Mathematica 11.3 Integration Test Results

Test results for the 306 problems in "4.5.1.3 (d sin)^n (a+b sec)^m.m"

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

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

Optimal (type 3, 30 leaves, 6 steps):

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

Result (type 3, 65 leaves):

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

Problem 14: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 37 leaves, 7 steps):

$$\frac{a \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{a \text{Cot}[c+d x]}{d}-\frac{a \text{Csc}[c+d x]}{d}$$

Result (type 3, 106 leaves):

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

Problem 15: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 69 leaves, 8 steps):

$$\frac{a \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{a \text{Cot}[c+d x]}{d}-\frac{a \text{Cot}[c+d x]^3}{3 d}-\frac{a \text{Csc}[c+d x]}{d}-\frac{a \text{Csc}[c+d x]^3}{3 d}$$

Result (type 3, 190 leaves):

$$-\frac{7\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,d}-\frac{2\,a\,\text{Cot}[c+d\,x]}{3\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,d}-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}+\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}-\frac{7\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,d}$$

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

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

Optimal (type 3, 101 leaves, 8 steps):

$$\frac{a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{a\,\text{Cot}[c+d\,x]}{d}-\frac{2\,a\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{a\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Csc}[c+d\,x]}{d}-\frac{a\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{a\,\text{Csc}[c+d\,x]^5}{5\,d}$$

Result (type 3, 272 leaves):

$$-\frac{149\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{240\,d}-\frac{8\,a\,\text{Cot}[c+d\,x]}{15\,d}-\frac{29\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{480\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{160\,d}-\frac{4\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{15\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{5\,d}-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}+\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}-\frac{149\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{240\,d}-\frac{29\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{480\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{160\,d}$$

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

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

Optimal (type 3, 131 leaves, 8 steps):

$$\frac{a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{a\,\text{Cot}[c+d\,x]}{d}-\frac{a\,\text{Cot}[c+d\,x]^3}{d}-\frac{3\,a\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{a\,\text{Csc}[c+d\,x]}{d}-\frac{a\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{a\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{a\,\text{Csc}[c+d\,x]^7}{7\,d}$$

Result (type 3, 354 leaves):

$$-\frac{2161\, a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{3360\, d}-\frac{16\, a\, \text{Cot}[c+d x]}{35\, d}-\frac{481\, a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{6720\, d}-\frac{3\, a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{280\, d}-\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^6}{896\, d}-\frac{8\, a\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^2}{35\, d}-\frac{6\, a\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^4}{35\, d}-\frac{a\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^6}{7\, d}-\frac{a\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}+\frac{a\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}-\frac{2161\, a\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{3360\, d}-\frac{481\, a\, \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{6720\, d}-\frac{3\, a\, \text{Sec}\left[\frac{1}{2}(c+d x)\right]^4 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{280\, d}-\frac{a\, \text{Sec}\left[\frac{1}{2}(c+d x)\right]^6 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{896\, d}$$

Problem 18: Result more than twice size of optimal antiderivative.

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

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

$$\frac{a\, \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{a\, \text{Cot}[c+d x]}{d}-\frac{4\, a\, \text{Cot}[c+d x]^3}{3\, d}-\frac{6\, a\, \text{Cot}[c+d x]^5}{5\, d}-\frac{4\, a\, \text{Cot}[c+d x]^7}{7\, d}-\frac{a\, \text{Cot}[c+d x]^9}{9\, d}-\frac{a\, \text{Csc}[c+d x]}{d}-\frac{a\, \text{Csc}[c+d x]^3}{3\, d}-\frac{a\, \text{Csc}[c+d x]^5}{5\, d}-\frac{a\, \text{Csc}[c+d x]^7}{7\, d}-\frac{a\, \text{Csc}[c+d x]^9}{9\, d}$$

Result (type 3, 436 leaves):

$$-\frac{53089\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{80640\,d}-\frac{128\,a\,\text{Cot}[c+d\,x]}{315\,d}-\frac{12769\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{161280\,d}-\frac{751\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{53760\,d}-\frac{71\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^6}{32256\,d}-\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^8}{4608\,d}-\frac{64\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{315\,d}-\frac{16\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4}{105\,d}-\frac{8\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^6}{63\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^8}{9\,d}-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}+\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}-\frac{53089\,a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{80640\,d}-\frac{12769\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{161280\,d}-\frac{751\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{53760\,d}-\frac{71\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^6\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{32256\,d}-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^8\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{4608\,d}$$

Problem 26: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 115 leaves, 5 steps):

$$-\frac{a^4}{4\,d\,(a-a\,\text{Cos}[c+d\,x])^2}-\frac{5\,a^3}{4\,d\,(a-a\,\text{Cos}[c+d\,x])}+\frac{17\,a^2\,\text{Log}[1-\text{Cos}[c+d\,x]]}{8\,d}-\frac{2\,a^2\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{a^2\,\text{Log}[1+\text{Cos}[c+d\,x]]}{8\,d}+\frac{a^2\,\text{Sec}[c+d\,x]}{d}$$

Result (type 3, 598 leaves):

$$-\frac{5\,\text{Cos}[c+d\,x]^2\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2}{32\,d}-\frac{\text{Cos}[c+d\,x]^2\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2}{64\,d}-\frac{\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2}{16\,d}-\frac{\text{Cos}[c+d\,x]^2\,\text{Log}[\text{Cos}[c+d\,x]]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2}{2\,d}+\frac{17\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2}{16\,d}+\frac{\text{Cos}[c+d\,x]^2\,\text{Sec}[c]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2}{4\,d}+\frac{\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{4\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}-\frac{\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{4\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+x\,\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\left(-\frac{17}{32}\text{Cot}\left[\frac{c}{2}\right]+\frac{1}{32}(8+9\,\text{Cos}[c])\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}\right]\,\text{Sec}[c]-\frac{1}{32}\text{Tan}\left[\frac{c}{2}\right]-\frac{\text{Tan}[c]}{2}\right)$$

Problem 27: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 160 leaves, 5 steps):

$$-\frac{a^5}{12\,d\,(a-a\,\text{Cos}[c+d\,x])^3}-\frac{3\,a^4}{8\,d\,(a-a\,\text{Cos}[c+d\,x])^2}-\frac{23\,a^3}{16\,d\,(a-a\,\text{Cos}[c+d\,x])}+\frac{a^3}{16\,d\,(a+a\,\text{Cos}[c+d\,x])}+\frac{9\,a^2\,\text{Log}[1-\text{Cos}[c+d\,x]]}{4\,d}-\frac{2\,a^2\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{a^2\,\text{Log}[1+\text{Cos}[c+d\,x]]}{4\,d}+\frac{a^2\,\text{Sec}[c+d\,x]}{d}$$

Result (type 3, 697 leaves):

$$-\frac{23\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\,\mathrm{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\mathrm{Sec}[c+d\,x])^2}{128\,d}-$$

$$\frac{3\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,\mathrm{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\mathrm{Sec}[c+d\,x])^2}{128\,d}-$$

$$\frac{\mathrm{Cos}[c+d\,x]^2\,\mathrm{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,\mathrm{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\mathrm{Sec}[c+d\,x])^2}{384\,d}-$$

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

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

$$\frac{9\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\mathrm{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\mathrm{Sec}[c+d\,x])^2}{8\,d}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sec}[c]\,\mathrm{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\mathrm{Sec}[c+d\,x])^2}{4\,d}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\mathrm{Sec}[c+d\,x])^2}{128\,d}+$$

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

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

$$x\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\mathrm{Sec}[c+d\,x])^2$$
$$\left(-\frac{9}{16}\,\mathrm{Cot}\left[\frac{c}{2}\right]+\frac{1}{16}\,(4+5\,\mathrm{Cos}[c])\,\mathrm{Csc}\left[\frac{c}{2}\right]\,\mathrm{Sec}\left[\frac{c}{2}\right]\,\mathrm{Sec}[c]-\frac{1}{16}\,\mathrm{Tan}\left[\frac{c}{2}\right]-\frac{\mathrm{Tan}[c]}{2}\right)$$

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

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

Optimal (type 3, 73 leaves, 9 steps):

$$-\frac{a^2\,x}{2}+\frac{2\,a^2\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{2\,a^2\,\mathrm{Sin}[c+d\,x]}{d}-\frac{a^2\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{2\,d}+\frac{a^2\,\mathrm{Tan}[c+d\,x]}{d}$$

Result (type 3, 243 leaves):

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

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

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

Optimal (type 3, 57 leaves, 11 steps):

$$\frac{2 a^2 \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{2 a^2 \text{Cot}[c+d x]}{d}-\frac{2 a^2 \text{Csc}[c+d x]}{d}+\frac{a^2 \text{Tan}[c+d x]}{d}$$

Result (type 3, 401 leaves):

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

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

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

Optimal (type 3, 87 leaves, 8 steps):

$$\frac{2 a^2 \text{ArcTanh}[\text{Sin}[c+d x]]}{d}+\frac{10 a^2 \text{Tan}[c+d x]}{3 d}-\frac{2 a^2 \text{Tan}[c+d x]}{d \left(1-\text{Cos}[c+d x]\right)}-\frac{a^4 \text{Tan}[c+d x]}{3 d \left(a-a \text{Cos}[c+d x]\right)^2}$$

Result (type 3, 228 leaves):

$$\frac{1}{24\,d}a^2\left(1+\text{Cos}[c+d\,x]\right)^2\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4$$
$$\left(-\text{Cot}\left[\frac{c}{2}\right]\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2-\left(-8+7\,\text{Cos}[c+d\,x]\right)\text{Csc}\left[\frac{c}{2}\right]\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^3\text{Sin}\left[\frac{d\,x}{2}\right]+\right.$$
$$6\left(-2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+\right.$$
$$\text{Sin}[d\,x]\Big/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$
$$\left.\left.\left.\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\right)\right)\right)$$

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

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

Optimal (type 3, 129 leaves, 12 steps):

$$\frac{2\,a^2\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{4\,a^2\,\text{Cot}[c+d\,x]}{d}-\frac{5\,a^2\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{2\,a^2\,\text{Cot}[c+d\,x]^5}{5\,d}-$$
$$\frac{2\,a^2\,\text{Csc}[c+d\,x]}{d}-\frac{2\,a^2\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{2\,a^2\,\text{Csc}[c+d\,x]^5}{5\,d}+\frac{a^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 317 leaves):

$$\frac{1}{7680\,d}a^2\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4\left(1+\text{Sec}[c+d\,x]\right)^2$$
$$\left(-3840\,\text{Cos}[c+d\,x]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+\right.$$
$$3840\,\text{Cos}[c+d\,x]\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+\text{Csc}[2\,c]\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^4$$
$$\text{Csc}[c+d\,x]\left(320\,\text{Sin}[2\,c]-596\,\text{Sin}[d\,x]+864\,\text{Sin}[2\,d\,x]+216\,\text{Sin}[c-d\,x]-\right.$$
$$416\,\text{Sin}[c+d\,x]+624\,\text{Sin}\left[2\left(c+d\,x\right)\right]-416\,\text{Sin}\left[3\left(c+d\,x\right)\right]+104\,\text{Sin}\left[4\left(c+d\,x\right)\right]-$$
$$596\,\text{Sin}[2\,c+d\,x]-680\,\text{Sin}[3\,c+d\,x]+894\,\text{Sin}[c+2\,d\,x]+224\,\text{Sin}\left[2\left(c+2\,d\,x\right)\right]+$$
$$894\,\text{Sin}[3\,c+2\,d\,x]+480\,\text{Sin}[4\,c+2\,d\,x]-776\,\text{Sin}[c+3\,d\,x]-596\,\text{Sin}[2\,c+3\,d\,x]-$$
$$\left.\left.596\,\text{Sin}[4\,c+3\,d\,x]-120\,\text{Sin}[5\,c+3\,d\,x]+149\,\text{Sin}[3\,c+4\,d\,x]+149\,\text{Sin}[5\,c+4\,d\,x]\right)\right)$$

Problem 36: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^8\left(a+a\,\text{Sec}[c+d\,x]\right)^2 dx$$

Optimal (type 3, 163 leaves, 12 steps):

$$\frac{2 a^2 \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{5 a^2 \text{Cot}[c+d x]}{d}-\frac{3 a^2 \text{Cot}[c+d x]^3}{d}-\frac{7 a^2 \text{Cot}[c+d x]^5}{5 d}-\frac{2 a^2 \text{Cot}[c+d x]^7}{7 d}-\frac{2 a^2 \text{Csc}[c+d x]}{d}-\frac{2 a^2 \text{Csc}[c+d x]^3}{3 d}-\frac{2 a^2 \text{Csc}[c+d x]^5}{5 d}-\frac{2 a^2 \text{Csc}[c+d x]^7}{7 d}+\frac{a^2 \text{Tan}[c+d x]}{d}$$

Result (type 3, 428 leaves):

$$\frac{1}{13\,762\,560\, d} a^2 \text{Cos}[c+d x]\, \text{Sec}\left[\frac{1}{2}(c+d x)\right]^4 (1+\text{Sec}[c+d x])^2 \Big(-6\,881\,280\, \text{Cos}[c+d x]\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+ 6\,881\,280\, \text{Cos}[c+d x]\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]- 32\, \text{Csc}[2 c]\, \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4 \text{Csc}[c+d x]^3 \big(-9856\, \text{Sin}[2 c]+17\,288\, \text{Sin}[d x]- 29\,056\, \text{Sin}[2 d x]-7264\, \text{Sin}[c-d x]+14\,208\, \text{Sin}[c+d x]-19\,536\, \text{Sin}[2 (c+d x)]+ 7104\, \text{Sin}[3 (c+d x)]+7104\, \text{Sin}[4 (c+d x)]-7104\, \text{Sin}[5 (c+d x)]+1776\, \text{Sin}[6 (c+d x)]+ 17\,288\, \text{Sin}[2 c+d x]+20\,384\, \text{Sin}[3 c+d x]-23\,771\, \text{Sin}[c+2 d x]+7104\, \text{Sin}[2 (c+2 d x)]- 23\,771\, \text{Sin}[3 c+2 d x]-8960\, \text{Sin}[4 c+2 d x]+19\,984\, \text{Sin}[c+3 d x]+8644\, \text{Sin}[2 c+3 d x]+ 8644\, \text{Sin}[4 c+3 d x]-6160\, \text{Sin}[5 c+3 d x]+8644\, \text{Sin}[3 c+4 d x]+8644\, \text{Sin}[5 c+4 d x]+ 6720\, \text{Sin}[6 c+4 d x]-12\,144\, \text{Sin}[3 c+5 d x]-8644\, \text{Sin}[4 c+5 d x]-8644\, \text{Sin}[6 c+5 d x]- 1680\, \text{Sin}[7 c+5 d x]+3456\, \text{Sin}[4 c+6 d x]+2161\, \text{Sin}[5 c+6 d x]+2161\, \text{Sin}[7 c+6 d x]\big)\Big)$$

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

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

Optimal (type 3, 201 leaves, 12 steps):

$$\frac{2 a^2 \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{6 a^2 \text{Cot}[c+d x]}{d}-\frac{14 a^2 \text{Cot}[c+d x]^3}{3 d}-\frac{16 a^2 \text{Cot}[c+d x]^5}{5 d}-\frac{9 a^2 \text{Cot}[c+d x]^7}{7 d}-\frac{2 a^2 \text{Cot}[c+d x]^9}{9 d}-\frac{2 a^2 \text{Csc}[c+d x]}{d}-\frac{2 a^2 \text{Csc}[c+d x]^3}{3 d}-\frac{2 a^2 \text{Csc}[c+d x]^5}{5 d}-\frac{2 a^2 \text{Csc}[c+d x]^7}{7 d}-\frac{2 a^2 \text{Csc}[c+d x]^9}{9 d}+\frac{a^2 \text{Tan}[c+d x]}{d}$$

