f}-\frac{1532\,\mathrm{Csc}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^4\mathrm{Sin}\left[\frac{f x}{2}\right]}{15 f}+$$

$$\frac{608\,\mathrm{Csc}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^6\mathrm{Sin}\left[\frac{f x}{2}\right]}{15 f}-\frac{44\,\mathrm{Csc}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^8\mathrm{Sin}\left[\frac{f x}{2}\right]}{5 f}+$$

$$\left.\frac{4\,\mathrm{Csc}\left[\frac{e}{2}\right]\mathrm{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^{10}\mathrm{Sin}\left[\frac{f x}{2}\right]}{5 f}\right)\mathrm{Sin}\left[\frac{e}{2}+\frac{f x}{2}\right]^{11}$$

Problem 110: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\left(c-c\,\mathrm{Sec}[e+f x]\right)^{7/2}}{\sqrt{a+a\,\mathrm{Sec}[e+f x]}}\,dx$$

Optimal (type 3, 204 leaves, 3 steps):

$$\frac{c^4\,\mathrm{Log}[\mathrm{Cos}[e+f x]]\,\mathrm{Tan}[e+f x]}{f\sqrt{a+a\,\mathrm{Sec}[e+f x]}\sqrt{c-c\,\mathrm{Sec}[e+f x]}}+\frac{8\,c^4\,\mathrm{Log}[1+\mathrm{Sec}[e+f x]]\,\mathrm{Tan}[e+f x]}{f\sqrt{a+a\,\mathrm{Sec}[e+f x]}\sqrt{c-c\,\mathrm{Sec}[e+f x]}}-$$

$$\frac{4\,c^4\,\mathrm{Sec}[e+f x]\,\mathrm{Tan}[e+f x]}{f\sqrt{a+a\,\mathrm{Sec}[e+f x]}\sqrt{c-c\,\mathrm{Sec}[e+f x]}}+\frac{c^4\,\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]}{2 f\sqrt{a+a\,\mathrm{Sec}[e+f x]}\sqrt{c-c\,\mathrm{Sec}[e+f x]}}$$

Result (type 3, 153 leaves):

$$\left(c^3 \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]\left(-1+i f x+8 \operatorname{Cos}[e+f x]-16 \operatorname{Log}\left[1+e^{i (e+f x)}\right]+7 \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]+\operatorname{Cos}[2(e+f x)]\left(i f x-16 \operatorname{Log}\left[1+e^{i (e+f x)}\right]+7 \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]\right)\right) \operatorname{Sec}[e+f x]^2 \sqrt{c-c \operatorname{Sec}[e+f x]}\right) \Big/ \left(2 f \sqrt{a(1+\operatorname{Sec}[e+f x])}\right)$$

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

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

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

$$\frac{c^3 \operatorname{Log}[\operatorname{Cos}[e+f x]] \operatorname{Tan}[e+f x]}{f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}+\frac{4 c^3 \operatorname{Log}[1+\operatorname{Sec}[e+f x]] \operatorname{Tan}[e+f x]}{f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}-\frac{c^3 \operatorname{Sec}[e+f x] \operatorname{Tan}[e+f x]}{f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}$$

Result (type 3, 315 leaves):

$$\left(e^{\frac{1}{2} i (e+f x)} \sqrt{\frac{\left(1+e^{i (e+f x)}\right)^2}{1+e^{2 i (e+f x)}}} \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^5 \left(i f x-8 \operatorname{Log}\left[1+e^{i (e+f x)}\right]+3 \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]\right) \sqrt{1+\operatorname{Sec}[e+f x]} \,(c-c \operatorname{Sec}[e+f x])^{5/2}\right) \Big/ \left(4 \sqrt{2}\left(1+e^{i (e+f x)}\right) \sqrt{\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}} f \operatorname{Sec}[e+f x]^{5/2} \sqrt{a(1+\operatorname{Sec}[e+f x])}\right)+$$

$$\left(\operatorname{Cos}[e+f x]^2 \operatorname{Csc}\left[\frac{e}{2}+\frac{f x}{2}\right]^5 \operatorname{Sec}\left[\frac{e}{2}+\frac{f x}{2}\right] \sqrt{(1+\operatorname{Cos}[e+f x]) \operatorname{Sec}[e+f x]} \sqrt{1+\operatorname{Sec}[e+f x]} \,(c-c \operatorname{Sec}[e+f x])^{5/2}\right) \Big/ \left(8 f \sqrt{a(1+\operatorname{Sec}[e+f x])}\right)$$

Problem 112: Result unnecessarily involves imaginary or complex numbers.

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

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

$$\frac{c^2 \operatorname{Log}[\operatorname{Cos}[e+f x]] \operatorname{Tan}[e+f x]}{f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}+\frac{2 c^2 \operatorname{Log}[1+\operatorname{Sec}[e+f x]] \operatorname{Tan}[e+f x]}{f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}$$

Result (type 3, 103 leaves):

$$-\left(\left(c\left(1+e^{i(e+fx)}\right)\left(fx+4\,i\,\mathrm{Log}\left[1+e^{i(e+fx)}\right]-i\,\mathrm{Log}\left[1+e^{2i(e+fx)}\right]\right)\sqrt{c-c\,\mathrm{Sec}[e+fx]}\right)\Big/\left(\left(-1+e^{i(e+fx)}\right)f\sqrt{a\,(1+\mathrm{Sec}[e+fx])}\right)\right)$$

Problem 113: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{c-c\,\mathrm{Sec}[e+fx]}}{\sqrt{a+a\,\mathrm{Sec}[e+fx]}}\,dx$$

Optimal (type 3, 49 leaves, 2 steps):

$$\frac{c\,\mathrm{Log}[1+\mathrm{Cos}[e+fx]]\,\mathrm{Tan}[e+fx]}{f\sqrt{a+a\,\mathrm{Sec}[e+fx]}\,\sqrt{c-c\,\mathrm{Sec}[e+fx]}}$$

Result (type 3, 105 leaves):

$$-\frac{\left(1+e^{i(e+fx)}\right)\sqrt{\frac{c\left(-1+e^{i(e+fx)}\right)^2}{1+e^{2i(e+fx)}}}\left(fx+2\,i\,\mathrm{Log}\left[1+e^{i(e+fx)}\right]\right)}{\left(-1+e^{i(e+fx)}\right)f\sqrt{a\,(1+\mathrm{Sec}[e+fx])}}$$

Problem 114: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{a+a\,\mathrm{Sec}[e+fx]}\,\sqrt{c-c\,\mathrm{Sec}[e+fx]}}\,dx$$

Optimal (type 3, 46 leaves, 2 steps):

$$\frac{\mathrm{Log}[\mathrm{Sin}[e+fx]]\,\mathrm{Tan}[e+fx]}{f\sqrt{a+a\,\mathrm{Sec}[e+fx]}\,\sqrt{c-c\,\mathrm{Sec}[e+fx]}}$$

Result (type 3, 122 leaves):

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

Problem 115: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\sqrt{a+a\,\mathrm{Sec}[e+fx]}\,(c-c\,\mathrm{Sec}[e+fx])^{3/2}}\,dx$$

Optimal (type 3, 168 leaves, 3 steps):

$$\frac{\text{Tan}[e+f x]}{2 c f (1-\text{Cos}[e+f x]) \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}+\frac{3 \text{Log}[1-\text{Cos}[e+f x]] \text{Tan}[e+f x]}{4 c f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}+\frac{\text{Log}[1+\text{Cos}[e+f x]] \text{Tan}[e+f x]}{4 c f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}$$

Result (type 3, 143 leaves):

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

Problem 116: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 274 leaves, 3 steps):

$$\frac{\text{Log}[\text{Cos}[e+f x]] \text{Tan}[e+f x]}{c^2 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}+\frac{7 \text{Log}[1-\text{Sec}[e+f x]] \text{Tan}[e+f x]}{8 c^2 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}+\frac{\text{Log}[1+\text{Sec}[e+f x]] \text{Tan}[e+f x]}{8 c^2 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}-\frac{\text{Tan}[e+f x]}{4 c^2 f (1-\text{Sec}[e+f x])^2 \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}-\frac{3 \text{Tan}[e+f x]}{4 c^2 f (1-\text{Sec}[e+f x]) \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}$$

Result (type 3, 194 leaves):

$$\left(\left(8-12 i f x+21 \text{Log}\left[1-e^{i (e+f x)}\right]+\text{Cos}[e+f x] \left(-10+16 i f x-28 \text{Log}\left[1-e^{i (e+f x)}\right]-4 \text{Log}\left[1+e^{i (e+f x)}\right]\right)+3 \text{Log}\left[1+e^{i (e+f x)}\right]+\text{Cos}[2 (e+f x)] \left(-4 i f x+7 \text{Log}\left[1-e^{i (e+f x)}\right]+\text{Log}\left[1+e^{i (e+f x)}\right]\right)\right) \text{Tan}[e+f x]\right) \Big/ \left(8 c^2 f (-1+\text{Cos}[e+f x])^2 \sqrt{a (1+\text{Sec}[e+f x])} \sqrt{c-c \text{Sec}[e+f x]}\right)$$

Problem 117: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(c-c \text{Sec}[e+f x])^{7/2}}{(a+a \text{Sec}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 215 leaves, 3 steps):

$$\frac{c^4 \operatorname{Log}[\operatorname{Cos}[e+f x]] \operatorname{Tan}[e+f x]}{a f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}-\frac{4 c^4 \operatorname{Log}[1+\operatorname{Sec}[e+f x]] \operatorname{Tan}[e+f x]}{a f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}+\frac{c^4 \operatorname{Sec}[e+f x] \operatorname{Tan}[e+f x]}{a f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}-\frac{8 c^4 \operatorname{Tan}[e+f x]}{a f (1+\operatorname{Sec}[e+f x]) \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}$$

Result (type 3, 204 leaves):

$$\Big(c^3 \operatorname{Cot}\Big[\frac{1}{2}(e+f x)\Big] \Big(-2+i f x+8 \operatorname{Log}\Big[1+e^{i (e+f x)}\Big]+2 \operatorname{Cos}[e+f x] \Big(-9+i f x+8 \operatorname{Log}\Big[1+e^{i (e+f x)}\Big]-5 \operatorname{Log}\Big[1+e^{2 i (e+f x)}\Big]\Big)+\operatorname{Cos}[2 (e+f x)] \Big(i f x+8 \operatorname{Log}\Big[1+e^{i (e+f x)}\Big]-5 \operatorname{Log}\Big[1+e^{2 i (e+f x)}\Big]\Big)-5 \operatorname{Log}\Big[1+e^{2 i (e+f x)}\Big]\Big) \operatorname{Sec}[e+f x] \sqrt{c-c \operatorname{Sec}[e+f x]}\Big) \Big/ \Big(2 a f (1+\operatorname{Cos}[e+f x]) \sqrt{a (1+\operatorname{Sec}[e+f x])}\Big)$$

Problem 118: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(c-c \operatorname{Sec}[e+f x])^{5/2}}{(a+a \operatorname{Sec}[e+f x])^{3/2}} \, dx$$

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

$$-\frac{4 c^3 \operatorname{Tan}[e+f x]}{f (a+a \operatorname{Sec}[e+f x])^{3/2} \sqrt{c-c \operatorname{Sec}[e+f x]}}+\frac{c^3 \operatorname{Log}[\operatorname{Cos}[e+f x]] \operatorname{Tan}[e+f x]}{a f \sqrt{a+a \operatorname{Sec}[e+f x]} \sqrt{c-c \operatorname{Sec}[e+f x]}}$$

Result (type 3, 116 leaves):

$$\Big(i c^2 \operatorname{Cot}\Big[\frac{1}{2}(e+f x)\Big] \Big(4 i+f x+\operatorname{Cos}[e+f x] \Big(f x+i \operatorname{Log}\Big[1+e^{2 i (e+f x)}\Big]\Big)+i \operatorname{Log}\Big[1+e^{2 i (e+f x)}\Big]\Big) \sqrt{c-c \operatorname{Sec}[e+f x]}\Big) \Big/ \Big(a f (1+\operatorname{Cos}[e+f x]) \sqrt{a (1+\operatorname{Sec}[e+f x])}\Big)$$

Problem 119: Result unnecessarily involves imaginary or complex numbers.

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

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

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

Result (type 3, 114 leaves):

$$\Big(i c \operatorname{Cot}\Big[\frac{1}{2}(e+f x)\Big] \Big(2 i+f x+\operatorname{Cos}[e+f x] \Big(f x+2 i \operatorname{Log}\Big[1+e^{i (e+f x)}\Big]\Big)+2 i \operatorname{Log}\Big[1+e^{i (e+f x)}\Big]\Big) \sqrt{c-c \operatorname{Sec}[e+f x]}\Big) \Big/ \Big(a f (1+\operatorname{Cos}[e+f x]) \sqrt{a (1+\operatorname{Sec}[e+f x])}\Big)$$

Problem 120: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 94 leaves, 3 steps):

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

Result (type 3, 106 leaves):

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

Problem 121: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 215 leaves, 3 steps):

$$\frac{\text{Log}[\text{Cos}[e+f\,x]]\,\text{Tan}[e+f\,x]}{a\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}+\frac{\text{Log}[1-\text{Sec}[e+f\,x]]\,\text{Tan}[e+f\,x]}{4\,a\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}+\frac{3\,\text{Log}[1+\text{Sec}[e+f\,x]]\,\text{Tan}[e+f\,x]}{4\,a\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}-\frac{\text{Tan}[e+f\,x]}{2\,a\,f\,(1+\text{Sec}[e+f\,x])\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}$$

Result (type 3, 141 leaves):

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

Problem 122: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+a\,\text{Sec}[e+f\,x])^{3/2}\,(c-c\,\text{Sec}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 101 leaves, 3 steps):

$$\frac{\text{Cot}[e+f\,x]}{2\,a\,c\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}+\frac{\text{Log}[\text{Sin}[e+f\,x]]\,\text{Tan}[e+f\,x]}{a\,c\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}$$

Result (type 3, 151 leaves):

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

Problem 123: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+a \text{Sec}[e+f x])^{3/2} (c-c \text{Sec}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 347 leaves, 3 steps):

$$\frac{\text{Log}[\text{Cos}[e+f x]] \text{Tan}[e+f x]}{a c^2 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}+\frac{11 \text{Log}[1-\text{Sec}[e+f x]] \text{Tan}[e+f x]}{16 a c^2 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}+\frac{5 \text{Log}[1+\text{Sec}[e+f x]] \text{Tan}[e+f x]}{16 a c^2 f \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}-\frac{\text{Tan}[e+f x]}{8 a c^2 f (1-\text{Sec}[e+f x])^2 \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}-\frac{\text{Tan}[e+f x]}{2 a c^2 f (1-\text{Sec}[e+f x]) \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}-\frac{\text{Tan}[e+f x]}{8 a c^2 f (1+\text{Sec}[e+f x]) \sqrt{a+a \text{Sec}[e+f x]} \sqrt{c-c \text{Sec}[e+f x]}}$$

Result (type 3, 275 leaves):

$$\left(\left(14-16 i f x-8 i f x \text{Cos}\left[3 (e+f x)\right]+22 \text{Log}\left[1-e^{i (e+f x)}\right]+11 \text{Cos}\left[3 (e+f x)\right] \text{Log}\left[1-e^{i (e+f x)}\right]+\text{Cos}[e+f x] \left(-12+8 i f x-11 \text{Log}\left[1-e^{i (e+f x)}\right]-5 \text{Log}\left[1+e^{i (e+f x)}\right]\right)+2 \text{Cos}\left[2 (e+f x)\right] \left(-5+8 i f x-11 \text{Log}\left[1-e^{i (e+f x)}\right]-5 \text{Log}\left[1+e^{i (e+f x)}\right]\right)+10 \text{Log}\left[1+e^{i (e+f x)}\right]+5 \text{Cos}\left[3 (e+f x)\right] \text{Log}\left[1+e^{i (e+f x)}\right]\right) \text{Tan}[e+f x]\right) \Big/ \left(32 a c^2 f (-1+\text{Cos}[e+f x])^2 (1+\text{Cos}[e+f x]) \sqrt{a (1+\text{Sec}[e+f x])} \sqrt{c-c \text{Sec}[e+f x]}\right)$$

Problem 124: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(c-c \text{Sec}[e+f x])^{7/2}}{(a+a \text{Sec}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 220 leaves, 3 steps):

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

Result (type 3, 157 leaves):

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

Problem 125: Result unnecessarily involves imaginary or complex numbers.

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

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

$$-\frac{2c^3\operatorname{Tan}[e+fx]}{f(a+a\operatorname{Sec}[e+fx])^{5/2}\sqrt{c-c\operatorname{Sec}[e+fx]}}+\frac{c^3\operatorname{Log}[1+\operatorname{Cos}[e+fx]]\operatorname{Tan}[e+fx]}{a^2 f\sqrt{a+a\operatorname{Sec}[e+fx]}\sqrt{c-c\operatorname{Sec}[e+fx]}}$$

Result (type 3, 154 leaves):

$$\left(\mathrm{i}\,c^2\operatorname{Cot}\left[\frac{1}{2}(e+fx)\right]\left(4\mathrm{i}+3fx+\operatorname{Cos}[2(e+fx)]\left(fx+2\mathrm{i}\operatorname{Log}\left[1+e^{\mathrm{i}(e+fx)}\right]\right)+4\operatorname{Cos}[e+fx]\left(2\mathrm{i}+fx+2\mathrm{i}\operatorname{Log}\left[1+e^{\mathrm{i}(e+fx)}\right]\right)+6\mathrm{i}\operatorname{Log}\left[1+e^{\mathrm{i}(e+fx)}\right]\right)\sqrt{c-c\operatorname{Sec}[e+fx]}\right)\Big/\left(2a^2 f(1+\operatorname{Cos}[e+fx])^2\sqrt{a(1+\operatorname{Sec}[e+fx])}\right)$$

Problem 126: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{(c-c\operatorname{Sec}[e+fx])^{3/2}}{(a+a\operatorname{Sec}[e+fx])^{5/2}}\,dx$$

Optimal (type 3, 144 leaves, 4 steps):

$$-\frac{c^2\operatorname{Tan}[e+fx]}{f(a+a\operatorname{Sec}[e+fx])^{5/2}\sqrt{c-c\operatorname{Sec}[e+fx]}}-\frac{c^2\operatorname{Tan}[e+fx]}{af(a+a\operatorname{Sec}[e+fx])^{3/2}\sqrt{c-c\operatorname{Sec}[e+fx]}}+\frac{c^2\operatorname{Log}[1+\operatorname{Cos}[e+fx]]\operatorname{Tan}[e+fx]}{a^2 f\sqrt{a+a\operatorname{Sec}[e+fx]}\sqrt{c-c\operatorname{Sec}[e+fx]}}$$

Result (type 3, 152 leaves):

$$\left(\mathrm{i}\,c\operatorname{Cot}\left[\frac{1}{2}(e+fx)\right]\left(4\mathrm{i}+3fx+\operatorname{Cos}[2(e+fx)]\left(fx+2\mathrm{i}\operatorname{Log}\left[1+e^{\mathrm{i}(e+fx)}\right]\right)+\operatorname{Cos}[e+fx]\left(6\mathrm{i}+4fx+8\mathrm{i}\operatorname{Log}\left[1+e^{\mathrm{i}(e+fx)}\right]\right)+6\mathrm{i}\operatorname{Log}\left[1+e^{\mathrm{i}(e+fx)}\right]\right)\sqrt{c-c\operatorname{Sec}[e+fx]}\right)\Big/\left(2a^2 f(1+\operatorname{Cos}[e+fx])^2\sqrt{a(1+\operatorname{Sec}[e+fx])}\right)$$

Problem 127: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 140 leaves, 4 steps):

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

Result (type 3, 151 leaves):

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

Problem 128: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 270 leaves, 3 steps):

$$\frac{\text{Log}[\text{Cos}[e + f\,x]]\,\text{Tan}[e + f\,x]}{a^2\,f\,\sqrt{a + a\,\text{Sec}[e + f\,x]}\,\sqrt{c - c\,\text{Sec}[e + f\,x]}} + \frac{\text{Log}[1 - \text{Sec}[e + f\,x]]\,\text{Tan}[e + f\,x]}{8\,a^2\,f\,\sqrt{a + a\,\text{Sec}[e + f\,x]}\,\sqrt{c - c\,\text{Sec}[e + f\,x]}} + \frac{7\,\text{Log}[1 + \text{Sec}[e + f\,x]]\,\text{Tan}[e + f\,x]}{8\,a^2\,f\,\sqrt{a + a\,\text{Sec}[e + f\,x]}\,\sqrt{c - c\,\text{Sec}[e + f\,x]}} - \frac{\text{Tan}[e + f\,x]}{4\,a^2\,f\,(1 + \text{Sec}[e + f\,x])^2\,\sqrt{a + a\,\text{Sec}[e + f\,x]}\,\sqrt{c - c\,\text{Sec}[e + f\,x]}} - \frac{3\,\text{Tan}[e + f\,x]}{4\,a^2\,f\,(1 + \text{Sec}[e + f\,x])\,\sqrt{a + a\,\text{Sec}[e + f\,x]}\,\sqrt{c - c\,\text{Sec}[e + f\,x]}}$$

Result (type 3, 195 leaves):

$$\left(\left(8 - 12\,i\,f\,x + 3\,\text{Log}\left[1 - e^{i\,(e+f\,x)}\right] + 21\,\text{Log}\left[1 + e^{i\,(e+f\,x)}\right] + \text{Cos}[2\,(e + f\,x)]\,\left(-4\,i\,f\,x + \text{Log}\left[1 - e^{i\,(e+f\,x)}\right] + 7\,\text{Log}\left[1 + e^{i\,(e+f\,x)}\right]\right) + 2\,\text{Cos}[e + f\,x]\,\left(5 - 8\,i\,f\,x + 2\,\text{Log}\left[1 - e^{i\,(e+f\,x)}\right] + 14\,\text{Log}\left[1 + e^{i\,(e+f\,x)}\right]\right)\right)\text{Tan}[e + f\,x]\right) \Big/ \left(8\,a^2\,f\,(1 + \text{Cos}[e + f\,x])^2\,\sqrt{a\,(1 + \text{Sec}[e + f\,x])}\,\sqrt{c - c\,\text{Sec}[e + f\,x]}\right)$$

Problem 129: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+a\,\text{Sec}[e+f\,x])^{5/2}\,(c-c\,\text{Sec}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 345 leaves, 3 steps):

$$\frac{\text{Log}[\text{Cos}[e+f\,x]]\,\text{Tan}[e+f\,x]}{a^2\,c\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}+\frac{5\,\text{Log}[1-\text{Sec}[e+f\,x]]\,\text{Tan}[e+f\,x]}{16\,a^2\,c\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}+\frac{11\,\text{Log}[1+\text{Sec}[e+f\,x]]\,\text{Tan}[e+f\,x]}{16\,a^2\,c\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}-\frac{\text{Tan}[e+f\,x]}{8\,a^2\,c\,f\,(1-\text{Sec}[e+f\,x])\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}-\frac{\text{Tan}[e+f\,x]}{8\,a^2\,c\,f\,(1+\text{Sec}[e+f\,x])^2\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}-\frac{\text{Tan}[e+f\,x]}{2\,a^2\,c\,f\,(1+\text{Sec}[e+f\,x])\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}$$

Result (type 3, 275 leaves):

$$\Big(\Big(-14+16\,i\,f\,x-8\,i\,f\,x\,\text{Cos}[3\,(e+f\,x)]-10\,\text{Log}\big[1-e^{i\,(e+f\,x)}\big]+5\,\text{Cos}[3\,(e+f\,x)]\,\text{Log}\big[1-e^{i\,(e+f\,x)}\big]+\text{Cos}[e+f\,x]\,\Big(-12+8\,i\,f\,x-5\,\text{Log}\big[1-e^{i\,(e+f\,x)}\big]-11\,\text{Log}\big[1+e^{i\,(e+f\,x)}\big]\Big)-22\,\text{Log}\big[1+e^{i\,(e+f\,x)}\big]+11\,\text{Cos}[3\,(e+f\,x)]\,\text{Log}\big[1+e^{i\,(e+f\,x)}\big]+2\,\text{Cos}[2\,(e+f\,x)]\,\Big(5-8\,i\,f\,x+5\,\text{Log}\big[1-e^{i\,(e+f\,x)}\big]+11\,\text{Log}\big[1+e^{i\,(e+f\,x)}\big]\Big)\Big)\,\text{Tan}[e+f\,x]\Big)\Big/\Big(32\,a^2\,c\,f\,(-1+\text{Cos}[e+f\,x])\,(1+\text{Cos}[e+f\,x])^2\,\sqrt{a\,(1+\text{Sec}[e+f\,x])}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}\Big)$$

Problem 130: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+a\,\text{Sec}[e+f\,x])^{5/2}\,(c-c\,\text{Sec}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 151 leaves, 4 steps):

$$\frac{\text{Cot}[e+f\,x]}{2\,a^2\,c^2\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}-\frac{\text{Cot}[e+f\,x]^3}{4\,a^2\,c^2\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}+\frac{\text{Log}[\text{Sin}[e+f\,x]]\,\text{Tan}[e+f\,x]}{a^2\,c^2\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}}$$

Result (type 3, 195 leaves):

$$\Big(\text{Csc}[e+f\,x]^3\,\Big(2-3\,i\,f\,x+3\,\text{Log}\big[1-e^{i\,(e+f\,x)}\big]+\text{Cos}[2\,(e+f\,x)]\,\Big(-4+4\,i\,f\,x-4\,\text{Log}\big[1-e^{i\,(e+f\,x)}\big]-4\,\text{Log}\big[1+e^{i\,(e+f\,x)}\big]\Big)+3\,\text{Log}\big[1+e^{i\,(e+f\,x)}\big]+\text{Cos}[4\,(e+f\,x)]\,\Big(-i\,f\,x+\text{Log}\big[1-e^{i\,(e+f\,x)}\big]+\text{Log}\big[1+e^{i\,(e+f\,x)}\big]\Big)\Big)\,\text{Sec}[e+f\,x]\Big)\Big/\Big(8\,a^2\,c^2\,f\,\sqrt{a\,(1+\text{Sec}[e+f\,x])}\,\sqrt{c-c\,\text{Sec}[e+f\,x]}\Big)$$

Problem 131: Unable to integrate problem.

$$\int (1+\operatorname{Sec}[e+f x])^m (c-c \operatorname{Sec}[e+f x])^n \, dx$$

Optimal (type 6, 92 leaves, 2 steps):

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

Result (type 8, 26 leaves):

$$\int (1+\operatorname{Sec}[e+f x])^m (c-c \operatorname{Sec}[e+f x])^n \, dx$$

Problem 132: Unable to integrate problem.

$$\int (a+a \operatorname{Sec}[e+f x])^m (c-c \operatorname{Sec}[e+f x])^n \, dx$$

Optimal (type 6, 109 leaves, 3 steps):

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

Result (type 8, 28 leaves):

$$\int (a+a \operatorname{Sec}[e+f x])^m (c-c \operatorname{Sec}[e+f x])^n \, dx$$

Problem 133: Unable to integrate problem.

$$\int (a+a \operatorname{Sec}[e+f x])^3 (c-c \operatorname{Sec}[e+f x])^n \, dx$$

Optimal (type 6, 101 leaves, 3 steps):

$$\frac{1}{7 f} 2^{\frac{1}{2}+n} c \operatorname{AppellF1}\left[\frac{7}{2}, \frac{1}{2}-n, 1, \frac{9}{2}, \frac{1}{2} (1+\operatorname{Sec}[e+f x]), 1+\operatorname{Sec}[e+f x]\right] (1-\operatorname{Sec}[e+f x])^{\frac{1}{2}-n} (a+a \operatorname{Sec}[e+f x])^3 (c-c \operatorname{Sec}[e+f x])^{-1+n} \operatorname{Tan}[e+f x]$$

Result (type 8, 28 leaves):

$$\int (a+a \operatorname{Sec}[e+f x])^3 (c-c \operatorname{Sec}[e+f x])^n \, dx$$

Problem 134: Unable to integrate problem.

$$\int (a+a \operatorname{Sec}[e+f x])^2 (c-c \operatorname{Sec}[e+f x])^n \, dx$$

Optimal (type 6, 101 leaves, 3 steps):

$$\frac{1}{5 f} 2^{\frac{1}{2}+n} c \,\text{AppellF1}\left[\frac{5}{2}, \frac{1}{2}-n, 1, \frac{7}{2}, \frac{1}{2} (1+\text{Sec}[e+f x]), 1+\text{Sec}[e+f x]\right] (1-\text{Sec}[e+f x])^{\frac{1}{2}-n} (a+a \,\text{Sec}[e+f x])^2 (c-c \,\text{Sec}[e+f x])^{-1+n} \text{Tan}[e+f x]$$

Result (type 8, 28 leaves):

$$\int (a+a \,\text{Sec}[e+f x])^2 (c-c \,\text{Sec}[e+f x])^n \, dx$$

Problem 135: Unable to integrate problem.

$$\int (a+a \,\text{Sec}[e+f x]) (c-c \,\text{Sec}[e+f x])^n \, dx$$

Optimal (type 6, 99 leaves, 3 steps):

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

Result (type 8, 26 leaves):

$$\int (a+a \,\text{Sec}[e+f x]) (c-c \,\text{Sec}[e+f x])^n \, dx$$

Problem 136: Unable to integrate problem.

$$\int \frac{(c-c \,\text{Sec}[e+f x])^n}{a+a \,\text{Sec}[e+f x]} \, dx$$

Optimal (type 6, 99 leaves, 3 steps):

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

Result (type 8, 28 leaves):

$$\int \frac{(c-c \,\text{Sec}[e+f x])^n}{a+a \,\text{Sec}[e+f x]} \, dx$$

Problem 137: Unable to integrate problem.

$$\int \frac{(c-c \,\text{Sec}[e+f x])^n}{(a+a \,\text{Sec}[e+f x])^2} \, dx$$

Optimal (type 6, 101 leaves, 3 steps):

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

Result (type 8, 28 leaves):

$$\int\frac{\left(c-c\,\text{Sec}[e+f x]\right)^n}{\left(a+a\,\text{Sec}[e+f x]\right)^2}\,dx$$

Problem 138: Unable to integrate problem.