Result (type 3, 1050 leaves):

$$-\frac{1}{80640\,d}6899\,\text{Cos}[c+d\,x]^2\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2-$$
$$\frac{1}{13440\,d}193\,\text{Cos}[c+d\,x]^2\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2-$$
$$\frac{1}{32256\,d}71\,\text{Cos}[c+d\,x]^2\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2-$$
$$\frac{\text{Cos}[c+d\,x]^2\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^8\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2}{4608\,d}-\frac{1}{2\,d}$$
$$\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2+\frac{1}{2\,d}$$
$$\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2+\frac{1}{161280\,d}$$
$$123041\,\text{Cos}[c+d\,x]^2\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{80640\,d}6899\,\text{Cos}[c+d\,x]^2\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^3\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{13440\,d}193\,\text{Cos}[c+d\,x]^2\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^5\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{32256\,d}71\,\text{Cos}[c+d\,x]^2\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^7\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{4608\,d}\text{Cos}[c+d\,x]^2\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^9\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{803\,\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^5\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{7680\,d}+$$
$$\frac{49\,\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^7\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{7680\,d}+$$
$$\frac{\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^9\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}\left[\frac{d\,x}{2}\right]}{2560\,d}+$$
$$\frac{\text{Cos}[c+d\,x]\,\text{Sec}[c]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Sin}[d\,x]}{4\,d}+$$
$$\frac{49\,\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Tan}\left[\frac{c}{2}\right]}{7680\,d}+$$
$$\frac{\text{Cos}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^8\,(a+a\,\text{Sec}[c+d\,x])^2\,\text{Tan}\left[\frac{c}{2}\right]}{2560\,d}$$

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

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

Optimal (type 3, 157 leaves, 5 steps):

$$-\frac{a^6}{6 d (a - a \cos[c + d x])^3} - \frac{7 a^5}{8 d (a - a \cos[c + d x])^2} - \frac{31 a^4}{8 d (a - a \cos[c + d x])} + \frac{111 a^3 \text{Log}[1 - \cos[c + d x]]}{16 d} - \frac{7 a^3 \text{Log}[\cos[c + d x]]}{d} + \frac{a^3 \text{Log}[1 + \cos[c + d x]]}{16 d} + \frac{3 a^3 \sec[c + d x]}{d} + \frac{a^3 \sec[c + d x]^2}{2 d}$$

Result (type 3, 799 leaves):

$$-\frac{31 \cos[c + d x]^3 \csc[\frac{c}{2} + \frac{d x}{2}]^2 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{128 d} - \frac{7 \cos[c + d x]^3 \csc[\frac{c}{2} + \frac{d x}{2}]^4 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{256 d} - \frac{\cos[c + d x]^3 \csc[\frac{c}{2} + \frac{d x}{2}]^6 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{384 d} + \frac{\cos[c + d x]^3 \text{Log}[\cos[\frac{c}{2} + \frac{d x}{2}]] \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{64 d} - \frac{7 \cos[c + d x]^3 \text{Log}[\cos[c + d x]] \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{8 d} + \frac{1}{64 d} 111 \cos[c + d x]^3 \text{Log}[\sin[\frac{c}{2} + \frac{d x}{2}]] \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3 + \frac{3 \cos[c + d x]^3 \sec[c] \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{8 d} + \frac{\cos[c + d x]^3 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{32 d (\cos[\frac{c}{2} + \frac{d x}{2}] - \sin[\frac{c}{2} + \frac{d x}{2}])^2} + \frac{3 \cos[c + d x]^3 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3 \sin[\frac{d x}{2}]}{8 d (\cos[\frac{c}{2}] - \sin[\frac{c}{2}]) (\cos[\frac{c}{2} + \frac{d x}{2}] - \sin[\frac{c}{2} + \frac{d x}{2}])} + \frac{\cos[c + d x]^3 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3}{32 d (\cos[\frac{c}{2} + \frac{d x}{2}] + \sin[\frac{c}{2} + \frac{d x}{2}])^2} - \frac{3 \cos[c + d x]^3 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3 \sin[\frac{d x}{2}]}{8 d (\cos[\frac{c}{2}] + \sin[\frac{c}{2}]) (\cos[\frac{c}{2} + \frac{d x}{2}] + \sin[\frac{c}{2} + \frac{d x}{2}])} + x \cos[c + d x]^3 \sec[\frac{c}{2} + \frac{d x}{2}]^6 (a + a \sec[c + d x])^3 \left(-\frac{111}{128} \cot[\frac{c}{2}] + \frac{1}{128} (56 + 55 \cos[c]) \csc[\frac{c}{2}] \sec[\frac{c}{2}] \sec[c] + \frac{1}{128} \tan[\frac{c}{2}] - \frac{7 \tan[c]}{8}\right)$$

Problem 51: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 98 leaves, 11 steps):

$$-\frac{5 a^3 x}{2} + \frac{5 a^3 \operatorname{ArcTanh}[\operatorname{Sin}[c + d x]]}{2 d} - \frac{3 a^3 \operatorname{Sin}[c + d x]}{d} - \frac{a^3 \operatorname{Cos}[c + d x] \operatorname{Sin}[c + d x]}{2 d} + \frac{3 a^3 \operatorname{Tan}[c + d x]}{d} + \frac{a^3 \operatorname{Sec}[c + d x] \operatorname{Tan}[c + d x]}{2 d}$$

Result (type 3, 300 leaves):

$$\frac{1}{32} a^3 (1 + \operatorname{Cos}[c + d x])^3 \operatorname{Sec}\left[\frac{1}{2} (c + d x)\right]^6 \left(-10 x - \frac{10 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c + d x)\right] - \operatorname{Sin}\left[\frac{1}{2} (c + d x)\right]\right]}{d} + \frac{10 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2} (c + d x)\right]\right]}{d} - \frac{12 \operatorname{Cos}[d x] \operatorname{Sin}[c]}{d} - \frac{\operatorname{Cos}[2 d x] \operatorname{Sin}[2 c]}{d} - \frac{12 \operatorname{Cos}[c] \operatorname{Sin}[d x]}{d} - \frac{\operatorname{Cos}[2 c] \operatorname{Sin}[2 d x]}{d} + \frac{1}{d \left(\operatorname{Cos}\left[\frac{1}{2} (c + d x)\right] - \operatorname{Sin}\left[\frac{1}{2} (c + d x)\right]\right)^2} + \frac{12 \operatorname{Sin}\left[\frac{d x}{2}\right]}{d \left(\operatorname{Cos}\left[\frac{c}{2}\right] - \operatorname{Sin}\left[\frac{c}{2}\right]\right) \left(\operatorname{Cos}\left[\frac{1}{2} (c + d x)\right] - \operatorname{Sin}\left[\frac{1}{2} (c + d x)\right]\right)} - \frac{1}{d \left(\operatorname{Cos}\left[\frac{1}{2} (c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2} (c + d x)\right]\right)^2} + \frac{12 \operatorname{Sin}\left[\frac{d x}{2}\right]}{d \left(\operatorname{Cos}\left[\frac{c}{2}\right] + \operatorname{Sin}\left[\frac{c}{2}\right]\right) \left(\operatorname{Cos}\left[\frac{1}{2} (c + d x)\right] + \operatorname{Sin}\left[\frac{1}{2} (c + d x)\right]\right)}\right)$$

Problem 52: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 80 leaves, 9 steps):

$$\frac{9 a^3 \operatorname{ArcTanh}[\operatorname{Sin}[c + d x]]}{2 d} - \frac{4 a^3 \operatorname{Sin}[c + d x]}{d (1 - \operatorname{Cos}[c + d x])} + \frac{3 a^3 \operatorname{Tan}[c + d x]}{d} + \frac{a^3 \operatorname{Sec}[c + d x] \operatorname{Tan}[c + d x]}{2 d}$$

Result (type 3, 244 leaves):

$$\frac{1}{32\,d}a^3\left(1+\text{Cos}[c+d\,x]\right)^3\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^6$$
$$\left(-18\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+18\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]+\right.$$
$$16\,\text{Csc}\left[\frac{c}{2}\right]\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]\text{Sin}\left[\frac{d\,x}{2}\right]+\frac{1}{\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2}-$$
$$\frac{1}{\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)^2}+$$
$$\left(12\,\text{Sin}[d\,x]\right)\Big/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$
$$\left.\left.\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\left(\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\right)\right)$$

Problem 53: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 110 leaves, 11 steps):

$$\frac{11\,a^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{2\,a^3\,\text{Sin}[c+d\,x]}{3\,d\left(1-\text{Cos}[c+d\,x]\right)^2}-$$
$$\frac{17\,a^3\,\text{Sin}[c+d\,x]}{3\,d\left(1-\text{Cos}[c+d\,x]\right)}+\frac{3\,a^3\,\text{Tan}[c+d\,x]}{d}+\frac{a^3\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,d}$$

Result (type 3, 678 leaves):

$$-\frac{1}{24 d}\text{Cos}[c+d x]^3 \,\text{Cot}\left[\frac{c}{2}\right] \text{Csc}\left[\frac{c}{2}+\frac{d x}{2}\right]^2 \text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3-\frac{1}{16 d}$$
$$11\,\text{Cos}[c+d x]^3 \,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3+$$
$$\frac{1}{16 d}11\,\text{Cos}[c+d x]^3 \,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3+$$
$$\frac{1}{24 d}17\,\text{Cos}[c+d x]^3 \,\text{Csc}\left[\frac{c}{2}\right] \text{Csc}\left[\frac{c}{2}+\frac{d x}{2}\right] \text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3 \,\text{Sin}\left[\frac{d x}{2}\right]+$$
$$\frac{1}{24 d}\text{Cos}[c+d x]^3 \,\text{Csc}\left[\frac{c}{2}\right] \text{Csc}\left[\frac{c}{2}+\frac{d x}{2}\right]^3 \text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3 \,\text{Sin}\left[\frac{d x}{2}\right]+$$
$$\frac{\text{Cos}[c+d x]^3 \,\text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3}{32 d \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^2}+$$
$$\frac{3\,\text{Cos}[c+d x]^3 \,\text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3 \,\text{Sin}\left[\frac{d x}{2}\right]}{8 d \left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}-$$
$$\frac{\text{Cos}[c+d x]^3 \,\text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3}{32 d \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^2}+$$
$$\frac{3\,\text{Cos}[c+d x]^3 \,\text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^6 (a+a\,\text{Sec}[c+d x])^3 \,\text{Sin}\left[\frac{d x}{2}\right]}{8 d \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}$$

Problem 54: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 165 leaves, 10 steps):

$$\frac{13 a^3 \,\text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}+\frac{152 a^3 \,\text{Tan}[c+d x]}{15 d}+\frac{13 a^3 \,\text{Sec}[c+d x] \,\text{Tan}[c+d x]}{2 d}-$$
$$\frac{a^6 \,\text{Sec}[c+d x] \,\text{Tan}[c+d x]}{5 d (a-a\,\text{Cos}[c+d x])^3}-\frac{11 a^5 \,\text{Sec}[c+d x] \,\text{Tan}[c+d x]}{15 d (a-a\,\text{Cos}[c+d x])^2}-\frac{76 a^6 \,\text{Sec}[c+d x] \,\text{Tan}[c+d x]}{15 d \left(a^3-a^3 \,\text{Cos}[c+d x]\right)}$$

Result (type 3, 353 leaves):

$$-\frac{1}{30720\,d}a^3\left(1+\text{Cos}[c+d\,x]\right)^3\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6\text{Sec}[c+d\,x]^2\left(24960\,\text{Cos}[c+d\,x]^2\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)+\text{Csc}\left[\frac{c}{2}\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^5\text{Sec}[c]\left(-1235\,\text{Sin}\left[\frac{d\,x}{2}\right]+3805\,\text{Sin}\left[\frac{3\,d\,x}{2}\right]+4329\,\text{Sin}\left[c-\frac{d\,x}{2}\right]-1989\,\text{Sin}\left[c+\frac{d\,x}{2}\right]-3575\,\text{Sin}\left[2\,c+\frac{d\,x}{2}\right]+475\,\text{Sin}\left[c+\frac{3\,d\,x}{2}\right]+2005\,\text{Sin}\left[2\,c+\frac{3\,d\,x}{2}\right]+2275\,\text{Sin}\left[3\,c+\frac{3\,d\,x}{2}\right]-2673\,\text{Sin}\left[c+\frac{5\,d\,x}{2}\right]+105\,\text{Sin}\left[2\,c+\frac{5\,d\,x}{2}\right]-1593\,\text{Sin}\left[3\,c+\frac{5\,d\,x}{2}\right]-975\,\text{Sin}\left[4\,c+\frac{5\,d\,x}{2}\right]+1325\,\text{Sin}\left[2\,c+\frac{7\,d\,x}{2}\right]-255\,\text{Sin}\left[3\,c+\frac{7\,d\,x}{2}\right]+875\,\text{Sin}\left[4\,c+\frac{7\,d\,x}{2}\right]+195\,\text{Sin}\left[5\,c+\frac{7\,d\,x}{2}\right]-304\,\text{Sin}\left[3\,c+\frac{9\,d\,x}{2}\right]+90\,\text{Sin}\left[4\,c+\frac{9\,d\,x}{2}\right]-214\,\text{Sin}\left[5\,c+\frac{9\,d\,x}{2}\right]\right)\right)$$

Problem 55: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^8\left(a+a\,\text{Sec}[c+d\,x]\right)^3 dx$$

Optimal (type 3, 192 leaves, 17 steps):

$$\frac{15\,a^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{13\,a^3\,\text{Cot}[c+d\,x]}{d}-\frac{7\,a^3\,\text{Cot}[c+d\,x]^3}{d}-\frac{3\,a^3\,\text{Cot}[c+d\,x]^5}{d}-\frac{4\,a^3\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{15\,a^3\,\text{Csc}[c+d\,x]}{2\,d}-\frac{5\,a^3\,\text{Csc}[c+d\,x]^3}{2\,d}-\frac{3\,a^3\,\text{Csc}[c+d\,x]^5}{2\,d}-\frac{15\,a^3\,\text{Csc}[c+d\,x]^7}{14\,d}+\frac{a^3\,\text{Csc}[c+d\,x]^7\,\text{Sec}[c+d\,x]^2}{2\,d}+\frac{3\,a^3\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 430 leaves):

$$\frac{1}{917504\,d}a^3\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^6\left(1+\text{Sec}[c+d\,x]\right)^3\left(-860160\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+860160\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-8\,\text{Csc}[2\,c]\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^6\text{Csc}[c+d\,x]\left(5264\,\text{Sin}[2\,c]-9580\,\text{Sin}[d\,x]+8480\,\text{Sin}[2\,d\,x]+2776\,\text{Sin}[c-d\,x]-6080\,\text{Sin}[c+d\,x]+8816\,\text{Sin}[2\,(c+d\,x)]-7904\,\text{Sin}[3\,(c+d\,x)]+4864\,\text{Sin}[4\,(c+d\,x)]-1824\,\text{Sin}[5\,(c+d\,x)]+304\,\text{Sin}[6\,(c+d\,x)]-9580\,\text{Sin}[2\,c+d\,x]-10024\,\text{Sin}[3\,c+d\,x]+13891\,\text{Sin}[c+2\,d\,x]+7720\,\text{Sin}[2\,(c+2\,d\,x)]+13891\,\text{Sin}[3\,c+2\,d\,x]+10080\,\text{Sin}[4\,c+2\,d\,x]-10060\,\text{Sin}[c+3\,d\,x]-12454\,\text{Sin}[2\,c+3\,d\,x]-12454\,\text{Sin}[4\,c+3\,d\,x]-6580\,\text{Sin}[5\,c+3\,d\,x]+7664\,\text{Sin}[3\,c+4\,d\,x]+7664\,\text{Sin}[5\,c+4\,d\,x]+2520\,\text{Sin}[6\,c+4\,d\,x]-3420\,\text{Sin}[3\,c+5\,d\,x]-2874\,\text{Sin}[4\,c+5\,d\,x]-2874\,\text{Sin}[6\,c+5\,d\,x]-420\,\text{Sin}[7\,c+5\,d\,x]+640\,\text{Sin}[4\,c+6\,d\,x]+479\,\text{Sin}[5\,c+6\,d\,x]+479\,\text{Sin}[7\,c+6\,d\,x]\right)\right)$$

Problem 56: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^{10}\,(a+a\,\text{Sec}[c+d\,x])^3\,dx$$

Optimal (type 3, 232 leaves, 17 steps):

$$\frac{17\,a^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{16\,a^3\,\text{Cot}[c+d\,x]}{d}-\frac{34\,a^3\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{36\,a^3\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{19\,a^3\,\text{Cot}[c+d\,x]^7}{7\,d}-\frac{4\,a^3\,\text{Cot}[c+d\,x]^9}{9\,d}-\frac{17\,a^3\,\text{Csc}[c+d\,x]}{2\,d}-\frac{17\,a^3\,\text{Csc}[c+d\,x]^3}{6\,d}-\frac{17\,a^3\,\text{Csc}[c+d\,x]^5}{10\,d}-\frac{17\,a^3\,\text{Csc}[c+d\,x]^7}{14\,d}-\frac{17\,a^3\,\text{Csc}[c+d\,x]^9}{18\,d}+\frac{a^3\,\text{Csc}[c+d\,x]^9\,\text{Sec}[c+d\,x]^2}{2\,d}+\frac{3\,a^3\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 1000 leaves):

$$-\frac{1}{80640\,d}9833\,\text{Cos}[c+d\,x]^3\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^2\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3-$$
$$\frac{1}{53760\,d}979\,\text{Cos}[c+d\,x]^3\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3-$$
$$\frac{1}{2016\,d}5\,\text{Cos}[c+d\,x]^3\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3-$$
$$\frac{\text{Cos}[c+d\,x]^3\,\text{Cot}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^8\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3}{4608\,d}-\frac{1}{16\,d}$$
$$17\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3+\frac{1}{16\,d}$$
$$17\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3+\frac{1}{161280\,d}$$
$$197147\,\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{80640\,d}9833\,\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^3\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{53760\,d}979\,\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^5\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{2016\,d}5\,\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^7\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{d\,x}{2}\right]+$$
$$\frac{1}{4608\,d}\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^9\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{d\,x}{2}\right]-$$
$$\frac{35\,\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^7\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{d\,x}{2}\right]}{1536\,d}-$$
$$\frac{\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{c}{2}\right]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^9\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{d\,x}{2}\right]}{1536\,d}+$$
$$\frac{\text{Cos}[c+d\,x]\,\text{Sec}[c]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Sin}[d\,x]}{16\,d}+\frac{1}{16\,d}$$
$$\text{Cos}[c+d\,x]^2\,\text{Sec}[c]\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^6\,(a+a\,\text{Sec}[c+d\,x])^3\,(\text{Sin}[c]+6\,\text{Sin}[d\,x])-$$
$$\frac{\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^8\,(a+a\,\text{Sec}[c+d\,x])^3\,\text{Tan}\left[\frac{c}{2}\right]}{1536\,d}$$

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

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

Optimal (type 3, 55 leaves, 7 steps):

$$\frac{\text{Cot}[c+d\,x]^3}{3\,a\,d}+\frac{\text{Cot}[c+d\,x]^5}{5\,a\,d}-\frac{\text{Csc}[c+d\,x]^5}{5\,a\,d}$$

Result (type 3, 116 leaves):

$$-\left(\left(\text{Csc}[c]\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]\,\left(240\,\text{Sin}[c]-96\,\text{Sin}[d\,x]-54\,\text{Sin}[c+d\,x]-18\,\text{Sin}[2\,(c+d\,x)]+18\,\text{Sin}[3\,(c+d\,x)]+9\,\text{Sin}[4\,(c+d\,x)]-32\,\text{Sin}[c+2\,d\,x]+32\,\text{Sin}[2\,c+3\,d\,x]+16\,\text{Sin}[3\,c+4\,d\,x]\right)\right)\Big/\left(960\,a\,d\,(1+\text{Sec}[c+d\,x])\right)\right)$$

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

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

Optimal (type 3, 73 leaves, 7 steps):

$$\frac{\text{Cot}[c+d\,x]^3}{3\,a\,d}+\frac{2\,\text{Cot}[c+d\,x]^5}{5\,a\,d}+\frac{\text{Cot}[c+d\,x]^7}{7\,a\,d}-\frac{\text{Csc}[c+d\,x]^7}{7\,a\,d}$$

Result (type 3, 158 leaves):

$$\frac{1}{53\,760\,a\,d\,(1+\text{Sec}[c+d\,x])}\,\text{Csc}[c]\,\text{Csc}[c+d\,x]^5\,\text{Sec}[c+d\,x]\left(-8960\,\text{Sin}[c]+2560\,\text{Sin}[d\,x]+1500\,\text{Sin}[c+d\,x]+375\,\text{Sin}[2\,(c+d\,x)]-750\,\text{Sin}[3\,(c+d\,x)]-300\,\text{Sin}[4\,(c+d\,x)]+150\,\text{Sin}[5\,(c+d\,x)]+75\,\text{Sin}[6\,(c+d\,x)]+640\,\text{Sin}[c+2\,d\,x]-1280\,\text{Sin}[2\,c+3\,d\,x]-512\,\text{Sin}[3\,c+4\,d\,x]+256\,\text{Sin}[4\,c+5\,d\,x]+128\,\text{Sin}[5\,c+6\,d\,x]\right)$$

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

$$\int \frac{\text{Csc}[c+d\,x]^8}{a+a\,\text{Sec}[c+d\,x]}\,dx$$

Optimal (type 3, 91 leaves, 7 steps):

$$\frac{\text{Cot}[c+d\,x]^3}{3\,a\,d}+\frac{3\,\text{Cot}[c+d\,x]^5}{5\,a\,d}+\frac{3\,\text{Cot}[c+d\,x]^7}{7\,a\,d}+\frac{\text{Cot}[c+d\,x]^9}{9\,a\,d}-\frac{\text{Csc}[c+d\,x]^9}{9\,a\,d}$$

Result (type 3, 200 leaves):

$$-\frac{1}{5\,160\,960\,a\,d\,(1+\text{Sec}[c+d\,x])}\,\text{Csc}[c]\,\text{Csc}[c+d\,x]^7\,\text{Sec}[c+d\,x]\left(645\,120\,\text{Sin}[c]-143\,360\,\text{Sin}[d\,x]-85\,750\,\text{Sin}[c+d\,x]-17\,150\,\text{Sin}[2\,(c+d\,x)]+51\,450\,\text{Sin}[3\,(c+d\,x)]+17\,150\,\text{Sin}[4\,(c+d\,x)]-17\,150\,\text{Sin}[5\,(c+d\,x)]-7350\,\text{Sin}[6\,(c+d\,x)]+2450\,\text{Sin}[7\,(c+d\,x)]+1225\,\text{Sin}[8\,(c+d\,x)]-28\,672\,\text{Sin}[c+2\,d\,x]+86\,016\,\text{Sin}[2\,c+3\,d\,x]+28\,672\,\text{Sin}[3\,c+4\,d\,x]-28\,672\,\text{Sin}[4\,c+5\,d\,x]-12\,288\,\text{Sin}[5\,c+6\,d\,x]+4096\,\text{Sin}[6\,c+7\,d\,x]+2048\,\text{Sin}[7\,c+8\,d\,x]\right)$$

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

$$\int \frac{\text{Csc}[c+d\,x]^{10}}{a+a\,\text{Sec}[c+d\,x]}\,dx$$

Optimal (type 3, 109 leaves, 7 steps):

$$\frac{\text{Cot}[c+d\,x]^3}{3\,a\,d}+\frac{4\,\text{Cot}[c+d\,x]^5}{5\,a\,d}+\frac{6\,\text{Cot}[c+d\,x]^7}{7\,a\,d}+\frac{4\,\text{Cot}[c+d\,x]^9}{9\,a\,d}+\frac{\text{Cot}[c+d\,x]^{11}}{11\,a\,d}-\frac{\text{Csc}[c+d\,x]^{11}}{11\,a\,d}$$

Result (type 3, 242 leaves):

$$\frac{1}{454164480\, a\, d\, (1+\text{Sec}[c+d x])}\text{Csc}[c]\,\text{Csc}[c+d x]^9\,\text{Sec}[c+d x]\,\big(-45416448\,\text{Sin}[c]+8257536\,\text{Sin}[d x]+5000940\,\text{Sin}[c+d x]+833490\,\text{Sin}[2(c+d x)]-3333960\,\text{Sin}[3(c+d x)]-952560\,\text{Sin}[4(c+d x)]+1428840\,\text{Sin}[5(c+d x)]+535815\,\text{Sin}[6(c+d x)]-357210\,\text{Sin}[7(c+d x)]-158760\,\text{Sin}[8(c+d x)]+39690\,\text{Sin}[9(c+d x)]+19845\,\text{Sin}[10(c+d x)]+1376256\,\text{Sin}[c+2 d x]-5505024\,\text{Sin}[2 c+3 d x]-1572864\,\text{Sin}[3 c+4 d x]+2359296\,\text{Sin}[4 c+5 d x]+884736\,\text{Sin}[5 c+6 d x]-589824\,\text{Sin}[6 c+7 d x]-262144\,\text{Sin}[7 c+8 d x]+65536\,\text{Sin}[8 c+9 d x]+32768\,\text{Sin}[9 c+10 d x]\big)$$

Problem 99: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 128 leaves, 6 steps):

$$\frac{3\,\text{ArcTanh}[\text{Cos}[c+d x]]}{128\, a^3\, d}-\frac{1}{128\, a\, d\,(a-a\,\text{Cos}[c+d x])^2}-\frac{a^2}{40\, d\,(a+a\,\text{Cos}[c+d x])^5}+\frac{3\, a}{64\, d\,(a+a\,\text{Cos}[c+d x])^4}-\frac{1}{64\, a\, d\,(a+a\,\text{Cos}[c+d x])^2}-\frac{3}{128\, d\,(a^3+a^3\,\text{Cos}[c+d x])}$$

Result (type 3, 412 leaves):

$$-\frac{\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^2\text{Sec}[c+d x]^3}{32\, d\,(a+a\,\text{Sec}[c+d x])^3}-\frac{3\,\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^4\text{Sec}[c+d x]^3}{32\, d\,(a+a\,\text{Sec}[c+d x])^3}-\frac{\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^2\text{Cot}\left[\frac{c}{2}+\frac{d x}{2}\right]^4\text{Sec}[c+d x]^3}{64\, d\,(a+a\,\text{Sec}[c+d x])^3}+\frac{3\,\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^6\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]\text{Sec}[c+d x]^3}{16\, d\,(a+a\,\text{Sec}[c+d x])^3}-\frac{3\,\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^6\text{Log}\left[\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]\text{Sec}[c+d x]^3}{16\, d\,(a+a\,\text{Sec}[c+d x])^3}+\frac{3\,\text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^2\text{Sec}[c+d x]^3}{128\, d\,(a+a\,\text{Sec}[c+d x])^3}-\frac{\text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right]^4\text{Sec}[c+d x]^3}{160\, d\,(a+a\,\text{Sec}[c+d x])^3}+\left(x\,\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^6\text{Sec}[c+d x]^3\left(\frac{3}{32}\text{Cot}\left[\frac{c}{2}\right]-\frac{3}{32}\text{Csc}\left[\frac{c}{2}\right]\text{Sec}\left[\frac{c}{2}\right]+\frac{3}{32}\text{Tan}\left[\frac{c}{2}\right]\right)\right)\Big/(a+a\,\text{Sec}[c+d x])^3$$

Problem 121: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 104 leaves, 7 steps):

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

Result (type 5, 232 leaves):

$$\left(2 \text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \text{Sec}[c+d x] (e \text{Sin}[c+d x])^{5/2} \left(\left(\left(2 e^{-i d x} \sqrt{2-2 e^{2 i (c+d x)}} \left(3 \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2 i (c+d x)}\right]+ e^{2 i d x} \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},e^{2 i (c+d x)}\right]\right) \text{Sec}[c]\right)\Big/ \left(\sqrt{-i e^{-i (c+d x)} \left(-1+e^{2 i (c+d x)}\right)}\right)+\sqrt{\text{Sin}[c+d x]} (10 \text{Cos}[d x] \text{Sin}[c]- 3 \text{Cos}[2 d x] \text{Sin}[2 c]+10 \text{Cos}[c] \text{Sin}[d x]-3 \text{Cos}[2 c] \text{Sin}[2 d x]-12 \text{Tan}[c])\right)\right)\Big/ \left(15 a d (1+\text{Sec}[c+d x]) \text{Sin}[c+d x]^{5/2}\right)$$

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

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

Optimal (type 4, 95 leaves, 7 steps):

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

Result (type 5, 249 leaves):

$$\left(2 \left(3-9 e^{2 i c}+6 e^{i (c+d x)}-9 e^{2 i (c+d x)}+3 e^{2 i (2 c+d x)}+6 e^{i (3 c+d x)}+ 12 e^{2 i c} \sqrt{1-e^{2 i (c+d x)}} \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2 i (c+d x)}\right]+ 4 e^{2 i (c+d x)} \sqrt{1-e^{2 i (c+d x)}} \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},e^{2 i (c+d x)}\right]\right) \sqrt{e \text{Sin}[c+d x]}\right)\Big/ \left(3 a d \left(1+i e^{i c}\right) \left(i+e^{i c}\right) \left(-1+e^{i (c+d x)}\right) \left(1+e^{i (c+d x)}\right)\right)$$

Problem 125: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 135 leaves, 8 steps):

$$-\frac{2e}{5ad\,(e\,\text{Sin}[c+dx])^{5/2}}+\frac{2e\,\text{Cos}[c+dx]}{5ad\,(e\,\text{Sin}[c+dx])^{5/2}}-\frac{4\,\text{Cos}[c+dx]}{5ade\sqrt{e\,\text{Sin}[c+dx]}}-\frac{4\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+dx\right),2\right]\sqrt{e\,\text{Sin}[c+dx]}}{5ade^2\sqrt{\text{Sin}[c+dx]}}$$

Result (type 5, 175 leaves):

$$-\left(\left(e^{-i(3c+2dx)}\left(1+e^{2ic}\right)\left(\sqrt{1-e^{2i(c+dx)}}\left(1+2e^{i(c+dx)}+2e^{2i(c+dx)}\right)+\left(-1+e^{i(c+dx)}\right)\left(1+e^{i(c+dx)}\right)^3\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2i(c+dx)}\right]\right)\text{Sec}[c]\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\Big/\left(5ad\sqrt{1-e^{2i(c+dx)}}\,(e\,\text{Sin}[c+dx])^{3/2}\right)\right)$$

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

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

Optimal (type 4, 187 leaves, 14 steps):

$$\frac{4e^3}{a^2d\sqrt{e\,\text{Sin}[c+dx]}}-\frac{2e^3\,\text{Cos}[c+dx]}{a^2d\sqrt{e\,\text{Sin}[c+dx]}}-\frac{2e^3\,\text{Cos}[c+dx]^3}{a^2d\sqrt{e\,\text{Sin}[c+dx]}}-\frac{44e^2\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+dx\right),2\right]\sqrt{e\,\text{Sin}[c+dx]}}{5a^2d\sqrt{\text{Sin}[c+dx]}}+\frac{4e\,(e\,\text{Sin}[c+dx])^{3/2}}{3a^2d}-\frac{12e\,\text{Cos}[c+dx]\,(e\,\text{Sin}[c+dx])^{3/2}}{5a^2d}$$