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

Optimal (type 5, 172 leaves, 4 steps):

$$\frac{6 a^3\left(c-c\,\text{Sec}[e+f x]\right)^n\text{Tan}[e+f x]}{f\,(1+2 n)\sqrt{a+a\,\text{Sec}[e+f x]}}+\left(2 a^3\,\text{Hypergeometric2F1}\left[1,\frac{1}{2}+n,\frac{3}{2}+n,1-\text{Sec}[e+f x]\right]\left(c-c\,\text{Sec}[e+f x]\right)^n\text{Tan}[e+f x]\right)\Big/\left(f\,(1+2 n)\sqrt{a+a\,\text{Sec}[e+f x]}\right)-\frac{2 a^3\left(c-c\,\text{Sec}[e+f x]\right)^{1+n}\text{Tan}[e+f x]}{c f\,(3+2 n)\sqrt{a+a\,\text{Sec}[e+f x]}}$$

Result (type 8, 30 leaves):

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

Problem 139: Unable to integrate problem.

$$\int\left(a+a\,\text{Sec}[e+f x]\right)^{3/2}\left(c-c\,\text{Sec}[e+f x]\right)^n\,dx$$

Optimal (type 5, 119 leaves, 3 steps):

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

Result (type 8, 30 leaves):

$$\int\left(a+a\,\text{Sec}[e+f x]\right)^{3/2}\left(c-c\,\text{Sec}[e+f x]\right)^n\,dx$$

Problem 140: Unable to integrate problem.

$$\int \sqrt{a + a \operatorname{Sec}[e + f x]} \, (c - c \operatorname{Sec}[e + f x])^n \, dx$$

Optimal (type 5, 68 leaves, 2 steps):

$$\left(2 a \operatorname{Hypergeometric2F1}\left[1, \frac{1}{2} + n, \frac{3}{2} + n, 1 - \operatorname{Sec}[e + f x]\right] (c - c \operatorname{Sec}[e + f x])^n \operatorname{Tan}[e + f x]\right) \Big/ \left(f (1 + 2 n) \sqrt{a + a \operatorname{Sec}[e + f x]}\right)$$

Result (type 8, 30 leaves):

$$\int \sqrt{a + a \operatorname{Sec}[e + f x]} \, (c - c \operatorname{Sec}[e + f x])^n \, dx$$

Problem 141: Unable to integrate problem.

$$\int \frac{(c - c \operatorname{Sec}[e + f x])^n}{\sqrt{a + a \operatorname{Sec}[e + f x]}} \, dx$$

Optimal (type 5, 139 leaves, 4 steps):

$$-\left(\left(\operatorname{Hypergeometric2F1}\left[1, \frac{1}{2} + n, \frac{3}{2} + n, \frac{1}{2} (1 - \operatorname{Sec}[e + f x])\right] (c - c \operatorname{Sec}[e + f x])^n \operatorname{Tan}[e + f x]\right) \Big/ \left(f (1 + 2 n) \sqrt{a + a \operatorname{Sec}[e + f x]}\right)\right) + \left(2 \operatorname{Hypergeometric2F1}\left[1, \frac{1}{2} + n, \frac{3}{2} + n, 1 - \operatorname{Sec}[e + f x]\right] (c - c \operatorname{Sec}[e + f x])^n \operatorname{Tan}[e + f x]\right) \Big/ \left(f (1 + 2 n) \sqrt{a + a \operatorname{Sec}[e + f x]}\right)$$

Result (type 8, 30 leaves):

$$\int \frac{(c - c \operatorname{Sec}[e + f x])^n}{\sqrt{a + a \operatorname{Sec}[e + f x]}} \, dx$$

Problem 142: Unable to integrate problem.

$$\int \frac{(c - c \operatorname{Sec}[e + f x])^n}{(a + a \operatorname{Sec}[e + f x])^{3/2}} \, dx$$

Optimal (type 5, 205 leaves, 5 steps):

$$-\left(\left(\left((5-2n)\,\text{Hypergeometric2F1}\left[1,\frac{1}{2}+n,\frac{3}{2}+n,\frac{1}{2}(1-\text{Sec}[e+fx])\right]\right.\right.\right.$$
$$\left.\left.(c-c\,\text{Sec}[e+fx])^n\,\text{Tan}[e+fx]\right)\Big/\left(4af(1+2n)\sqrt{a+a\,\text{Sec}[e+fx]}\right)\right)+$$
$$\left(2\,\text{Hypergeometric2F1}\left[1,\frac{1}{2}+n,\frac{3}{2}+n,1-\text{Sec}[e+fx]\right](c-c\,\text{Sec}[e+fx])^n\,\text{Tan}[e+fx]\right)\Big/$$
$$\left(af(1+2n)\sqrt{a+a\,\text{Sec}[e+fx]}\right)-\frac{(c-c\,\text{Sec}[e+fx])^n\,\text{Tan}[e+fx]}{2af(1+\text{Sec}[e+fx])\sqrt{a+a\,\text{Sec}[e+fx]}}$$

Result (type 8, 30 leaves):

$$\int\frac{(c-c\,\text{Sec}[e+fx])^n}{(a+a\,\text{Sec}[e+fx])^{3/2}}\,dx$$

Problem 143: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\sqrt{a+a\,\text{Sec}[e+fx]}}{c+c\,\text{Sec}[e+fx]}\,dx$$

Optimal (type 3, 91 leaves, 6 steps):

$$\frac{2\sqrt{a}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+fx]}{\sqrt{a+a\,\text{Sec}[e+fx]}}\right]}{cf}-\frac{\sqrt{2}\sqrt{a}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+fx]}{\sqrt{2}\sqrt{a+a\,\text{Sec}[e+fx]}}\right]}{cf}$$

Result (type 3, 168 leaves):

$$\frac{1}{c\left(1+e^{i(e+fx)}\right)f}$$
$$\sqrt{1+e^{2i(e+fx)}}\left(fx-i\,\text{ArcSinh}\left[e^{i(e+fx)}\right]+i\sqrt{2}\,\text{Log}\left[1+e^{i(e+fx)}\right]+i\,\text{Log}\left[1+\sqrt{1+e^{2i(e+fx)}}\right]-\right.$$
$$\left.i\sqrt{2}\,\text{Log}\left[1-e^{i(e+fx)}+\sqrt{2}\sqrt{1+e^{2i(e+fx)}}\right]\right)\sqrt{a(1+\text{Sec}[e+fx])}$$

Problem 146: Unable to integrate problem.

$$\int\frac{1}{(a+a\,\text{Sec}[e+fx])\sqrt{c+d\,\text{Sec}[e+fx]}}\,dx$$

Optimal (type 4, 319 leaves, 5 steps):

$$\frac{1}{a\,(c-d)\,f}2\sqrt{c+d}\;\text{Cot}[e+f\,x]\;\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{c+d\,\text{Sec}[e+f\,x]}}{\sqrt{c+d}}\Big],\frac{c+d}{c-d}\Big]\sqrt{\frac{d\,(1-\text{Sec}[e+f\,x])}{c+d}}\sqrt{-\frac{d\,(1+\text{Sec}[e+f\,x])}{c-d}}-\frac{1}{a\,c\,f}$$

$$2\sqrt{c+d}\;\text{Cot}[e+f\,x]\;\text{EllipticPi}\Big[\frac{c+d}{c},\text{ArcSin}\Big[\frac{\sqrt{c+d\,\text{Sec}[e+f\,x]}}{\sqrt{c+d}}\Big],\frac{c+d}{c-d}\Big]\sqrt{\frac{d\,(1-\text{Sec}[e+f\,x])}{c+d}}\sqrt{-\frac{d\,(1+\text{Sec}[e+f\,x])}{c-d}}-$$

$$\left(\text{EllipticE}\Big[\text{ArcSin}\Big[\frac{\text{Tan}[e+f\,x]}{1+\text{Sec}[e+f\,x]}\Big],\frac{c-d}{c+d}\Big]\sqrt{\frac{1}{1+\text{Sec}[e+f\,x]}}\sqrt{c+d\,\text{Sec}[e+f\,x]}\right)\Bigg/$$

$$\left(a\,(c-d)\,f\sqrt{\frac{c+d\,\text{Sec}[e+f\,x]}{(c+d)\,(1+\text{Sec}[e+f\,x])}}\right)$$

Result (type 8, 29 leaves) :

$$\int\frac{1}{(a+a\,\text{Sec}[e+f\,x])\sqrt{c+d\,\text{Sec}[e+f\,x]}}\,dx$$

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

$$\int\sqrt{a+a\,\text{Sec}[e+f\,x]}\;(c+d\,\text{Sec}[e+f\,x])^4\,dx$$

Optimal (type 3, 271 leaves, 5 steps) :

$$\frac{2\,a\,d\,(2\,c+d)\,(2\,c^2+2\,c\,d+d^2)\,\text{Tan}[e+f\,x]}{f\sqrt{a+a\,\text{Sec}[e+f\,x]}}+\frac{2\,a^{3/2}\,c^4\,\text{ArcTanh}\Big[\frac{\sqrt{a-a\,\text{Sec}[e+f\,x]}}{\sqrt{a}}\Big]\,\text{Tan}[e+f\,x]}{f\sqrt{a-a\,\text{Sec}[e+f\,x]}\sqrt{a+a\,\text{Sec}[e+f\,x]}}-$$

$$\frac{2\,d^2\,(6\,c^2+8\,c\,d+3\,d^2)\,(a-a\,\text{Sec}[e+f\,x])\,\text{Tan}[e+f\,x]}{3\,f\sqrt{a+a\,\text{Sec}[e+f\,x]}}+$$

$$\frac{2\,d^3\,(4\,c+3\,d)\,(a-a\,\text{Sec}[e+f\,x])^2\,\text{Tan}[e+f\,x]}{5\,a\,f\sqrt{a+a\,\text{Sec}[e+f\,x]}}-\frac{2\,d^4\,(a-a\,\text{Sec}[e+f\,x])^3\,\text{Tan}[e+f\,x]}{7\,a^2\,f\sqrt{a+a\,\text{Sec}[e+f\,x]}}$$

Result (type 4, 589 leaves) :

$$\frac{1}{f\left(d+c\,\mathrm{Cos}[e+f x]\right)^4}\mathrm{Cos}[e+f x]^4\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]\sqrt{a\left(1+\mathrm{Sec}[e+f x]\right)}\left(c+d\,\mathrm{Sec}[e+f x]\right)^4$$
$$\left(\frac{8}{105}d\left(105 c^3+105 c^2 d+56 c d^2+12 d^3\right)\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{2}{7}d^4\,\mathrm{Sec}[e+f x]^3\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\frac{4}{35}\mathrm{Sec}[e+f x]^2\left(14 c d^3\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+3 d^4\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)+\frac{4}{105}\mathrm{Sec}[e+f x]$$
$$\left.\left(105 c^2 d^2\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+56 c d^3\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+12 d^4\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right)-$$
$$\frac{1}{f\left(d+c\,\mathrm{Cos}[e+f x]\right)^4}8\left(-3-2\sqrt{2}\right)c^4\,\mathrm{Cos}\left[\frac{1}{4}(e+f x)\right]^4$$
$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$
$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]\right)\mathrm{Cos}[e+f x]^3$$
$$\left(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+\right.$$
$$\left.2\,\mathrm{EllipticPi}\left[-3+2\sqrt{2},-\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$
$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]\right)\mathrm{Sec}\left[\frac{1}{4}(e+f x)\right]^2}\;\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]$$
$$\sqrt{a\left(1+\mathrm{Sec}[e+f x]\right)}\left(c+d\,\mathrm{Sec}[e+f x]\right)^4\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]^2}$$

Problem 148: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\sqrt{a+a\,\mathrm{Sec}[e+f x]}\left(c+d\,\mathrm{Sec}[e+f x]\right)^3 dx$$

Optimal (type 3, 205 leaves, 5 steps):

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

Result (type 4, 519 leaves):

$$\left(\operatorname{Cos}[e+f x]^3 \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{a(1+\operatorname{Sec}[e+f x])}\,(c+d \operatorname{Sec}[e+f x])^3 \left(\frac{2}{15} d\left(45 c^2+30 c d+8 d^2\right) \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{2}{5} d^3 \operatorname{Sec}[e+f x]^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{2}{15} \operatorname{Sec}[e+f x]\left(15 c d^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+4 d^3 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right) \Big/ \left(f(d+c \operatorname{Cos}[e+f x])^3\right)-\frac{1}{f(d+c \operatorname{Cos}[e+f x])^3} 8\left(-3-2 \sqrt{2}\right) c^3 \operatorname{Cos}\left[\frac{1}{4}(e+f x)\right]^4 \sqrt{\frac{7-5 \sqrt{2}+\left(10-7 \sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}} \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}} \left(1-\sqrt{2}+\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right) \operatorname{Cos}[e+f x]^2 \left(\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]+2 \operatorname{EllipticPi}\left[-3+2 \sqrt{2},-\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]\right) \sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right) \operatorname{Sec}\left[\frac{1}{4}(e+f x)\right]^2} \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{a(1+\operatorname{Sec}[e+f x])}\,(c+d \operatorname{Sec}[e+f x])^3 \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]^2}$$

Problem 149: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{a+a \operatorname{Sec}[e+f x]}\,(c+d \operatorname{Sec}[e+f x])^2\, dx$$

Optimal (type 3, 144 leaves, 5 steps):

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

Result (type 4, 463 leaves):

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

$$8\left(-3-2\sqrt{2}\right)c^2\,\text{Cos}\left[\frac{1}{4}(e+f x)\right]^4\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$

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

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

$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$

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

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

Problem 150: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

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

$$\frac{2\sqrt{a}\,c\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+f x]}{\sqrt{a+a\,\text{Sec}[e+f x]}}\right]}{f}+\frac{2\,a\,d\,\text{Tan}[e+f x]}{f\sqrt{a+a\,\text{Sec}[e+f x]}}$$

Result (type 4, 407 leaves):

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

$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\left(e+f\,x\right)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}\left(e+f\,x\right)\right]}}$$

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

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

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

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

$$\left(2\,d\,\mathrm{Cos}[e+f\,x]\sqrt{a\left(1+\mathrm{Sec}[e+f\,x]\right)}\left(c+d\,\mathrm{Sec}[e+f\,x]\right)\mathrm{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right)\Big/$$
$$\left(f\left(d+c\,\mathrm{Cos}[e+f\,x]\right)\right)$$

Problem 154: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 241 leaves, 6 steps):

$$\frac{2\,a^{5/2}\,c^3\,\mathrm{ArcTanh}\left[\frac{\sqrt{a-a\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a}}\right]\mathrm{Tan}[e+f\,x]}{f\sqrt{a-a\,\mathrm{Sec}[e+f\,x]}\sqrt{a+a\,\mathrm{Sec}[e+f\,x]}}+$$

$$\frac{2\,a^2\left(6\,c+13\,d\right)\left(c+d\,\mathrm{Sec}[e+f\,x]\right)^2\mathrm{Tan}[e+f\,x]}{35\,f\sqrt{a+a\,\mathrm{Sec}[e+f\,x]}}+\frac{2\,a^2\left(c+d\,\mathrm{Sec}[e+f\,x]\right)^3\mathrm{Tan}[e+f\,x]}{7\,f\sqrt{a+a\,\mathrm{Sec}[e+f\,x]}}+$$

$$\left(2\,a^2\left(2\left(36\,c^3+243\,c^2\,d+189\,c\,d^2+52\,d^3\right)+d\left(24\,c^2+111\,c\,d+52\,d^2\right)\mathrm{Sec}[e+f\,x]\right)\mathrm{Tan}[e+f\,x]\right)\Big/$$
$$\left(105\,f\sqrt{a+a\,\mathrm{Sec}[e+f\,x]}\right)$$

Result (type 4, 590 leaves):

$$\frac{1}{f\left(d+c\,\mathrm{Cos}[e+f x]\right)^3}\mathrm{Cos}[e+f x]^4\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^3\left(a\left(1+\mathrm{Sec}[e+f x]\right)\right)^{3/2}\left(c+d\,\mathrm{Sec}[e+f x]\right)^3$$
$$\left(\frac{1}{105}\left(105 c^3+525 c^2 d+378 c d^2+104 d^3\right)\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{7}d^3\,\mathrm{Sec}[e+f x]^3\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\frac{1}{35}\mathrm{Sec}[e+f x]^2\left(21 c d^2\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+13 d^3\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)+\frac{1}{105}\mathrm{Sec}[e+f x]$$
$$\left.\left(105 c^2 d\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+189 c d^2\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]+52 d^3\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right)-$$
$$\frac{1}{f\left(d+c\,\mathrm{Cos}[e+f x]\right)^3}4\left(-3-2\sqrt{2}\right)c^3\,\mathrm{Cos}\left[\frac{1}{4}(e+f x)\right]^4$$
$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$
$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]\right)\mathrm{Cos}[e+f x]^3$$
$$\left(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+\right.$$
$$\left.2\,\mathrm{EllipticPi}\left[-3+2\sqrt{2},-\mathrm{ArcSin}\left[\frac{\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$
$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]\right)\mathrm{Sec}\left[\frac{1}{4}(e+f x)\right]^2}\;\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^3\Bigg/$$
$$\left(\left(a\left(1+\mathrm{Sec}[e+f x]\right)\right)^{3/2}\left(c+d\,\mathrm{Sec}[e+f x]\right)^3\sqrt{3-2\sqrt{2}-\mathrm{Tan}\left[\frac{1}{4}(e+f x)\right]^2}\right)$$

Problem 155: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 176 leaves, 5 steps):

$$\frac{2 a^{5/2} c^2\,\mathrm{ArcTanh}\left[\frac{\sqrt{a-a\,\mathrm{Sec}[e+f x]}}{\sqrt{a}}\right]\mathrm{Tan}[e+f x]}{f\sqrt{a-a\,\mathrm{Sec}[e+f x]}\sqrt{a+a\,\mathrm{Sec}[e+f x]}}+\frac{2 a^2\left(c+d\,\mathrm{Sec}[e+f x]\right)^2\mathrm{Tan}[e+f x]}{5 f\sqrt{a+a\,\mathrm{Sec}[e+f x]}}+$$
$$\frac{2 a^2\left(2\left(6 c^2+25 c d+9 d^2\right)+d\left(4 c+9 d\right)\mathrm{Sec}[e+f x]\right)\mathrm{Tan}[e+f x]}{15 f\sqrt{a+a\,\mathrm{Sec}[e+f x]}}$$

Result (type 4, 520 leaves):

$$\left(\text{Cos}[e+f x]^3\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^3 \left(a\left(1+\text{Sec}[e+f x]\right)\right)^{3/2}\left(c+d\,\text{Sec}[e+f x]\right)^2 \left(\frac{1}{15}\left(15 c^2+50 c d+18 d^2\right)\text{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5} d^2\,\text{Sec}[e+f x]^2\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{15}\text{Sec}[e+f x]\left(10 c d\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]+9 d^2\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\Big/\left(f\left(d+c\,\text{Cos}[e+f x]\right)^2\right)-\frac{1}{f\left(d+c\,\text{Cos}[e+f x]\right)^2}4\left(-3-2\sqrt{2}\right)c^2\,\text{Cos}\left[\frac{1}{4}(e+f x)\right]^4$$

$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$

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

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

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

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

Problem 156: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 105 leaves, 5 steps):

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

Result (type 4, 460 leaves):

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

$$\frac{1}{f\,(d+c\,\text{Cos}[e+f x])} 4\left(-3-2\sqrt{2}\right) c\,\text{Cos}\left[\frac{1}{4}(e+f x)\right]^4 \sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\text{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$

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

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

$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2}, -\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2\sqrt{2}}}\right], 17-12\sqrt{2}\right]\right)$$

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

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

Problem 160: Result unnecessarily involves higher level functions.

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

Optimal (type 3, 336 leaves, 5 steps):

$$\frac{2 a^3\left(3 c^3+12 c^2 d+12 c d^2+4 d^3\right)\text{Tan}[e+f x]}{f\sqrt{a+a\,\text{Sec}[e+f x]}}+\frac{2 a^{7/2} c^3\,\text{ArcTanh}\left[\frac{\sqrt{a-a\,\text{Sec}[e+f x]}}{\sqrt{a}}\right]\text{Tan}[e+f x]}{f\sqrt{a-a\,\text{Sec}[e+f x]}\sqrt{a+a\,\text{Sec}[e+f x]}}+$$

$$\frac{2 a d\left(3 c^2+15 c d+13 d^2\right)(a-a\,\text{Sec}[e+f x])^2\,\text{Tan}[e+f x]}{5 f\sqrt{a+a\,\text{Sec}[e+f x]}}-$$

$$\frac{6 d^2 (c+2 d)(a-a\,\text{Sec}[e+f x])^3\,\text{Tan}[e+f x]}{7 f\sqrt{a+a\,\text{Sec}[e+f x]}}+\frac{2 d^3 (a-a\,\text{Sec}[e+f x])^4\,\text{Tan}[e+f x]}{9 a f\sqrt{a+a\,\text{Sec}[e+f x]}}-$$

$$\frac{2\left(c^3+12 c^2 d+24 c d^2+12 d^3\right)\left(a^3-a^3\,\text{Sec}[e+f x]\right)\text{Tan}[e+f x]}{3 f\sqrt{a+a\,\text{Sec}[e+f x]}}$$

Result (type 4, 665 leaves):

$$\frac{1}{f\left(d+c\,\text{Cos}[e+f x]\right)^3}\,\text{Cos}[e+f x]^5\,\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^5\left(a\left(1+\text{Sec}[e+f x]\right)\right)^{5/2}\left(c+d\,\text{Sec}[e+f x]\right)^3$$
$$\left(\frac{1}{630}\left(840 c^3+2709 c^2 d+2070 c d^2+584 d^3\right)\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+\frac{1}{18}d^3\,\text{Sec}[e+f x]^4\right.$$
$$\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+\frac{1}{126}\text{Sec}[e+f x]^3\left(27 c d^2\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+26 d^3\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]\right)+\frac{1}{210}$$
$$\text{Sec}[e+f x]^2\left(63 c^2 d\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+180 c d^2\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+73 d^3\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]\right)+$$
$$\frac{1}{630}\text{Sec}[e+f x]\left(105 c^3\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+882 c^2 d\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+\right.$$
$$\left.\left.1035 c d^2\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]+292 d^3\,\text{Sin}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\right)-$$
$$\frac{1}{f\left(d+c\,\text{Cos}[e+f x]\right)^3}\,2\left(-3-2\sqrt{2}\right)c^3\,\text{Cos}\left[\frac{1}{4}\left(e+f x\right)\right]^4$$
$$\sqrt{\frac{7-5\sqrt{2}+\left(10-7\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]}}$$
$$\sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]}{1+\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]}}$$
$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\text{Cos}[e+f x]^4$$
$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(e+f x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]+\right.$$
$$\left.2\,\text{EllipticPi}\left[-3+2\sqrt{2},-\text{ArcSin}\left[\frac{\text{Tan}\left[\frac{1}{4}\left(e+f x\right)\right]}{\sqrt{3-2\sqrt{2}}}\right],17-12\sqrt{2}\right]\right)$$
$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\text{Sec}\left[\frac{1}{4}\left(e+f x\right)\right]^2}\;\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^5$$
$$\left(a\left(1+\text{Sec}[e+f x]\right)\right)^{5/2}\left(c+d\,\text{Sec}[e+f x]\right)^3\sqrt{3-2\sqrt{2}-\text{Tan}\left[\frac{1}{4}\left(e+f x\right)\right]^2}$$

Problem 161: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 258 leaves, 5 steps):

$$\frac{2 a^3 (c+2 d) (3 c+2 d) \operatorname{Tan}[e+f x]}{f \sqrt{a+a \operatorname{Sec}[e+f x]}}+\frac{2 a^{7/2} c^2 \operatorname{ArcTanh}\left[\frac{\sqrt{a-a \operatorname{Sec}[e+f x]}}{\sqrt{a}}\right] \operatorname{Tan}[e+f x]}{f \sqrt{a-a \operatorname{Sec}[e+f x]} \sqrt{a+a \operatorname{Sec}[e+f x]}}+$$
$$\frac{2 a d (2 c+5 d) (a-a \operatorname{Sec}[e+f x])^2 \operatorname{Tan}[e+f x]}{5 f \sqrt{a+a \operatorname{Sec}[e+f x]}}-\frac{2 d^2 (a-a \operatorname{Sec}[e+f x])^3 \operatorname{Tan}[e+f x]}{7 f \sqrt{a+a \operatorname{Sec}[e+f x]}}-$$
$$\frac{2 (c^2+8 c d+8 d^2) (a^3-a^3 \operatorname{Sec}[e+f x]) \operatorname{Tan}[e+f x]}{3 f \sqrt{a+a \operatorname{Sec}[e+f x]}}$$

Result (type 4, 577 leaves):

$$\frac{1}{f (d+c \operatorname{Cos}[e+f x])^2} \operatorname{Cos}[e+f x]^4 \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^5 (a (1+\operatorname{Sec}[e+f x]))^{5/2} (c+d \operatorname{Sec}[e+f x])^2$$
$$\left(\frac{1}{105}(140 c^2+301 c d+115 d^2) \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{14} d^2 \operatorname{Sec}[e+f x]^3 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\frac{1}{35} \operatorname{Sec}[e+f x]^2 \left(7 c d \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+10 d^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)+$$
$$\left.\frac{1}{210} \operatorname{Sec}[e+f x] \left(35 c^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+196 c d \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+115 d^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right)-$$
$$\frac{1}{f (d+c \operatorname{Cos}[e+f x])^2} 2 \left(-3-2 \sqrt{2}\right) c^2 \operatorname{Cos}\left[\frac{1}{4}(e+f x)\right]^4$$
$$\sqrt{\frac{7-5 \sqrt{2}+\left(10-7 \sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}} \sqrt{\frac{-1+\sqrt{2}-\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$
$$\left(1-\sqrt{2}+\left(-2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right) \operatorname{Cos}[e+f x]^3$$
$$\left(\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]+\right.$$
$$\left.2 \operatorname{EllipticPi}\left[-3+2 \sqrt{2}, -\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]\right)$$
$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right) \operatorname{Sec}\left[\frac{1}{4}(e+f x)\right]^2} \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^5$$
$$(a (1+\operatorname{Sec}[e+f x]))^{5/2} (c+d \operatorname{Sec}[e+f x])^2 \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]^2}$$

Problem 162: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 3, 142 leaves, 6 steps):

$$\frac{2 a^{5/2} c \operatorname{ArcTan}\left[\frac{\sqrt{a} \operatorname{Tan}[e+f x]}{\sqrt{a+a \operatorname{Sec}[e+f x]}}\right]}{f}+\frac{2 a^3 (35 c+32 d) \operatorname{Tan}[e+f x]}{15 f \sqrt{a+a \operatorname{Sec}[e+f x]}}+\frac{2 a^2 (5 c+8 d) \sqrt{a+a \operatorname{Sec}[e+f x]} \operatorname{Tan}[e+f x]}{15 f}+\frac{2 a d (a+a \operatorname{Sec}[e+f x])^{3/2} \operatorname{Tan}[e+f x]}{5 f}$$

Result (type 4, 501 leaves):

$$\left(\operatorname{Cos}[e+f x]^3 \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^5 (a (1+\operatorname{Sec}[e+f x]))^{5/2} (c+d \operatorname{Sec}[e+f x]) \left(\frac{1}{30}(40 c+43 d) \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{10} d \operatorname{Sec}[e+f x]^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{30} \operatorname{Sec}[e+f x] \left(5 c \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+14 d \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right) \Big/ (f (d+c \operatorname{Cos}[e+f x]))-$$

$$\frac{1}{f (d+c \operatorname{Cos}[e+f x])} 2 \left(-3-2 \sqrt{2}\right) c \operatorname{Cos}\left[\frac{1}{4}(e+f x)\right]^4 \sqrt{\frac{7-5 \sqrt{2}+\left(10-7 \sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}{1+\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]}}$$