Result (type 5, 451 leaves):

$$\left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^4 \text{Csc}[c+d x]^2 \text{Sec}[c+d x]^2 \left(\frac{16 \text{Cos}[d x] \text{Sin}[c]}{3 d}-\frac{16 \text{Sec}\left[\frac{c}{2}\right] \text{Sec}[c] \left(8 \text{Sin}\left[\frac{c}{2}\right]+3 \text{Sin}\left[\frac{3 c}{2}\right]\right)}{5 d}-\frac{4 \text{Cos}[2 d x] \text{Sin}[2 c]}{5 d}+\frac{16 \text{Sec}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}+\frac{d x}{2}\right] \text{Sin}\left[\frac{d x}{2}\right]}{d}+\frac{16 \text{Cos}[c] \text{Sin}[d x]}{3 d}-\frac{4 \text{Cos}[2 c] \text{Sin}[2 d x]}{5 d}\right) (e \text{Sin}[c+d x])^{5/2}\right)\Big/(a+a \text{Sec}[c+d x])^2+$$

$$\left(44 i \text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]^4 \left(-\left(\left(2 i e^{-i d x} \sqrt{2-2 e^{2 i (c+d x)}} \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2 i (c+d x)}\right]\right)\Big/\left(d \sqrt{-i e^{-i (c+d x)} \left(-1+e^{2 i (c+d x)}\right)}\right)\right)-\left(2 i e^{i d x} \sqrt{2-2 e^{2 i (c+d x)}} \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},e^{2 i (c+d x)}\right]\right)\Big/\left(3 d \sqrt{-i e^{-i (c+d x)} \left(-1+e^{2 i (c+d x)}\right)}\right)\right) \text{Sec}[c+d x]^2 (e \text{Sin}[c+d x])^{5/2}\right)\Big/\left(5 (a+a \text{Sec}[c+d x])^2 \left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right) \text{Sin}[c+d x]^{5/2}\right)$$

Problem 130: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 188 leaves, 15 steps):

$$\frac{4 e^3}{5 a^2 d (e \text{Sin}[c+d x])^{5/2}}-\frac{2 e^3 \text{Cos}[c+d x]}{5 a^2 d (e \text{Sin}[c+d x])^{5/2}}-\frac{2 e^3 \text{Cos}[c+d x]^3}{5 a^2 d (e \text{Sin}[c+d x])^{5/2}}-\frac{4 e}{a^2 d \sqrt{e \text{Sin}[c+d x]}}+\frac{16 e \text{Cos}[c+d x]}{5 a^2 d \sqrt{e \text{Sin}[c+d x]}}+\frac{28 \text{EllipticE}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right),2\right] \sqrt{e \text{Sin}[c+d x]}}{5 a^2 d \sqrt{\text{Sin}[c+d x]}}$$

Result (type 5, 222 leaves):

$$\left(4 \text{Cos}\left[\frac{1}{2} (c+d x)\right]^4 \text{Sec}[c+d x]^2 \sqrt{e \text{Sin}[c+d x]} \left(\left(56 i e^{2 i c} \left(3 \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2 i (c+d x)}\right]+e^{2 i d x} \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{7}{4},e^{2 i (c+d x)}\right]\right)\right)\Big/\left(\left(1+e^{2 i c}\right) \sqrt{1-e^{2 i (c+d x)}}\right)+\frac{3}{4} \text{Sec}[c] \text{Sec}\left[\frac{1}{2} (c+d x)\right]^3 \left(49 \text{Sin}\left[\frac{1}{2} (c-d x)\right]+35 \text{Sin}\left[\frac{1}{2} (3 c+d x)\right]-23 \text{Sin}\left[\frac{1}{2} (c+3 d x)\right]+5 \text{Sin}\left[\frac{1}{2} (5 c+3 d x)\right]\right)\right)\right)\Big/\left(15 a^2 d (1+\text{Sec}[c+d x])^2\right)$$

Problem 132: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 224 leaves, 17 steps):

$$\frac{4\,e^3}{9\,a^2\,d\,(e\,\text{Sin}[c + d\,x])^{9/2}} - \frac{2\,e^3\,\text{Cos}[c + d\,x]}{9\,a^2\,d\,(e\,\text{Sin}[c + d\,x])^{9/2}} - \frac{2\,e^3\,\text{Cos}[c + d\,x]^3}{9\,a^2\,d\,(e\,\text{Sin}[c + d\,x])^{9/2}} - \frac{4\,e}{5\,a^2\,d\,(e\,\text{Sin}[c + d\,x])^{5/2}} + \frac{16\,e\,\text{Cos}[c + d\,x]}{45\,a^2\,d\,(e\,\text{Sin}[c + d\,x])^{5/2}} - \frac{4\,\text{Cos}[c + d\,x]}{15\,a^2\,d\,e\,\sqrt{e\,\text{Sin}[c + d\,x]}} - \frac{4\,\text{EllipticE}\left[\frac{1}{2}\left(c - \frac{\pi}{2} + d\,x\right), 2\right]\sqrt{e\,\text{Sin}[c + d\,x]}}{15\,a^2\,d\,e^2\,\sqrt{\text{Sin}[c + d\,x]}}$$

Result (type 5, 222 leaves):

$$\left(\text{Cos}\left[\frac{1}{2}(c + d\,x)\right]^4 \left(\left(96\,i\,\left(1 - e^{2\,i\,(c+d\,x)}\right)^{3/2}\left(-\sqrt{1 - e^{2\,i\,(c+d\,x)}} + \left(1 + e^{2\,i\,c}\right)\text{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, e^{2\,i\,(c+d\,x)}\right]\right)\right) \Big/ \left(\left(1 + e^{2\,i\,c}\right)\left(1 + e^{2\,i\,(c+d\,x)}\right)^2\right) - 2\,(28\,\text{Cos}[c] + 31\,\text{Cos}[d\,x] + 16\,\text{Cos}[2\,c + d\,x] + 12\,\text{Cos}[c + 2\,d\,x] + 3\,\text{Cos}[2\,c + 3\,d\,x])\,\text{Sec}[c]\,\text{Sec}\left[\frac{1}{2}(c + d\,x)\right]^2 \text{Sec}[c + d\,x]^2\,\text{Tan}\left[\frac{1}{2}(c + d\,x)\right]\right)\right) \Big/ \left(45\,a^2\,d\,(1 + \text{Sec}[c + d\,x])^2\,(e\,\text{Sin}[c + d\,x])^{3/2}\right)$$

Problem 134: Unable to integrate problem.

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

Optimal (type 5, 247 leaves, 9 steps):

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

Result (type 8, 25 leaves):

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

Problem 135: Unable to integrate problem.

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

Optimal (type 5, 195 leaves, 7 steps):

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

Result (type 8, 25 leaves):

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

Problem 136: Unable to integrate problem.

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

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

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

Result (type 8, 23 leaves):

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

Problem 137: Unable to integrate problem.

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

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

$$-\frac{e\,(e\,\mathrm{Sin}[c+d\,x])^{-1+m}}{a\,d\,(1-m)}+\left(e\,\mathrm{Cos}[c+d\,x]\,\mathrm{Hypergeometric2F1}\left[-\frac{1}{2},\frac{1}{2}(-1+m),\frac{1+m}{2},\mathrm{Sin}[c+d\,x]^2\right](e\,\mathrm{Sin}[c+d\,x])^{-1+m}\right)\Big/\left(a\,d\,(1-m)\sqrt{\mathrm{Cos}[c+d\,x]^2}\right)$$

Result (type 8, 25 leaves):

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

Problem 138: Unable to integrate problem.

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

Optimal (type 5, 207 leaves, 9 steps):

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

Result (type 8, 25 leaves):

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

Problem 139: Unable to integrate problem.

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

Optimal (type 5, 236 leaves, 12 steps):

$$-\frac{4 e^5 (e \operatorname{Sin}[c+d x])^{-5+m}}{a^3 d (5-m)}+$$
$$\left(e^5 \operatorname{Cos}[c+d x] \operatorname{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{1}{2}(-5+m), \frac{1}{2}(-3+m), \operatorname{Sin}[c+d x]^2\right] (e \operatorname{Sin}[c+d x])^{-5+m}\right) \Big/ \left(a^3 d (5-m) \sqrt{\operatorname{Cos}[c+d x]^2}\right)+$$
$$\left(3 e^5 \operatorname{Cos}[c+d x] \operatorname{Hypergeometric2F1}\left[-\frac{3}{2}, \frac{1}{2}(-5+m), \frac{1}{2}(-3+m), \operatorname{Sin}[c+d x]^2\right] (e \operatorname{Sin}[c+d x])^{-5+m}\right) \Big/ \left(a^3 d (5-m) \sqrt{\operatorname{Cos}[c+d x]^2}\right)+$$
$$\frac{7 e^3 (e \operatorname{Sin}[c+d x])^{-3+m}}{a^3 d (3-m)}-\frac{3 e (e \operatorname{Sin}[c+d x])^{-1+m}}{a^3 d (1-m)}$$

Result (type 8, 25 leaves):

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

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

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

Optimal (type 6, 106 leaves, 5 steps):

$$\frac{1}{d} 2 a e \operatorname{AppellF1}\left[-\frac{1}{2}, \frac{1-m}{2}, \frac{1}{2}(-2-m), \frac{1}{2}, \operatorname{Cos}[c+d x], -\operatorname{Cos}[c+d x]\right] (1-\operatorname{Cos}[c+d x])^{\frac{1-m}{2}} (1+\operatorname{Cos}[c+d x])^{-m/2} \sqrt{a+a \operatorname{Sec}[c+d x]} (e \operatorname{Sin}[c+d x])^{-1+m}$$

Result (type 6, 7867 leaves):

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

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

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

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

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

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^m$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\frac{5+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)\,-$$

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

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

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

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

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

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

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

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]-(3+m)$$

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\frac{1}{2\,(3+m)}$$

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)+$$

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

$$2+m,\,1+\frac{5+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\frac{1}{2\,(5+m)}\,(3+m)\,\text{AppellF1}\Big[$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(1+m\right)\ \mathrm{AppellF1}\Big[1+\frac{1+m}{2},\ \frac{3}{2},\ m,\ 1+\frac{3+m}{2},\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

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

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

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

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

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

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

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

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

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

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

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

$$\left.-\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{1}{2\,\left(5+m\right)}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$5\,(3+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},\,\frac{7}{2},\,m,\,1+\frac{5+m}{2},\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

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

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

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

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

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

Problem 141: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 6, 107 leaves, 5 steps):

$$-\frac{1}{d}2\,e\,\text{AppellF1}\left[\frac{1}{2},\,\frac{1-m}{2},\,-\frac{m}{2},\,\frac{3}{2},\,\text{Cos}[c+d x],\,-\text{Cos}[c+d x]\right]\,\left(1-\text{Cos}[c+d x]\right)^{\frac{1-m}{2}}$$

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

Result (type 6, 5279 leaves):

$$\Big(\,(3+m)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]\,\sqrt{a\,\left(1+\text{Sec}[c+d x]\right)}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$(3+m)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sin}[c+d\,x]^m\,\Bigg(\Big(\text{AppellF1}\Big[\frac{1+m}{2},-\frac{1}{2},1+m,$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]\ \mathrm{Sin}\left[\frac{1}{2}\ (c+d\,x)\right]\Big)\Big/\ \Big((3+m)\ \mathrm{AppellF1}\Big[\frac{1+m}{2},\ -\frac{1}{2},\ 1+m,\ \frac{3+m}{2},$$

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

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

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

$$\Bigg(\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\Bigg(-\frac{1}{3+m}\,(1+m)^2\,\text{AppellF1}\Big[1+\frac{1+m}{2},\,-\frac{1}{2},\,2+m,\,1+\frac{3+m}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]-$$

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Bigg)\Bigg)\bigg/$$

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

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

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

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Bigg)\bigg/$$

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

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

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

$$\frac{5+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Bigg)\Bigg)-$$

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]+$$

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Bigg)\bigg/$$

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

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

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

$$\frac{5+m}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Bigg)\Bigg)-$$

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

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

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

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

$$\text{Tan}[\tfrac{1}{2}(c+d x)] + \frac{1}{2(3+m)} (1+m) \text{AppellF1}[1+\frac{1+m}{2}, \frac{3}{2}, m, 1+\frac{3+m}{2},$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2] \text{Sec}[\tfrac{1}{2}(c+d x)]^2 \text{Tan}[\tfrac{1}{2}(c+d x)]\Big) +$$

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

$$\text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2] \text{Sec}[\tfrac{1}{2}(c+d x)]^2 \text{Tan}[\tfrac{1}{2}(c+d x)] +$$

$$\frac{1}{2(5+m)} 3 (3+m) \text{AppellF1}[1+\frac{3+m}{2}, \frac{5}{2}, m, 1+\frac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2] \text{Sec}[\tfrac{1}{2}(c+d x)]^2 \text{Tan}[\tfrac{1}{2}(c+d x)] - 2 m \Big(-\frac{1}{5+m}$$

$$(1+m)(3+m) \text{AppellF1}[1+\frac{3+m}{2}, \frac{1}{2}, 2+m, 1+\frac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2] \text{Sec}[\tfrac{1}{2}(c+d x)]^2 \text{Tan}[\tfrac{1}{2}(c+d x)] + \frac{1}{2(5+m)}$$

$$(3+m) \text{AppellF1}[1+\frac{3+m}{2}, \frac{3}{2}, 1+m, 1+\frac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2] \text{Sec}[\tfrac{1}{2}(c+d x)]^2 \text{Tan}[\tfrac{1}{2}(c+d x)]\Big)\Big)\Big)\Big) \Big/$$

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

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

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

$$\text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\Big) \text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big)^2\Big)\Big) -$$

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

$$\text{Tan}[$$

$$\frac{1}{2}(c+d x)]$$

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

$$\text{Cos}[\tfrac{1}{2}(c+d x)]^2\Big) \Big/$$

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

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

$$\Big(-\text{Cos}\big[\tfrac{1}{2}(c+d\,x)\big]\,\text{Sec}[c+d\,x]\,\text{Sin}\big[\tfrac{1}{2}(c+d\,x)\big]+\text{Cos}\big[\tfrac{1}{2}(c+d\,x)\big]^2\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\Big)\Big)\Big)$$

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

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

Optimal (type 6, 115 leaves, 5 steps):

$$-\Big(\Big(2\,e\,\text{AppellF1}\Big[\tfrac{3}{2},\tfrac{1-m}{2},\tfrac{2-m}{2},\tfrac{5}{2},\text{Cos}[c+d\,x],-\text{Cos}[c+d\,x]\Big]\,(1-\text{Cos}[c+d\,x])^{\frac{1-m}{2}}\,\text{Cos}[c+d\,x]\,(1+\text{Cos}[c+d\,x])^{1-\frac{m}{2}}\,(e\,\text{Sin}[c+d\,x])^{-1+m}\Big)\Big/\Big(3\,d\,\sqrt{a+a\,\text{Sec}[c+d\,x]}\Big)\Big)$$

Result (type 6, 2679 leaves):

$$\Big(\sqrt{2}\,(3+m)\,\text{AppellF1}\Big[\tfrac{1+m}{2},-\tfrac{1}{2},1+m,\tfrac{3+m}{2},\text{Tan}\big[\tfrac{1}{2}(c+d\,x)\big]^2,-\text{Tan}\big[\tfrac{1}{2}(c+d\,x)\big]^2\Big]\,\text{Cos}[c+d\,x]\,\sqrt{1+\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]^m\,(e\,\text{Sin}[c+d\,x])^m\,\text{Tan}\big[\tfrac{1}{2}(c+d\,x)\big]\Big)\Big/$$

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

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

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

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\ \text{Cos}[c+d\,x]\ \text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\ \sqrt{1+\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]^m\Big)\Big/$$

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

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

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

$$\frac{5+m}{2},\ \text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\ \text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)\Big)+$$

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

$$\text{Cos}[c+d\,x]^2\ \sqrt{1+\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]^{-1+m}\ \text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Big/$$

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

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

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

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

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

$$\text{Sec}[c+d\,x]\ \text{Sin}[c+d\,x]^{1+m}\ \text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Big/\Big(\sqrt{2}\ (1+m)\ \sqrt{1+\text{Sec}[c+d\,x]}$$

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

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

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

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

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

$$\sqrt{1+\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]^{1+m}\ \text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Big/$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Optimal (type 6, 120 leaves, 5 steps):

$$-\left(\left(2\,e\,\text{AppellF1}\left[\frac{5}{2},\frac{1-m}{2},\frac{4-m}{2},\frac{7}{2},\text{Cos}[c+d\,x],-\text{Cos}[c+d\,x]\right](1-\text{Cos}[c+d\,x])^{\frac{1-m}{2}}\text{Cos}[c+d\,x]^2\,(1+\text{Cos}[c+d\,x])^{1-\frac{m}{2}}(e\,\text{Sin}[c+d\,x])^{-1+m}\right)\Big/\left(5\,a\,d\,\sqrt{a+a\,\text{Sec}[c+d\,x]}\right)\right)$$

Result (type 6, 5702 leaves):

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

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

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

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

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

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

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

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

$$\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\Bigg)\Bigg)\Bigg) \Big/ \Bigg(d\,(1+m)\,(a\,(1+\text{Sec}[c+dx]))^{3/2}$$

$$\Bigg(\frac{1}{1+m} 2^{2+m}(3+m)\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2 \text{Tan}\left[\frac{1}{2}(c+dx)\right]^2 \left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2}\right)^{3/2}$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)\left(\frac{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2}\right)^m$$

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

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

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

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

$$\frac{1}{1+m} 2^m (3+m) \operatorname{Sec}\left[\frac{1}{2}(c+dx)\right]^2 \left(\frac{1}{1-\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}\right)^{3/2} \left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2$$

$$\left(\frac{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}{1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}\right)^m$$

$$\left(-\left(\operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] \middle/ \right.\right.$$

$$\left((3+m) \operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] - \right.$$

$$\left(2\, m \operatorname{AppellF1}\left[\frac{3+m}{2}, -\frac{1}{2}, 1+m, \frac{5+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] + \right.$$

$$\operatorname{AppellF1}\left[\frac{3+m}{2}, \frac{1}{2}, m, \frac{5+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, \right.$$

$$\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\right) \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)\right) +$$

$$\left(2 \operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, 1+m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\right) \Big/$$

$$\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right) \left((3+m) \operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, 1+m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, \right.\right.\right.$$

$$-\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] - \left(2(1+m) \operatorname{AppellF1}\left[\frac{3+m}{2}, -\frac{1}{2}, 2+m, \frac{5+m}{2}, \right.\right.$$

$$\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] + \operatorname{AppellF1}\left[\frac{3+m}{2}, \frac{1}{2}, 1+m, \right.$$

$$\left.\left.\left.\left.\frac{5+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\right) \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)\right)\right) +$$

$$\frac{1}{1+m} 3 \times 2^m (3+m) \operatorname{Sec}\left[\frac{1}{2}(c+dx)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2 \left(\frac{1}{1-\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}\right)^{5/2}$$

$$\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2 \left(\frac{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}{1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}\right)^m$$

$$\left(-\left(\operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] \middle/ \right.\right.$$

$$\left((3+m) \operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] - \right.$$

$$\left(2\, m \operatorname{AppellF1}\left[\frac{3+m}{2}, -\frac{1}{2}, 1+m, \frac{5+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right] + \right.$$

$$\operatorname{AppellF1}\left[\frac{3+m}{2}, \frac{1}{2}, m, \frac{5+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, \right.$$

$$\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\right) \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)\right) +$$

$$\left(2 \operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, 1+m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\right) \Big/$$

$$\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right) \left((3+m) \operatorname{AppellF1}\left[\frac{1+m}{2}, -\frac{1}{2}, 1+m, \frac{3+m}{2}, \operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2, \right.\right.\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{m}$$

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

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)] - \frac{1}{2(3+m)}(1+m)$$

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

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

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

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

$$\tfrac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\Big)\ \text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big)\Big) -$$

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

$$\text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)]\Big)\Big/$$

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

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

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

$$\tfrac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\Big)\ \text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big)\Big) +$$

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

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)] - \frac{1}{2(3+m)}$$

$$(1+m)\ \text{AppellF1}[1+\tfrac{1+m}{2}, \tfrac{1}{2}, 1+m, 1+\tfrac{3+m}{2}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)]\Big)\Big)\Big/$$

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

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

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

$$\tfrac{5+m}{2}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\Big)\ \text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big)\Big) +$$

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

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

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

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

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

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

Optimal (type 6, 130 leaves, 5 steps):

$$-\frac{1}{d\,(1-n)}$$
$$e\,\text{AppellF1}\left[1-n,\frac{1-m}{2},\frac{1}{2}(1-m-2n),2-n,\text{Cos}[c+d\,x],-\text{Cos}[c+d\,x]\right](1-\text{Cos}[c+d\,x])^{\frac{1-m}{2}}$$
$$\text{Cos}[c+d\,x]\,(1+\text{Cos}[c+d\,x])^{\frac{1}{2}(1-m-2n)}\,(a+a\,\text{Sec}[c+d\,x])^n\,(e\,\text{Sin}[c+d\,x])^{-1+m}$$

Result (type 6, 2135 leaves):

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

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

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

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

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

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

Problem 145: Unable to integrate problem.

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

Optimal (type 5, 180 leaves, 4 steps):

$$-\left(\left((3-n)\,(8-n)\,(16-n)\,\text{Hypergeometric2F1}[6,4+n,5+n,1+\text{Sec}[c+d\,x]]\,(a+a\,\text{Sec}[c+d\,x])^{4+n}\right)\Big/\left(42\,a^4\,d\,(1-n)\,(4+n)\right)\right)-\frac{\text{Cos}[c+d\,x]^7\,(1-\text{Sec}[c+d\,x])^2\,(a+a\,\text{Sec}[c+d\,x])^{4+n}}{a^4\,d\,(1-n)}+\frac{1}{42\,a^4\,d\,(1-n)}\text{Cos}[c+d\,x]^7\,(a+a\,\text{Sec}[c+d\,x])^{4+n}\,\left(6\,(8-n)-\left(108-25\,n+n^2\right)\text{Sec}[c+d\,x]\right)$$

Result (type 8, 23 leaves):

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

Problem 148: Result more than twice size of optimal antiderivative.

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

Optimal (type 5, 42 leaves, 2 steps):

$$\frac{1}{a\,d\,(1+n)}\text{Hypergeometric2F1}[2,1+n,2+n,1+\text{Sec}[c+d\,x]]\,(a+a\,\text{Sec}[c+d\,x])^{1+n}$$

Result (type 5, 95 leaves):

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

Problem 152: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 6, 230 leaves, 11 steps):

$$-\left(\left(\text{AppellF1}\left[1-n,-\frac{1}{2},\frac{1}{2}-n,2-n,\text{Cos}[c+d x],-\text{Cos}[c+d x]\right](1+\text{Cos}[c+d x])^{\frac{1}{2}-n}(n-n\,\text{Cos}[c+d x])\,\text{Cot}[c+d x]\,(a+a\,\text{Sec}[c+d x])^n\right)\Big/\left(d\,(1-n)\sqrt{1-\text{Cos}[c+d x]}\right)\right)-\frac{\text{Cos}[c+d x]\,(a+a\,\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]}{d}+\frac{1}{d}2^{\frac{1}{2}+n}\,\text{AppellF1}\left[\frac{1}{2},-4+n,\frac{1}{2}-n,\frac{3}{2},1-\text{Cos}[c+d x],\frac{1}{2}(1-\text{Cos}[c+d x])\right]\text{Cos}[c+d x]^n\,(1+\text{Cos}[c+d x])^{-\frac{1}{2}-n}\,(a+a\,\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]$$

Result (type 6, 7069 leaves):

$$\Big(2^{5+n}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^9\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\right)^n (1+\text{Sec}[c+d x])^{-n}\,(a\,(1+\text{Sec}[c+d x]))^n\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\Big(\text{Cos}[4\,(c+d x)]\Big(\frac{1}{16}(1+\text{Sec}[c+d x])^n+\frac{1}{4}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^2+\frac{3}{8}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^4+\frac{1}{4}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^6+\frac{1}{16}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^8\Big)-\frac{1}{16}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[4\,(c+d x)]-\frac{1}{4}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^2\,\text{Sin}[4\,(c+d x)]-\frac{3}{8}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^4\,\text{Sin}[4\,(c+d x)]-\frac{1}{4}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^6\,\text{Sin}[4\,(c+d x)]-\frac{1}{16}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^8\,\text{Sin}[4\,(c+d x)]+\text{Cos}[c+d x]^8\Big(\frac{1}{16}\text{Cos}[4\,(c+d x)]\,(1+\text{Sec}[c+d x])^n-\frac{1}{16}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[4\,(c+d x)]\Big)+\text{Cos}[c+d x]^7\Big(\frac{1}{2}\,i\,\text{Cos}[4\,(c+d x)]\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]+\frac{1}{2}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]\,\text{Sin}[4\,(c+d x)]\Big)+\text{Cos}[c+d x]^6\Big(\text{Cos}[4\,(c+d x)]\Big(-\frac{1}{4}(1+\text{Sec}[c+d x])^n-\frac{7}{4}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^2\Big)+\frac{1}{4}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[4\,(c+d x)]+\frac{7}{4}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^2\,\text{Sin}[4\,(c+d x)]\Big)+\text{Cos}[c+d x]^5\Big(\text{Cos}[4\,(c+d x)]\Big(-\frac{3}{2}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]-\frac{7}{2}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^3\Big)-\frac{3}{2}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]\,\text{Sin}[4\,(c+d x)]-\frac{7}{2}(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^3\,\text{Sin}[4\,(c+d x)]\Big)+$$

$$\text{Cos}[c+d x]^4 \left(\text{Cos}[4 (c+d x)] \left(\frac{3}{8} (1+\text{Sec}[c+d x])^n+\frac{15}{4} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^2+\frac{35}{8} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^4\right)-\frac{3}{8} i (1+\text{Sec}[c+d x])^n \text{Sin}[4 (c+d x)]-\frac{15}{4} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^2 \text{Sin}[4 (c+d x)]-\frac{35}{8} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^4 \text{Sin}[4 (c+d x)]\right)+$$

$$\text{Cos}[c+d x]^3 \left(\text{Cos}[4 (c+d x)] \left(\frac{3}{2} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]+5 i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^3+\frac{7}{2} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^5\right)+\frac{3}{2} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x] \text{Sin}[4 (c+d x)]+5 (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^3 \text{Sin}[4 (c+d x)]+\frac{7}{2} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^5 \text{Sin}[4 (c+d x)]\right)+$$

$$\text{Cos}[c+d x]^2 \left(\text{Cos}[4 (c+d x)] \left(-\frac{1}{4} (1+\text{Sec}[c+d x])^n-\frac{9}{4} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^2-\frac{15}{4} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^4-\frac{7}{4} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^6\right)+\frac{1}{4} i (1+\text{Sec}[c+d x])^n \text{Sin}[4 (c+d x)]+\frac{9}{4} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^2 \text{Sin}[4 (c+d x)]+\frac{15}{4} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^4 \text{Sin}[4 (c+d x)]+\frac{7}{4} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^6 \text{Sin}[4 (c+d x)]\right)+$$

$$\text{Cos}[c+d x] \left(\text{Cos}[4 (c+d x)] \left(-\frac{1}{2} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]-\frac{3}{2} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^3-\frac{3}{2} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^5-\frac{1}{2} i (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^7\right)-\frac{1}{2} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x] \text{Sin}[4 (c+d x)]-\frac{3}{2} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^3 \text{Sin}[4 (c+d x)]-\frac{3}{2} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^5 \text{Sin}[4 (c+d x)]-\frac{1}{2} (1+\text{Sec}[c+d x])^n \text{Sin}[c+d x]^7 \text{Sin}[4 (c+d x)]\right)\Bigg)\Bigg)$$

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

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

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},n,4,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$2\left(-4\,\text{AppellF1}\left[\frac{3}{2},n,5,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.1+n,4,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)+$$
$$\text{AppellF1}\left[\frac{1}{2},n,5,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\Big/$$
$$\left(\text{AppellF1}\left[\frac{1}{2},n,5,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$\frac{2}{3}\left(-5\,\text{AppellF1}\left[\frac{3}{2},n,6,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.\left.\left.1+n,5,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)\Big/$$
$$\left(d\left(2^{4+n}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^{10}\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\right)^n\right.\right.$$
$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},n,3,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\right)\Big/\right.$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},n,3,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$2\left(-3\,\text{AppellF1}\left[\frac{3}{2},n,4,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.1+n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-$$
$$\left(6\,\text{AppellF1}\left[\frac{1}{2},n,4,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},n,4,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$2\left(-4\,\text{AppellF1}\left[\frac{3}{2},n,5,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.1+n,4,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)+$$
$$\text{AppellF1}\left[\frac{1}{2},n,5,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\Big/$$
$$\left(\text{AppellF1}\left[\frac{1}{2},n,5,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$\frac{2}{3}\left(-5\,\text{AppellF1}\left[\frac{3}{2},n,6,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.\left.1+n,5,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)-$$
$$9\times 2^{4+n}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^8\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\right)^n\text{Sin}\left[\frac{1}{2}(c+d x)\right]^2$$
$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},n,3,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\right)\Big/\right.$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},n,3,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$

$$2\,\Big(-3\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,3,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)-$$

$$\Big(6\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,4,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)\Big/$$

$$\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,4,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+$$

$$2\,\Big(-4\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,5,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)+$$

$$\text{AppellF1}\Big[\frac{1}{2},\,n,\,5,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big/$$

$$\Big(\text{AppellF1}\Big[\frac{1}{2},\,n,\,5,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+$$

$$\frac{2}{3}\,\Big(-5\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,6,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,5,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)\Big)+$$

$$2^{5+n}\,\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^9\,\Big(\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Sec}[c+d\,x]\Big)^n\,\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]$$

$$\Big(\Big(6\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,3,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^4$$

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

$$2\,\Big(-3\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,3,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)+$$

$$\Big(3\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^4\,\Big(-\text{AppellF1}\Big[\frac{3}{2},\,n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{2},\,1+n,\,3,\,\frac{5}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Big)\Big/$$

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

$$2\,\Big(-3\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,3,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)-$$

$$\Big(6\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,4,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2$$

$$\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Big/\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,4,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+$$

$$2\,\Big(-4\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,5,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)-$$

$$\Big(6\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\Big(-\frac{4}{3}\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,5,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{2},\,1+n,\,4,\,\frac{5}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Big)\Big/$$

$$\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,4,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+$$

$$2\,\Big(-4\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,5,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)+$$

$$\Big(-\frac{5}{3}\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,6,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{2},\,1+n,\,5,\,\frac{5}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Big/$$

$$\Big(\text{AppellF1}\Big[\frac{1}{2},\,n,\,5,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+$$

$$\frac{2}{3}\,\Big(-5\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,6,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,5,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)-$$

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

$$\Big(2\,\Big(-3\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3}{2},$$

$$1+n,\,3,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}$$

$$(c+d\,x)\Big]+3\,\Big(-\text{AppellF1}\Big[\frac{3}{2},\,n,\,4,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{2},\,1+n,\,3,\,\frac{5}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\Big(-3\,\Big(-\frac{12}{5}\,\text{AppellF1}\Big[\frac{5}{2},\,n,\,5,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]+$$

$$\frac{3}{5}\,n\,\text{AppellF1}\Big[\frac{5}{2},\,1+n,\,4,\,\frac{7}{2},\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)+n\left(-\frac{9}{5}\,\text{AppellF1}\left[\frac{5}{2},\,1+n,\right.\right.$$

$$\left.4,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{3}{5}\left(1+n\right)\text{AppellF1}\left[\frac{5}{2},\,2+n,\,3,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

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

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

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

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

$$\Bigg(6\,\text{AppellF1}\left[\frac{1}{2},\,n,\,4,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right]\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

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

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

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

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{1}{3}\,n\,\text{AppellF1}\left[\frac{3}{2},\,1+n,\,4,\,\frac{5}{2},\right.$$