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

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

$$\left.2 \operatorname{EllipticPi}\left[-3+2 \sqrt{2}, -\operatorname{ArcSin}\left[\frac{\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]}{\sqrt{3-2 \sqrt{2}}}\right], 17-12 \sqrt{2}\right]\right)$$

$$\sqrt{\left(-1-\sqrt{2}+\left(2+\sqrt{2}\right) \operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right) \operatorname{Sec}\left[\frac{1}{4}(e+f x)\right]^2} \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^5$$

$$(a (1+\operatorname{Sec}[e+f x]))^{5/2} (c+d \operatorname{Sec}[e+f x]) \sqrt{3-2 \sqrt{2}-\operatorname{Tan}\left[\frac{1}{4}(e+f x)\right]^2}$$

Problem 170: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 416 leaves, 12 steps):

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

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

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

$$\frac{d^2\,\text{Tan}[e+f\,x]}{c\,(c^2-d^2)\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,(c+d\,\text{Sec}[e+f\,x])}$$

Result (type 3, 2477 leaves) :

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.\left.\left. f x]\right)\right] + \frac{1}{c-d} 4 c^2 (c+d) \operatorname{Log}\left[\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right] + \sqrt{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right]\right)$$

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

$$\frac{1}{2 c^2 (c-d)(c+d)} \sqrt{\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \operatorname{Sec}[e+f x]} \sqrt{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}$$

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

$$\left(\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \left(-2 \operatorname{Cos}[e+f x] \sqrt{-\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}} - 2 \operatorname{Sin}[e+f x] -\right.\right.$$

$$\left.\left.\frac{\operatorname{Sin}[e+f x]\left(-\frac{\operatorname{Cos}[e+f x] \operatorname{Sin}[e+f x]}{(1+\operatorname{Cos}[e+f x])^2} + \frac{\operatorname{Sin}[e+f x]}{1+\operatorname{Cos}[e+f x]}\right)}{\sqrt{-\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}}}\right) + \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left.\left.\left(-1+2 \operatorname{Cos}[e+f x] - 2\sqrt{-\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}} \operatorname{Sin}[e+f x]\right) \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right) \Big/$$

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

$$\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \left(\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \left(2 \operatorname{Cos}[e+f x] \sqrt{-\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}} - 2 \operatorname{Sin}[\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 171: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 653 leaves, 16 steps):

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

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

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

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

$$\frac{d^2\,\text{Tan}[e+f\,x]}{2\,c\,(c^2-d^2)\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,(c+d\,\text{Sec}[e+f\,x])^2}+$$

$$\frac{3\,d^2\,\text{Tan}[e+f\,x]}{4\,c\,(c-d)\,(c+d)^2\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,(c+d\,\text{Sec}[e+f\,x])}+$$

$$\frac{(2\,c-d)\,d^2\,\text{Tan}[e+f\,x]}{c^2\,(c-d)^2\,(c+d)\,f\,\sqrt{a+a\,\text{Sec}[e+f\,x]}\,(c+d\,\text{Sec}[e+f\,x])}$$

Result (type 3, 2940 leaves):

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

$$\left(-\frac{d^2\,(-13\,c^2-c\,d+6\,d^2)\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]}{2\,c^3\,(-c+d)^2\,(c+d)^2}-\frac{d^4\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]}{c^3\,(-c+d)\,(c+d)\,(d+c\,\text{Cos}[e+f\,x])^2}+\right.$$

$$\left(-15\,c^2\,d^3\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]-c\,d^4\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]+8\,d^5\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]\right)\Big/$$

$$\left.\left.\left(2\,c^3\,(-c+d)^2\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])\right)\right)\right)\Big/$$

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

$$\left(\left(\left(\sqrt{2}\,d^{3/2}\,(35\,c^4+14\,c^3\,d-21\,c^2\,d^2-4\,c\,d^3+8\,d^4)\,\text{ArcTan}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\sqrt{-c-d}\,\sqrt{-\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right]\right)\Big/\right.\right.$$

$$\left(\sqrt{-c-d}\,(c-d)\right)-2\sqrt{2}\,(c^2-d^2)^2$$

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

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

$$\left.\frac{8\,c^3\,(c+d)^2\,\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\sqrt{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\,\right]}{c-d}\right)$$

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

$$\frac{13\,d^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{8\,(-c+d)^2\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])\,\sqrt{\text{Sec}[e+f\,x]}}+$$

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

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

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

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

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

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

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

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

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

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

$$\left(\left(\left(\sqrt{2}\,d^{3/2}\,(35\,c^4+14\,c^3\,d-21\,c^2\,d^2-4\,c\,d^3+8\,d^4)\,\mathrm{ArcTan}\left[\frac{\sqrt{d}\,\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-c-d}\,\,\sqrt{-\frac{\mathrm{Cos}[e+f\,x]}{1+\mathrm{Cos}[e+f\,x]}}}\right]\right)\right/\right.\right.$$

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

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

$$\mathrm{Log}\left[\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(-1+2\,\mathrm{Cos}[e+f\,x]+2\,\sqrt{-\frac{\mathrm{Cos}[e+f\,x]}{1+\mathrm{Cos}[e+f\,x]}}\,\,\mathrm{Sin}[e+f\,x]\right)\right]+$$

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(\sqrt{2}\,d^{3/2}\left(35\,c^4+14\,c^3\,d-21\,c^2\,d^2-4\,c\,d^3+8\,d^4\right)\right.$$

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

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

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

$$\left(8 c^3\ (c+d)^2\ \left(\frac{1}{2}\ \text{Sec}\left[\frac{1}{2}\ (e+f x)\right]^2 + \frac{\text{Sec}\left[\frac{1}{2}\ (e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}\ (e+f x)\right]}{2\sqrt{-1+\text{Tan}\left[\frac{1}{2}\ (e+f x)\right]^2}}\right)\right) \Big/$$

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

$$\frac{1}{8 c^3\ (c-d)^2\ (c+d)^2\ \sqrt{\text{Cos}\left[\frac{1}{2}\ (e+f x)\right]^2 \text{Sec}[e+f x]}}$$

$$\left(\left(\left(\sqrt{2}\ d^{3/2}\ \left(35 c^4 + 14 c^3 d - 21 c^2 d^2 - 4 c d^3 + 8 d^4\right)\ \text{ArcTan}\left[\frac{\sqrt{d}\ \text{Tan}\left[\frac{1}{2}\ (e+f x)\right]}{\sqrt{-c-d}\ \sqrt{-\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\right) \Big/\right.\right.$$

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

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

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

$$\frac{1}{c-d}8\,c^3\,(c+d)^2\,\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\sqrt{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\,\right]\Bigg)$$

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

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

Problem 175: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+a\,\text{Sec}[e+f\,x])^{3/2}\,(c+d\,\text{Sec}[e+f\,x])}\,dx$$

Optimal (type 3, 394 leaves, 12 steps):

$$-\frac{\text{Tan}[e+f\,x]}{2\,a\,(c-d)\,f\,(1+\text{Sec}[e+f\,x])\,\sqrt{a+a\,\text{Sec}[e+f\,x]}}+$$

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

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

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a-a\,\text{Sec}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]\text{Tan}[e+f\,x]}{2\,\sqrt{2}\,\sqrt{a}\,(c-d)\,f\,\sqrt{a-a\,\text{Sec}[e+f\,x]}\,\sqrt{a+a\,\text{Sec}[e+f\,x]}}-$$

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

Result (type 3, 1574 leaves):

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

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

$$\left(f\,\left(a\,(1+\text{Sec}[e+f\,x])\right)^{3/2}\,(c+d\,\text{Sec}[e+f\,x])\right)+$$

$$\left(\left(\sqrt{-c-d}\left(-c\,(5c-9d)\,\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right]+4\sqrt{2}\,(c-d)^2\,\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{\frac{\text{Cos}[e+fx]}{1+\text{Cos}[e+fx]}}}\right]\right)+\right.\right.$$

$$\left.4\sqrt{2}\,d^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-c-d}\sqrt{\frac{\text{Cos}[e+fx]}{1+\text{Cos}[e+fx]}}}\right]\right)\text{Cos}\left[\frac{1}{2}(e+fx)\right]^3$$

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

$$\frac{2\,d\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]}{(-c+d)\,(d+c\,\text{Cos}[e+fx])\sqrt{\text{Sec}[e+fx]}}-\frac{c\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]\sqrt{\text{Sec}[e+fx]}}{(-c+d)\,(d+c\,\text{Cos}[e+fx])}+$$

$$\frac{3\,d\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]\sqrt{\text{Sec}[e+fx]}}{2(-c+d)\,(d+c\,\text{Cos}[e+fx])}-\frac{c\,\text{Cos}[2(e+fx)]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]\sqrt{\text{Sec}[e+fx]}}{(-c+d)\,(d+c\,\text{Cos}[e+fx])}+$$

$$\left.\left.\frac{d\,\text{Cos}[2(e+fx)]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]\sqrt{\text{Sec}[e+fx]}}{(-c+d)\,(d+c\,\text{Cos}[e+fx])}\right)\text{Sec}[e+fx]^{5/2}\sqrt{1+\text{Sec}[e+fx]}\right)\Big/$$

$$\left(c\sqrt{-c-d}\,(c-d)^2\,f\,(a\,(1+\text{Sec}[e+fx]))^{3/2}\,(c+d\,\text{Sec}[e+fx])\right.$$

$$\left(\left(\left(\left(\sqrt{-c-d}\left(-c\,(5c-9d)\,\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right]+4\sqrt{2}\,(c-d)^2\,\text{ArcTan}\left[\right.\right.\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{\frac{\text{Cos}[e+fx]}{1+\text{Cos}[e+fx]}}}\right]\right)+4\sqrt{2}\,d^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-c-d}\sqrt{\frac{\text{Cos}[e+fx]}{1+\text{Cos}[e+fx]}}}\right]\right)$$

$$\left.\sqrt{1+\text{Sec}[e+fx]}\left(\frac{\text{Cos}[e+fx]\,\text{Sin}[e+fx]}{(1+\text{Cos}[e+fx])^2}-\frac{\text{Sin}[e+fx]}{1+\text{Cos}[e+fx]}\right)\right)\Big/$$

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

$$d^{5/2} \left(\frac{\sqrt{d}\, \text{Sec}\left[\frac{1}{2} (e+f x)\right]^2}{2 \sqrt{-c-d} \sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}-\left(\sqrt{d} \left(\frac{\text{Cos}[e+f x]\, \text{Sin}[e+f x]}{(1+\text{Cos}[e+f x])^2}-\frac{\text{Sin}[e+f x]}{1+\text{Cos}[e+f x]}\right)\right.\right.$$

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

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

$$\sqrt{-c-d} \left(-\frac{c\, (5 c-9 d)\, \text{Sec}\left[\frac{1}{2} (e+f x)\right]^2}{2 \sqrt{1-\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2}}+\left(4 \sqrt{2}\, (c-d)^2\right.\right.$$

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

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

$$\left(\left(\sqrt{-c-d} \left(-c\, (5 c-9 d)\, \text{ArcSin}\left[\text{Tan}\left[\frac{1}{2} (e+f x)\right]\right]+4 \sqrt{2}\, (c-d)^2\, \text{ArcTan}\left[\right.\right.\right.\right.$$

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

$$\left.\left.\left.\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}\;\text{Sec}[e+f\,x]\;\text{Tan}[e+f\,x]\right)\right/\left(2\,c\,\sqrt{-c-d}\;(c-d)^2\;\sqrt{1+\text{Sec}[e+f\,x]}\right)\right)\right)$$

Problem 176: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+a\,\text{Sec}[e+f\,x])^{3/2}\,(c+d\,\text{Sec}[e+f\,x])^2}\,dx$$

Optimal (type 3, 560 leaves, 15 steps):

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

Result (type 3, 2118 leaves):

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

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

$$\left(f\,\left(a\,(1+\mathrm{Sec}[e+f\,x])\right)^{3/2}\,(c+d\,\mathrm{Sec}[e+f\,x])^2\right)+\Bigg(\Bigg((-c-d)^{3/2}$$

$$\left(-c^2\,(5\,c-13\,d)\,\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right]+4\,\sqrt{2}\,(c-d)^3\,\mathrm{ArcTan}\left[\frac{\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{\frac{\mathrm{Cos}[e+f\,x]}{1+\mathrm{Cos}[e+f\,x]}}}\right]\right)+$$

$$2\,\sqrt{2}\,d^{5/2}\,\left(-7\,c^2-3\,c\,d+2\,d^2\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-c-d}\,\sqrt{\frac{\mathrm{Cos}[e+f\,x]}{1+\mathrm{Cos}[e+f\,x]}}}\right]\Bigg)$$

$$\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^3\,(d+c\,\mathrm{Cos}[e+f\,x])^2\,\sqrt{\mathrm{Cos}[e+f\,x]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}$$

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

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

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

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

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

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

$$\frac{c\,d\,\mathrm{Cos}[2\,(e+f\,x)]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\mathrm{Sec}[e+f\,x]}}{(-c+d)^2\,(c+d)\,(d+c\,\mathrm{Cos}[e+f\,x])}-$$

$$\frac{d^2\,\mathrm{Cos}[2\,(e+f\,x)]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\mathrm{Sec}[e+f\,x]}}{(-c+d)^2\,(c+d)\,(d+c\,\mathrm{Cos}[e+f\,x])}+$$

$$\left.\frac{d^3 \operatorname{Cos}\left[2\left(e+f x\right)\right] \operatorname{Sec}\left[\frac{1}{2}\left(e+f x\right)\right] \sqrt{\operatorname{Sec}[e+f x]}}{c\left(-c+d\right)^2\left(c+d\right)\left(d+c \operatorname{Cos}[e+f x]\right)}\right)$$

$$\left.\operatorname{Sec}[e+f x]^{7/2} \sqrt{\operatorname{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]^2 \operatorname{Sec}[e+f x]}\right) \Big/$$

$$\left(c^2\left(-c-d\right)^{3/2}\left(c-d\right)^3 f\left(a\left(1+\operatorname{Sec}[e+f x]\right)\right)^{3/2}\left(c+d \operatorname{Sec}[e+f x]\right)^2\right.$$

$$\left(\frac{1}{2 c^2\left(-c-d\right)^{3/2}\left(c-d\right)^3}\left(\left(-c-d\right)^{3/2}\left(-c^2\left(5 c-13 d\right) \operatorname{ArcSin}\left[\operatorname{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right]+\right.\right.\right.$$

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

$$\left.2 \sqrt{2}\, d^{5/2}\left(-7 c^2-3 c d+2 d^2\right) \operatorname{ArcTanh}\left[\frac{\sqrt{d} \operatorname{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\sqrt{-c-d} \sqrt{\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}}}\right]\right)$$

$$\sqrt{\operatorname{Cos}[e+f x] \operatorname{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2}\left(\operatorname{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]^2 \operatorname{Sec}[e+f x]\right)^{3/2}$$

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

$$\left(\sqrt{\operatorname{Cos}[e+f x] \operatorname{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2} \sqrt{\operatorname{Cos}\left[\frac{1}{2}\left(e+f x\right)\right]^2 \operatorname{Sec}[e+f x]}\right.$$

$$\left(\left(2 \sqrt{2}\, d^{5/2}\left(-7 c^2-3 c d+2 d^2\right)\left(\frac{\sqrt{d} \operatorname{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{2 \sqrt{-c-d} \sqrt{\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}}}-\right.\right.\right.$$

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

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

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

$$(-c-d)^{3/2}\left(-\frac{c^2(5c-13d)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}+\left(4\sqrt{2}\,(c-d)^3\right.\right.$$

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

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

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

$$\left((-c-d)^{3/2}\left(-c^2(5c-13d)\,\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right]+\right.\right.$$

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

$$2\sqrt{2}\, d^{5/2}\left(-7c^2-3cd+2d^2\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-c-d}\,\sqrt{\frac{\text{Cos}[e+fx]}{1+\text{Cos}[e+fx]}}}\right]\Bigg)$$

$$\sqrt{\text{Cos}[e+fx]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}\,\left(-\text{Cos}\left[\frac{1}{2}(e+fx)\right]\text{Sec}[e+fx]\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]+\right.$$

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

Problem 177: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+a\,\text{Sec}[e+fx])^{3/2}\,(c+d\,\text{Sec}[e+fx])^3}\,dx$$

Optimal (type 3, 802 leaves, 19 steps):

$$-\frac{\text{Tan}[e+f x]}{2 a (c-d)^3 f (1+\text{Sec}[e+f x]) \sqrt{a+a \text{Sec}[e+f x]}}+$$

$$\frac{2 \text{ArcTanh}\left[\frac{\sqrt{a-a \text{Sec}[e+f x]}}{\sqrt{a}}\right] \text{Tan}[e+f x]}{\sqrt{a}\, c^3 f \sqrt{a-a \text{Sec}[e+f x]} \sqrt{a+a \text{Sec}[e+f x]}}-$$

$$\frac{\sqrt{2} (c-4 d) \text{ArcTanh}\left[\frac{\sqrt{a-a \text{Sec}[e+f x]}}{\sqrt{2} \sqrt{a}}\right] \text{Tan}[e+f x]}{\sqrt{a} (c-d)^4 f \sqrt{a-a \text{Sec}[e+f x]} \sqrt{a+a \text{Sec}[e+f x]}}-$$

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

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

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

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

$$\frac{d^3 \text{Tan}[e+f x]}{2 a c (c-d)^2 (c+d) f \sqrt{a+a \text{Sec}[e+f x]} (c+d \text{Sec}[e+f x])^2}-$$

$$\frac{(3 c-d) d^3 \text{Tan}[e+f x]}{a c^2 (c-d)^3 (c+d) f \sqrt{a+a \text{Sec}[e+f x]} (c+d \text{Sec}[e+f x])}-$$

$$\frac{3 d^3 \text{Tan}[e+f x]}{4 a c (c^2-d^2)^2 f \sqrt{a+a \text{Sec}[e+f x]} (c+d \text{Sec}[e+f x])}$$

Result (type 3, 2632 leaves):

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

$$\left(-\left(\left(\left(-2 c^5-4 c^4 d-2 c^3 d^2-17 c^2 d^3-5 c d^4+6 d^5\right) \text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)\right/\right.$$

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

$$\left(-19 c^2 d^4 \text{Sin}\left[\frac{1}{2} (e+f x)\right]-5 c d^5 \text{Sin}\left[\frac{1}{2} (e+f x)\right]+8 d^6 \text{Sin}\left[\frac{1}{2} (e+f x)\right]\right)\Big/$$

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

$$\left(f\left(a\left(1+\text{Sec}[e+f\,x]\right)\right)^{3/2}\left(c+d\,\text{Sec}[e+f\,x]\right)^3\right) -$$

$$\Bigg(\Bigg(2\,c^3\left(5\,c-17\,d\right)\left(c+d\right)^2\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]\right] -$$

$$8\sqrt{2}\left(c-d\right)^4\left(c+d\right)^2\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right] - \frac{1}{\sqrt{-c-d}}$$

$$\sqrt{2}\,d^{5/2}\left(63\,c^4+54\,c^3\,d-17\,c^2\,d^2-12\,c\,d^3+8\,d^4\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{\sqrt{-c-d}\,\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right]\Bigg)$$

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

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

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

$$\frac{19\,c\,d^2\,\text{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{2\left(-c+d\right)^3\left(c+d\right)^2\left(d+c\,\text{Cos}[e+f\,x]\right)\sqrt{\text{Sec}[e+f\,x]}} -$$

$$\frac{33\,d^3\,\text{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]}{4\left(-c+d\right)^3\left(c+d\right)^2\left(d+c\,\text{Cos}[e+f\,x]\right)\sqrt{\text{Sec}[e+f\,x]}} -$$

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

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

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

$$\frac{3\,c\,d^2\,\text{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]\sqrt{\text{Sec}[e+f\,x]}}{\left(-c+d\right)^3\left(c+d\right)^2\left(d+c\,\text{Cos}[e+f\,x]\right)} + \frac{9\,d^3\,\text{Sec}\left[\frac{1}{2}\left(e+f\,x\right)\right]\sqrt{\text{Sec}[e+f\,x]}}{4\left(-c+d\right)^3\left(c+d\right)^2\left(d+c\,\text{Cos}[e+f\,x]\right)} +$$

$$\frac{d^4 \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{\operatorname{Sec}[e+f x]}}{4 c (-c+d)^3 (c+d)^2 (d+c \operatorname{Cos}[e+f x])}-$$

$$\frac{c^3 \operatorname{Cos}[2(e+f x)] \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{\operatorname{Sec}[e+f x]}}{(-c+d)^3 (c+d)^2 (d+c \operatorname{Cos}[e+f x])}+$$

$$\frac{c^2 d \operatorname{Cos}[2(e+f x)] \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{\operatorname{Sec}[e+f x]}}{(-c+d)^3 (c+d)^2 (d+c \operatorname{Cos}[e+f x])}+$$

$$\frac{2 c d^2 \operatorname{Cos}[2(e+f x)] \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{\operatorname{Sec}[e+f x]}}{(-c+d)^3 (c+d)^2 (d+c \operatorname{Cos}[e+f x])}-$$

$$\frac{2 d^3 \operatorname{Cos}[2(e+f x)] \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{\operatorname{Sec}[e+f x]}}{(-c+d)^3 (c+d)^2 (d+c \operatorname{Cos}[e+f x])}-$$

$$\frac{d^4 \operatorname{Cos}[2(e+f x)] \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{\operatorname{Sec}[e+f x]}}{c (-c+d)^3 (c+d)^2 (d+c \operatorname{Cos}[e+f x])}+$$

$$\left.\frac{d^5 \operatorname{Cos}[2(e+f x)] \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right] \sqrt{\operatorname{Sec}[e+f x]}}{c^2 (-c+d)^3 (c+d)^2 (d+c \operatorname{Cos}[e+f x])}\right)$$

$$\left.\operatorname{Sec}[e+f x]^{9/2} \sqrt{\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \operatorname{Sec}[e+f x]}\right) \Big/$$

$$\left(2 c^3 (c-d)^4 (c+d)^2 f \left(a (1+\operatorname{Sec}[e+f x])\right)^{3/2} (c+d \operatorname{Sec}[e+f x])^3\right.$$

$$\left(-\frac{1}{4 c^3 (c-d)^4 (c+d)^2}\left(2 c^3 (5 c-17 d) (c+d)^2 \operatorname{ArcSin}\left[\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right]-\right.\right.$$

$$8 \sqrt{2} (c-d)^4 (c+d)^2 \operatorname{ArcTan}\left[\frac{\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}}}\right]-\frac{1}{\sqrt{-c-d}}$$

$$\left.\sqrt{2}\, d^{5/2} \left(63 c^4+54 c^3 d-17 c^2 d^2-12 c d^3+8 d^4\right) \operatorname{ArcTanh}\left[\frac{\sqrt{d} \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-c-d} \sqrt{\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}}}\right]\right)$$

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

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

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

$$\left(\frac{c^3\,(5 c-17 d)\,(c+d)^2\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}-\left(8\sqrt{2}\,(c-d)^4\,(c+d)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}-\right.\right.\right.$$

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

$$\left.e+f x]\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-\left(\sqrt{2}\,d^{5/2}\left(63 c^4+54 c^3 d-17 c^2 d^2-12 c d^3+8 d^4\right)\right.$$

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

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

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

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

$$\left(2 c^3 (5 c - 17 d) (c + d)^2 \text{ArcSin}\left[\text{Tan}\left[\frac{1}{2} (e + f x)\right]\right] - 8 \sqrt{2} (c - d)^4 (c + d)^2 \text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2} (e + f x)\right]}{\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right] - \frac{1}{\sqrt{-c - d}} \sqrt{2} d^{5/2} \left(63 c^4 + 54 c^3 d - 17 c^2 d^2 - 12 c d^3 + 8 d^4\right) \text{ArcTanh}\left[\frac{\sqrt{d} \text{Tan}\left[\frac{1}{2} (e + f x)\right]}{\sqrt{-c - d} \sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\right)$$

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

Problem 180: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 164 leaves, 7 steps):

$$\frac{2 c \text{ArcTan}\left[\frac{\sqrt{a} \text{Tan}[e+f x]}{\sqrt{a+a \text{Sec}[e+f x]}}\right]}{a^{5/2} f} - \frac{(43 c - 3 d) \text{ArcTan}\left[\frac{\sqrt{a} \text{Tan}[e+f x]}{\sqrt{2} \sqrt{a+a \text{Sec}[e+f x]}}\right]}{16 \sqrt{2} a^{5/2} f} - \frac{(c - d) \text{Tan}[e + f x]}{4 f (a + a \text{Sec}[e + f x])^{5/2}} - \frac{(11 c - 3 d) \text{Tan}[e + f x]}{16 a f (a + a \text{Sec}[e + f x])^{3/2}}$$

Result (type 3, 343 leaves):

$$\left(\left(\left((-43\,c+3\,d)\,\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right]+32\,\sqrt{2}\,c\,\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right]\right)\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^4\right.\right.$$

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

$$\left(4\,f\,(d+c\,\text{Cos}[e+f\,x])\,\sqrt{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\,(a\,(1+\text{Sec}[e+f\,x]))^{5/2}\right)+$$

$$\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^5\text{Sec}[e+f\,x]^2\,(c+d\,\text{Sec}[e+f\,x])\,\left(\frac{1}{2}\,(-15\,c+7\,d)\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.\right.$$

$$\frac{1}{4}\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(19\,c\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]-11\,d\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\right)+$$

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

$$\left(f\,(d+c\,\text{Cos}[e+f\,x])\,(a\,(1+\text{Sec}[e+f\,x]))^{5/2}\right)$$

Problem 181: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+a\,\text{Sec}[e+f\,x])^{5/2}\,(c+d\,\text{Sec}[e+f\,x])}\,dx$$

Optimal (type 3, 592 leaves, 16 steps):

$$-\frac{\text{Tan}[e+f x]}{4 a^2 (c-d) f (1+\text{Sec}[e+f x])^2 \sqrt{a+a\,\text{Sec}[e+f x]}}-\frac{(c-2 d)\,\text{Tan}[e+f x]}{2 a^2 (c-d)^2 f (1+\text{Sec}[e+f x]) \sqrt{a+a\,\text{Sec}[e+f x]}}-\frac{3\,\text{Tan}[e+f x]}{16 a^2 (c-d) f (1+\text{Sec}[e+f x]) \sqrt{a+a\,\text{Sec}[e+f x]}}+$$

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

$$\frac{3\,\text{ArcTanh}\left[\frac{\sqrt{a-a\,\text{Sec}[e+f x]}}{\sqrt{2} \sqrt{a}}\right] \text{Tan}[e+f x]}{16 \sqrt{2}\, a^{3/2} (c-d) f \sqrt{a-a\,\text{Sec}[e+f x]} \sqrt{a+a\,\text{Sec}[e+f x]}}-\frac{\sqrt{2} (c^2-3 c d+3 d^2)\,\text{ArcTanh}\left[\frac{\sqrt{a-a\,\text{Sec}[e+f x]}}{\sqrt{2} \sqrt{a}}\right] \text{Tan}[e+f x]}{a^{3/2} (c-d)^3 f \sqrt{a-a\,\text{Sec}[e+f x]} \sqrt{a+a\,\text{Sec}[e+f x]}}+$$

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

Result (type 3, 1826 leaves):

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

$$\left(\frac{(-15 c+23 d)\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]}{2 (-c+d)^2}+\frac{1}{4 (-c+d)^2}\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left.\left.\left(19 c\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]-27 d\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^3 \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{2 (-c+d)}\right)\right)\Big/$$

$$\left(f \left(a (1+\text{Sec}[e+f x])\right)^{5/2} (c+d\,\text{Sec}[e+f x])\right)-$$

$$\left(\left(\sqrt{-c-d}\left(c \left(43 c^2-126 c d+115 d^2\right) \text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right]-\right.\right.\right.$$

$$32\sqrt{2}\,(c-d)^3\,\text{ArcTan}\Big[\frac{\text{Tan}\big[\frac{1}{2}(e+f x)\big]}{\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\Big]\Bigg)+$$

$$32\sqrt{2}\,d^{7/2}\,\text{ArcTanh}\Big[\frac{\sqrt{d}\,\text{Tan}\big[\frac{1}{2}(e+f x)\big]}{\sqrt{-c-d}\,\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\Big]\Bigg)\,\text{Cos}\Big[\frac{1}{2}(e+f x)\Big]^5\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}$$

$$(d+c\,\text{Cos}[e+f x])\Bigg(-\frac{11 c^2\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]}{8(-c+d)^2(d+c\,\text{Cos}[e+f x])\sqrt{\text{Sec}[e+f x]}}+$$

$$\frac{51 c d\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]}{8(-c+d)^2(d+c\,\text{Cos}[e+f x])\sqrt{\text{Sec}[e+f x]}}-$$

$$\frac{8 d^2\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]}{(-c+d)^2(d+c\,\text{Cos}[e+f x])\sqrt{\text{Sec}[e+f x]}}+\frac{2 c^2\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]\sqrt{\text{Sec}[e+f x]}}{(-c+d)^2(d+c\,\text{Cos}[e+f x])}-$$

$$\frac{43 c d\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]\sqrt{\text{Sec}[e+f x]}}{8(-c+d)^2(d+c\,\text{Cos}[e+f x])}+\frac{35 d^2\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]\sqrt{\text{Sec}[e+f x]}}{8(-c+d)^2(d+c\,\text{Cos}[e+f x])}+$$

$$\frac{2 c^2\,\text{Cos}[2(e+f x)]\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]\sqrt{\text{Sec}[e+f x]}}{(-c+d)^2(d+c\,\text{Cos}[e+f x])}-$$

$$\frac{4 c d\,\text{Cos}[2(e+f x)]\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]\sqrt{\text{Sec}[e+f x]}}{(-c+d)^2(d+c\,\text{Cos}[e+f x])}+$$

$$\frac{2 d^2\,\text{Cos}[2(e+f x)]\,\text{Sec}\big[\frac{1}{2}(e+f x)\big]\sqrt{\text{Sec}[e+f x]}}{(-c+d)^2(d+c\,\text{Cos}[e+f x])}\Bigg)\,\text{Sec}[e+f x]^{7/2}\sqrt{1+\text{Sec}[e+f x]}\Bigg)\Bigg/$$

$$\Bigg(4 c\sqrt{-c-d}\,(c-d)^3 f\,(a(1+\text{Sec}[e+f x]))^{5/2}\,(c+d\,\text{Sec}[e+f x])$$

$$\Bigg(-\Bigg(\Bigg(\Bigg(\Bigg(\sqrt{-c-d}\,\Bigg(c\,(43 c^2-126 c d+115 d^2)\,\text{ArcSin}\Big[\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big]-32\sqrt{2}\,(c-d)^3$$

$$\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\Bigg)+32\sqrt{2}\; d^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{d}\;\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\sqrt{-c-d}\;\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\Bigg)$$

$$\sqrt{1+\text{Sec}[e+f x]}\;\left(\frac{\text{Cos}[e+f x]\;\text{Sin}[e+f x]}{\left(1+\text{Cos}[e+f x]\right)^2}-\frac{\text{Sin}[e+f x]}{1+\text{Cos}[e+f x]}\right)\Bigg)\Bigg/$$

$$\left(8\,c\,\sqrt{-c-d}\;\left(c-d\right)^3\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}\right)\Bigg)-$$

$$\left(\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}\;\sqrt{1+\text{Sec}[e+f x]}\;\left(\left(32\sqrt{2}\; d^{7/2}\left(\frac{\sqrt{d}\;\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{2\sqrt{-c-d}\;\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}-\right.\right.\right.$$

$$\left(\sqrt{d}\;\left(\frac{\text{Cos}[e+f x]\;\text{Sin}[e+f x]}{\left(1+\text{Cos}[e+f x]\right)^2}-\frac{\text{Sin}[e+f x]}{1+\text{Cos}[e+f x]}\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]\right)\Bigg/$$

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

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

$$\sqrt{-c-d}\;\left(\frac{c\left(43\,c^2-126\,c\,d+115\,d^2\right)\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{2\sqrt{1-\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]^2}}-\left(32\sqrt{2}\;\left(c-d\right)^3\right.\right.$$

$$\left.\left(\frac{\text{Sec}\left[\frac{1}{2}\left(e+f x\right)\right]^2}{2\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}-\frac{\left(\frac{\text{Cos}[e+f x]\;\text{Sin}[e+f x]}{(1+\text{Cos}[e+f x])^2}-\frac{\text{Sin}[e+f x]}{1+\text{Cos}[e+f x]}\right)\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{2\left(\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}\right)^{3/2}}\right)\right)\Bigg/\Bigg(1+$$

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

$$\left(\left(\sqrt{-c-d}\ \left(c\left(43 c^2-126 c d+115 d^2\right) \text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right]-32\sqrt{2}\ (c-d)^3\right.\right.\right.$$

$$\left.\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\right)+32\sqrt{2}\ d^{7/2}\ \text{ArcTanh}\left[\frac{\sqrt{d}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-c-d}\ \sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\Bigg)$$

$$\left.\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}\ \text{Sec}[e+f x]\ \text{Tan}[e+f x]\right) \Big/ \left(8 c \sqrt{-c-d}\ (c-d)^3\right.$$

$$\left.\left.\left.\sqrt{1+\text{Sec}[e+f x]}\right)\right)\right)$$

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

$$\int \frac{1}{(a+a\,\text{Sec}[e+f x])^{5/2}\ (c+d\,\text{Sec}[e+f x])^2}\,dx$$

Optimal (type 3, 756 leaves, 19 steps):

$$-\frac{\operatorname{Tan}[e+f x]}{4 a^2 (c-d)^2 f (1+\operatorname{Sec}[e+f x])^2 \sqrt{a+a \operatorname{Sec}[e+f x]}}-\frac{(c-3 d) \operatorname{Tan}[e+f x]}{2 a^2 (c-d)^3 f (1+\operatorname{Sec}[e+f x]) \sqrt{a+a \operatorname{Sec}[e+f x]}}-\frac{3 \operatorname{Tan}[e+f x]}{16 a^2 (c-d)^2 f (1+\operatorname{Sec}[e+f x]) \sqrt{a+a \operatorname{Sec}[e+f x]}}+$$

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

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

$$\frac{3 \operatorname{ArcTanh}\left[\frac{\sqrt{a-a \operatorname{Sec}[e+f x]}}{\sqrt{2} \sqrt{a}}\right] \operatorname{Tan}[e+f x]}{16 \sqrt{2} a^{3/2} (c-d)^2 f \sqrt{a-a \operatorname{Sec}[e+f x]} \sqrt{a+a \operatorname{Sec}[e+f x]}}-$$

$$\frac{\sqrt{2} (c^2-4 c d+6 d^2) \operatorname{ArcTanh}\left[\frac{\sqrt{a-a \operatorname{Sec}[e+f x]}}{\sqrt{2} \sqrt{a}}\right] \operatorname{Tan}[e+f x]}{a^{3/2} (c-d)^4 f \sqrt{a-a \operatorname{Sec}[e+f x]} \sqrt{a+a \operatorname{Sec}[e+f x]}}+$$

$$\frac{d^{7/2} \operatorname{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a-a \operatorname{Sec}[e+f x]}}{\sqrt{a} \sqrt{c+d}}\right] \operatorname{Tan}[e+f x]}{a^{3/2} c (c-d)^3 (c+d)^{3/2} f \sqrt{a-a \operatorname{Sec}[e+f x]} \sqrt{a+a \operatorname{Sec}[e+f x]}}+$$

$$\frac{2 (4 c-d) d^{7/2} \operatorname{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a-a \operatorname{Sec}[e+f x]}}{\sqrt{a} \sqrt{c+d}}\right] \operatorname{Tan}[e+f x]}{a^{3/2} c^2 (c-d)^4 \sqrt{c+d} f \sqrt{a-a \operatorname{Sec}[e+f x]} \sqrt{a+a \operatorname{Sec}[e+f x]}}+$$

$$\frac{d^4 \operatorname{Tan}[e+f x]}{a^2 c (c-d)^3 (c+d) f \sqrt{a+a \operatorname{Sec}[e+f x]} (c+d \operatorname{Sec}[e+f x])}$$

Result (type 3, 2343 leaves):

$$\left(\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]^5 (d+c \operatorname{Cos}[e+f x])^2\right.$$

$$\operatorname{Sec}[e+f x]^5 \left(-\frac{(-15 c^4+16 c^3 d+31 c^2 d^2+16 d^4) \operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]}{2 c^2 (-c+d)^3 (c+d)}+\right.$$

$$\frac{8 d^5 \operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]}{c^2 (-c+d)^3 (c+d) (d+c \operatorname{Cos}[e+f x])}+\frac{1}{4 (-c+d)^3} \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^2$$

$$\left.\left.\left(-19 c \operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]+35 d \operatorname{Sin}\left[\frac{1}{2} (e+f x)\right]\right)-\frac{\operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^3 \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]}{2 (-c+d)^2}\right)\right) \Big/$$

$$\left(f\,\left(a\,\left(1+\text{Sec}[e+f\,x]\right)\right)^{5/2}\,\left(c+d\,\text{Sec}[e+f\,x]\right)^2\right)-$$

$$\Bigg(\Bigg(c^2\,\left(43\,c^3-123\,c^2\,d+53\,c\,d^2+219\,d^3\right)\,\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right]-32\,\sqrt{2}\,(c-d)^4\,(c+d)$$

$$\left(\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right]+\frac{16\,\sqrt{2}\,d^{7/2}\,\left(9\,c^2+5\,c\,d-2\,d^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{-c-d}\,\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right]}{\sqrt{-c-d}}\right)$$

$$\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^5\,\left(d+c\,\text{Cos}[e+f\,x]\right)^2\,\sqrt{\text{Cos}[e+f\,x]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}$$

$$\left(\frac{11\,c^3\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{8\,(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)\,\sqrt{\text{Sec}[e+f\,x]}}-\right.$$

$$\frac{6\,c^2\,d\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)\,\sqrt{\text{Sec}[e+f\,x]}}+$$

$$\frac{37\,c\,d^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{8\,(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)\,\sqrt{\text{Sec}[e+f\,x]}}+$$

$$\frac{16\,d^3\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)\,\sqrt{\text{Sec}[e+f\,x]}}+$$

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

$$\frac{2\,c^3\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)}+\frac{43\,c^2\,d\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{8\,(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)}-$$

$$\frac{2\,c\,d^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)}-\frac{59\,d^3\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{8\,(-c+d)^3\,(c+d)\,\left(d+c\,\text{Cos}[e+f\,x]\right)}-$$

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

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

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

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

$$\left.\text{Sec}[e+f\,x]^{9/2}\,\sqrt{\text{Cos}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]^2\,\text{Sec}[e+f\,x]}\right)\Big/$$

$$\left(4\,c^2\,\left(c-d\right)^4\,\left(c+d\right)\,f\,\left(a\,\left(1+\text{Sec}[e+f\,x]\right)\right)^{5/2}\,\left(c+d\,\text{Sec}[e+f\,x]\right)^2\right.$$

$$\left(-\frac{1}{8\,c^2\,\left(c-d\right)^4\,\left(c+d\right)}\left(c^2\,\left(43\,c^3-123\,c^2\,d+53\,c\,d^2+219\,d^3\right)\,\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]\right]-\right.\right.$$

$$32\,\sqrt{2}\,\left(c-d\right)^4\,\left(c+d\right)\,\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]}{\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right]+\frac{1}{\sqrt{-c-d}}$$

$$\left.16\,\sqrt{2}\,d^{7/2}\,\left(9\,c^2+5\,c\,d-2\,d^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}\,\left(e+f\,x\right)\right]}{\sqrt{-c-d}\,\sqrt{\frac{\text{Cos}[e+f\,x]}{1+\text{Cos}[e+f\,x]}}}\right]\right)$$

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

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

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

$$\left(\frac{c^2 \left(43 c^3-123 c^2 d+53 c d^2+219 d^3\right) \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^2}{2 \sqrt{1-\operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2}}-\left(32 \sqrt{2} (c-d)^4 (c+d)\right.\right.$$

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

$$\left.(1+\operatorname{Cos}[e+f x]) \operatorname{Sec}[e+f x] \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\left(16 \sqrt{2}\, d^{7/2} \left(9 c^2+5 c d-2 d^2\right)\right.$$

$$\left(\frac{\sqrt{d} \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^2}{2 \sqrt{-c-d} \sqrt{\frac{\operatorname{Cos}[e+f x]}{1+\operatorname{Cos}[e+f x]}}}-\left(\sqrt{d} \left(\frac{\operatorname{Cos}[e+f x] \operatorname{Sin}[e+f x]}{(1+\operatorname{Cos}[e+f x])^2}-\frac{\operatorname{Sin}[e+f x]}{1+\operatorname{Cos}[e+f x]}\right)\right.\right.$$

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

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

$$\left(4 c^2 (c-d)^4 (c+d)\right)-\frac{1}{8 c^2 (c-d)^4 (c+d) \sqrt{\operatorname{Cos}\left[\frac{1}{2} (e+f x)\right]^2 \operatorname{Sec}[e+f x]}}$$

$$\left(c^2 \left(43 c^3-123 c^2 d+53 c d^2+219 d^3\right) \operatorname{ArcSin}\left[\operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]\right]-32 \sqrt{2} (c-d)^4 (c+d)\right.$$

$$\left.\left.\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}\left(e+f x\right)\right]}{\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]+\frac{16\sqrt{2}\,d^{7/2}\left(9c^2+5cd-2d^2\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-c-d}\,\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]}{\sqrt{-c-d}}\right)\right.$$

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

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

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

$$\int\frac{1}{\left(a+a\,\text{Sec}[e+f x]\right)^{5/2}\left(c+d\,\text{Sec}[e+f x]\right)^3}\,dx$$

Optimal (type 3, 999 leaves, 23 steps):

$$-\frac{\text{Tan}[e+f x]}{4 a^2 (c-d)^3 f (1+\text{Sec}[e+f x])^2 \sqrt{a+a \text{Sec}[e+f x]}}-\frac{(c-4 d) \text{Tan}[e+f x]}{2 a^2 (c-d)^4 f (1+\text{Sec}[e+f x]) \sqrt{a+a \text{Sec}[e+f x]}}-\frac{3 \text{Tan}[e+f x]}{16 a^2 (c-d)^3 f (1+\text{Sec}[e+f x]) \sqrt{a+a \text{Sec}[e+f x]}}+$$

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

$$\frac{3 \text{ArcTanh}\left[\frac{\sqrt{a-a \text{Sec}[e+f x]}}{\sqrt{2} \sqrt{a}}\right] \text{Tan}[e+f x]}{16 \sqrt{2} a^{3/2} (c-d)^3 f \sqrt{a-a \text{Sec}[e+f x]} \sqrt{a+a \text{Sec}[e+f x]}}-\frac{\sqrt{2} (c^2-5 c d+10 d^2) \text{ArcTanh}\left[\frac{\sqrt{a-a \text{Sec}[e+f x]}}{\sqrt{2} \sqrt{a}}\right] \text{Tan}[e+f x]}{a^{3/2} (c-d)^5 f \sqrt{a-a \text{Sec}[e+f x]} \sqrt{a+a \text{Sec}[e+f x]}}+$$

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

$$\frac{2 d^{7/2} (10 c^2-5 c d+d^2) \text{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a-a \text{Sec}[e+f x]}}{\sqrt{a} \sqrt{c+d}}\right] \text{Tan}[e+f x]}{a^{3/2} c^3 (c-d)^5 \sqrt{c+d} f \sqrt{a-a \text{Sec}[e+f x]} \sqrt{a+a \text{Sec}[e+f x]}}+\frac{d^4 \text{Tan}[e+f x]}{2 a^2 c (c-d)^3 (c+d) f \sqrt{a+a \text{Sec}[e+f x]} (c+d \text{Sec}[e+f x])^2}+$$

$$\frac{3 d^4 \text{Tan}[e+f x]}{4 a^2 c (c-d)^3 (c+d)^2 f \sqrt{a+a \text{Sec}[e+f x]} (c+d \text{Sec}[e+f x])}+\frac{(4 c-d) d^4 \text{Tan}[e+f x]}{a^2 c^2 (c-d)^4 (c+d) f \sqrt{a+a \text{Sec}[e+f x]} (c+d \text{Sec}[e+f x])}$$

Result (type 3, 2904 leaves):

$$\Bigg(\text{Cos}\left[\frac{1}{2} (e+f x)\right]^5 (d+c \text{Cos}[e+f x])^3 \text{Sec}[e+f x]^6$$

$$\left(-\left(\left(3\left(5c^6-3c^5d-21c^4d^2-13c^3d^3-28c^2d^4-12cd^5+8d^6\right)\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\Big/\left(2c^3(-c+d)^4(c+d)^2\right)\right)-\frac{4d^6\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]}{c^3(-c+d)^3(c+d)\left(d+c\,\text{Cos}[e+fx]\right)^2}+\frac{1}{4(-c+d)^4}\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(19c\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]-43d\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)+\left(2\left(-23c^2d^5\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]-9cd^6\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]+8d^7\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/\left(c^3(-c+d)^4(c+d)^2\left(d+c\,\text{Cos}[e+fx]\right)\right)+\frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^3\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{2(-c+d)^3}\Bigg)\Bigg)\Big/$$

$$\left(f\left(a\left(1+\text{Sec}[e+fx]\right)\right)^{5/2}\left(c+d\,\text{Sec}[e+fx]\right)^3\right)-$$

$$\left(\left(c^3(c+d)^2\left(43c^2-206cd+355d^2\right)\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right]-\right.\right.$$

$$32\sqrt{2}\,(c-d)^5(c+d)^2\,\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{\frac{\text{Cos}[e+fx]}{1+\text{Cos}[e+fx]}}}\right]+\frac{1}{\sqrt{-c-d}}$$

$$\left.4\sqrt{2}\,d^{7/2}\left(99c^4+110c^3d-5c^2d^2-20cd^3+8d^4\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{-c-d}\sqrt{\frac{\text{Cos}[e+fx]}{1+\text{Cos}[e+fx]}}}\right]\right)$$

$$\text{Cos}\left[\frac{1}{2}(e+fx)\right]^5\left(d+c\,\text{Cos}[e+fx]\right)^3\sqrt{\text{Cos}[e+fx]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}$$

$$\left(-\frac{11c^4\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]}{8(-c+d)^4(c+d)^2\left(d+c\,\text{Cos}[e+fx]\right)\sqrt{\text{Sec}[e+fx]}}+\right.$$

$$\frac{45c^3d\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]}{8(-c+d)^4(c+d)^2\left(d+c\,\text{Cos}[e+fx]\right)\sqrt{\text{Sec}[e+fx]}}-$$

$$\frac{5c^2d^2\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]}{8(-c+d)^4(c+d)^2\left(d+c\,\text{Cos}[e+fx]\right)\sqrt{\text{Sec}[e+fx]}}-$$

$$\frac{317cd^3\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]}{8(-c+d)^4(c+d)^2\left(d+c\,\text{Cos}[e+fx]\right)\sqrt{\text{Sec}[e+fx]}}-$$

$$\frac{69\, d^4 \,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{2\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])\,\sqrt{\text{Sec}[e+f\,x]}}-$$

$$\frac{7\, d^5 \,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{2\,c\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])\,\sqrt{\text{Sec}[e+f\,x]}}+$$

$$\frac{2\, d^6 \,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]}{c^2\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])\,\sqrt{\text{Sec}[e+f\,x]}}+$$

$$\frac{2\,c^4\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])}-\frac{43\,c^3\,d\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{8\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])}-$$

$$\frac{3\,c^2\,d^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{8\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])}+\frac{123\,c\,d^3\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{8\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])}+$$

$$\frac{95\,d^4\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{8\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])}+\frac{d^5\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{2\,c\,(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])}+$$

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

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

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

$$\frac{8\,c\,d^3\,\text{Cos}[2\,(e+f\,x)]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{\text{Sec}[e+f\,x]}}{(-c+d)^4\,(c+d)^2\,(d+c\,\text{Cos}[e+f\,x])}-$$

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

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

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

$$\left.\text{Sec}[e+f\,x]^{11/2}\,\sqrt{\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Sec}[e+f\,x]}\right)\Big/$$

$$\left(4 c^3 (c-d)^5 (c+d)^2 f \left(a (1+\text{Sec}[e+f x])\right)^{5/2} (c+d\,\text{Sec}[e+f x])^3\right.$$

$$\left(-\frac{1}{8 c^3 (c-d)^5 (c+d)^2}\left(c^3 (c+d)^2 \left(43 c^2-206 c d+355 d^2\right) \text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right]-\right.\right.$$

$$32\sqrt{2}\,(c-d)^5 (c+d)^2\,\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]+\frac{1}{\sqrt{-c-d}}$$

$$\left.4\sqrt{2}\,d^{7/2}\left(99 c^4+110 c^3 d-5 c^2 d^2-20 c d^3+8 d^4\right) \text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-c-d}\,\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\right)$$

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

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

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

$$\left(\frac{c^3 (c+d)^2 \left(43 c^2-206 c d+355 d^2\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}-\left(32\sqrt{2}\,(c-d)^5 (c+d)^2\right.\right.$$

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

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

$$\left(4\sqrt{2}\, d^{7/2}\left(99 c^4+110 c^3 d-5 c^2 d^2-20 c d^3+8 d^4\right)\left(\frac{\sqrt{d}\, \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\sqrt{-c-d}\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}-\right.\right.$$

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

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

$$\frac{1}{8 c^3 (c-d)^5 (c+d)^2\sqrt{\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2\text{Sec}[e+f x]}}$$

$$\left(c^3 (c+d)^2\left(43 c^2-206 c d+355 d^2\right)\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right]-\right.$$

$$32\sqrt{2}\,(c-d)^5 (c+d)^2\,\text{ArcTan}\left[\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]+\frac{1}{\sqrt{-c-d}}$$

$$\left.4\sqrt{2}\, d^{7/2}\left(99 c^4+110 c^3 d-5 c^2 d^2-20 c d^3+8 d^4\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{-c-d}\sqrt{\frac{\text{Cos}[e+f x]}{1+\text{Cos}[e+f x]}}}\right]\right)$$

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

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

Problem 193: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 237 leaves, 6 steps):

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

Result (type 3, 493 leaves):

$$\frac{1}{4 c^3 f (b + a \operatorname{Cos}[e + f x])^2 (c + d \operatorname{Sec}[e + f x])^3} (d + c \operatorname{Cos}[e + f x]) \operatorname{Sec}[e + f x] (a + b \operatorname{Sec}[e + f x])^2 \left(\frac{1}{(c^2 - d^2)^{5/2}} 4 \left(3 b^2 c^4 d - 2 a b c^3 (2 c^2 + d^2) + a^2 (6 c^4 d - 5 c^2 d^3 + 2 d^5)\right) \operatorname{ArcTanh}\left[\frac{(-c + d) \operatorname{Tan}\left[\frac{1}{2}(e + f x)\right]}{\sqrt{c^2 - d^2}}\right] (d + c \operatorname{Cos}[e + f x])^2 + \frac{1}{(c^2 - d^2)^2} \left(2 a^2 c^6 e - 6 a^2 c^2 d^4 e + 4 a^2 d^6 e + 2 a^2 c^6 f x - 6 a^2 c^2 d^4 f x + 4 a^2 d^6 f x + 8 a^2 c d (c^2 - d^2)^2 (e + f x) \operatorname{Cos}[e + f x] + 2 a^2 c^2 (c^2 - d^2)^2 (e + f x) \operatorname{Cos}[2 (e + f x)] + 2 b^2 c^5 d \operatorname{Sin}[e + f x] - 12 a b c^4 d^2 \operatorname{Sin}[e + f x] + 10 a^2 c^3 d^3 \operatorname{Sin}[e + f x] + 4 b^2 c^3 d^3 \operatorname{Sin}[e + f x] - 4 a^2 c d^5 \operatorname{Sin}[e + f x] + 2 b^2 c^6 \operatorname{Sin}[2 (e + f x)] - 8 a b c^5 d \operatorname{Sin}[2 (e + f x)] + 6 a^2 c^4 d^2 \operatorname{Sin}[2 (e + f x)] + b^2 c^4 d^2 \operatorname{Sin}[2 (e + f x)] + 2 a b c^3 d^3 \operatorname{Sin}[2 (e + f x)] - 3 a^2 c^2 d^4 \operatorname{Sin}[2 (e + f x)]\right)\right)$$

Problem 195: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b \operatorname{Sec}[e + f x])^3}{(c + d \operatorname{Sec}[e + f x])^3} \, dx$$

Optimal (type 3, 254 leaves, 6 steps):

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

Result (type 3, 517 leaves):

$$\frac{1}{4 c^3 f} \left(-\frac{1}{\left(c^2-d^2\right)^{5/2}} 4 \left(-9 a b^2 c^4 d + 3 a^2 b c^3 \left(2 c^2 + d^2\right) + b^3 c^3 \left(c^2 + 2 d^2\right) + a^3 \left(-6 c^4 d + 5 c^2 d^3 - 2 d^5\right)\right) \text{ArcTanh}\left[\frac{(-c+d) \text{ Tan}\left[\frac{1}{2} (e+f x)\right]}{\sqrt{c^2-d^2}}\right] + \frac{1}{\left(c^2-d^2\right)^2 (d + c \text{Cos}[e+f x])^2} \left(2 a^3 c^6 e - 6 a^3 c^2 d^4 e + 4 a^3 d^6 e + 2 a^3 c^6 f x - 6 a^3 c^2 d^4 f x + 4 a^3 d^6 f x + 8 a^3 c d \left(c^2-d^2\right)^2 (e+f x) \text{Cos}[e+f x] + 2 a^3 \left(c^3 - c d^2\right)^2 (e+f x) \text{Cos}[2 (e+f x)] + 2 b^3 c^6 \text{Sin}[e+f x] + 6 a b^2 c^5 d \text{Sin}[e+f x] - 18 a^2 b c^4 d^2 \text{Sin}[e+f x] - 8 b^3 c^4 d^2 \text{Sin}[e+f x] + 10 a^3 c^3 d^3 \text{Sin}[e+f x] + 12 a b^2 c^3 d^3 \text{Sin}[e+f x] - 4 a^3 c d^5 \text{Sin}[e+f x] + 6 a b^2 c^6 \text{Sin}[2 (e+f x)] - 12 a^2 b c^5 d \text{Sin}[2 (e+f x)] - 3 b^3 c^5 d \text{Sin}[2 (e+f x)] + 6 a^3 c^4 d^2 \text{Sin}[2 (e+f x)] + 3 a b^2 c^4 d^2 \text{Sin}[2 (e+f x)] + 3 a^2 b c^3 d^3 \text{Sin}[2 (e+f x)] - 3 a^3 c^2 d^4 \text{Sin}[2 (e+f x)]\right)\right)$$

Problem 196: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b \text{Sec}[e+f x])^3}{(c + d \text{Sec}[e+f x])^4} \, dx$$

Optimal (type 3, 412 leaves, 7 steps):

$$\frac{a^3 x}{c^4} - \left(\left(3 a b^2 c^4 d \left(4 c^2 + d^2\right) - b^3 c^5 \left(c^2 + 4 d^2\right) - a^2 b \left(6 c^7 + 9 c^5 d^2\right) + a^3 \left(8 c^6 d - 8 c^4 d^3 + 7 c^2 d^5 - 2 d^7\right)\right) \text{ArcTanh}\left[\frac{\sqrt{c-d}\, \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{c+d}}\right]\right) \Big/ \left(c^4 \sqrt{c-d}\, \sqrt{c+d}\, \left(c^2-d^2\right)^3 f\right) - \frac{d (b c - a d) (b + a \text{Cos}[e+f x])^2 \text{Sin}[e+f x]}{3 c \left(c^2-d^2\right) f (d + c \text{Cos}[e+f x])^3} + \frac{(b c - a d)^2 \left(3 b c^3 - 8 a c^2 d + 2 b c d^2 + 3 a d^3\right) \text{Sin}[e+f x]}{6 c^3 \left(c^2-d^2\right)^2 f (d + c \text{Cos}[e+f x])^2} - \left((b c - a d) \left(b^2 c^2 d \left(13 c^2 + 2 d^2\right) - a b c \left(18 c^4 + 17 c^2 d^2 - 5 d^4\right) + a^2 \left(34 c^4 d - 28 c^2 d^3 + 9 d^5\right)\right) \text{Sin}[e+f x]\right) \Big/ \left(6 c^3 \left(c^2-d^2\right)^3 f (d + c \text{Cos}[e+f x])\right)$$