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

$$2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\left(-4\left(-3\,\text{AppellF1}\left[\frac{5}{2},\,n,\,6,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.\right.\right.$$

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

$$\frac{3}{5}\,n\,\text{AppellF1}\left[\frac{5}{2},\,1+n,\,5,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)+n\left(-\frac{12}{5}\,\text{AppellF1}\left[\frac{5}{2},\,1+n,\right.\right.$$

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

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{3}{5}\left(1+n\right)\text{AppellF1}\left[\frac{5}{2},\,2+n,\,4,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

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

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

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

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

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

$$\left(-\frac{5}{3}\text{AppellF1}\left[\frac{3}{2}, n, 6, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right.$$

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

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

$$\frac{2}{3}\left(-5\,\text{AppellF1}\left[\frac{3}{2}, n, 6, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right] +\right.$$

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

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] + \frac{2}{3}\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2 \left(-5\left(-\frac{18}{5}\text{AppellF1}\left[\right.\right.\right.$$

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

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] + \frac{3}{5} n\,\text{AppellF1}\left[\frac{5}{2}, 1+n, 6, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

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

$$\left.\frac{5}{2}, 1+n, 6, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] + \frac{3}{5}(1+n)\,\text{AppellF1}\left[\frac{5}{2}, 2+n, 5, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

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

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

$$\left(-5\,\text{AppellF1}\left[\frac{3}{2}, n, 6, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$

$$\left.\left.\left. 1+n, 5, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right) +$$

$$2^{5+n} n \,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^9 \left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \text{Sec}[c+d x]\right)^{-1+n}$$

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

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

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

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

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

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

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},n,4,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{3}{2},n,5,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},1+n,4,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)+$$

$$\text{AppellF1}\left[\frac{1}{2},n,5,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\Big/\left(\text{AppellF1}\left[\frac{1}{2},n,5,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\frac{2}{3}\left(-5\,\text{AppellF1}\left[\frac{3}{2},n,6,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},1+n,5,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)$$

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

Problem 153: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 6, 95 leaves, 6 steps):

$$-\frac{1}{d(1-n)}\text{AppellF1}\left[1-n,-\frac{1}{2},-\frac{1}{2}-n,2-n,\text{Cos}[c+d x],-\text{Cos}[c+d x]\right]\sqrt{1-\text{Cos}[c+d x]}\,(1+\text{Cos}[c+d x])^{\frac{1}{2}-n}\,\text{Cot}[c+d x]\,(a+a\,\text{Sec}[c+d x])^n$$

Result (type 6, 4297 leaves):

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

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

$$\frac{1}{4}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[2(c+d x)]+\frac{1}{2}\,i\,(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^2\,\text{Sin}[2(c+d x)]+$$

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

$$\text{Cos}[c+d x]^3\Big(-i\,\text{Cos}[2(c+d x)](1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]-(1+\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]\,\text{Sin}[2(c+d x)]\Big)+$$

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

$$\left(\left(3 \mathrm{AppellF1}\left[\frac{1}{2}, n, 2, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right] \mathrm{Sec}\left[\frac{1}{2} (c+d x)\right]^2\right) \Big/ \left(3 \mathrm{AppellF1}\left[\frac{1}{2}, n, 2, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+2 \left(-2 \mathrm{AppellF1}\left[\frac{3}{2}, n, 3, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+n \mathrm{AppellF1}\left[\frac{3}{2}, 1+n, 2, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]\right) \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)-\mathrm{AppellF1}\left[\frac{1}{2}, n, 3, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right] \Big/ \left(\mathrm{AppellF1}\left[\frac{1}{2}, n, 3, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+\frac{2}{3} \left(-3 \mathrm{AppellF1}\left[\frac{3}{2}, n, 4, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+n \mathrm{AppellF1}\left[\frac{3}{2}, 1+n, 3, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]\right) \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)\right)\Big/$$

$$\left(d \left(2^{2+n} \mathrm{Cos}\left[\frac{1}{2} (c+d x)\right]^6 \left(\mathrm{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \mathrm{Sec}[c+d x]\right)^n \left(\left(3 \mathrm{AppellF1}\left[\frac{1}{2}, n, 2, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right] \mathrm{Sec}\left[\frac{1}{2} (c+d x)\right]^2\right) \Big/ \left(3 \mathrm{AppellF1}\left[\frac{1}{2}, n, 2, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+2 \left(-2 \mathrm{AppellF1}\left[\frac{3}{2}, n, 3, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+n \mathrm{AppellF1}\left[\frac{3}{2}, 1+n, 2, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]\right) \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)-\mathrm{AppellF1}\left[\frac{1}{2}, n, 3, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right] \Big/ \left(\mathrm{AppellF1}\left[\frac{1}{2}, n, 3, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+\frac{2}{3} \left(-3 \mathrm{AppellF1}\left[\frac{3}{2}, n, 4, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]+n \mathrm{AppellF1}\left[\frac{3}{2}, 1+n, 3, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right]\right) \mathrm{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)\right)-5\times 2^{2+n} \mathrm{Cos}\left[\frac{1}{2} (c+d x)\right]^4 \left(\mathrm{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \mathrm{Sec}[c+d x]\right)^n \mathrm{Sin}\left[\frac{1}{2} (c+d x)\right]^2$$

$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},n,2,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\right.$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},n,2,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{3}{2},n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.1+n,2,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-$$
$$\text{AppellF1}\left[\frac{1}{2},n,3,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\Big/$$
$$\left(\text{AppellF1}\left[\frac{1}{2},n,3,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$\frac{2}{3}\left(-3\,\text{AppellF1}\left[\frac{3}{2},n,4,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.1+n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)+$$
$$2^{3+n}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^5\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\right)^n\text{Sin}\left[\frac{1}{2}(c+d x)\right]$$
$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},n,2,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},n,2,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{3}{2},n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.1+n,2,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)+$$
$$\left(3\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(-\frac{2}{3}\text{AppellF1}\left[\frac{3}{2},n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right.\right.$$
$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+\frac{1}{3}n\,\text{AppellF1}\left[\frac{3}{2},1+n,2,\frac{5}{2},\right.$$
$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right)\Big/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},n,2,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{3}{2},n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3}{2},\right.\right.$$
$$\left.\left.\left.1+n,2,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-$$
$$\left(-\text{AppellF1}\left[\frac{3}{2},n,4,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right.$$
$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]+\frac{1}{3}n\,\text{AppellF1}\left[\frac{3}{2},1+n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/$$
$$\left(\text{AppellF1}\left[\frac{1}{2},n,3,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\right.$$

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

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

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

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

$$2\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big(-2\Big(-\frac{9}{5}\text{AppellF1}\left[\frac{5}{2},n,4,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+$$

$$\frac{3}{5}n\,\text{AppellF1}\left[\frac{5}{2},1+n,3,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Big)+n\Big(-\frac{6}{5}\text{AppellF1}\left[\frac{5}{2},1+n,3,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]+\frac{3}{5}(1+n)\,\text{AppellF1}\left[\frac{5}{2},2+n,2,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$

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

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

$$\Big(-\text{AppellF1}\left[\frac{3}{2},n,4,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+\frac{1}{3}n\,\text{AppellF1}\left[\frac{3}{2},1+n,3,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+$$

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

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

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{2}{3}\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\ \Big(-3\ \Big(-\frac{12}{5}\,\text{AppellF1}\Big[\frac{5}{2},\ n,\ 5,\ \frac{7}{2},\ \text{Tan}\Big[$$

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

$$\frac{3}{5}\,n\,\text{AppellF1}\Big[\frac{5}{2},\ 1+n,\ 4,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Big)+n\ \Big(-\frac{9}{5}\,\text{AppellF1}\Big[\frac{5}{2},\ 1+n,$$

$$4,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Big]\ \text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{3}{5}\left(1+n\right)\,\text{AppellF1}\Big[\frac{5}{2},\ 2+n,\ 3,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

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

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

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

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

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

$$\text{Sin}\Big[$$

$$\frac{1}{2}\left(c+d\,x\right)\Big]$$

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

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

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

$$1+n,\ 2,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Big)-$$

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

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

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

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

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

$$\text{Sec}[c+d x]\ \text{Tan}[c+d x]))))$$

Problem 156: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 6, 105 leaves, 5 steps):

$$-((\text{AppellF1}[1-n,-\frac{1}{4},-\frac{1}{4}-n,2-n,\text{Cos}[c+d x],-\text{Cos}[c+d x]]\ \text{Cos}[c+d x]$$

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

Result (type 6, 4151 leaves):

$$(5\times 2^{1+n}\,\text{Cot}[\frac{1}{2}(c+d x)]^2\ (\text{Cos}[\frac{1}{2}(c+d x)]^2\ \text{Sec}[c+d x])^n\ (1+\text{Sec}[c+d x])^{-n}$$

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

$$\text{Sin}[c+d x]^{3/2}\ (\frac{1}{2}(1+\text{Sec}[c+d x])^n-\frac{1}{2}\,i\,(1+\text{Sec}[c+d x])^n\ \text{Sin}[2\ (c+d x)])+$$

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

$$\sqrt{\text{Sin}[c+d x]}\ (\frac{1}{2}\,i\,(1+\text{Sec}[c+d x])^n+\frac{1}{2}(1+\text{Sec}[c+d x])^n\ \text{Sin}[2\ (c+d x)]))))$$

$$((\text{AppellF1}[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2]\ \text{Sec}[\frac{1}{2}(c+d x)]^2)\Big/$$

$$(5\,\text{AppellF1}[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2]+$$

$$2\ (-3\,\text{AppellF1}[\frac{5}{4},n,\frac{5}{2},\frac{9}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2]+2\,n\,\text{AppellF1}[\frac{5}{4},$$

$$1+n,\frac{3}{2},\frac{9}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2])\ \text{Tan}[\frac{1}{2}(c+d x)]^2)-$$

$$\text{AppellF1}[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2]\Big/$$

$$(5\,\text{AppellF1}[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2]+$$

$$2\ (-5\,\text{AppellF1}[\frac{5}{4},n,\frac{7}{2},\frac{9}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2]+2\,n\,\text{AppellF1}[\frac{5}{4},$$

$$1+n,\frac{5}{2},\frac{9}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2])\ \text{Tan}[\frac{1}{2}(c+d x)]^2)))\Big/$$

$$(d\ (25\times 2^n\,\text{Cos}[c+d x]\ \text{Cot}[\frac{1}{2}(c+d x)]^2\ (\text{Cos}[\frac{1}{2}(c+d x)]^2\ \text{Sec}[c+d x])^n\ \text{Sin}[c+d x]^{3/2}$$

$$((\text{AppellF1}[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}[\frac{1}{2}(c+d x)]^2,-\text{Tan}[\frac{1}{2}(c+d x)]^2]\ \text{Sec}[\frac{1}{2}(c+d x)]^2)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+\right.$$
$$2\left(-3\,\text{AppellF1}\left[\frac{5}{4},n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\right.\right.$$
$$\left.\left.\left.\frac{5}{4},1+n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-$$
$$\text{AppellF1}\left[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+\right.$$
$$2\left(-5\,\text{AppellF1}\left[\frac{5}{4},n,\frac{7}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\right.\right.$$
$$\left.\left.\left.\frac{5}{4},1+n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)-$$
$$5\times2^{1+n}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\right)^n\text{Sin}[c+d\,x]^{5/2}$$
$$\left(\left(\text{AppellF1}\left[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+\right.$$
$$2\left(-3\,\text{AppellF1}\left[\frac{5}{4},n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\right.\right.$$
$$\left.\left.\left.\frac{5}{4},1+n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-$$
$$\text{AppellF1}\left[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+\right.$$
$$2\left(-5\,\text{AppellF1}\left[\frac{5}{4},n,\frac{7}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\right.\right.$$
$$\left.\left.\left.\frac{5}{4},1+n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)+$$
$$5\times2^{1+n}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\right)^n\text{Sin}[c+d\,x]^{5/2}$$
$$\left(\left(\text{AppellF1}\left[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\right.\right.\right.$$
$$\left.\left.\frac{1}{2}(c+d\,x)\right]\right)\Big/\left(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{3}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+\right.$$
$$2\left(-3\,\text{AppellF1}\left[\frac{5}{4},n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\right.\right.$$
$$\left.\left.\left.\frac{5}{4},1+n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)+$$
$$\left(\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(-\frac{3}{10}\,\text{AppellF1}\left[\frac{5}{4},n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right.\right.$$
$$\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+\frac{1}{5}\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{3}{2},\frac{9}{4},\right.$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)]\Big)\Big)\Big/$$

$$\Big(5\,\text{AppellF1}[\tfrac{1}{4}, n, \tfrac{3}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2] +$$

$$2\,\Big(-3\,\text{AppellF1}[\tfrac{5}{4}, n, \tfrac{5}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2] + 2\,n\,\text{AppellF1}[$$

$$\tfrac{5}{4}, 1+n, \tfrac{3}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\Big)\ \text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big) -$$

$$\Big(-\tfrac{1}{2}\,\text{AppellF1}[\tfrac{5}{4}, n, \tfrac{7}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)] + \tfrac{1}{5}\,n\,\text{AppellF1}[\tfrac{5}{4}, 1+n, \tfrac{5}{2}, \tfrac{9}{4},$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)]\Big)\Big/$$

$$\Big(5\,\text{AppellF1}[\tfrac{1}{4}, n, \tfrac{5}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2] +$$

$$2\,\Big(-5\,\text{AppellF1}[\tfrac{5}{4}, n, \tfrac{7}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2] + 2\,n\,\text{AppellF1}[$$

$$\tfrac{5}{4}, 1+n, \tfrac{5}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\Big)\ \text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big) -$$

$$\Big(\text{AppellF1}[\tfrac{1}{4}, n, \tfrac{3}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2$$

$$\Big(2\,\Big(-3\,\text{AppellF1}[\tfrac{5}{4}, n, \tfrac{5}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2] + 2\,n\,\text{AppellF1}[$$

$$\tfrac{5}{4}, 1+n, \tfrac{3}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\Big)\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)] + 5\,\Big(-\tfrac{3}{10}\,\text{AppellF1}[\tfrac{5}{4}, n, \tfrac{5}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)] + \tfrac{1}{5}\,n\,\text{AppellF1}[\tfrac{5}{4},$$

$$1+n, \tfrac{3}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)]\Big) + 2\,\text{Tan}[\tfrac{1}{2}(c+d x)]^2\ \Big(-3\,\Big(-\tfrac{25}{18}\,\text{AppellF1}[\tfrac{9}{4}, n, \tfrac{7}{2}, \tfrac{13}{4}, \text{Tan}[$$

$$\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)] +$$

$$\tfrac{5}{9}\,n\,\text{AppellF1}[\tfrac{9}{4}, 1+n, \tfrac{5}{2}, \tfrac{13}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)]\Big) + 2\,n\,\Big(-\tfrac{5}{6}\,\text{AppellF1}[\tfrac{9}{4}, 1+n,$$

$$\tfrac{5}{2}, \tfrac{13}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)] + \tfrac{5}{9}\,(1+n)\,\text{AppellF1}[\tfrac{9}{4}, 2+n, \tfrac{3}{2}, \tfrac{13}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2]\ \text{Sec}[\tfrac{1}{2}(c+d x)]^2\ \text{Tan}[\tfrac{1}{2}(c+d x)]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(5\,\text{AppellF1}\big[\tfrac{1}{4}, n, \tfrac{3}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big] + 2\,\Big(-3\,\text{AppellF1}\big[$$

$$\tfrac{5}{4}, n, \tfrac{5}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big] + 2\,n\,\text{AppellF1}\big[\tfrac{5}{4},$$

$$1+n, \tfrac{3}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\Big)\,\text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big)^2 +$$

$$\Big(\text{AppellF1}\big[\tfrac{1}{4}, n, \tfrac{5}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]$$

$$\Big(2\,\Big(-5\,\text{AppellF1}\big[\tfrac{5}{4}, n, \tfrac{7}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big] +$$