Result (type 3, 885 leaves):

$$\frac{a^3 (e+f x) (d + c \text{Cos}[e+f x])^4 \text{Sec}[e+f x] (a + b \text{Sec}[e+f x])^3}{c^4 f (b + a \text{Cos}[e+f x])^3 (c + d \text{Sec}[e+f x])^4} + \left(\left(6 a^2 b c^7 + b^3 c^7 - 8 a^3 c^6 d - 12 a b^2 c^6 d + 9 a^2 b c^5 d^2 + 4 b^3 c^5 d^2 + 8 a^3 c^4 d^3 - 3 a b^2 c^4 d^3 - 7 a^3 c^2 d^5 + 2 a^3 d^7\right) \text{ArcTanh}\left[\frac{(-c+d) \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{c^2-d^2}}\right] (d + c \text{Cos}[e+f x])^4 \text{Sec}[e+f x] (a + b \text{Sec}[e+f x])^3\right) \Big/ \left(c^4 \sqrt{c^2-d^2} \left(-c^2+d^2\right)^3 f (b + a \text{Cos}[e+f x])^3 (c + d \text{Sec}[e+f x])^4\right) + \left((d + c \text{Cos}[e+f x]) \text{Sec}[e+f x] (a + b \text{Sec}[e+f x])^3 \left(-b^3 c^3 d \text{Sin}[e+f x] + 3 a b^2 c^2 d^2 \text{Sin}[e+f x] - 3 a^2 b c d^3 \text{Sin}[e+f x] + a^3 d^4 \text{Sin}[e+f x]\right)\right) \Big/ \left(3 c^3 \left(c^2-d^2\right) f (b + a \text{Cos}[e+f x])^3 (c + d \text{Sec}[e+f x])^4\right) + \left((d + c \text{Cos}[e+f x])^2 \text{Sec}[e+f x] (a + b \text{Sec}[e+f x])^3 \left(3 b^3 c^5 \text{Sin}[e+f x] - 18 a b^2 c^4 d \text{Sin}[e+f x] + 27 a^2 b c^3 d^2 \text{Sin}[e+f x] + 2 b^3 c^3 d^2 \text{Sin}[e+f x] - 12 a^3 c^2 d^3 \text{Sin}[e+f x] + 3 a b^2 c^2 d^3 \text{Sin}[e+f x] - 12 a^2 b c d^4 \text{Sin}[e+f x] + 7 a^3 d^5 \text{Sin}[e+f x]\right)\right) \Big/ \left(6 c^3 \left(c^2-d^2\right)^2 f (b + a \text{Cos}[e+f x])^3 (c + d \text{Sec}[e+f x])^4\right) + \frac{1}{6 c^3 \left(c^2-d^2\right)^3 f (b + a \text{Cos}[e+f x])^3 (c + d \text{Sec}[e+f x])^4} (d + c \text{Cos}[e+f x])^3 \text{Sec}[e+f x] (a + b \text{Sec}[e+f x])^3 \left(18 a b^2 c^6 \text{Sin}[e+f x] - 54 a^2 b c^5 d \text{Sin}[e+f x] - 13 b^3 c^5 d \text{Sin}[e+f x] + 36 a^3 c^4 d^2 \text{Sin}[e+f x] + 30 a b^2 c^4 d^2 \text{Sin}[e+f x] + 15 a^2 b c^3 d^3 \text{Sin}[e+f x] - 2 b^3 c^3 d^3 \text{Sin}[e+f x] - 32 a^3 c^2 d^4 \text{Sin}[e+f x] - 3 a b^2 c^2 d^4 \text{Sin}[e+f x] - 6 a^2 b c d^5 \text{Sin}[e+f x] + 11 a^3 d^6 \text{Sin}[e+f x]\right)$$

Problem 197: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 622 leaves, 8 steps):

$$\frac{a^3 x}{c^5} - \left(\left(15\,a\,b^2\,c^6\,d\,(4\,c^2+3\,d^2) - 3\,a^2\,b\,c^5\,(8\,c^4+24\,c^2\,d^2+3\,d^4) - b^3\,c^5\,(4\,c^4+27\,c^2\,d^2+4\,d^4) + a^3\,(40\,c^8\,d - 40\,c^6\,d^3 + 63\,c^4\,d^5 - 36\,c^2\,d^7 + 8\,d^9)\right)\text{ArcTanh}\left[\frac{\sqrt{c-d}\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\sqrt{c+d}}\right]\right) \Big/ \left(4\,c^5\,\sqrt{c-d}\,\sqrt{c+d}\,(c^2-d^2)^4\,f\right) + \frac{d^2\,(b+a\,\text{Cos}[e+f\,x])^3\,\text{Sin}[e+f\,x]}{4\,c\,(c^2-d^2)\,f\,(d+c\,\text{Cos}[e+f\,x])^4} - \frac{d\,(8\,b\,c^3 - 11\,a\,c^2\,d - b\,c\,d^2 + 4\,a\,d^3)\,(b+a\,\text{Cos}[e+f\,x])^2\,\text{Sin}[e+f\,x]}{12\,c^2\,(c^2-d^2)^2\,f\,(d+c\,\text{Cos}[e+f\,x])^3} - \left((b\,c-a\,d)\left(2\,a\,b\,c\,d\,(32\,c^4+c^2\,d^2+2\,d^4) - a^2\,d^2\,(58\,c^4-35\,c^2\,d^2+12\,d^4) - b^2\,(12\,c^6+25\,c^4\,d^2-2\,c^2\,d^4)\right)\text{Sin}[e+f\,x]\right) \Big/ \left(24\,c^4\,(c^2-d^2)^3\,f\,(d+c\,\text{Cos}[e+f\,x])^2\right) - \left(\left(b^3\,c^3\,d\,(68\,c^4+39\,c^2\,d^2-2\,d^4) + a^2\,b\,c\,d\,(272\,c^6+10\,c^4\,d^2+49\,c^2\,d^4-16\,d^6) - 3\,a\,b^2\,c^2\,(24\,c^6+84\,c^4\,d^2-5\,c^2\,d^4+2\,d^6) - a^3\,(212\,c^6\,d^2-210\,c^4\,d^4+139\,c^2\,d^6-36\,d^8)\right)\text{Sin}[e+f\,x]\right) \Big/ \left(24\,c^4\,(c^2-d^2)^4\,f\,(d+c\,\text{Cos}[e+f\,x])\right)$$

Result (type 3, 1285 leaves):

$$\frac{a^3\,(e+f x)\,(d+c\,\text{Cos}[e+f x])^5\,\text{Sec}[e+f x]^2\,(a+b\,\text{Sec}[e+f x])^3}{c^5\,f\,(b+a\,\text{Cos}[e+f x])^3\,(c+d\,\text{Sec}[e+f x])^5}+$$

$$\Big(\big(-24 a^2 b c^9-4 b^3 c^9+40 a^3 c^8 d+60 a b^2 c^8 d-72 a^2 b c^7 d^2-27 b^3 c^7 d^2-40 a^3 c^6 d^3+45 a b^2 c^6 d^3-9 a^2 b c^5 d^4-4 b^3 c^5 d^4+63 a^3 c^4 d^5-36 a^3 c^2 d^7+8 a^3 d^9\big)\,\text{ArcTanh}\Big[\frac{(-c+d)\,\text{Tan}\big[\frac{1}{2}(e+f x)\big]}{\sqrt{c^2-d^2}}\Big]\,(d+c\,\text{Cos}[e+f x])^5\,\text{Sec}[e+f x]^2\,(a+b\,\text{Sec}[e+f x])^3\Big)\Big/$$

$$\Big(4 c^5\sqrt{c^2-d^2}\,(-c^2+d^2)^4\,f\,(b+a\,\text{Cos}[e+f x])^3\,(c+d\,\text{Sec}[e+f x])^5\Big)+$$

$$\Big((d+c\,\text{Cos}[e+f x])\,\text{Sec}[e+f x]^2\,(a+b\,\text{Sec}[e+f x])^3\,\big(b^3 c^3 d^2\,\text{Sin}[e+f x]-3 a b^2 c^2 d^3\,\text{Sin}[e+f x]+3 a^2 b c d^4\,\text{Sin}[e+f x]-a^3 d^5\,\text{Sin}[e+f x]\big)\Big)\Big/$$

$$\Big(4 c^4\,(c^2-d^2)\,f\,(b+a\,\text{Cos}[e+f x])^3\,(c+d\,\text{Sec}[e+f x])^5\Big)+$$

$$\Big((d+c\,\text{Cos}[e+f x])^2\,\text{Sec}[e+f x]^2\,(a+b\,\text{Sec}[e+f x])^3\,\big(-8 b^3 c^5 d\,\text{Sin}[e+f x]+36 a b^2 c^4 d^2\,\text{Sin}[e+f x]-48 a^2 b c^3 d^3\,\text{Sin}[e+f x]+b^3 c^3 d^3\,\text{Sin}[e+f x]+20 a^3 c^2 d^4\,\text{Sin}[e+f x]-15 a b^2 c^2 d^4\,\text{Sin}[e+f x]+27 a^2 b c d^5\,\text{Sin}[e+f x]-13 a^3 d^6\,\text{Sin}[e+f x]\big)\Big)\Big/$$

$$\Big(12 c^4\,(c^2-d^2)^2\,f\,(b+a\,\text{Cos}[e+f x])^3\,(c+d\,\text{Sec}[e+f x])^5\Big)+$$

$$\frac{1}{24 c^4\,(c^2-d^2)^3\,f\,(b+a\,\text{Cos}[e+f x])^3\,(c+d\,\text{Sec}[e+f x])^5}(d+c\,\text{Cos}[e+f x])^3\,\text{Sec}[e+f x]^2\,(a+b\,\text{Sec}[e+f x])^3\,\big(12 b^3 c^7\,\text{Sin}[e+f x]-108 a b^2 c^6 d\,\text{Sin}[e+f x]+216 a^2 b c^5 d^2\,\text{Sin}[e+f x]+25 b^3 c^5 d^2\,\text{Sin}[e+f x]-120 a^3 c^4 d^3\,\text{Sin}[e+f x]+9 a b^2 c^4 d^3\,\text{Sin}[e+f x]-165 a^2 b c^3 d^4\,\text{Sin}[e+f x]-2 b^3 c^3 d^4\,\text{Sin}[e+f x]+131 a^3 c^2 d^5\,\text{Sin}[e+f x]-6 a b^2 c^2 d^5\,\text{Sin}[e+f x]+54 a^2 b c d^6\,\text{Sin}[e+f x]-46 a^3 d^7\,\text{Sin}[e+f x]\big)+$$

$$\frac{1}{24 c^4\,(c^2-d^2)^4\,f\,(b+a\,\text{Cos}[e+f x])^3\,(c+d\,\text{Sec}[e+f x])^5}(d+c\,\text{Cos}[e+f x])^4\,\text{Sec}[e+f x]^2\,(a+b\,\text{Sec}[e+f x])^3\,\big(72 a b^2 c^8\,\text{Sin}[e+f x]-288 a^2 b c^7 d\,\text{Sin}[e+f x]-68 b^3 c^7 d\,\text{Sin}[e+f x]+240 a^3 c^6 d^2\,\text{Sin}[e+f x]+252 a b^2 c^6 d^2\,\text{Sin}[e+f x]+24 a^2 b c^5 d^3\,\text{Sin}[e+f x]-39 b^3 c^5 d^3\,\text{Sin}[e+f x]-280 a^3 c^4 d^4\,\text{Sin}[e+f x]-15 a b^2 c^4 d^4\,\text{Sin}[e+f x]-69 a^2 b c^3 d^5\,\text{Sin}[e+f x]+2 b^3 c^3 d^5\,\text{Sin}[e+f x]+195 a^3 c^2 d^6\,\text{Sin}[e+f x]+6 a b^2 c^2 d^6\,\text{Sin}[e+f x]+18 a^2 b c d^7\,\text{Sin}[e+f x]-50 a^3 d^8\,\text{Sin}[e+f x]\big)$$

Problem 198: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\sqrt{a+b\,\text{Sec}[e+f x]}\,(c+d\,\text{Sec}[e+f x])\,dx$$

Optimal (type 4, 320 leaves, 5 steps):

$$-\frac{1}{b f}2(a-b)\sqrt{a+b}\,d\,\text{Cot}[e+f x]\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+f x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]$$
$$\sqrt{\frac{b(1-\text{Sec}[e+f x])}{a+b}}\sqrt{-\frac{b(1+\text{Sec}[e+f x])}{a-b}}+\frac{1}{b f}$$
$$2\sqrt{a+b}\,(b(c-d)+a d)\,\text{Cot}[e+f x]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+f x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]$$
$$\sqrt{\frac{b(1-\text{Sec}[e+f x])}{a+b}}\sqrt{-\frac{b(1+\text{Sec}[e+f x])}{a-b}}-\frac{1}{f}$$
$$2\sqrt{a+b}\,c\,\text{Cot}[e+f x]\,\text{EllipticPi}\left[\frac{a+b}{a},\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+f x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]$$
$$\sqrt{\frac{b(1-\text{Sec}[e+f x])}{a+b}}\sqrt{-\frac{b(1+\text{Sec}[e+f x])}{a-b}}$$

Result (type 4, 913 leaves):

$$\frac{2\,d\,\text{Cos}[e+f x]\sqrt{a+b\,\text{Sec}[e+f x]}\,(c+d\,\text{Sec}[e+f x])\,\text{Sin}[e+f x]}{f\,(d+c\,\text{Cos}[e+f x])}+$$
$$\Bigg(2\sqrt{a+b\,\text{Sec}[e+f x]}\,(c+d\,\text{Sec}[e+f x])$$
$$\Bigg(a\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]+b\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]-2a\sqrt{\frac{-a+b}{a+b}}\,d$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3+a\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^5-b\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^5+$$
$$2\,i\,a\,c\,\text{EllipticPi}\left[-\frac{a+b}{a-b},i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],\frac{a+b}{a-b}\right]$$
$$\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\sqrt{\frac{a+b-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{a+b}}+$$
$$2\,i\,a\,c\,\text{EllipticPi}\left[-\frac{a+b}{a-b},i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],\frac{a+b}{a-b}\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\sqrt{\frac{a+b-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{a+b}}-$$

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

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

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

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

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

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

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

Problem 199: Unable to integrate problem.

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

Optimal (type 4, 220 leaves, 3 steps):

$$-\frac{1}{c\,f}2\,\sqrt{a+b}\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{a+b}{a},\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+f\,x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]$$

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

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

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

Result (type 8, 29 leaves) :

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

Problem 201: Unable to integrate problem.

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

Optimal (type 4, 326 leaves, 5 steps) :

$$\frac{1}{d\,f}2\,b\,\sqrt{a+b}\;\text{Cot}[e+f\,x]\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+f\,x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]\sqrt{\frac{b\,(1-\text{Sec}[e+f\,x])}{a+b}}\;\sqrt{-\frac{b\,(1+\text{Sec}[e+f\,x])}{a-b}}-\frac{1}{c\,f}$$
$$2\,a\,\sqrt{a+b}\;\text{Cot}[e+f\,x]\;\text{EllipticPi}\left[\frac{a+b}{a},\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+f\,x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]$$
$$\sqrt{\frac{b\,(1-\text{Sec}[e+f\,x])}{a+b}}\;\sqrt{-\frac{b\,(1+\text{Sec}[e+f\,x])}{a-b}}-$$
$$\left(2\,(b\,c-a\,d)^2\,\text{EllipticPi}\left[\frac{2\,d}{c+d},\text{ArcSin}\left[\frac{\sqrt{1-\text{Sec}[e+f\,x]}}{\sqrt{2}}\right],\frac{2\,b}{a+b}\right]\sqrt{\frac{a+b\,\text{Sec}[e+f\,x]}{a+b}}\right.$$
$$\left.\text{Tan}[e+f\,x]\right)\Big/\left(c\,d\,(c+d)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]}\;\sqrt{-\text{Tan}[e+f\,x]^2}\right)$$

Result (type 8, 29 leaves) :

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

Problem 204: Unable to integrate problem.

$$\int \frac{1}{\sqrt{a+b\,\text{Sec}[e+f\,x]}\;(c+d\,\text{Sec}[e+f\,x])}\,dx$$

Optimal (type 4, 216 leaves, 3 steps) :

$$-\frac{1}{a\,c\,f}2\sqrt{a+b}\;\mathrm{Cot}[e+f\,x]\;\mathrm{EllipticPi}\Big[\frac{a+b}{a},\,\mathrm{ArcSin}\Big[\frac{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b}}\Big],\,\frac{a+b}{a-b}\Big]\sqrt{\frac{b\,(1-\mathrm{Sec}[e+f\,x])}{a+b}}\sqrt{-\frac{b\,(1+\mathrm{Sec}[e+f\,x])}{a-b}}-\left(2\,d\,\mathrm{EllipticPi}\Big[\frac{2\,d}{c+d},\,\mathrm{ArcSin}\Big[\frac{\sqrt{1-\mathrm{Sec}[e+f\,x]}}{\sqrt{2}}\Big],\,\frac{2\,b}{a+b}\Big]\sqrt{\frac{a+b\,\mathrm{Sec}[e+f\,x]}{a+b}}\;\mathrm{Tan}[e+f\,x]\right)\Big/\left(c\,(c+d)\,f\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\sqrt{-\mathrm{Tan}[e+f\,x]^2}\right)$$

Result (type 8, 29 leaves):

$$\int\frac{1}{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\;(c+d\,\mathrm{Sec}[e+f\,x])}\,dx$$

Problem 205: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 376 leaves, 6 steps):

$$\frac{1}{a\,b\sqrt{a+b}\;f}2\,(b\,c-a\,d)\;\mathrm{Cot}[e+f\,x]\;\mathrm{EllipticE}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b}}\Big],\,\frac{a+b}{a-b}\Big]\sqrt{\frac{b\,(1-\mathrm{Sec}[e+f\,x])}{a+b}}\sqrt{-\frac{b\,(1+\mathrm{Sec}[e+f\,x])}{a-b}}-\frac{1}{a\,b\sqrt{a+b}\;f}2\,(b\,c-a\,d)\;\mathrm{Cot}[e+f\,x]\;\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b}}\Big],\,\frac{a+b}{a-b}\Big]\sqrt{\frac{b\,(1-\mathrm{Sec}[e+f\,x])}{a+b}}\sqrt{-\frac{b\,(1+\mathrm{Sec}[e+f\,x])}{a-b}}-\frac{1}{a^2\,f}2\sqrt{a+b}\;c\,\mathrm{Cot}[e+f\,x]\;\mathrm{EllipticPi}\Big[\frac{a+b}{a},\,\mathrm{ArcSin}\Big[\frac{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b}}\Big],\,\frac{a+b}{a-b}\Big]\sqrt{\frac{b\,(1-\mathrm{Sec}[e+f\,x])}{a+b}}\sqrt{-\frac{b\,(1+\mathrm{Sec}[e+f\,x])}{a-b}}+\frac{2\,b\,(b\,c-a\,d)\;\mathrm{Tan}[e+f\,x]}{a\,(a^2-b^2)\,f\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}$$

Result (type 4, 1491 leaves):

$$\left((b+a\,\mathrm{Cos}[e+f\,x])^2\,\mathrm{Sec}[e+f\,x]\;(c+d\,\mathrm{Sec}[e+f\,x])\left(\frac{2\,(-b\,c+a\,d)\;\mathrm{Sin}[e+f\,x]}{a\,(a^2-b^2)}-\frac{2\,(-b^2\,c\,\mathrm{Sin}[e+f\,x]+a\,b\,d\,\mathrm{Sin}[e+f\,x])}{a\,(a^2-b^2)\;(b+a\,\mathrm{Cos}[e+f\,x])}\right)\right)\Big/\left(f\,(d+c\,\mathrm{Cos}[e+f\,x])\;(a+b\,\mathrm{Sec}[e+f\,x])^{3/2}\right)+$$

$$\Bigg(2\,(b+a\,\mathrm{Cos}[e+f\,x])^{3/2}\,\sqrt{\mathrm{Sec}[e+f\,x]}\,\,(c+d\,\mathrm{Sec}[e+f\,x])$$

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

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

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

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

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

$$2\,\mathbb{i}\,a^2\,c\,\mathrm{EllipticPi}\left[-\frac{a+b}{a-b},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],\,\frac{a+b}{a-b}\right]$$

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

$$2\,\mathbb{i}\,b^2\,c\,\mathrm{EllipticPi}\left[-\frac{a+b}{a-b},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],\,\frac{a+b}{a-b}\right]$$

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

$$2\,\mathbb{i}\,a^2\,c\,\mathrm{EllipticPi}\left[-\frac{a+b}{a-b},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],\,\frac{a+b}{a-b}\right]\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2$$

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

$$2\,\mathbb{i}\,b^2\,c\,\mathrm{EllipticPi}\left[-\frac{a+b}{a-b},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],\,\frac{a+b}{a-b}\right]\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2$$

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

$$i\,(a-b)\,(-b\,c+a\,d)\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],\frac{a+b}{a-b}\right]$$

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

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

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

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

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

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

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

Problem 206: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 495 leaves, 7 steps):

$$\left(2\left(7a^2bc-3b^3c-4a^3d\right)\text{Cot}[e+fx]\,\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+fx]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]\sqrt{\frac{b\left(1-\text{Sec}[e+fx]\right)}{a+b}}\sqrt{-\frac{b\left(1+\text{Sec}[e+fx]\right)}{a-b}}\right)\Big/\left(3a^2(a-b)\,b\,(a+b)^{3/2}f\right)-$$

$$\left(2\left(6a^2bc-ab^2c-3b^3c-3a^3d+a^2bd\right)\text{Cot}[e+fx]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+fx]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]\sqrt{\frac{b\left(1-\text{Sec}[e+fx]\right)}{a+b}}\sqrt{-\frac{b\left(1+\text{Sec}[e+fx]\right)}{a-b}}\right)\Big/\left(3a^2(a-b)\,b\,(a+b)^{3/2}f\right)-$$

$$\frac{1}{a^3f}2\sqrt{a+b}\;c\,\text{Cot}[e+fx]\,\text{EllipticPi}\left[\frac{a+b}{a},\text{ArcSin}\left[\frac{\sqrt{a+b\,\text{Sec}[e+fx]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]\sqrt{\frac{b\left(1-\text{Sec}[e+fx]\right)}{a+b}}\sqrt{-\frac{b\left(1+\text{Sec}[e+fx]\right)}{a-b}}+$$

$$\frac{2b\,(bc-ad)\,\text{Tan}[e+fx]}{3a\left(a^2-b^2\right)f\left(a+b\,\text{Sec}[e+fx]\right)^{3/2}}+\frac{2b\left(7a^2bc-3b^3c-4a^3d\right)\text{Tan}[e+fx]}{3a^2\left(a^2-b^2\right)^2f\sqrt{a+b\,\text{Sec}[e+fx]}}$$

Result (type 4, 2083 leaves):

$$\left(\left(b+a\,\text{Cos}[e+fx]\right)^3\text{Sec}[e+fx]^2\left(c+d\,\text{Sec}[e+fx]\right)\left(\frac{2\left(-7a^2bc+3b^3c+4a^3d\right)\text{Sin}[e+fx]}{3a^2\left(a^2-b^2\right)^2}-\frac{2\left(b^3c\,\text{Sin}[e+fx]-ab^2d\,\text{Sin}[e+fx]\right)}{3a^2\left(a^2-b^2\right)\left(b+a\,\text{Cos}[e+fx]\right)^2}-\left(2\left(-8a^2b^2c\,\text{Sin}[e+fx]+4b^4c\,\text{Sin}[e+fx]+5a^3bd\,\text{Sin}[e+fx]-ab^3d\,\text{Sin}[e+fx]\right)\right)\Big/\left(3a^2\left(a^2-b^2\right)^2\left(b+a\,\text{Cos}[e+fx]\right)\right)\right)\right)\Big/\left(f\left(d+c\,\text{Cos}[e+fx]\right)\left(a+b\,\text{Sec}[e+fx]\right)^{5/2}\right)+$$

$$\left(2\left(b+a\,\text{Cos}[e+fx]\right)^{5/2}\text{Sec}[e+fx]^{3/2}\left(c+d\,\text{Sec}[e+fx]\right)\right.$$

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

$$\left(7a^3b\sqrt{\frac{-a+b}{a+b}}\;c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]+7a^2b^2\sqrt{\frac{-a+b}{a+b}}\;c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]-3ab^3\sqrt{\frac{-a+b}{a+b}}\;c\right.$$

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

$$4a^3b\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+fx)\right] - 14a^3b\sqrt{\frac{-a+b}{a+b}}\,c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3 +$$

$$6ab^3\sqrt{\frac{-a+b}{a+b}}\,c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3 + 8a^4\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3 +$$

$$7a^3b\sqrt{\frac{-a+b}{a+b}}\,c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^5 - 7a^2b^2\sqrt{\frac{-a+b}{a+b}}\,c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^5 -$$

$$3ab^3\sqrt{\frac{-a+b}{a+b}}\,c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^5 + 3b^4\sqrt{\frac{-a+b}{a+b}}\,c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^5 -$$

$$4a^4\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^5 + 4a^3b\sqrt{\frac{-a+b}{a+b}}\,d\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^5 -$$

$$6\,i\,a^4\,c\,\text{EllipticPi}\left[-\frac{a+b}{a-b}, i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right], \frac{a+b}{a-b}\right]$$

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

$$12\,i\,a^2b^2\,c\,\text{EllipticPi}\left[-\frac{a+b}{a-b}, i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right], \frac{a+b}{a-b}\right]$$

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

$$6\,i\,b^4\,c\,\text{EllipticPi}\left[-\frac{a+b}{a-b}, i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right], \frac{a+b}{a-b}\right]$$

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

$$6\,i\,a^4\,c\,\text{EllipticPi}\left[-\frac{a+b}{a-b}, i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right], \frac{a+b}{a-b}\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\sqrt{\frac{a+b-a\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{a+b}} + 12\,i\,a^2b^2\,c$$

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

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

$$6\,i\,b^4\,c\,\text{EllipticPi}\left[-\frac{a+b}{a-b},\ i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]\right],\ \frac{a+b}{a-b}\right]\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2$$

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

$$i\,(a-b)\ \left(-7\,a^2\,b\,c+3\,b^3\,c+4\,a^3\,d\right)\ \text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\ \text{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]\right],\ \frac{a+b}{a-b}\right]$$

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

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

$$i\,(a-b)\ \left(-4\,a\,b^2\,c-6\,b^3\,c+3\,a^3\,(c-d)+a^2\,b\,(9\,c+d)\right)$$

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

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

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

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

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

Problem 207: Unable to integrate problem.