$$2\,n\,\text{AppellF1}\big[\tfrac{5}{4}, 1+n, \tfrac{5}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\Big)\,\text{Sec}[\tfrac{1}{2}(c+d x)]^2\,\text{Tan}[\tfrac{1}{2}(c+d x)] +$$

$$5\,\Big(-\tfrac{1}{2}\,\text{AppellF1}\big[\tfrac{5}{4}, n, \tfrac{7}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]$$

$$\text{Sec}[\tfrac{1}{2}(c+d x)]^2\,\text{Tan}[\tfrac{1}{2}(c+d x)] + \tfrac{1}{5}\,n\,\text{AppellF1}\big[\tfrac{5}{4}, 1+n, \tfrac{5}{2}, \tfrac{9}{4},$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\,\text{Sec}[\tfrac{1}{2}(c+d x)]^2\,\text{Tan}[\tfrac{1}{2}(c+d x)]\Big) +$$

$$2\,\text{Tan}[\tfrac{1}{2}(c+d x)]^2\,\Big(-5\,\Big(-\tfrac{35}{18}\,\text{AppellF1}\big[\tfrac{9}{4}, n, \tfrac{9}{2}, \tfrac{13}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\,\text{Sec}[\tfrac{1}{2}(c+d x)]^2\,\text{Tan}[\tfrac{1}{2}(c+d x)] +$$

$$\tfrac{5}{9}\,n\,\text{AppellF1}\big[\tfrac{9}{4}, 1+n, \tfrac{7}{2}, \tfrac{13}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]$$

$$\text{Sec}[\tfrac{1}{2}(c+d x)]^2\,\text{Tan}[\tfrac{1}{2}(c+d x)]\Big) + 2\,n\,\Big(-\tfrac{25}{18}\,\text{AppellF1}\big[\tfrac{9}{4}, 1+n,$$

$$\tfrac{7}{2}, \tfrac{13}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\,\text{Sec}[\tfrac{1}{2}(c+d x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(c+d x)] + \tfrac{5}{9}\,(1+n)\,\text{AppellF1}\big[\tfrac{9}{4}, 2+n, \tfrac{5}{2}, \tfrac{13}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\,\text{Sec}[\tfrac{1}{2}(c+d x)]^2\,\text{Tan}[\tfrac{1}{2}(c+d x)]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big(5\,\text{AppellF1}\big[\tfrac{1}{4}, n, \tfrac{5}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big] + 2\,\Big(-5\,\text{AppellF1}\big[$$

$$\tfrac{5}{4}, n, \tfrac{7}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big] + 2\,n\,\text{AppellF1}\big[\tfrac{5}{4},$$

$$1+n, \tfrac{5}{2}, \tfrac{9}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\Big)\,\text{Tan}[\tfrac{1}{2}(c+d x)]^2\Big)^2\Big) +$$

$$5\times 2^{1+n}\,n\,\text{Cot}[\tfrac{1}{2}(c+d x)]^2\,\Big(\text{Cos}[\tfrac{1}{2}(c+d x)]^2\,\text{Sec}[c+d x]\Big)^{-1+n}$$

$$\text{Sin}[c+d x]^{5/2}$$

$$\Big(\Big(\text{AppellF1}\big[\tfrac{1}{4}, n, \tfrac{3}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big]\,\text{Sec}[\tfrac{1}{2}(c+d x)]^2\Big)\Big/$$

$$\Big(5\,\text{AppellF1}\big[\tfrac{1}{4}, n, \tfrac{3}{2}, \tfrac{5}{4}, \text{Tan}[\tfrac{1}{2}(c+d x)]^2, -\text{Tan}[\tfrac{1}{2}(c+d x)]^2\big] +$$

$$2\left(-3\,\text{AppellF1}\left[\frac{5}{4},n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)-\text{AppellF1}\left[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\Bigg/\left(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{5}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\left(-5\,\text{AppellF1}\left[\frac{5}{4},n,\frac{7}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{5}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\left(-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\right)\Bigg)\Bigg)$$

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

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

Optimal (type 6, 105 leaves, 5 steps):

$$-\left(\left(\text{AppellF1}\left[1-n,\frac{1}{4},\frac{1}{4}-n,2-n,\text{Cos}[c+d\,x],-\text{Cos}[c+d\,x]\right](1-\text{Cos}[c+d\,x])^{1/4}\,\text{Cos}[c+d\,x]\,(1+\text{Cos}[c+d\,x])^{\frac{1}{4}-n}\,(a+a\,\text{Sec}[c+d\,x])^n\right)\Big/\left(d\,(1-n)\sqrt{\text{Sin}[c+d\,x]}\right)\right)$$

Result (type 6, 1758 leaves):

$$\Bigg(7\times 2^{1+n}\,\text{AppellF1}\left[\frac{3}{4},n,\frac{3}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\right)^n(a\,(1+\text{Sec}[c+d\,x]))^n\,\text{Sin}[c+d\,x]^2\Bigg)\Bigg/\Bigg(d\,\Bigg(21\,\text{AppellF1}\left[\frac{3}{4},n,\frac{3}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+6\left(-3\,\text{AppellF1}\left[\frac{7}{4},n,\frac{5}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{7}{4},1+n,\frac{3}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)\Bigg(\Bigg(21\times 2^n\,\text{AppellF1}\left[\frac{3}{4},n,\frac{3}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Cos}[c+d\,x]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\right)^n\sqrt{\text{Sin}[c+d\,x]}\Bigg)\Bigg/\Bigg(21\,\text{AppellF1}\left[\frac{3}{4},n,\frac{3}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+6\left(-3\,\text{AppellF1}\left[\frac{7}{4},n,\frac{5}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{7}{4},\right.\right.$$

$$1+n,\ \frac{3}{2},\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\Big]\Big)\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\Big)+$$

$$\Bigg(7\times 2^{1+n}\ \left(\text{Cos}\left[\frac{1}{2}\ (c+d\ x)\right]^2\ \text{Sec}[c+d\ x]\right)^n\ \text{Sin}[c+d\ x]^{3/2}$$

$$\Bigg(-\frac{9}{14}\ \text{AppellF1}\left[\frac{7}{4},\ n,\ \frac{5}{2},\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\ (c+d\ x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]+\frac{3}{7}\ n\ \text{AppellF1}\Big[\frac{7}{4},\ 1+n,\ \frac{3}{2},\ \frac{11}{4},$$

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

$$\Bigg(21\ \text{AppellF1}\left[\frac{3}{4},\ n,\ \frac{3}{2},\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]+$$

$$6\ \Bigg(-3\ \text{AppellF1}\left[\frac{7}{4},\ n,\ \frac{5}{2},\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]+2\ n\ \text{AppellF1}\Big[\frac{7}{4},$$

$$1+n,\ \frac{3}{2},\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\Big]\Bigg)\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\Bigg)-$$

$$\Bigg(7\times 2^{1+n}\ \text{AppellF1}\left[\frac{3}{4},\ n,\ \frac{3}{2},\ \frac{7}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]$$

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

$$\Bigg(6\ \Bigg(-3\ \text{AppellF1}\left[\frac{7}{4},\ n,\ \frac{5}{2},\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]+$$

$$2\ n\ \text{AppellF1}\left[\frac{7}{4},\ 1+n,\ \frac{3}{2},\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}\ (c+d\ x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]+21\ \Bigg(-\frac{9}{14}\ \text{AppellF1}\Big[\frac{7}{4},\ n,\ \frac{5}{2},\ \frac{11}{4},$$

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

$$\frac{3}{7}\ n\ \text{AppellF1}\left[\frac{7}{4},\ 1+n,\ \frac{3}{2},\ \frac{11}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\ (c+d\ x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]\Bigg)+6\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2$$

$$\Bigg(-3\ \Bigg(-\frac{35}{22}\ \text{AppellF1}\left[\frac{11}{4},\ n,\ \frac{7}{2},\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\ (c+d\ x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]+\frac{7}{11}\ n\ \text{AppellF1}\Big[\frac{11}{4},\ 1+n,\ \frac{5}{2},\ \frac{15}{4},$$

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

$$2\ n\ \Bigg(-\frac{21}{22}\ \text{AppellF1}\left[\frac{11}{4},\ 1+n,\ \frac{5}{2},\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\ (c+d\ x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]+\frac{7}{11}\ (1+n)$$

$$\text{AppellF1}\left[\frac{11}{4},\ 2+n,\ \frac{3}{2},\ \frac{15}{4},\ \text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}\ (c+d\ x)\right]^2\right]$$

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

$$\left(21\,\text{AppellF1}\left[\frac{3}{4},n,\frac{3}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+6\left(-3\,\text{AppellF1}\left[\frac{7}{4},n,\frac{5}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{7}{4},1+n,\frac{3}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2+\left(7\times 2^{1+n}\,n\,\text{AppellF1}\left[\frac{3}{4},n,\frac{3}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\right)^{-1+n}\text{Sin}[c+d x]^{3/2}\left(-\text{Cos}\left[\frac{1}{2}(c+d x)\right]\text{Sec}[c+d x]\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\,\text{Tan}[c+d x]\right)\right)\Big/\left(21\,\text{AppellF1}\left[\frac{3}{4},n,\frac{3}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+6\left(-3\,\text{AppellF1}\left[\frac{7}{4},n,\frac{5}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{7}{4},1+n,\frac{3}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\bigg)\bigg)$$

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

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

Optimal (type 6, 105 leaves, 5 steps):

$$-\left(\left(\text{AppellF1}\left[1-n,\frac{3}{4},\frac{3}{4}-n,2-n,\text{Cos}[c+d x],-\text{Cos}[c+d x]\right](1-\text{Cos}[c+d x])^{3/4}\text{Cos}[c+d x](1+\text{Cos}[c+d x])^{\frac{3}{4}-n}(a+a\,\text{Sec}[c+d x])^n\right)\Big/\left(d(1-n)\,\text{Sin}[c+d x]^{3/2}\right)\right)$$

Result (type 6, 1735 leaves):

$$\left(5\times 2^{1+n}\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\right)^n(a(1+\text{Sec}[c+d x]))^n\right)\Big/\left(d\left(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{5}{4},n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]-2\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\left(\left(5\times 2^n\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right.\right.\right.$$

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

$$\Bigg(\sqrt{\text{Sin}[c+d\,x]}\,\Bigg(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-$$

$$2\,\Bigg(\text{AppellF1}\left[\frac{5}{4},n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-2\,n\,\text{AppellF1}\Big[\frac{5}{4},1+$$

$$n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(5\times 2^{1+n}\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\right)^n\sqrt{\text{Sin}[c+d\,x]}\,\Bigg(-\frac{1}{10}\,\text{AppellF1}\Big[\frac{5}{4},n,\frac{3}{2},$$

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

$$\frac{1}{5}\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]$$

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

$$\Bigg(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-$$

$$2\,\Bigg(\text{AppellF1}\left[\frac{5}{4},n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-2\,n\,\text{AppellF1}\Big[\frac{5}{4},$$

$$1+n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)-$$

$$\Bigg(5\times 2^{1+n}\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]$$

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

$$\Bigg(-2\,\Bigg(\text{AppellF1}\left[\frac{5}{4},n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-$$

$$2\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+5\,\Bigg(-\frac{1}{10}\,\text{AppellF1}\Big[\frac{5}{4},n,\frac{3}{2},\frac{9}{4},$$

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

$$\frac{1}{5}\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)-2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\,\Bigg(-\frac{5}{6}\,\text{AppellF1}\Big[\frac{9}{4},n,\frac{5}{2},$$

$$\frac{13}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+$$

$$\frac{5}{9}\,n\,\text{AppellF1}\left[\frac{9}{4},1+n,\frac{3}{2},\frac{13}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-2\,n\,\Bigg(-\frac{5}{18}\,\text{AppellF1}\Big[\frac{9}{4},1+n,\frac{3}{2},\frac{13}{4},$$

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

$$\frac{5}{9}(1+n)\,\text{AppellF1}\left[\frac{9}{4},2+n,\frac{1}{2},\frac{13}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{5}{4},n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-2\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)^2+$$

$$\Bigg(5\times 2^{1+n}\,n\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\right)^{-1+n}\sqrt{\text{Sin}[c+d\,x]}\left(-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\right)\Bigg)\Bigg/$$

$$\Bigg(5\,\text{AppellF1}\left[\frac{1}{4},n,\frac{1}{2},\frac{5}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{5}{4},n,\frac{3}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-2\,n\,\text{AppellF1}\left[\frac{5}{4},1+n,\frac{1}{2},\frac{9}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)\Bigg)$$

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

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

Optimal (type 6, 105 leaves, 5 steps):

$$-\left(\left(\text{AppellF1}\left[1-n,\frac{5}{4},\frac{5}{4}-n,2-n,\text{Cos}[c+d\,x],-\text{Cos}[c+d\,x]\right](1-\text{Cos}[c+d\,x])^{5/4}\text{Cos}[c+d\,x](1+\text{Cos}[c+d\,x])^{\frac{5}{4}-n}(a+a\,\text{Sec}[c+d\,x])^n\right)\Big/\left(d\,(1-n)\,\text{Sin}[c+d\,x]^{5/2}\right)\right)$$

Result (type 6, 1743 leaves):

$$-\Bigg(\Bigg(3\times 2^{1+n}\,\text{AppellF1}\left[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Csc}[c+d\,x]^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\right)^n\left(a\,(1+\text{Sec}[c+d\,x])\right)^n\Bigg)\Bigg/$$

$$\Bigg(d\,\Bigg(3\,\text{AppellF1}\left[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\left(\text{AppellF1}\left[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{3}{4},1+n,-\frac{1}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)$$

$$\Big(\Big(3\times 2^{n}\,\text{AppellF1}\Big[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]$$

$$\text{Cos}[c+d x]\,\Big(\text{Cos}\Big[\frac{1}{2}(c+d x)\Big]^{2}\text{Sec}[c+d x]\Big)^{n}\Big)\Big/$$

$$\Big(\text{Sin}[c+d x]^{3/2}\,\Big(3\,\text{AppellF1}\Big[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]+$$

$$2\,\Big(\text{AppellF1}\Big[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]+2\,n\,\text{AppellF1}\Big[\frac{3}{4},$$

$$1+n,-\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big)\Big)-$$

$$\Big(3\times 2^{1+n}\,\Big(\text{Cos}\Big[\frac{1}{2}(c+d x)\Big]^{2}\text{Sec}[c+d x]\Big)^{n}\,\Big(-\frac{1}{6}\,\text{AppellF1}\Big[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},$$

$$\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^{2}\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]-$$

$$\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{4},1+n,-\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^{2}\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]\Big)\Big)\Big/$$

$$\Big(\sqrt{\text{Sin}[c+d x]}\,\Big(3\,\text{AppellF1}\Big[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]+$$

$$2\,\Big(\text{AppellF1}\Big[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]+2\,n\,\text{AppellF1}\Big[\frac{3}{4},$$

$$1+n,-\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big)\Big)+$$

$$\Big(3\times 2^{1+n}\,\text{AppellF1}\Big[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]$$

$$\Big(\text{Cos}\Big[\frac{1}{2}(c+d x)\Big]^{2}\text{Sec}[c+d x]\Big)^{n}\,\Big(2\,\Big(\text{AppellF1}\Big[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},$$

$$-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]+2\,n\,\text{AppellF1}\Big[\frac{3}{4},1+n,-\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},$$

$$-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^{2}\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]+$$

$$3\,\Big(-\frac{1}{6}\,\text{AppellF1}\Big[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^{2}\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]-\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{4},1+n,-\frac{1}{2},\frac{7}{4},$$

$$\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^{2}\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\,\Big(-\frac{3}{14}\,\text{AppellF1}\Big[\frac{7}{4},n,\frac{3}{2},\frac{11}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},$$

$$-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^{2}\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]+\frac{3}{7}\,n\,\text{AppellF1}\Big[\frac{7}{4},$$

$$1+n,\frac{1}{2},\frac{11}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},-\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^{2}$$

$$\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]+2\,n\,\Big(\frac{3}{14}\,\text{AppellF1}\Big[\frac{7}{4},1+n,\frac{1}{2},\frac{11}{4},\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2\text{Tan}\left[\frac{1}{2}(c+dx)\right]+\frac{3}{7}(1+n)\,\text{AppellF1}\left[\frac{7}{4},2+n,-\frac{1}{2},\frac{11}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2\text{Tan}\left[\frac{1}{2}(c+dx)\right]\Big)\Big)\Big)\Big)\Big/\Big(\sqrt{\text{Sin}[c+dx]}\Big(3\,\text{AppellF1}\left[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]+2\Big(\text{AppellF1}\left[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{3}{4},1+n,-\frac{1}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\Big)^2\Big)-$$

$$\Big(3\times 2^{1+n}\,n\,\text{AppellF1}\left[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\left(\text{Cos}\left[\frac{1}{2}(c+dx)\right]^2\text{Sec}[c+dx]\right)^{-1+n}\Big(-\text{Cos}\left[\frac{1}{2}(c+dx)\right]\text{Sec}[c+dx]\,\text{Sin}\left[\frac{1}{2}(c+dx)\right]+\text{Cos}\left[\frac{1}{2}(c+dx)\right]^2\text{Sec}[c+dx]\,\text{Tan}[c+dx]\Big)\Big)\Big/$$

$$\Big(\sqrt{\text{Sin}[c+dx]}\Big(3\,\text{AppellF1}\left[-\frac{1}{4},n,-\frac{1}{2},\frac{3}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]+2\Big(\text{AppellF1}\left[\frac{3}{4},n,\frac{1}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]+2\,n\,\text{AppellF1}\left[\frac{3}{4},1+n,-\frac{1}{2},\frac{7}{4},\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2,-\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(c+dx)\right]^2\Big)\Big)\Big)\Big)\Big)$$