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

Optimal (type 4, 389 leaves, 3 steps):

$$-\frac{1}{\sqrt{a+b}\,f}2\sqrt{c+d}\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{a\,(c+d)}{(a+b)\,c},\text{ArcSin}\left[\frac{\sqrt{a+b}\,\sqrt{c+d\,\text{Sec}[e+f\,x]}}{\sqrt{c+d}\,\sqrt{a+b\,\text{Sec}[e+f\,x]}}\right],\frac{(a-b)\,(c+d)}{(a+b)\,(c-d)}\right]\sqrt{-\frac{(b\,c-a\,d)\,(1-\text{Sec}[e+f\,x])}{(c+d)\,(a+b\,\text{Sec}[e+f\,x])}}\,\sqrt{\frac{(b\,c-a\,d)\,(1+\text{Sec}[e+f\,x])}{(c-d)\,(a+b\,\text{Sec}[e+f\,x])}}\,(a+b\,\text{Sec}[e+f\,x])+\frac{1}{\sqrt{\frac{a+b}{c+d}}\,f}2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b\,(c+d)}{(a+b)\,d},\text{ArcSin}\left[\frac{\sqrt{\frac{a+b}{c+d}}\,\sqrt{c+d\,\text{Sec}[e+f\,x]}}{\sqrt{a+b\,\text{Sec}[e+f\,x]}}\right],\frac{(a-b)\,(c+d)}{(a+b)\,(c-d)}\right]\sqrt{-\frac{(b\,c-a\,d)\,(1-\text{Sec}[e+f\,x])}{(c+d)\,(a+b\,\text{Sec}[e+f\,x])}}\,\sqrt{\frac{(b\,c-a\,d)\,(1+\text{Sec}[e+f\,x])}{(c-d)\,(a+b\,\text{Sec}[e+f\,x])}}\,(a+b\,\text{Sec}[e+f\,x])$$

Result (type 8, 31 leaves):

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

Problem 208: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 198 leaves, 1 step):

$$-\frac{1}{\sqrt{a+b}\,c\,f}2\sqrt{c+d}\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{a\,(c+d)}{(a+b)\,c},\text{ArcSin}\left[\frac{\sqrt{a+b}\,\sqrt{c+d\,\text{Sec}[e+f\,x]}}{\sqrt{c+d}\,\sqrt{a+b\,\text{Sec}[e+f\,x]}}\right],\frac{(a-b)\,(c+d)}{(a+b)\,(c-d)}\right]\sqrt{-\frac{(b\,c-a\,d)\,(1-\text{Sec}[e+f\,x])}{(c+d)\,(a+b\,\text{Sec}[e+f\,x])}}\,\sqrt{\frac{(b\,c-a\,d)\,(1+\text{Sec}[e+f\,x])}{(c-d)\,(a+b\,\text{Sec}[e+f\,x])}}\,(a+b\,\text{Sec}[e+f\,x])$$

Result (type 4, 554 leaves):

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

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

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

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

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

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

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

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

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

Problem 209: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 598 leaves, 5 steps) :

$$-\frac{1}{\sqrt{a+b}\ c^2 f} 2\sqrt{c+d}\ \text{Cot}[e+f x]\ \text{EllipticPi}\left[\frac{a(c+d)}{(a+b)c}, \text{ArcSin}\left[\frac{\sqrt{a+b}\ \sqrt{c+d\,\text{Sec}[e+f x]}}{\sqrt{c+d}\ \sqrt{a+b\,\text{Sec}[e+f x]}}\right], \frac{(a-b)(c+d)}{(a+b)(c-d)}\right] \sqrt{-\frac{(b c-a d)(1-\text{Sec}[e+f x])}{(c+d)(a+b\,\text{Sec}[e+f x])}} \sqrt{\frac{(b c-a d)(1+\text{Sec}[e+f x])}{(c-d)(a+b\,\text{Sec}[e+f x])}} (a+b\,\text{Sec}[e+f x]) - \left(2\sqrt{a+b}\ d\,\text{Cot}[e+f x]\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\ \sqrt{a+b\,\text{Sec}[e+f x]}}{\sqrt{a+b}\ \sqrt{c+d\,\text{Sec}[e+f x]}}\right], \frac{(a+b)(c-d)}{(a-b)(c+d)}\right] (1+\text{Sec}[e+f x]) \sqrt{\frac{(b c-a d)(1-\text{Sec}[e+f x])}{(a+b)(c+d\,\text{Sec}[e+f x])}}\right) \Big/ \left(c(c-d)\sqrt{c+d}\ f \sqrt{-\frac{(b c-a d)(1+\text{Sec}[e+f x])}{(a-b)(c+d\,\text{Sec}[e+f x])}}\right) - \left(2(a-b)\sqrt{a+b}\ d\,\text{Cot}[e+f x]\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\ \sqrt{a+b\,\text{Sec}[e+f x]}}{\sqrt{a+b}\ \sqrt{c+d\,\text{Sec}[e+f x]}}\right], \frac{(a+b)(c-d)}{(a-b)(c+d)}\right] \sqrt{\frac{(b c-a d)(1-\text{Sec}[e+f x])}{(a+b)(c+d\,\text{Sec}[e+f x])}} \sqrt{-\frac{(b c-a d)(1+\text{Sec}[e+f x])}{(a-b)(c+d\,\text{Sec}[e+f x])}} (c+d\,\text{Sec}[e+f x])\right) \Big/ \left(c(c-d)\sqrt{c+d}\ (b c-a d) f\right)$$

Result (type 4, 1678 leaves):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.\left.\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}\right)\right)+\frac{\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}\,\mathrm{Sin}[e+f\,x]}{c\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}\Bigg)\Bigg)+$$

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

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

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

Optimal (type 4, 899 leaves, 7 steps):

$$\left(2\,(a-b)\,\sqrt{a+b}\;d\,\left(6\,b\,c^3-7\,a\,c^2\,d-2\,b\,c\,d^2+3\,a\,d^3\right)\sqrt{-\frac{(b\,c-a\,d)\,(1-\mathrm{Cos}[e+f\,x])}{(a+b)\,(d+c\,\mathrm{Cos}[e+f\,x])}}\right.$$

$$\sqrt{-\frac{(b\,c-a\,d)\,(1+\mathrm{Cos}[e+f\,x])}{(a-b)\,(d+c\,\mathrm{Cos}[e+f\,x])}}\;(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\left.\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left(3\,c^2\,(c-d)^2\,(c+d)^{3/2}\,(b\,c-a\,d)^2\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)+$$

$$\left(2\,\sqrt{a+b}\;\left(b\,c^2\,\left(3\,c^2+3\,c\,d-2\,d^2\right)-a\,d\,\left(9\,c^3-2\,c^2\,d-6\,c\,d^2+3\,d^3\right)\right)\right.$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left(3\,c^3\,(c-d)^2\,(c+d)^{3/2}\,(b\,c-a\,d)\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)-$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]\;\mathrm{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\right.$$

$$\left.\left.\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left(c^3\,\sqrt{c+d}\;f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)+$$

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

Result (type 4, 1960 leaves):

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

$$\left(2\,\left(6\,b\,c^3\,d\,\mathrm{Sin}[e+f\,x]-7\,a\,c^2\,d^2\,\mathrm{Sin}[e+f\,x]-2\,b\,c\,d^3\,\mathrm{Sin}[e+f\,x]+3\,a\,d^4\,\mathrm{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left.\left.\left(3\,c\,(b\,c-a\,d)\,\left(c^2-d^2\right)^2\,(d+c\,\mathrm{Cos}[e+f\,x])\right)\right)\right)\Big/$$

$$\left(f\left(c+d\,\mathrm{Sec}[e+f\,x]\right)^{5/2}\right)+\left(\left(d+c\,\mathrm{Cos}[e+f\,x]\right)^{5/2}\mathrm{Sec}[e+f\,x]^2\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right.$$

$$\left(\left(4\left(b\,c-a\,d\right)\left(3\,b^2\,c^4-3\,a\,b\,c^3\,d-a^2\,c^2\,d^2+b^2\,c^2\,d^2-a\,b\,c\,d^3+a^2\,d^4\right)\right.\right.$$

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

$$\sqrt{-\frac{\left(a+b\right)\left(d+c\,\mathrm{Cos}[e+f\,x]\right)\mathrm{Csc}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2}{b\,c-a\,d}}\;\mathrm{Csc}[e+f\,x]\;\mathrm{EllipticF}\Big[$$

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

$$\left(\left(a+b\right)\left(c+d\right)\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}\right)+$$

$$4\left(b\,c-a\,d\right)\left(3\,a\,b\,c^4-3\,a^2\,c^3\,d+6\,b^2\,c^3\,d-7\,a\,b\,c^2\,d^2-a^2\,c\,d^3-2\,b^2\,c\,d^3+4\,a\,b\,d^4\right)$$

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

$$\sqrt{-\frac{\left(a+b\right)\left(d+c\,\mathrm{Cos}[e+f\,x]\right)\mathrm{Csc}\left[\frac{1}{2}\left(e+f\,x\right)\right]^2}{b\,c-a\,d}}\;\mathrm{Csc}[e+f\,x]\;\mathrm{EllipticF}\Big[$$

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

$$\left(\left(a+b\right)\left(c+d\right)\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}\right)-$$

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

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

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

$$\left(\left((a+b)\;c\;\sqrt{b+a\,\text{Cos}[e+f\,x]}\;\sqrt{d+c\,\text{Cos}[e+f\,x]}\right)\right)+2\,\left(6\,a\,b\,c^3\,d-7\,a^2\,c^2\,d^2-\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.(c+d\,\text{Sec}[e+f x])^{5/2}\right)$$

Problem 211: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 744 leaves, 6 steps):

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

$$\sqrt{-\frac{(b\,c-a\,d)\,(1+\mathrm{Cos}[e+f\,x])}{(a-b)\,(d+c\,\mathrm{Cos}[e+f\,x])}}\;(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\left.\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left.\left(c\,(c-d)\,\sqrt{c+d}\;f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)\right)-$$

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

$$\sqrt{-\frac{(b\,c-a\,d)\,(1+\mathrm{Cos}[e+f\,x])}{(a-b)\,(d+c\,\mathrm{Cos}[e+f\,x])}}\;(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left(c^2\,(c-d)\,\sqrt{c+d}\;f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)-$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]\;\mathrm{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\right.$$

$$\left.\left.\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left(c^2\,\sqrt{c+d}\;f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\;\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)$$

Result (type 4, 1720 leaves):

$$\left(2\,(d+c\,\mathrm{Cos}[e+f\,x])\,(a+b\,\mathrm{Sec}[e+f\,x])^{3/2}\,(-b\,c\,\mathrm{Sin}[e+f\,x]+a\,d\,\mathrm{Sin}[e+f\,x])\right)\Big/$$

$$\left(\left(-c^2+d^2\right)\,f\,(b+a\,\mathrm{Cos}[e+f\,x])\,(c+d\,\mathrm{Sec}[e+f\,x])^{3/2}\right)+$$

$$\frac{1}{(c-d)\,(c+d)\,f\,(b+a\,\mathrm{Cos}[e+f\,x])^{3/2}\,(c+d\,\mathrm{Sec}[e+f\,x])^{3/2}}$$

$$(d+c\,\mathrm{Cos}[e+f x])^{3/2}\,(a+b\,\mathrm{Sec}[e+f x])^{3/2}\left(\left(4\,(b c-a d)\,(a b c-b^2 d)\right.\right.$$

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

$$\sqrt{-\frac{(a+b)\,(d+c\,\mathrm{Cos}[e+f x])\,\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{b c-a d}}\;\mathrm{Csc}[e+f x]\;\mathrm{EllipticF}\Big[$$

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

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

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

$$\sqrt{-\frac{(a+b)\,(d+c\,\mathrm{Cos}[e+f x])\,\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{b c-a d}}\;\mathrm{Csc}[e+f x]\;\mathrm{EllipticF}\Big[$$

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

$$\left((a+b)\,(c+d)\,\sqrt{b+a\,\mathrm{Cos}[e+f x]}\;\sqrt{d+c\,\mathrm{Cos}[e+f x]}\right)-$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.\left.\left.\sqrt{d+c\,\text{Cos}[e+f\,x]}\right)\right) + \frac{\sqrt{d+c\,\text{Cos}[e+f\,x]}\;\text{Sin}[e+f\,x]}{c\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}\right)\right)$$

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

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

Optimal (type 4, 919 leaves, 7 steps):

$$-\left(\left(\left(2\,(a-b)\,\sqrt{a+b}\,\left(3\,b\,c^3-7\,a\,c^2\,d+b\,c\,d^2+3\,a\,d^3\right)\,\sqrt{-\frac{(b\,c-a\,d)\,(1-\mathrm{Cos}[e+f\,x])}{(a+b)\,(d+c\,\mathrm{Cos}[e+f\,x])}}\right.\right.\right.$$

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

$$\left.\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

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

$$\left(2\,\sqrt{a+b}\,\left(b^2\,c^3\,(3\,c+d)-2\,a\,b\,c^2\,\left(3\,c^2+2\,c\,d-d^2\right)+a^2\,d\,\left(9\,c^3-2\,c^2\,d-6\,c\,d^2+3\,d^3\right)\right)\right.$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

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

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]\,\mathrm{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\right.$$

$$\left.\left.\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left(c^3\,\sqrt{c+d}\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)-$$

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

Result (type 4, 1930 leaves):

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

$$\left(2\,\left(3\,b\,c^3\,\mathrm{Sin}[e+f\,x]-7\,a\,c^2\,d\,\mathrm{Sin}[e+f\,x]+b\,c\,d^2\,\mathrm{Sin}[e+f\,x]+3\,a\,d^3\,\mathrm{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left.\left.\left(3\,c\,\left(c^2-d^2\right)^2\,(d+c\,\mathrm{Cos}[e+f\,x])\right)\right)\right)\Big/\left(f\,(b+a\,\mathrm{Cos}[e+f\,x])\,(c+d\,\mathrm{Sec}[e+f\,x])^{5/2}\right)+$$

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

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

$$\Bigg(\Bigg(4\,(b\,c-a\,d)\,\left(3\,a\,b\,c^3+a^2\,c^2\,d-4\,b^2\,c^2\,d+a\,b\,c\,d^2-a^2\,d^3\right)$$

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

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

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

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

$$4\,(b\,c-a\,d)\,\left(3\,a^2\,c^3-3\,b^2\,c^3+4\,a\,b\,c^2\,d+a^2\,c\,d^2-b^2\,c\,d^2-4\,a\,b\,d^3\right)$$

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

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

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

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

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

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

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

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

$$2\ \left(-3\,a\,b\,c^3+7\,a^2\,c^2\,d-a\,b\,c\,d^2-3\,a^2\,d^3\right)\ \left(\left(\sqrt{\frac{-a+b}{a+b}}\ (a+b)\ \text{Cos}\left[\frac{1}{2}\ (e+f\,x)\right]\right.\right.$$

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

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

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

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

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

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

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

Problem 213: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 1122 leaves, 8 steps):

$$\left(2\,(a-b)\,\sqrt{a+b}\right.$$

$$\left(2\,a\,b\,c\,d\,\left(35\,c^4-8\,c^2\,d^2+5\,d^4\right)-a^2\,d^2\,\left(58\,c^4-41\,c^2\,d^2+15\,d^4\right)-b^2\,\left(15\,c^6+19\,c^4\,d^2-2\,c^2\,d^4\right)\right)$$

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

$$(d+c\,\text{Cos}[e+f\,x])^{3/2}\,\text{Csc}[e+f\,x]$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\text{Cos}[e+f\,x]}}\right],\,\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]}\right)\Big/$$

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

$$\left(2\,\sqrt{a+b}\,\left(b^2\,c^3\,\left(15\,c^3+10\,c^2\,d+9\,c\,d^2-2\,d^3\right)-2\,a\,b\,c^2\,\left(15\,c^4+20\,c^3\,d-4\,c^2\,d^2-4\,c\,d^3+5\,d^4\right)+\right.\right.$$

$$\left.a^2\,d\,\left(60\,c^5-2\,c^4\,d-66\,c^3\,d^2+25\,c^2\,d^3+30\,c\,d^4-15\,d^5\right)\right)\sqrt{-\frac{(b\,c-a\,d)\,(1-\text{Cos}[e+f\,x])}{(a+b)\,(d+c\,\text{Cos}[e+f\,x])}}$$

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

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\text{Cos}[e+f\,x]}}\right],\,\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]}\right)\Big/$$

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

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

$$(d+c\,\text{Cos}[e+f\,x])^{3/2}\,\text{Csc}[e+f\,x]\;\text{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\text{Cos}[e+f\,x]}}\right],\,\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]}\right)\Big/$$

$$\left(c^4\,\sqrt{c+d}\,f\,\sqrt{b+a\,\text{Cos}[e+f\,x]}\,\sqrt{c+d\,\text{Sec}[e+f\,x]}\right)+$$

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

$$\left(2\,d\,\left(10\,b\,c^3-13\,a\,c^2\,d-2\,b\,c\,d^2+5\,a\,d^3\right)\sqrt{a+b\,\text{Sec}[e+f\,x]}\,\text{Sin}[e+f\,x]\right)\Big/$$

$$\left(15\,c^2\,\left(c^2-d^2\right)^2\,f\,(d+c\,\text{Cos}[e+f\,x])\,\sqrt{c+d\,\text{Sec}[e+f\,x]}\right)$$

Result (type 4, 2355 leaves) :

$$\frac{1}{f\left(b+a\,\text{Cos}[e+f\,x]\right)\left(c+d\,\text{Sec}[e+f\,x]\right)^{7/2}}\left(d+c\,\text{Cos}[e+f\,x]\right)^4$$

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

$$\left(4\left(5\,b\,c^3\,d\,\text{Sin}[e+f\,x]-8\,a\,c^2\,d^2\,\text{Sin}[e+f\,x]-b\,c\,d^3\,\text{Sin}[e+f\,x]+4\,a\,d^4\,\text{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left(15\,c^2\left(c^2-d^2\right)^2\left(d+c\,\text{Cos}[e+f\,x]\right)^2\right)+$$

$$\left(2\left(15\,b^2\,c^6\,\text{Sin}[e+f\,x]-70\,a\,b\,c^5\,d\,\text{Sin}[e+f\,x]+58\,a^2\,c^4\,d^2\,\text{Sin}[e+f\,x]+\right.\right.$$

$$19\,b^2\,c^4\,d^2\,\text{Sin}[e+f\,x]+16\,a\,b\,c^3\,d^3\,\text{Sin}[e+f\,x]-41\,a^2\,c^2\,d^4\,\text{Sin}[e+f\,x]-$$

$$\left.\left.2\,b^2\,c^2\,d^4\,\text{Sin}[e+f\,x]-10\,a\,b\,c\,d^5\,\text{Sin}[e+f\,x]+15\,a^2\,d^6\,\text{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left.\left(15\,c^2\left(b\,c-a\,d\right)\left(c^2-d^2\right)^3\left(d+c\,\text{Cos}[e+f\,x]\right)\right)\right)+$$

$$\left(\left(d+c\,\text{Cos}[e+f\,x]\right)^{7/2}\text{Sec}[e+f\,x]^2\left(a+b\,\text{Sec}[e+f\,x]\right)^{3/2}\right.$$

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

$$4\left(b\,c-a\,d\right)\left(-15\,a\,b^2\,c^6+5\,a^2\,b\,c^5\,d+25\,b^3\,c^5\,d+13\,a^3\,c^4\,d^2-38\,a\,b^2\,c^4\,d^2+\right.$$

$$\left.25\,a^2\,b\,c^3\,d^3+7\,b^3\,c^3\,d^3-18\,a^3\,c^2\,d^4-11\,a\,b^2\,c^2\,d^4+2\,a^2\,b\,c\,d^5+5\,a^3\,d^6\right)$$

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

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

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

$$4\left(b\,c-a\,d\right)\left(-15\,a^2\,b\,c^6+15\,b^3\,c^6+15\,a^3\,c^5\,d-55\,a\,b^2\,c^5\,d+33\,a^2\,b\,c^4\,d^2+19\,b^3\,c^4\,d^2+\right.$$

$$\left.13\,a^3\,c^3\,d^3+35\,a\,b^2\,c^3\,d^3-70\,a^2\,b\,c^2\,d^4-2\,b^3\,c^2\,d^4+4\,a^3\,c\,d^5-12\,a\,b^2\,c\,d^5+20\,a^2\,b\,d^6\right)$$

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

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

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

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

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

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

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

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

$$2\,\left(15\,a\,b^2\,c^6-70\,a^2\,b\,c^5\,d+58\,a^3\,c^4\,d^2+19\,a\,b^2\,c^4\,d^2+16\,a^2\,b\,c^3\,d^3-41\,a^3\,c^2\,d^4-2\,a\,b^2\,c^2\,d^4-\right.$$

$$\left.10\,a^2\,b\,c\,d^5+15\,a^3\,d^6\right)\;\Bigg(\Bigg(\sqrt{\frac{-a+b}{a+b}}\;(a+b)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{d+c\,\text{Cos}[e+f\,x]}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{-a+b}{a+b}}\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{\frac{b+a\,\text{Cos}[e+f\,x]}{a+b}}}\right],\;\frac{2\,(b\,c-a\,d)}{(-a+b)\,(c+d)}\right]\right)\Bigg/$$

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

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

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

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

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

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

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

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

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

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

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

$$\left.\left.\left.\left.\frac{\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}\ \mathrm{Sin}[e+f\,x]}{c\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}\right)\right)\right)\right)\Big/\left(15\,c^2\,(c-d)^3\right.$$

$$\left.(c+d)^3\,(-b\,c+a\,d)\,f\,(b+a\,\mathrm{Cos}[e+f\,x])^{3/2}\,(c+d\,\mathrm{Sec}[e+f\,x])^{7/2}\right)$$

Problem 214: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\mathrm{Sec}[e+f\,x])^{5/2}}{(c+d\,\mathrm{Sec}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 4, 891 leaves, 7 steps):

$$-\left(\left(\left(2\,(a-b)\,\sqrt{a+b}\,\left(7\,a\,c^2-4\,b\,c\,d-3\,a\,d^2\right)\,\sqrt{-\frac{(b\,c-a\,d)\,(1-\mathrm{Cos}[e+f\,x])}{(a+b)\,(d+c\,\mathrm{Cos}[e+f\,x])}}\right.\right.\right.$$

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

$$\left.\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

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

$$\left(2\,\sqrt{a+b}\,\left(b^2\,c^2\,(c+3\,d)-a\,b\,c\,\left(7\,c^2+4\,c\,d-3\,d^2\right)+a^2\,\left(9\,c^3-2\,c^2\,d-6\,c\,d^2+3\,d^3\right)\right)\right.$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

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

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]\,\mathrm{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\right.$$

$$\left.\left.\mathrm{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\right)\Big/$$

$$\left(c^3\,\sqrt{c+d}\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)+$$

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

Result (type 4, 1996 leaves) :

$$\left((d+c\,\mathrm{Cos}[e+f\,x])^3\,(a+b\,\mathrm{Sec}[e+f\,x])^{5/2}\right.$$

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

$$\left(2\,\left(7\,a\,b\,c^3\,\mathrm{Sin}[e+f\,x]-7\,a^2\,c^2\,d\,\mathrm{Sin}[e+f\,x]-4\,b^2\,c^2\,d\,\mathrm{Sin}[e+f\,x]+\right.\right.$$

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

$$\left(f\,\left(b+a\,\text{Cos}[e+f\,x]\right)^2\,\left(c+d\,\text{Sec}[e+f\,x]\right)^{5/2}\right)+$$

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

$$\left(d+c\,\text{Cos}[e+f\,x]\right)^{5/2}\,\left(a+b\,\text{Sec}[e+f\,x]\right)^{5/2}$$

$$\Bigg(\Bigg(4\,\left(b\,c-a\,d\right)\,\left(2\,a^2\,b\,c^3+b^3\,c^3+a^3\,c^2\,d-8\,a\,b^2\,c^2\,d+2\,a^2\,b\,c\,d^2+3\,b^3\,c\,d^2-a^3\,d^3\right)$$

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

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

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

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

$$4\,\left(b\,c-a\,d\right)\,\left(3\,a^3\,c^3-7\,a\,b^2\,c^3+4\,b^3\,c^2\,d+a^3\,c\,d^2+3\,a\,b^2\,c\,d^2-4\,a^2\,b\,d^3\right)$$

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

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

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

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

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

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

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

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

$$2\left(-7 a^2 b c^3+7 a^3 c^2 d+4 a b^2 c^2 d-a^2 b c d^2-3 a^3 d^3\right)\left(\left(\sqrt{\frac{-a+b}{a+b}}\ (a+b)\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right.\right.$$

$$\left.\sqrt{d+c\,\text{Cos}[e+f x]}\ \text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{-a+b}{a+b}}\ \text{Sin}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{\frac{b+a\,\text{Cos}[e+f x]}{a+b}}}\right],\ \frac{2\,(b c-a d)}{(-a+b)\,(c+d)}\right]\right)\Bigg/$$

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

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

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

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

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

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

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

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

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

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

$$\left.\sqrt{d+c\,\text{Cos}[e+f\,x]}\right)\Bigg)+\frac{\sqrt{d+c\,\text{Cos}[e+f\,x]}\ \text{Sin}[e+f\,x]}{c\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}\Bigg)\Bigg)$$

Problem 215: Result more than twice size of optimal antiderivative.

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

Optimal (type 4, 1150 leaves, 8 steps):

$$\left(2\,(a-b)\,\sqrt{a+b}\,\left(b^2\,c^2\,d\,\left(29\,c^2+3\,d^2\right)-a\,b\,c\,\left(35\,c^4+34\,c^2\,d^2-5\,d^4\right)+a^2\,\left(58\,c^4\,d-41\,c^2\,d^3+15\,d^5\right)\right)\right.$$

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

$$(d+c\,\text{Cos}[e+f\,x])^{3/2}\,\text{Csc}[e+f\,x]$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\text{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]}\right)\Big/$$

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

$$\left(2\,\sqrt{a+b}\,\left(b^3\,c^4\,\left(5\,c^2+24\,c\,d+3\,d^2\right)-a\,b^2\,c^3\,\left(35\,c^3+42\,c^2\,d+21\,c\,d^2-2\,d^3\right)+\right.\right.$$

$$a^2\,b\,c^2\,\left(45\,c^4+48\,c^3\,d+c^2\,d^2-8\,c\,d^3+10\,d^4\right)-$$

$$\left.a^3\,d\,\left(60\,c^5-2\,c^4\,d-66\,c^3\,d^2+25\,c^2\,d^3+30\,c\,d^4-15\,d^5\right)\right)\sqrt{-\frac{(b\,c-a\,d)\,(1-\text{Cos}[e+f\,x])}{(a+b)\,(d+c\,\text{Cos}[e+f\,x])}}$$

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

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\text{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]}\right)\Big/$$

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

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

$$(d+c\,\text{Cos}[e+f\,x])^{3/2}\,\text{Csc}[e+f\,x]\,\text{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\text{Cos}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]}\right)\Big/$$

$$\left(c^4\,\sqrt{c+d}\,f\,\sqrt{b+a\,\text{Cos}[e+f\,x]}\,\sqrt{c+d\,\text{Sec}[e+f\,x]}\right)-$$

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

$$\left(2\,(b\,c-a\,d)\,\left(5\,b\,c^3-13\,a\,c^2\,d+3\,b\,c\,d^2+5\,a\,d^3\right)\,\sqrt{a+b\,\text{Sec}[e+f\,x]}\,\text{Sin}[e+f\,x]\right)\Big/$$

$$\left(15\,c^2\,\left(c^2-d^2\right)^2\,f\,(d+c\,\text{Cos}[e+f\,x])\,\sqrt{c+d\,\text{Sec}[e+f\,x]}\right)$$

Result (type 4, 2314 leaves) :

$$\frac{1}{f\,(b+a\,\mathrm{Cos}[e+f\,x])^2\,(c+d\,\mathrm{Sec}[e+f\,x])^{7/2}}\,(d+c\,\mathrm{Cos}[e+f\,x])^4\,\mathrm{Sec}[e+f\,x]\,(a+b\,\mathrm{Sec}[e+f\,x])^{5/2}$$
$$\Big(-\Big(\big(2\,(b^2\,c^2\,d\,\mathrm{Sin}[e+f\,x]-2\,a\,b\,c\,d^2\,\mathrm{Sin}[e+f\,x]+a^2\,d^3\,\mathrm{Sin}[e+f\,x])\big)\Big/$$
$$\big(5\,c^2\,(c^2-d^2)\,(d+c\,\mathrm{Cos}[e+f\,x])^3\big)\Big)+$$
$$\big(2\,(5\,b^2\,c^4\,\mathrm{Sin}[e+f\,x]-21\,a\,b\,c^3\,d\,\mathrm{Sin}[e+f\,x]+16\,a^2\,c^2\,d^2\,\mathrm{Sin}[e+f\,x]+$$
$$3\,b^2\,c^2\,d^2\,\mathrm{Sin}[e+f\,x]+5\,a\,b\,c\,d^3\,\mathrm{Sin}[e+f\,x]-8\,a^2\,d^4\,\mathrm{Sin}[e+f\,x])\big)\Big/$$
$$\big(15\,c^2\,(c^2-d^2)^2\,(d+c\,\mathrm{Cos}[e+f\,x])^2\big)+$$
$$\big(2\,(35\,a\,b\,c^5\,\mathrm{Sin}[e+f\,x]-58\,a^2\,c^4\,d\,\mathrm{Sin}[e+f\,x]-29\,b^2\,c^4\,d\,\mathrm{Sin}[e+f\,x]+$$
$$34\,a\,b\,c^3\,d^2\,\mathrm{Sin}[e+f\,x]+41\,a^2\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-3\,b^2\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-$$
$$5\,a\,b\,c\,d^4\,\mathrm{Sin}[e+f\,x]-15\,a^2\,d^5\,\mathrm{Sin}[e+f\,x])\big)\Big/\big(15\,c^2\,(c^2-d^2)^3\,(d+c\,\mathrm{Cos}[e+f\,x])\big)\Big)+$$
$$\frac{1}{15\,c^2\,(c-d)^3\,(c+d)^3\,f\,(b+a\,\mathrm{Cos}[e+f\,x])^{5/2}\,(c+d\,\mathrm{Sec}[e+f\,x])^{7/2}}$$
$$(d+c\,\mathrm{Cos}[e+f\,x])^{7/2}$$
$$\mathrm{Sec}[e+f\,x]$$
$$(a+b\,\mathrm{Sec}[e+f\,x])^{5/2}$$
$$\Bigg(\frac{1}{(a+b)\,(c+d)\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}$$
$$4\,(b\,c-a\,d)\,(10\,a^2\,b\,c^5+5\,b^3\,c^5+13\,a^3\,c^4\,d-48\,a\,b^2\,c^4\,d+15\,a^2\,b\,c^3\,d^2+$$
$$27\,b^3\,c^3\,d^2-18\,a^3\,c^2\,d^3-16\,a\,b^2\,c^2\,d^3+7\,a^2\,b\,c\,d^4+5\,a^3\,d^5)$$
$$\sqrt{\frac{(c+d)\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{c-d}}\,\sqrt{\frac{(c+d)\,(b+a\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{b\,c-a\,d}}$$
$$\sqrt{-\frac{(a+b)\,(d+c\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{b\,c-a\,d}}\,\mathrm{Csc}[e+f\,x]\,\mathrm{EllipticF}\Big[$$
$$\mathrm{ArcSin}\Big[\frac{\sqrt{-\frac{(a+b)\,(d+c\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{b\,c-a\,d}}}{\sqrt{2}}\Big],\,\frac{2\,(b\,c-a\,d)}{(a+b)\,(c-d)}\Big]\,\mathrm{Sin}\Big[\frac{1}{2}\,(e+f\,x)\Big]^4+$$
$$4\,(b\,c-a\,d)\,(15\,a^3\,c^5-35\,a\,b^2\,c^5+23\,a^2\,b\,c^4\,d+29\,b^3\,c^4\,d+13\,a^3\,c^3\,d^2-5\,a\,b^2\,c^3\,d^2-$$
$$75\,a^2\,b\,c^2\,d^3+3\,b^3\,c^2\,d^3+4\,a^3\,c\,d^4+8\,a\,b^2\,c\,d^4+20\,a^2\,b\,d^5)$$
$$\Bigg(\Bigg(\sqrt{\frac{(c+d)\,\mathrm{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{c-d}}\,\sqrt{\frac{(c+d)\,(b+a\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{b\,c-a\,d}}$$
$$\sqrt{-\frac{(a+b)\,(d+c\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{b\,c-a\,d}}\,\mathrm{Csc}[e+f\,x]\,\mathrm{EllipticF}\Big[$$

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

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

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

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

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

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

$$2\,\left(-35\,a^2\,b\,c^5+58\,a^3\,c^4\,d+29\,a\,b^2\,c^4\,d-34\,a^2\,b\,c^3\,d^2-41\,a^3\,c^2\,d^3+3\,a\,b^2\,c^2\,d^3+\right.$$

$$\left.5\,a^2\,b\,c\,d^4+15\,a^3\,d^5\right)\,\Bigg(\Bigg(\sqrt{\frac{-a+b}{a+b}}\,(a+b)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]\,\sqrt{d+c\,\text{Cos}[e+f\,x]}$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{-a+b}{a+b}}\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{\frac{b+a\,\text{Cos}[e+f\,x]}{a+b}}}\right],\ \frac{2\,(b\,c-a\,d)}{(-a+b)\,(c+d)}\right]\right)\Bigg/$$

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

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

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

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

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

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

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

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

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

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

$$\sqrt{d+c\,\mathrm{Cos}[e+f x]}\Big)\Bigg)+\frac{\sqrt{d+c\,\mathrm{Cos}[e+f x]}\ \mathrm{Sin}[e+f x]}{c\,\sqrt{b+a\,\mathrm{Cos}[e+f x]}}\Bigg)\Bigg)$$

Problem 216: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\mathrm{Sec}[e+f x])^{5/2}}{(c+d\,\mathrm{Sec}[e+f x])^{9/2}}\,dx$$

Optimal (type 4, 1428 leaves, 9 steps):

$$\Bigg(2\,(a-b)\,\sqrt{a+b}\,\left(2\,b^3\,c^3\,d\,\left(133\,c^4+62\,c^2\,d^2-3\,d^4\right)+2\,a^2\,b\,c\,d\,\left(406\,c^6+73\,c^4\,d^2+132\,c^2\,d^4-35\,d^6\right)-\right.$$

$$\left.a\,b^2\,c^2\,\left(245\,c^6+852\,c^4\,d^2+41\,c^2\,d^4+14\,d^6\right)-a^3\,\left(582\,c^6\,d^2-485\,c^4\,d^4+392\,c^2\,d^6-105\,d^8\right)\right)$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\mathrm{EllipticE}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\Big],\,\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\Big]\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\Bigg)\Big/$$

$$\left(105\,c^4\,(c-d)^4\,(c+d)^{7/2}\,(b\,c-a\,d)^2\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)+$$

$$\Bigg(2\,\sqrt{a+b}\,\left(b^3\,c^4\,\left(35\,c^4+231\,c^3\,d+67\,c^2\,d^2+57\,c\,d^3-6\,d^4\right)-\right.$$

$$a\,b^2\,c^3\,\left(245\,c^5+413\,c^4\,d+439\,c^3\,d^2+53\,c^2\,d^3-12\,c\,d^4+14\,d^5\right)+$$

$$a^2\,b\,c^2\,\left(315\,c^6+497\,c^5\,d+219\,c^4\,d^2-73\,c^3\,d^3+208\,c^2\,d^4+56\,c\,d^5-70\,d^6\right)-$$

$$\left.a^3\,d\,\left(525\,c^7+57\,c^6\,d-699\,c^5\,d^2+214\,c^4\,d^3+672\,c^3\,d^4-280\,c^2\,d^5-210\,c\,d^6+105\,d^7\right)\right)$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]$$

$$\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\Big],\,\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\Big]\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\Bigg)\Big/$$

$$\left(105\,c^5\,(c-d)^4\,(c+d)^{7/2}\,(b\,c-a\,d)\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)-$$

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

$$(d+c\,\mathrm{Cos}[e+f\,x])^{3/2}\,\mathrm{Csc}[e+f\,x]\,\mathrm{EllipticPi}\Big[\frac{(a+b)\,c}{a\,(c+d)},$$

$$\mathrm{ArcSin}\Big[\frac{\sqrt{c+d}\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d+c\,\mathrm{Cos}[e+f\,x]}}\Big],\,\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\Big]\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\Bigg)\Big/$$

$$\left(c^5\,\sqrt{c+d}\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)+$$

$$\frac{2\,d^2\,(b+a\,\mathrm{Cos}[e+f\,x])^2\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\,\mathrm{Sin}[e+f\,x]}{7\,c\,\left(c^2-d^2\right)\,f\,(d+c\,\mathrm{Cos}[e+f\,x])^3\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}}-$$

$$\left(2\,d\,\left(14\,b\,c^3-19\,a\,c^2\,d-2\,b\,c\,d^2+7\,a\,d^3\right)\,(b+a\,\mathrm{Cos}[e+f\,x])\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\,\mathrm{Sin}[e+f\,x]\right)\Big/$$

$$\left(35\,c^2\,\left(c^2-d^2\right)^2\,f\,(d+c\,\mathrm{Cos}[e+f\,x])^2\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)-$$

$$\left(2\,\left(2\,a\,b\,c\,d\,\left(91\,c^4-2\,c^2\,d^2+7\,d^4\right)-a^2\,d^2\,\left(162\,c^4-101\,c^2\,d^2+35\,d^4\right)-b^2\,\left(35\,c^6+67\,c^4\,d^2-6\,c^2\,d^4\right)\right)\right.$$

$$\sqrt{a+b\,\text{Sec}[e+f\,x]}\;\text{Sin}[e+f\,x]\Big)\Big/\left(105\,c^3\left(c^2-d^2\right)^3 f\left(d+c\,\text{Cos}[e+f\,x]\right)\sqrt{c+d\,\text{Sec}[e+f\,x]}\right)$$

Result (type 4, 2949 leaves):

$$\frac{1}{f\left(b+a\,\text{Cos}[e+f\,x]\right)^2\left(c+d\,\text{Sec}[e+f\,x]\right)^{9/2}}\left(d+c\,\text{Cos}[e+f\,x]\right)^5\text{Sec}[e+f\,x]^2$$

$$\left(a+b\,\text{Sec}[e+f\,x]\right)^{5/2}\Bigg(\left(2\left(b^2 c^2 d^2\,\text{Sin}[e+f\,x]-2\,a\,b\,c\,d^3\,\text{Sin}[e+f\,x]+a^2 d^4\,\text{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left(7\,c^3\left(c^2-d^2\right)\left(d+c\,\text{Cos}[e+f\,x]\right)^4\right)+$$

$$\Big(2\,\big(-14\,b^2 c^4 d\,\text{Sin}[e+f\,x]+43\,a\,b\,c^3 d^2\,\text{Sin}[e+f\,x]-29\,a^2 c^2 d^3\,\text{Sin}[e+f\,x]+$$

$$2\,b^2 c^2 d^3\,\text{Sin}[e+f\,x]-19\,a\,b\,c\,d^4\,\text{Sin}[e+f\,x]+17\,a^2 d^5\,\text{Sin}[e+f\,x]\big)\Big)\Big/$$

$$\left(35\,c^3\left(c^2-d^2\right)^2\left(d+c\,\text{Cos}[e+f\,x]\right)^3\right)+\Big(2\,\big(35\,b^2 c^6\,\text{Sin}[e+f\,x]-224\,a\,b\,c^5 d\,\text{Sin}[e+f\,x]+$$

$$234\,a^2 c^4 d^2\,\text{Sin}[e+f\,x]+67\,b^2 c^4 d^2\,\text{Sin}[e+f\,x]+52\,a\,b\,c^3 d^3\,\text{Sin}[e+f\,x]-209\,a^2 c^2 d^4$$

$$\text{Sin}[e+f\,x]-6\,b^2 c^2 d^4\,\text{Sin}[e+f\,x]-20\,a\,b\,c\,d^5\,\text{Sin}[e+f\,x]+71\,a^2 d^6\,\text{Sin}[e+f\,x]\big)\Big)\Big/$$

$$\left(105\,c^3\left(c^2-d^2\right)^3\left(d+c\,\text{Cos}[e+f\,x]\right)^2\right)+\frac{1}{105\,c^3\left(b\,c-a\,d\right)\left(c^2-d^2\right)^4\left(d+c\,\text{Cos}[e+f\,x]\right)}$$

$$2\,\big(245\,a\,b^2 c^8\,\text{Sin}[e+f\,x]-812\,a^2 b\,c^7 d\,\text{Sin}[e+f\,x]-266\,b^3 c^7 d\,\text{Sin}[e+f\,x]+$$

$$582\,a^3 c^6 d^2\,\text{Sin}[e+f\,x]+852\,a\,b^2 c^6 d^2\,\text{Sin}[e+f\,x]-146\,a^2 b\,c^5 d^3\,\text{Sin}[e+f\,x]-$$

$$124\,b^3 c^5 d^3\,\text{Sin}[e+f\,x]-485\,a^3 c^4 d^4\,\text{Sin}[e+f\,x]+41\,a\,b^2 c^4 d^4\,\text{Sin}[e+f\,x]-$$

$$264\,a^2 b\,c^3 d^5\,\text{Sin}[e+f\,x]+6\,b^3 c^3 d^5\,\text{Sin}[e+f\,x]+392\,a^3 c^2 d^6\,\text{Sin}[e+f\,x]+$$

$$14\,a\,b^2 c^2 d^6\,\text{Sin}[e+f\,x]+70\,a^2 b\,c\,d^7\,\text{Sin}[e+f\,x]-105\,a^3 d^8\,\text{Sin}[e+f\,x]\big)\Bigg)+$$

$$\Bigg(\left(d+c\,\text{Cos}[e+f\,x]\right)^{9/2}\text{Sec}[e+f\,x]^2\left(a+b\,\text{Sec}[e+f\,x]\right)^{5/2}$$

$$\Bigg(\frac{1}{\left(a+b\right)\left(c+d\right)\sqrt{b+a\,\text{Cos}[e+f\,x]}\;\sqrt{d+c\,\text{Cos}[e+f\,x]}}$$

$$4\left(b\,c-a\,d\right)\big(-70\,a^2 b^2 c^8-35\,b^4 c^8-77\,a^3 b\,c^7 d+427\,a\,b^3 c^7 d+162\,a^4 c^6 d^2-522\,a^2 b^2 c^6 d^2-$$

$$298\,b^4 c^6 d^2+348\,a^3 b\,c^5 d^3+666\,a\,b^3 c^5 d^3-263\,a^4 c^4 d^4-586\,a^2 b^2 c^4 d^4-51\,b^4 c^4 d^4+$$

$$127\,a^3 b\,c^3 d^5+59\,a\,b^3 c^3 d^5+136\,a^4 c^2 d^6+26\,a^2 b^2 c^2 d^6-14\,a^3 b\,c\,d^7-35\,a^4 d^8\big)$$

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

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

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

$$4\,(b\,c-a\,d)\,\big(-105\,a^3\,b\,c^8+245\,a\,b^3\,c^8+105\,a^4\,c^7\,d-567\,a^2\,b^2\,c^7\,d-266\,b^4\,c^7\,d+190\,a^3\,b\,c^6\,d^2+586\,a\,b^3\,c^6\,d^2+162\,a^4\,c^5\,d^3+706\,a^2\,b^2\,c^5\,d^3-124\,b^4\,c^5\,d^3-1261\,a^3\,b\,c^4\,d^4-83\,a\,b^3\,c^4\,d^4+145\,a^4\,c^3\,d^5-223\,a^2\,b^2\,c^3\,d^5+6\,b^4\,c^3\,d^5+548\,a^3\,b\,c^2\,d^6+20\,a\,b^3\,c^2\,d^6-28\,a^4\,c\,d^7+84\,a^2\,b^2\,c\,d^7-140\,a^3\,b\,d^8\big)$$

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

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

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

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

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

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

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

$$\text{Sin}\Big[\frac{1}{2}\,(e+f\,x)\Big]^4\Bigg)\Big/\Big((a+b)\,c\,\sqrt{b+a\,\text{Cos}[e+f\,x]}\,\sqrt{d+c\,\text{Cos}[e+f\,x]}\Big)\Bigg)+$$

$$2\,\big(245\,a^2\,b^2\,c^8-812\,a^3\,b\,c^7\,d-266\,a\,b^3\,c^7\,d+582\,a^4\,c^6\,d^2+852\,a^2\,b^2\,c^6\,d^2-146\,a^3\,b\,c^5\,d^3-124\,a\,b^3\,c^5\,d^3-485\,a^4\,c^4\,d^4+41\,a^2\,b^2\,c^4\,d^4-264\,a^3\,b\,c^3\,d^5+6\,a\,b^3\,c^3\,d^5+392\,a^4\,c^2\,d^6+14\,a^2\,b^2\,c^2\,d^6+70\,a^3\,b\,c\,d^7-105\,a^4\,d^8\big)$$

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

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{-a+b}{a+b}}\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{\frac{b+a\,\text{Cos}[e+f\,x]}{a+b}}}\right],\frac{2\,(b\,c-a\,d)}{(-a+b)\,(c+d)}\right]\right)\Bigg/$$

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

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

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

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

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

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

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

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

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

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

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

$$\frac{\sqrt{d+c\,\text{Cos}[e+f\,x]}\;\text{Sin}[e+f\,x]}{c\,\sqrt{b+a\,\text{Cos}[e+f\,x]}}\Bigg)\Bigg)\Bigg)\Big/\Big(105\,c^3\,(c-d)^4$$

$$(c+d)^4\,(-b\,c+a\,d)\,f\,(b+a\,\text{Cos}[e+f\,x])^{5/2}\,(c+d\,\text{Sec}[e+f\,x])^{9/2}\Big)$$

Problem 217: Unable to integrate problem.

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

Optimal (type 4, 652 leaves, ? steps):

$$-\left(\left(2\,c\,(c+d)\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticPi}\left[\frac{a\,(c+d)}{(a+b)\,c},\,\mathrm{ArcSin}\left[\sqrt{\frac{(a+b)\,(c+d\,\mathrm{Sec}[e+f\,x])}{(c+d)\,(a+b\,\mathrm{Sec}[e+f\,x])}}\right],\right.\right.\right.$$

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

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

$$\left.\left(a\,(a+b)\,f\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)\right)+\left(2\,d\,(c+d)\,\mathrm{Cot}[e+f\,x]\right.$$

$$\mathrm{EllipticPi}\left[\frac{b\,(c+d)}{(a+b)\,d},\,\mathrm{ArcSin}\left[\sqrt{\frac{(a+b)\,(c+d\,\mathrm{Sec}[e+f\,x])}{(c+d)\,(a+b\,\mathrm{Sec}[e+f\,x])}}\right],\,\frac{(a-b)\,(c+d)}{(a+b)\,(c-d)}\right]$$

$$\sqrt{\frac{(b\,c-a\,d)\,(1+\mathrm{Sec}[e+f\,x])}{(c-d)\,(a+b\,\mathrm{Sec}[e+f\,x])}}\,(a+b\,\mathrm{Sec}[e+f\,x])^{3/2}$$

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

$$\left(b\,(a+b)\,f\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)+$$

$$\left(2\,(b\,c-a\,d)\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{(a+b)\,(c+d\,\mathrm{Sec}[e+f\,x])}{(c+d)\,(a+b\,\mathrm{Sec}[e+f\,x])}}\right],\,\frac{(a-b)\,(c+d)}{(a+b)\,(c-d)}\right]\right.$$

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

$$\left.\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}\right)\Big/\left(a\,b\,f\,\sqrt{\frac{(a+b)\,(c+d\,\mathrm{Sec}[e+f\,x])}{(c+d)\,(a+b\,\mathrm{Sec}[e+f\,x])}}\right)$$

Result (type 8, 31 leaves) :

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

Problem 218: Result more than twice size of optimal antiderivative.

$$\int\frac{\sqrt{c+d\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}\,dx$$

Optimal (type 4, 198 leaves, 1 step) :

$$-\frac{1}{a\sqrt{c+d}\,f}2\sqrt{a+b}\,\text{Cot}[e+f x]\,\text{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\,\text{ArcSin}\left[\frac{\sqrt{c+d}\,\sqrt{a+b\,\text{Sec}[e+f x]}}{\sqrt{a+b}\,\sqrt{c+d\,\text{Sec}[e+f x]}}\right],\,\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]$$
$$\sqrt{\frac{(b\,c-a\,d)\,(1-\text{Sec}[e+f x])}{(a+b)\,(c+d\,\text{Sec}[e+f x])}}\,\sqrt{-\frac{(b\,c-a\,d)\,(1+\text{Sec}[e+f x])}{(a-b)\,(c+d\,\text{Sec}[e+f x])}}\,(c+d\,\text{Sec}[e+f x])$$

Result (type 4, 554 leaves) :

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

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

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

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

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

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

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

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

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

Problem 219: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}\ \sqrt{c+d\,\mathrm{Sec}[e+f\,x]}}\,dx$$

Optimal (type 4, 398 leaves, 3 steps):

$$-\frac{1}{a\sqrt{a+b}\,c\,f}2\sqrt{c+d}\,\mathrm{Cot}[e+f x]\,\mathrm{EllipticPi}\Big[\frac{a\,(c+d)}{(a+b)\,c},\mathrm{ArcSin}\Big[\frac{\sqrt{a+b}\,\sqrt{c+d\,\mathrm{Sec}[e+f x]}}{\sqrt{c+d}\,\sqrt{a+b\,\mathrm{Sec}[e+f x]}}\Big],\frac{(a-b)\,(c+d)}{(a+b)\,(c-d)}\Big]\sqrt{-\frac{(b c-a d)\,(1-\mathrm{Sec}[e+f x])}{(c+d)\,(a+b\,\mathrm{Sec}[e+f x])}}\sqrt{\frac{(b c-a d)\,(1+\mathrm{Sec}[e+f x])}{(c-d)\,(a+b\,\mathrm{Sec}[e+f x])}}\,(a+b\,\mathrm{Sec}[e+f x])-\left(2 b\sqrt{a+b}\,\mathrm{Cot}[e+f x]\,\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{c+d}\,\sqrt{a+b\,\mathrm{Sec}[e+f x]}}{\sqrt{a+b}\,\sqrt{c+d\,\mathrm{Sec}[e+f x]}}\Big],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\Big]\sqrt{\frac{(b c-a d)\,(1-\mathrm{Sec}[e+f x])}{(a+b)\,(c+d\,\mathrm{Sec}[e+f x])}}\sqrt{-\frac{(b c-a d)\,(1+\mathrm{Sec}[e+f x])}{(a-b)\,(c+d\,\mathrm{Sec}[e+f x])}}\,(c+d\,\mathrm{Sec}[e+f x])\right)\Big/\left(a\sqrt{c+d}\,(b c-a d)\,f\right)$$

Result (type 4, 249 leaves):

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

Problem 220: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{a+b\,\mathrm{Sec}[e+f x]}\,(c+d\,\mathrm{Sec}[e+f x])^{3/2}}\,dx$$

Optimal (type 4, 622 leaves, 6 steps):

$$-\left(\left(2\,(a-b)\,\sqrt{a+b}\;d^2\,\text{Cot}[e+f\,x]\;\text{EllipticE}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\;\sqrt{a+b\,\text{Sec}[e+f\,x]}}{\sqrt{a+b}\;\sqrt{c+d\,\text{Sec}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{\frac{(b\,c-a\,d)\,(1-\text{Sec}[e+f\,x])}{(a+b)\,(c+d\,\text{Sec}[e+f\,x])}}\;\sqrt{-\frac{(b\,c-a\,d)\,(1+\text{Sec}[e+f\,x])}{(a-b)\,(c+d\,\text{Sec}[e+f\,x])}}\;(c+d\,\text{Sec}[e+f\,x])\right)\Big/\left(c\,(c-d)\,\sqrt{c+d}\;(b\,c-a\,d)^2\,f\right)\right)-$$

$$\left(2\,\sqrt{a+b}\;(2\,c-d)\,d\,\text{Cot}[e+f\,x]\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{c+d}\;\sqrt{a+b\,\text{Sec}[e+f\,x]}}{\sqrt{a+b}\;\sqrt{c+d\,\text{Sec}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]\sqrt{\frac{(b\,c-a\,d)\,(1-\text{Sec}[e+f\,x])}{(a+b)\,(c+d\,\text{Sec}[e+f\,x])}}\;\sqrt{-\frac{(b\,c-a\,d)\,(1+\text{Sec}[e+f\,x])}{(a-b)\,(c+d\,\text{Sec}[e+f\,x])}}\;(c+d\,\text{Sec}[e+f\,x])\right)\Big/$$

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

$$\text{EllipticPi}\left[\frac{(a+b)\,c}{a\,(c+d)},\text{ArcSin}\left[\frac{\sqrt{c+d}\;\sqrt{a+b\,\text{Sec}[e+f\,x]}}{\sqrt{a+b}\;\sqrt{c+d\,\text{Sec}[e+f\,x]}}\right],\frac{(a+b)\,(c-d)}{(a-b)\,(c+d)}\right]$$

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

$$\sqrt{-\frac{(b\,c-a\,d)\,(1+\text{Sec}[e+f\,x])}{(a-b)\,(c+d\,\text{Sec}[e+f\,x])}}\;(c+d\,\text{Sec}[e+f\,x])$$

Result (type 4, 1731 leaves):

$$\frac{1}{(c-d)\,(c+d)\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]}\;(c+d\,\text{Sec}[e+f\,x])^{3/2}}$$

$$\sqrt{b+a\,\text{Cos}[e+f\,x]}\;(d+c\,\text{Cos}[e+f\,x])^{3/2}\,\text{Sec}[e+f\,x]^2\left(-\left(\left(4\,b\,c\,d\,(b\,c-a\,d)\right.\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 222: Attempted integration timed out after 120 seconds.

$$\int \frac{(a+b\,\text{Sec}[e+f\,x])^{1/3}}{(c+d\,\text{Sec}[e+f\,x])^{4/3}}\,dx$$

Optimal (type 8, 32 leaves, 0 steps):

$$\text{Int}\left[\frac{(a+b\,\text{Sec}[e+f\,x])^{1/3}}{(c+d\,\text{Sec}[e+f\,x])^{4/3}},\ x\right]$$

Result (type 1, 1 leaves):

???

Problem 223: Attempted integration timed out after 120 seconds.

$$\int \frac{(a+b\,\text{Sec}[e+f\,x])^{1/3}}{(c+d\,\text{Sec}[e+f\,x])^{7/3}}\,dx$$

Optimal (type 8, 32 leaves, 0 steps):

$$\text{Int}\left[\frac{(a+b\,\text{Sec}[e+f\,x])^{1/3}}{(c+d\,\text{Sec}[e+f\,x])^{7/3}},\ x\right]$$

Result (type 1, 1 leaves):

???

Problem 225: Attempted integration timed out after 120 seconds.

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

Optimal (type 8, 32 leaves, 0 steps):

$$\operatorname{Int}\left[\frac{(a + b \operatorname{Sec}[e + f x])^{2/3}}{(c + d \operatorname{Sec}[e + f x])^{5/3}}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 226: Attempted integration timed out after 120 seconds.

$$\int \frac{(a + b \operatorname{Sec}[e + f x])^{2/3}}{(c + d \operatorname{Sec}[e + f x])^{8/3}} \, dx$$

Optimal (type 8, 32 leaves, 0 steps):

$$\operatorname{Int}\left[\frac{(a + b \operatorname{Sec}[e + f x])^{2/3}}{(c + d \operatorname{Sec}[e + f x])^{8/3}}, x\right]$$

Result (type 1, 1 leaves):

???

Problem 227: Attempted integration timed out after 120 seconds.

$$\int \frac{(a + b \operatorname{Sec}[e + f x])^{4/3}}{(c + d \operatorname{Sec}[e + f x])^{4/3}} \, dx$$

Optimal (type 8, 89 leaves, 1 step):

$$\frac{(d + c \operatorname{Cos}[e + f x])^{4/3} (a + b \operatorname{Sec}[e + f x])^{4/3} \operatorname{Int}\left[\frac{(b+a \operatorname{Cos}[e+f x])^{4/3}}{(d+c \operatorname{Cos}[e+f x])^{4/3}}, x\right]}{(b + a \operatorname{Cos}[e + f x])^{4/3} (c + d \operatorname{Sec}[e + f x])^{4/3}}$$

Result (type 1, 1 leaves):

???

Problem 228: Attempted integration timed out after 120 seconds.

$$\int \frac{(a + b \operatorname{Sec}[e + f x])^{4/3}}{(c + d \operatorname{Sec}[e + f x])^{7/3}} \, dx$$

Optimal (type 8, 32 leaves, 0 steps):

$$\text{Int}\left[\frac{(a+b\,\text{Sec}[e+f\,x])^{4/3}}{(c+d\,\text{Sec}[e+f\,x])^{7/3}},\,x\right]$$

Result (type 1, 1 leaves):

???

Problem 229: Attempted integration timed out after 120 seconds.

$$\int\frac{(a+b\,\text{Sec}[e+f\,x])^{4/3}}{(c+d\,\text{Sec}[e+f\,x])^{10/3}}\,dx$$

Optimal (type 8, 32 leaves, 0 steps):

$$\text{Int}\left[\frac{(a+b\,\text{Sec}[e+f\,x])^{4/3}}{(c+d\,\text{Sec}[e+f\,x])^{10/3}},\,x\right]$$

Result (type 1, 1 leaves):

???

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

$$\int\left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,(a+a\,\text{Sec}[e+f\,x])^m\,dx$$

Optimal (type 6, 106 leaves, 4 steps):

$$-\left(\left(\text{AppellF1}\left[n\,p,\,\frac{1}{2},\,\frac{1}{2}-m,\,1+n\,p,\,\text{Sec}[e+f\,x],\,-\text{Sec}[e+f\,x]\right]\,\left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,(1+\text{Sec}[e+f\,x])^{-\frac{1}{2}-m}\,(a+a\,\text{Sec}[e+f\,x])^m\,\text{Tan}[e+f\,x]\right)\Big/\left(f\,n\,p\,\sqrt{1-\text{Sec}[e+f\,x]}\right)\right)$$

Result (type 6, 2425 leaves):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 231: Unable to integrate problem.

$$\int \left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,(a+a\,\text{Sec}[e+f\,x])^3\,dx$$

Optimal (type 5, 275 leaves, 8 steps):

$$\left(a^3\,(7+4\,n\,p)\,\text{Hypergeometric2F1}\left[\frac{1}{2},-\frac{n\,p}{2},\frac{1}{2}\,(2-n\,p),\text{Cos}[e+f\,x]^2\right]\left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,\text{Sin}[e+f\,x]\right)\Big/\left(f\,n\,p\,(2+n\,p)\,\sqrt{\text{Sin}[e+f\,x]^2}\right)-\left(a^3\,(1+4\,n\,p)\,\text{Cos}[e+f\,x]\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1}{2}\,(1-n\,p),\frac{1}{2}\,(3-n\,p),\text{Cos}[e+f\,x]^2\right]\left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,\text{Sin}[e+f\,x]\right)\Big/\left(f\,(1-n^2\,p^2)\,\sqrt{\text{Sin}[e+f\,x]^2}\right)+\frac{a^3\,(5+2\,n\,p)\,\left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,\text{Tan}[e+f\,x]}{f\,(1+n\,p)\,(2+n\,p)}+\frac{\left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,(a^3+a^3\,\text{Sec}[e+f\,x])\,\text{Tan}[e+f\,x]}{f\,(2+n\,p)}$$

Result (type 8, 29 leaves):

$$\int \left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,(a+a\,\text{Sec}[e+f\,x])^3\,dx$$

Problem 232: Unable to integrate problem.

$$\int \left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,(a+a\,\text{Sec}[e+f\,x])^2\,dx$$

Optimal (type 5, 205 leaves, 7 steps):

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

Result (type 8, 29 leaves):

$$\int \left(c\,(d\,\text{Sec}[e+f\,x])^p\right)^n\,(a+a\,\text{Sec}[e+f\,x])^2\,dx$$

Problem 233: Result unnecessarily involves higher level functions and more

than twice size of optimal antiderivative.

$$\int \left(c\,\left(d\,\mathrm{Sec}[e+f\,x]\right)^{p}\right)^{n}\,\left(a+a\,\mathrm{Sec}[e+f\,x]\right)\,dx$$

Optimal (type 5, 156 leaves, 6 steps):

$$\left(a\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},-\frac{n\,p}{2},\frac{1}{2}\,(2-n\,p),\mathrm{Cos}[e+f\,x]^{2}\right]\,\left(c\,\left(d\,\mathrm{Sec}[e+f\,x]\right)^{p}\right)^{n}\,\mathrm{Sin}[e+f\,x]\right)\Big/\left(f\,n\,p\,\sqrt{\mathrm{Sin}[e+f\,x]^{2}}\right)-\left(a\,\mathrm{Cos}[e+f\,x]\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{1}{2}\,(1-n\,p),\frac{1}{2}\,(3-n\,p),\mathrm{Cos}[e+f\,x]^{2}\right]\,\left(c\,\left(d\,\mathrm{Sec}[e+f\,x]\right)^{p}\right)^{n}\,\mathrm{Sin}[e+f\,x]\right)\Big/\left(f\,(1-n\,p)\,\sqrt{\mathrm{Sin}[e+f\,x]^{2}}\right)$$

Result (type 6, 4295 leaves):

$$-\left(\left(a\,\mathrm{Sec}[e+f\,x]^{n\,p}\,\left(c\,\left(d\,\mathrm{Sec}[e+f\,x]\right)^{p}\right)^{n}\,(1+\mathrm{Sec}[e+f\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right.\right.$$

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

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

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

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

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

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

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

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

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

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

$$2\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg((-1+np)\Bigg(-\frac{3}{5}(2-np)\,\text{AppellF1}\left[\frac{5}{2},np,3-np,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{3}{5}np\,\text{AppellF1}\left[\frac{5}{2},1+np,2-np,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+$$

$$np\Bigg(-\frac{3}{5}(1-np)\,\text{AppellF1}\left[\frac{5}{2},1+np,2-np,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{3}{5}(1+np)\,\text{AppellF1}\left[\frac{5}{2},2+np,1-np,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 234: Unable to integrate problem.

$$\int \frac{\left(c\,\left(d\,\text{Sec}[e+f\,x]\right)^p\right)^n}{a+a\,\text{Sec}[e+f\,x]}\,dx$$

Optimal (type 5, 208 leaves, 7 steps):

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

Result (type 8, 29 leaves):

$$\int \frac{\left(c\,\left(d\,\text{Sec}[e+f\,x]\right)^p\right)^n}{a+a\,\text{Sec}[e+f\,x]}\,dx$$

Problem 235: Unable to integrate problem.

$$\int \frac{\left(c\,\left(d\,\text{Sec}[e+f\,x]\right)^p\right)^n}{\left(a+a\,\text{Sec}[e+f\,x]\right)^2}\,dx$$

Optimal (type 5, 248 leaves, 8 steps):

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

Result (type 8, 29 leaves):

$$\int \frac{\left(c\,\left(d\,\text{Sec}[e+f\,x]\right)^p\right)^n}{\left(a+a\,\text{Sec}[e+f\,x]\right)^2}\,dx$$

Problem 240: Result more than twice size of optimal antiderivative.

$$\int \frac{(c\,(d\,\mathrm{Sec}[e+f\,x])^p)^n}{a+b\,\mathrm{Sec}[e+f\,x]}\,dx$$

Optimal (type 6, 206 leaves, 7 steps):

$$-\frac{1}{(a^2-b^2)\,f} b\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{n\,p}{2},1,\frac{3}{2},\mathrm{Sin}[e+f\,x]^2,\frac{a^2\,\mathrm{Sin}[e+f\,x]^2}{a^2-b^2}\right] \left(\mathrm{Cos}[e+f\,x]^2\right)^{\frac{n\,p}{2}} \left(c\,(d\,\mathrm{Sec}[e+f\,x])^p\right)^n \mathrm{Sin}[e+f\,x]+\frac{1}{(a^2-b^2)\,f} a\,\mathrm{AppellF1}\left[\frac{1}{2},\frac{1}{2}(-1+n\,p),1,\frac{3}{2},\mathrm{Sin}[e+f\,x]^2,\frac{a^2\,\mathrm{Sin}[e+f\,x]^2}{a^2-b^2}\right]\mathrm{Cos}[e+f\,x] \left(\mathrm{Cos}[e+f\,x]^2\right)^{\frac{1}{2}(-1+n\,p)} \left(c\,(d\,\mathrm{Sec}[e+f\,x])^p\right)^n \mathrm{Sin}[e+f\,x]$$

Result (type 6, 5411 leaves):

$$\left(\left(c\,(d\,\mathrm{Sec}[e+f\,x])^p\right)^n \mathrm{Tan}[e+f\,x] \left(-b\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{1}{2}-\frac{n\,p}{2},\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2\right]+ a\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},1-\frac{n\,p}{2},\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2\right]+\left(3\,a\,b^2\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{2},-\frac{n\,p}{2},1,\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]\left(1+\mathrm{Tan}[e+f\,x]^2\right)^{\frac{n\,p}{2}}\right)\Big/ \left(\left(3\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{2},-\frac{n\,p}{2},1,\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]+ \left(2\,b^2\,\mathrm{AppellF1}\left[\frac{3}{2},-\frac{n\,p}{2},2,\frac{5}{2},-\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]+(a^2-b^2)\,n\,p\, \mathrm{AppellF1}\left[\frac{3}{2},1-\frac{n\,p}{2},1,\frac{5}{2},-\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right)\mathrm{Tan}[e+f\,x]^2\right) \left(a^2-b^2\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)\right)+\left(3\,b^3\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n\,p}{2},1,\frac{3}{2}, -\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]\left(1+\mathrm{Tan}[e+f\,x]^2\right)^{\frac{1}{2}(1+n\,p)}\right)\Big/ \left(\left(3\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n\,p}{2},1,\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]+ \left(2\,b^2\,\mathrm{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-\frac{n\,p}{2},2,\frac{5}{2},-\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]+ (a^2-b^2)\,(1+n\,p)\,\mathrm{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{n\,p}{2},1,\frac{5}{2},-\mathrm{Tan}[e+f\,x]^2,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right) \mathrm{Tan}[e+f\,x]^2\right)\left(-a^2+b^2\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)\right)\right)\right)\Big/\left(a^2\,f\,(a+b\,\mathrm{Sec}[e+f\,x])\right.$$

$$\left(\frac{1}{a^2}\mathrm{Sec}[e+f\,x]^2\left(-b\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\frac{1}{2}-\frac{n\,p}{2},\frac{3}{2},-\mathrm{Tan}[e+f\,x]^2\right]+\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left.\frac{3}{2},-\frac{n\,p}{2},2,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]$$

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

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

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

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

$$\text{Tan}[e+f\,x]^2\Bigg(2\,b^2\Bigg(\frac{1}{5\left(a^2-b^2\right)}12\,b^2\,\text{AppellF1}\left[\frac{5}{2},-\frac{1}{2}-\frac{n\,p}{2},3,\frac{7}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{6}{5}$$

$$\left(-\frac{1}{2}-\frac{n\,p}{2}\right)\text{AppellF1}\left[\frac{5}{2},\frac{1}{2}-\frac{n\,p}{2},2,\frac{7}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]$$

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

$$6\,b^2\,\text{AppellF1}\left[\frac{5}{2},\,\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]$$

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

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

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

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

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

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

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

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

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

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

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

$$\left.-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

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

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)+\text{Tan}[e+f\,x]^2\,\Bigg(2\,b^2\,\Bigg(\frac{1}{5\,\left(a^2-b^2\right)}12\,b^2\,\text{AppellF1}\left[\frac{5}{2},\right.$$

$$\left.-\frac{n\,p}{2},\,3,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$\frac{3}{5}\,n\,p\,\text{AppellF1}\left[\frac{5}{2},\,1-\frac{n\,p}{2},\,2,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]$$

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

$$6\,b^2\,\text{AppellF1}\left[\frac{5}{2},\,1-\frac{n\,p}{2},\,2,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]$$

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

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

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

Problem 241: Result more than twice size of optimal antiderivative.

$$\int\frac{\left(c\left(d\,\text{Sec}[e+f\,x]\right)^p\right)^n}{\left(a+b\,\text{Sec}[e+f\,x]\right)^2}\,dx$$

Optimal (type 6, 322 leaves, 10 steps):

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

Result (type 6, 10 678 leaves):

$$\left(\left(c\left(d\,\text{Sec}[e+f\,x]\right)^p\right)^n\left(-\frac{1}{a^3}2\,b\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1}{2}-\frac{n\,p}{2},\frac{3}{2},-\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]+\frac{1}{a^2}\text{Hypergeometric2F1}\left[\frac{1}{2},1-\frac{n\,p}{2},\frac{3}{2},-\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]-\left(6\,b^3\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n\,p}{2},2,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\text{Tan}[e+f\,x]\left(1+\text{Tan}[e+f\,x]^2\right)^{\frac{1}{2}(1+n\,p)}\right)\Big/\left(a\left(3\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n\,p}{2},2,\frac{3}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\left(4\,b^2\,\text{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-\frac{n\,p}{2},3,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)(1+n\,p)\,\text{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{n\,p}{2},2,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right)\right.\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\text{Tan}[e+f x]\ \left(1+\text{Tan}[e+f x]^2\right)^{\frac{n p}{2}}\Big)\Big/$$

$$\Big(a^2\Big(3\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{2},-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+$$

$$\Big(2 b^2\,\text{AppellF1}\Big[\frac{3}{2},-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right) n p$$

$$\text{AppellF1}\Big[\frac{3}{2},1-\frac{n p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]\Big)\ \text{Tan}[e+f x]^2\Big)$$

$$\left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)\Big)\Big)\Big)\Big)\Big/\ \Big(f\ \left(a+b\,\text{Sec}[e+f x]\right)^2$$

$$\Big(-\frac{1}{a^3}2\,b\,\text{Hypergeometric2F1}\Big[\frac{1}{2},\frac{1}{2}-\frac{n p}{2},\frac{3}{2},-\text{Tan}[e+f x]^2\Big]\ \text{Sec}[e+f x]^2+$$

$$\frac{1}{a^2}$$

$$\text{Hypergeometric2F1}\Big[\frac{1}{2},1-\frac{n p}{2},\frac{3}{2},-\text{Tan}[e+f x]^2\Big]\ \text{Sec}[e+f x]^2-$$

$$\left(24\,b^5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right.$$
$$\left.\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\,\left(1+\text{Tan}[e+f\,x]^2\right)^{\frac{1}{2}\,(1+n\,p)}\right)\Big/$$
$$\left(a\,\left(3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\right.\right.$$
$$\left(4\,b^2\,\text{AppellF1}\left[\frac{3}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,3,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\left(1+n\,p\right)\,\text{AppellF1}\left[\frac{3}{2},\,\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(a^2-b^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)^3\right)+$$
$$\left(24\,b^4\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{n\,p}{2},\,2,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right.$$
$$\left.\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\,\left(1+\text{Tan}[e+f\,x]^2\right)^{\frac{n\,p}{2}}\right)\Big/$$
$$\left(\left(\left(3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{n\,p}{2},\,2,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\right.\right.\right.$$
$$\left(4\,b^2\,\text{AppellF1}\left[\frac{3}{2},\,-\frac{n\,p}{2},\,3,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\,n\,p\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2},\,1-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right)\,\text{Tan}[e+f\,x]^2\right)$$
$$\left.\left(a^2-b^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)^3\right)-\left(6\,b^3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{3}{2},\right.\right.$$
$$\left.\left.-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\,\text{Sec}[e+f\,x]^2\,\left(1+\text{Tan}[e+f\,x]^2\right)^{\frac{1}{2}\,(1+n\,p)}\right)\Big/$$
$$\left(a\,\left(3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\right.\right.$$
$$\left(4\,b^2\,\text{AppellF1}\left[\frac{3}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,3,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\right.$$
$$\left.\left(a^2-b^2\right)\,\left(1+n\,p\right)\,\text{AppellF1}\left[\frac{3}{2},\,\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right)$$
$$\left.\left.\text{Tan}[e+f\,x]^2\right)\,\left(a^2-b^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)^2\right)-\left(6\,b^3\,\left(a^2-b^2\right)\,\text{Tan}[e+f\,x]\right.$$
$$\left(\frac{1}{3\,\left(a^2-b^2\right)}4\,b^2\,\text{AppellF1}\left[\frac{3}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,3,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right.$$
$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{2}{3}\,\left(-\frac{1}{2}-\frac{n\,p}{2}\right)\,\text{AppellF1}\left[\frac{3}{2},\,\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\right.$$
$$\left.\left.\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\,\left(1+\text{Tan}[e+f\,x]^2\right)^{\frac{1}{2}\,(1+n\,p)}\right)\Big/$$
$$\left(a\,\left(3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2},\,-\frac{1}{2}-\frac{n\,p}{2},\,2,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]+\right.\right.$$

$$\left(4 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right) (1+n p) \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\Big) \left(a^2-b^2 \left(1+\text{Tan}[e+f x]^2\right)\right)^2\Big) -$$

$$\Big(6 b^3 \left(a^2-b^2\right) (1+n p) \text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}-\frac{n p}{2}, 2, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]^2 \left(1+\text{Tan}[e+f x]^2\right)^{-1+\frac{1}{2}(1+n p)}\Big) \Big/$$

$$\Big(a \Big(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}-\frac{n p}{2}, 2, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(4 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right) (1+n p) \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\Big) \left(a^2-b^2 \left(1+\text{Tan}[e+f x]^2\right)\right)^2\Big) +$$

$$\Big(6 b^2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{n p}{2}, 2, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \left(1+\text{Tan}[e+f x]^2\right)^{\frac{n p}{2}}\Big) \Big/$$

$$\Big(\Big(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{n p}{2}, 2, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(4 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right) n p \, \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\Big) \left(a^2-b^2 \left(1+\text{Tan}[e+f x]^2\right)\right)^2\Big) + \Big(6 b^2 \left(a^2-b^2\right) \text{Tan}[e+f x]$$

$$\left(\frac{1}{3 \left(a^2-b^2\right)} 4 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] + \frac{1}{3} n p \, \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) \left(1+\text{Tan}[e+f x]^2\right)^{\frac{n p}{2}}\Big) \Big/$$

$$\Big(\Big(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{n p}{2}, 2, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(4 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right) n p \, \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right)$$

$$\text{Tan}[e+f x]^2\Big)\ \left(a^2-b^2\left(1+\text{Tan}[e+f x]^2\right)\right)^2\Big)+$$

$$\Big(6 b^2\left(a^2-b^2\right) n p\,\text{AppellF1}\Big[\frac{1}{2},-\frac{n p}{2},2,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^2\left(1+\text{Tan}[e+f x]^2\right)^{-1+\frac{n p}{2}}\Big)\Big/$$

$$\Big(\Big(3\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{2},-\frac{n p}{2},2,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+$$

$$\Big(4 b^2\,\text{AppellF1}\Big[\frac{3}{2},-\frac{n p}{2},3,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+$$

$$\left(a^2-b^2\right) n p\,\text{AppellF1}\Big[\frac{3}{2},1-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\ \left(a^2-b^2\left(1+\text{Tan}[e+f x]^2\right)\right)^2\Big)-$$

$$\Big(12 b^5\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{2},-\frac{1}{2}-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^2\left(1+\text{Tan}[e+f x]^2\right)^{\frac{1}{2}(1+n p)}\Big)\Big/$$

$$\Big(a^3\Big(3\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{2},-\frac{1}{2}-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+$$

$$\Big(2 b^2\,\text{AppellF1}\Big[\frac{3}{2},-\frac{1}{2}-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+$$

$$\left(a^2-b^2\right)\left(1+n p\right)\text{AppellF1}\Big[\frac{3}{2},\frac{1}{2}-\frac{n p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\ \left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)^2\Big)+$$

$$\Big(6 b^4\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{2},-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^2\left(1+\text{Tan}[e+f x]^2\right)^{\frac{n p}{2}}\Big)\Big/$$

$$\Big(a^2\Big(3\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{2},-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+$$

$$\Big(2 b^2\,\text{AppellF1}\Big[\frac{3}{2},-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]+$$

$$\left(a^2-b^2\right) n p\,\text{AppellF1}\Big[\frac{3}{2},1-\frac{n p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]\Big)$$

$$\text{Tan}[e+f x]^2\Big)\ \left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)^2\Big)+$$

$$\Big(6 b^3\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{1}{2},-\frac{1}{2}-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2\,\text{Tan}[e+f x]^2}{a^2-b^2}\Big]$$

$$\text{Sec}[e+f x]^2\left(1+\text{Tan}[e+f x]^2\right)^{\frac{1}{2}(1+n p)}\Big)\Big/$$

$$\left(a^3 \left(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]+\left(2 b^2 \text{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)(1+n p) \text{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{n p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\right)\left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(6 b^3 \left(a^2-b^2\right) \text{Tan}[e+f x] \left(\frac{1}{3\left(a^2-b^2\right)} 2 b^2 \text{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]-\frac{2}{3}\left(-\frac{1}{2}-\frac{n p}{2}\right) \text{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{n p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)\left(1+\text{Tan}[e+f x]^2\right)^{\frac{1}{2}(1+n p)}\right)\Big/$$

$$\left(a^3 \left(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]+\left(2 b^2 \text{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)(1+n p) \text{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{n p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\right)\left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)+$$

$$\left(6 b^3 \left(a^2-b^2\right)(1+n p) \text{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]^2 \left(1+\text{Tan}[e+f x]^2\right)^{-1+\frac{1}{2}(1+n p)}\right)\Big/$$

$$\left(a^3 \left(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2},-\frac{1}{2}-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]+\left(2 b^2 \text{AppellF1}\left[\frac{3}{2},-\frac{1}{2}-\frac{n p}{2},2,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)(1+n p) \text{AppellF1}\left[\frac{3}{2},\frac{1}{2}-\frac{n p}{2},1,\frac{5}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\right)\left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right)-$$

$$\left(3 b^2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2},-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \left(1+\text{Tan}[e+f x]^2\right)^{\frac{n p}{2}}\right)\Big/$$

$$\left(a^2 \left(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2},-\frac{n p}{2},1,\frac{3}{2},-\text{Tan}[e+f x]^2,\frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]+\right.\right.$$

$$\left(2 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right) n p\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\right)$$
$$\left.\left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right) - \left(3 b^2\left(a^2-b^2\right) \text{Tan}[e+f x]\right.$$
$$\left(\frac{1}{3\left(a^2-b^2\right)} 2 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2\right.$$
$$\text{Tan}[e+f x] + \frac{1}{3} n p \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]$$
$$\left.\left.\text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) \left(1+\text{Tan}[e+f x]^2\right)^{\frac{n p}{2}}\right) \Big/$$
$$\left(a^2\left(3\left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{n p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] +\right.\right.$$
$$\left(2 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] +\right.$$
$$\left.\left(a^2-b^2\right) n p \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right)$$
$$\left.\left.\text{Tan}[e+f x]^2\right) \left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right) -$$
$$\left(3 b^2\left(a^2-b^2\right) n p \text{AppellF1}\left[\frac{1}{2}, -\frac{n p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right.$$
$$\left.\text{Sec}[e+f x]^2 \text{Tan}[e+f x]^2 \left(1+\text{Tan}[e+f x]^2\right)^{-1+\frac{n p}{2}}\right) \Big/$$
$$\left(a^2\left(3\left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{n p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] +\right.\right.$$
$$\left(2 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] +\right.$$
$$\left.\left(a^2-b^2\right) n p \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right)$$
$$\left.\left.\text{Tan}[e+f x]^2\right) \left(-a^2+b^2\left(1+\text{Tan}[e+f x]^2\right)\right)\right) + \frac{1}{a^2} \text{Sec}[e+f x]^2$$
$$\left(-\text{Hypergeometric2F1}\left[\frac{1}{2}, 1-\frac{n p}{2}, \frac{3}{2}, -\text{Tan}[e+f x]^2\right] + \left(1+\text{Tan}[e+f x]^2\right)^{-1+\frac{n p}{2}}\right) - \frac{1}{a^3} 2$$
$$b \, \text{Sec}[e+f x]^2$$
$$\left(-\text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{1}{2}-\frac{n p}{2}, \frac{3}{2}, -\text{Tan}[e+f x]^2\right] + \left(1+\text{Tan}[e+f x]^2\right)^{-\frac{1}{2}+\frac{n p}{2}}\right) -$$
$$\left(6 b^3\left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}-\frac{n p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right.$$
$$\text{Tan}[e+f x] \left(1+\text{Tan}[e+f x]^2\right)^{\frac{1}{2}(1+n p)}$$
$$\left(2\left(2 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right)\left(1+n\right.\right.\right.$$

$$p)\ \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{n\,p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\Bigg)\ \text{Sec}[e+f\,x]^2$$

$$\text{Tan}[e+f\,x] + 3\,\left(a^2-b^2\right)\,\left(\frac{1}{3\,\left(a^2-b^2\right)}2\,b^2\,\text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n\,p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x] - \frac{2}{3}\left(-\frac{1}{2}-\frac{n\,p}{2}\right)\ \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\right.$$

$$\left.\left.\frac{n\,p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x]\right) +$$

$$\text{Tan}[e+f\,x]^2\,\left(2\,b^2\,\left(\frac{1}{5\,\left(a^2-b^2\right)}12\,b^2\,\text{AppellF1}\left[\frac{5}{2}, -\frac{1}{2}-\frac{n\,p}{2}, 3, \frac{7}{2}, -\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x] - \frac{6}{5}\left(-\frac{1}{2}-\frac{n\,p}{2}\right)\ \text{AppellF1}\left[\frac{5}{2},\right.$$

$$\left.\left.\frac{1}{2}-\frac{n\,p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x]\right) +$$

$$\left(a^2-b^2\right)\,(1+n\,p)\,\left(\frac{1}{5\,\left(a^2-b^2\right)}6\,b^2\,\text{AppellF1}\left[\frac{5}{2}, \frac{1}{2}-\frac{n\,p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x] - \frac{6}{5}\left(\frac{1}{2}-\frac{n\,p}{2}\right)\ \text{AppellF1}\left[\frac{5}{2}, \frac{3}{2}-\right.$$

$$\left.\left.\left.\left.\left.\frac{n\,p}{2}, 1, \frac{7}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x]\right)\right)\right)\right)\Bigg/$$

$$\left(a^3\,\left(3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}-\frac{n\,p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right] +\right.\right.$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n\,p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right)\right.$$

$$\left.(1+n\,p)\ \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{n\,p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right)$$

$$\left.\left.\text{Tan}[e+f\,x]^2\right)^2\,\left(-a^2+b^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right) +$$

$$\left(6\,b^3\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}-\frac{n\,p}{2}, 2, \frac{3}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\right.$$

$$\text{Tan}[e+f\,x]\,\left(1+\text{Tan}[e+f\,x]^2\right)^{\frac{1}{2}\,(1+n\,p)}$$

$$\left(2\,\left(4\,b^2\,\text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n\,p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right)\,(1+n\right.\right.$$

$$p)\ \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{n\,p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\Bigg)\ \text{Sec}[e+f\,x]^2$$

$$\text{Tan}[e+f\,x] + 3\,\left(a^2-b^2\right)\,\left(\frac{1}{3\,\left(a^2-b^2\right)}4\,b^2\,\text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n\,p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f\,x]^2,\right.\right.$$

$$\left.\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x] - \frac{2}{3}\left(-\frac{1}{2}-\frac{n\,p}{2}\right)\ \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\right.$$

$$\left.\left.\frac{n\,p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f\,x]^2, \frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\ \text{Sec}[e+f\,x]^2\ \text{Tan}[e+f\,x]\right) +$$

$$\text{Tan}[e+f x]^2 \left(4 b^2 \left(\frac{1}{5 \left(a^2-b^2\right)} 18 b^2 \text{AppellF1}\left[\frac{5}{2}, -\frac{1}{2}-\frac{n p}{2}, 4, \frac{7}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{6}{5} \left(-\frac{1}{2}-\frac{n p}{2}\right) \text{AppellF1}\left[\frac{5}{2}, \frac{1}{2}-\frac{n p}{2}, 3, \frac{7}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) + \left(a^2-b^2\right) (1+n p) \left(\frac{1}{5 \left(a^2-b^2\right)} 12 b^2 \text{AppellF1}\left[\frac{5}{2}, \frac{1}{2}-\frac{n p}{2}, 3, \frac{7}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] - \frac{6}{5} \left(\frac{1}{2}-\frac{n p}{2}\right) \text{AppellF1}\left[\frac{5}{2}, \frac{3}{2}-\frac{n p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)\right)\Bigg)\Bigg)\Bigg) \Bigg/$$

$$\Bigg(a \Bigg(3 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{1}{2}-\frac{n p}{2}, 2, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(4 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{1}{2}-\frac{n p}{2}, 3, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right) (1+n p) \text{AppellF1}\left[\frac{3}{2}, \frac{1}{2}-\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Tan}[e+f x]^2\Bigg)^2 \left(a^2-b^2 \left(1+\text{Tan}[e+f x]^2\right)\right)^2\Bigg) +$$

$$\Bigg(3 b^2 \left(a^2-b^2\right) \text{AppellF1}\left[\frac{1}{2}, -\frac{n p}{2}, 1, \frac{3}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Tan}[e+f x] \left(1+\text{Tan}[e+f x]^2\right)^{\frac{n p}{2}}$$

$$\Bigg(2 \left(2 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] + \left(a^2-b^2\right) n p \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right]\right) \text{Sec}[e+f x]^2 \text{Tan}[e+f x] + 3 \left(a^2-b^2\right) \left(\frac{1}{3 \left(a^2-b^2\right)} 2 b^2 \text{AppellF1}\left[\frac{3}{2}, -\frac{n p}{2}, 2, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] + \frac{1}{3} n p \text{AppellF1}\left[\frac{3}{2}, 1-\frac{n p}{2}, 1, \frac{5}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) +$$

$$\text{Tan}[e+f x]^2 \Bigg(2 b^2 \left(\frac{1}{5 \left(a^2-b^2\right)} 12 b^2 \text{AppellF1}\left[\frac{5}{2}, -\frac{n p}{2}, 3, \frac{7}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x] + \frac{3}{5} n p \text{AppellF1}\left[\frac{5}{2}, 1-\frac{n p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f x]^2, \frac{b^2 \text{Tan}[e+f x]^2}{a^2-b^2}\right] \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right) +$$

$$\left(a^2-b^2\right) n p \left(\frac{1}{5 \left(a^2-b^2\right)} 6 b^2 \text{AppellF1}\left[\frac{5}{2}, 1-\frac{n p}{2}, 2, \frac{7}{2}, -\text{Tan}[e+f x]^2,\right.\right.$$

$$\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{6}{5}\left(1-\frac{n\,p}{2}\right)\,\text{AppellF1}\Big[\frac{5}{2},\,2-\frac{n\,p}{2},$$

$$1,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(a^2\,\Big(3\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{2},\,-\frac{n\,p}{2},\,1,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]+$$

$$\Big(2\,b^2\,\text{AppellF1}\Big[\frac{3}{2},\,-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\,n\,p$$

$$\text{AppellF1}\Big[\frac{3}{2},\,1-\frac{n\,p}{2},\,1,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)^2$$

$$\left(-a^2+b^2\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big)-\Big(6\,b^2\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{2},\,-\frac{n\,p}{2},\,2,\,\frac{3}{2},$$

$$-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Tan}[e+f\,x]\,\left(1+\text{Tan}[e+f\,x]^2\right)^{\frac{n\,p}{2}}$$

$$\Big(2\,\Big(4\,b^2\,\text{AppellF1}\Big[\frac{3}{2},\,-\frac{n\,p}{2},\,3,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]+$$

$$\left(a^2-b^2\right)\,n\,p\,\text{AppellF1}\Big[\frac{3}{2},\,1-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\Big)$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+3\,\left(a^2-b^2\right)\,\Big(\frac{1}{3\,\left(a^2-b^2\right)}4\,b^2\,\text{AppellF1}\Big[\frac{3}{2},\,-\frac{n\,p}{2},\,3,$$

$$\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+\frac{1}{3}\,n\,p\,\text{AppellF1}\Big[$$

$$\frac{3}{2},\,1-\frac{n\,p}{2},\,2,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)+$$

$$\text{Tan}[e+f\,x]^2\,\Big(4\,b^2\,\Big(\frac{1}{5\,\left(a^2-b^2\right)}18\,b^2\,\text{AppellF1}\Big[\frac{5}{2},\,-\frac{n\,p}{2},\,4,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,$$

$$\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+\frac{3}{5}\,n\,p\,\text{AppellF1}\Big[\frac{5}{2},\,1-\frac{n\,p}{2},$$

$$3,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)+$$

$$\left(a^2-b^2\right)\,n\,p\,\Big(\frac{1}{5\,\left(a^2-b^2\right)}12\,b^2\,\text{AppellF1}\Big[\frac{5}{2},\,1-\frac{n\,p}{2},\,3,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,$$

$$\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{6}{5}\left(1-\frac{n\,p}{2}\right)\,\text{AppellF1}\Big[\frac{5}{2},\,2-\frac{n\,p}{2},$$

$$2,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\Big(3\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{2},\,-\frac{n\,p}{2},\,2,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]+$$

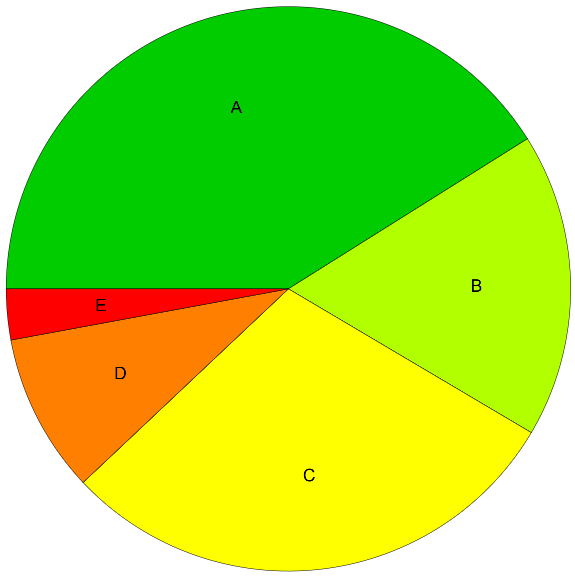
$$\Big(4\,b^2\,\text{AppellF1}\Big[\frac{3}{2},\,-\frac{n\,p}{2},\,3,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)$$

$$n\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{n\,p}{2},2,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2-b^2}\right]\Bigg)$$

$$\text{Tan}[e+f\,x]^2\Bigg)^2\left(a^2-b^2\left(1+\text{Tan}[e+f\,x]^2\right)\right)^2\Bigg)\Bigg)\Bigg)$$

Summary of Integration Test Results

241 integration problems



A - 99 optimal antiderivatives

B - 42 more than twice size of optimal antiderivatives

C - 71 unnecessarily complex antiderivatives

D - 22 unable to integrate problems

E - 7 integration timeouts