Problem 164: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+dx]\,(a+b\,\text{Sec}[c+dx])\,dx$$

Optimal (type 3, 26 leaves, 5 steps):

$$-\frac{a\,\text{ArcTanh}[\text{Cos}[c+dx]]}{d}+\frac{b\,\text{Log}[\text{Tan}[c+dx]]}{d}$$

Result (type 3, 65 leaves):

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

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

$$\int \text{Csc}[c+dx]^2\,(a+b\,\text{Sec}[c+dx])\,dx$$

Optimal (type 3, 37 leaves, 7 steps):

$$\frac{b\,\text{ArcTanh}[\text{Sin}[c+dx]]}{d}-\frac{a\,\text{Cot}[c+dx]}{d}-\frac{b\,\text{Csc}[c+dx]}{d}$$

Result (type 3, 106 leaves):

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

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

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

Optimal (type 3, 69 leaves, 8 steps):

$$\frac{b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{a\,\text{Cot}[c+d\,x]}{d}-\frac{a\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{b\,\text{Csc}[c+d\,x]}{d}-\frac{b\,\text{Csc}[c+d\,x]^3}{3\,d}$$

Result (type 3, 190 leaves):

$$-\frac{7\,b\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{12\,d}-\frac{2\,a\,\text{Cot}[c+d\,x]}{3\,d}-\frac{b\,\text{Cot}\left[\frac{1}{2}\left(c+d\,x\right)\right]\,\text{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{24\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{3\,d}-\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]}{d}+\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\text{Sin}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right]}{d}-\frac{7\,b\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{12\,d}-\frac{b\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{24\,d}$$

Problem 173: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^6\,\left(a+b\,\text{Sec}[c+d\,x]\right)\,dx$$

Optimal (type 3, 101 leaves, 8 steps):

$$\frac{b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{a\,\text{Cot}[c+d\,x]}{d}-\frac{2\,a\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{a\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{b\,\text{Csc}[c+d\,x]}{d}-\frac{b\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{b\,\text{Csc}[c+d\,x]^5}{5\,d}$$

Result (type 3, 272 leaves):

$$-\frac{149\, b\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{240\, d}-\frac{8\, a\, \text{Cot}[c+d x]}{15\, d}-\frac{29\, b\, \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{480\, d}-\frac{b\, \text{Cot}\left[\frac{1}{2}(c+d x)\right] \text{Csc}\left[\frac{1}{2}(c+d x)\right]^4}{160\, d}-\frac{4\, a\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^2}{15\, d}-\frac{a\, \text{Cot}[c+d x]\, \text{Csc}[c+d x]^4}{5\, d}-\frac{b\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}+\frac{b\, \text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{d}-\frac{149\, b\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{240\, d}-\frac{29\, b\, \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{480\, d}-\frac{b\, \text{Sec}\left[\frac{1}{2}(c+d x)\right]^4 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{160\, d}$$

Problem 178: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 114 leaves, 6 steps):

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

Result (type 3, 329 leaves):

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

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

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

Optimal (type 3, 59 leaves, 8 steps):

$$\frac{2\,a\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{\left(a^2+b^2\right)\,\text{Cot}[c+d\,x]}{d}-\frac{2\,a\,b\,\text{Csc}[c+d\,x]}{d}+\frac{b^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 138 leaves):

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

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

$$\int \text{Csc}[c+d\,x]^4\,(a+b\,\text{Sec}[c+d\,x])^2\,dx$$

Optimal (type 3, 100 leaves, 9 steps):

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

Result (type 3, 259 leaves):

$$\frac{1}{96\,d\,\left(-1+\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^5\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^3\,\left(-3\,a^2-14\,a\,b\,\text{Cos}[c+d\,x]-2\,\left(a^2+4\,b^2\right)\,\text{Cos}[2\,(c+d\,x)]+6\,a\,b\,\text{Cos}[3\,(c+d\,x)]+a^2\,\text{Cos}[4\,(c+d\,x)]+4\,b^2\,\text{Cos}[4\,(c+d\,x)]-6\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]+6\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]+3\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]-3\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]\right)$$

Problem 184: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 143 leaves, 9 steps):

$$\frac{2\,a\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{\left(a^2+3\,b^2\right)\,\text{Cot}[c+d\,x]}{d}-\frac{\left(2\,a^2+3\,b^2\right)\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{\left(a^2+b^2\right)\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{2\,a\,b\,\text{Csc}[c+d\,x]}{d}-\frac{2\,a\,b\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{2\,a\,b\,\text{Csc}[c+d\,x]^5}{5\,d}+\frac{b^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 368 leaves):

$$-\frac{1}{7680\,d\,\left(-1+\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^7\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^5$$
$$\Big(40\,a^2+196\,a\,b\,\text{Cos}[c+d\,x]+20\,\left(a^2+6\,b^2\right)\,\text{Cos}[2\,(c+d\,x)]-130\,a\,b\,\text{Cos}[3\,(c+d\,x)]-$$
$$16\,a^2\,\text{Cos}[4\,(c+d\,x)]-96\,b^2\,\text{Cos}[4\,(c+d\,x)]+30\,a\,b\,\text{Cos}[5\,(c+d\,x)]+4\,a^2\,\text{Cos}[6\,(c+d\,x)]+$$
$$24\,b^2\,\text{Cos}[6\,(c+d\,x)]+75\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]-$$
$$75\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[2\,(c+d\,x)]-$$
$$60\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]+$$
$$60\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[4\,(c+d\,x)]+$$
$$15\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[6\,(c+d\,x)]-$$
$$15\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[6\,(c+d\,x)]\Big)$$

Problem 189: Result more than twice size of optimal antiderivative.

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

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

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

Result (type 3, 669 leaves):

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^3}{d\,(b+a\,\text{Cos}[c+d\,x])^3}+$$
$$\left(\left(-a^3-3\,a^2\,b-3\,a\,b^2-b^3\right)\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Sec}[c+d\,x])^3\right)\Big/$$
$$\left(8\,d\,(b+a\,\text{Cos}[c+d\,x])^3\right)+$$
$$\left(\left(-a^3+6\,a^2\,b-9\,a\,b^2+4\,b^3\right)\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Sec}[c+d\,x])^3\right)\Big/$$
$$\left(2\,d\,(b+a\,\text{Cos}[c+d\,x])^3\right)+\frac{\left(-3\,a^2\,b-2\,b^3\right)\text{Cos}[c+d\,x]^3\,\text{Log}[\text{Cos}[c+d\,x]]\,(a+b\,\text{Sec}[c+d\,x])^3}{d\,(b+a\,\text{Cos}[c+d\,x])^3}+$$
$$\left(\left(a^3+6\,a^2\,b+9\,a\,b^2+4\,b^3\right)\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Sec}[c+d\,x])^3\right)\Big/$$
$$\left(2\,d\,(b+a\,\text{Cos}[c+d\,x])^3\right)+$$
$$\left(\left(a^3-3\,a^2\,b+3\,a\,b^2-b^3\right)\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Sec}[c+d\,x])^3\right)\Big/$$
$$\left(8\,d\,(b+a\,\text{Cos}[c+d\,x])^3\right)+\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^3}{4\,d\,(b+a\,\text{Cos}[c+d\,x])^3\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+$$
$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\,(b+a\,\text{Cos}[c+d\,x])^3\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}+$$
$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^3}{4\,d\,(b+a\,\text{Cos}[c+d\,x])^3\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-$$
$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{d\,(b+a\,\text{Cos}[c+d\,x])^3\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}$$

Problem 190: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 299 leaves, 21 steps):

$$\frac{5\,a^3\,x}{16}-\frac{45}{8}\,a\,b^2\,x+\frac{3\,a^2\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{5\,b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-$$
$$\frac{3\,a^2\,b\,\text{Sin}[c+d\,x]}{d}+\frac{5\,b^3\,\text{Sin}[c+d\,x]}{2\,d}-\frac{5\,a^3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{16\,d}-\frac{a^2\,b\,\text{Sin}[c+d\,x]^3}{d}+$$
$$\frac{5\,b^3\,\text{Sin}[c+d\,x]^3}{6\,d}-\frac{5\,a^3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^3}{24\,d}-\frac{3\,a^2\,b\,\text{Sin}[c+d\,x]^5}{5\,d}-$$
$$\frac{a^3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]^5}{6\,d}+\frac{45\,a\,b^2\,\text{Tan}[c+d\,x]}{8\,d}-\frac{15\,a\,b^2\,\text{Sin}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{8\,d}-$$
$$\frac{3\,a\,b^2\,\text{Sin}[c+d\,x]^4\,\text{Tan}[c+d\,x]}{4\,d}+\frac{b^3\,\text{Sin}[c+d\,x]^3\,\text{Tan}[c+d\,x]^2}{2\,d}$$

Result (type 3, 818 leaves):

$$\frac{5 a \left(a^2-18 b^2\right) (c+d x) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3}{16 d (b+a \operatorname{Cos}[c+d x])^3}+$$
$$\left(\left(-6 a^2 b+5 b^3\right) \operatorname{Cos}[c+d x]^3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \operatorname{Sec}[c+d x])^3\right) \Big/ \left(2 d (b+a \operatorname{Cos}[c+d x])^3\right)+$$
$$\left(\left(6 a^2 b-5 b^3\right) \operatorname{Cos}[c+d x]^3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \operatorname{Sec}[c+d x])^3\right) \Big/ \left(2 d (b+a \operatorname{Cos}[c+d x])^3\right)+\frac{b^3 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3}{4 d (b+a \operatorname{Cos}[c+d x])^3 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}+$$
$$\frac{3 a b^2 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]}{d (b+a \operatorname{Cos}[c+d x])^3 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}-$$
$$\frac{b^3 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3}{4 d (b+a \operatorname{Cos}[c+d x])^3 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}+$$
$$\frac{3 a b^2 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]}{d (b+a \operatorname{Cos}[c+d x])^3 \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}+$$
$$\frac{3 b \left(-11 a^2+6 b^2\right) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}[c+d x]}{8 d (b+a \operatorname{Cos}[c+d x])^3}-$$
$$\frac{3 a \left(5 a^2-32 b^2\right) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}[2 (c+d x)]}{64 d (b+a \operatorname{Cos}[c+d x])^3}-$$
$$\frac{b \left(-21 a^2+4 b^2\right) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}[3 (c+d x)]}{48 d (b+a \operatorname{Cos}[c+d x])^3}+$$
$$\frac{3 a \left(a^2-2 b^2\right) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}[4 (c+d x)]}{64 d (b+a \operatorname{Cos}[c+d x])^3}-$$
$$\frac{3 a^2 b \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}[5 (c+d x)]}{80 d (b+a \operatorname{Cos}[c+d x])^3}-$$
$$\frac{a^3 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}[6 (c+d x)]}{192 d (b+a \operatorname{Cos}[c+d x])^3}$$

Problem 191: Result more than twice size of optimal antiderivative.

$$\int (a+b \operatorname{Sec}[c+d x])^3 \operatorname{Sin}[c+d x]^4 \, dx$$

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

$$\frac{3}{8} a \left(a^2-12 b^2\right) x+\frac{3 b \left(2 a^2-b^2\right) \text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}-\frac{b \left(17 a^2-b^2\right) \text{Sin}[c+d x]}{2 d}-\frac{a \left(21 a^2-2 b^2\right) \text{Cos}[c+d x] \text{Sin}[c+d x]}{8 d}-\frac{\left(6 a^2-b^2\right) (b+a \text{Cos}[c+d x])^2 \text{Sin}[c+d x]}{4 b d}-\frac{\left(4 a^2-b^2\right) (b+a \text{Cos}[c+d x])^3 \text{Sin}[c+d x]}{4 b^2 d}+\frac{a (b+a \text{Cos}[c+d x])^4 \text{Tan}[c+d x]}{b^2 d}+\frac{(b+a \text{Cos}[c+d x])^4 \text{Sec}[c+d x] \text{Tan}[c+d x]}{2 b d}$$

Result (type 3, 696 leaves):

$$\frac{3 a \left(a^2-12 b^2\right) (c+d x) \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3}{8 d (b+a \text{Cos}[c+d x])^3}+\left(3 \left(-2 a^2 b+b^3\right) \text{Cos}[c+d x]^3 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Sec}[c+d x])^3\right) \Big/ \left(2 d (b+a \text{Cos}[c+d x])^3\right)-\left(3 \left(-2 a^2 b+b^3\right) \text{Cos}[c+d x]^3 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Sec}[c+d x])^3\right) \Big/ \left(2 d (b+a \text{Cos}[c+d x])^3\right)+\frac{b^3 \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3}{4 d (b+a \text{Cos}[c+d x])^3 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}+\frac{3 a b^2 \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]}{d (b+a \text{Cos}[c+d x])^3 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}-\frac{b^3 \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3}{4 d (b+a \text{Cos}[c+d x])^3 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}+\frac{3 a b^2 \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3 \text{Sin}\left[\frac{1}{2} (c+d x)\right]}{d (b+a \text{Cos}[c+d x])^3 \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)}+\frac{b \left(-15 a^2+4 b^2\right) \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3 \text{Sin}[c+d x]}{4 d (b+a \text{Cos}[c+d x])^3}-\frac{a \left(a^2-3 b^2\right) \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3 \text{Sin}[2 (c+d x)]}{4 d (b+a \text{Cos}[c+d x])^3}+\frac{a^2 b \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3 \text{Sin}[3 (c+d x)]}{4 d (b+a \text{Cos}[c+d x])^3}+\frac{a^3 \text{Cos}[c+d x]^3 (a+b \text{Sec}[c+d x])^3 \text{Sin}[4 (c+d x)]}{32 d (b+a \text{Cos}[c+d x])^3}$$

Problem 192: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 138 leaves, 8 steps):

$$\frac{1}{2}a\left(a^2-6b^2\right)x+\frac{b\left(6a^2-b^2\right)\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2d}-\frac{15a^2b\,\text{Sin}[c+d\,x]}{2d}-\frac{5a^3\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{2d}+\frac{3a\,(b+a\,\text{Cos}[c+d\,x])^2\,\text{Tan}[c+d\,x]}{2d}+\frac{(b+a\,\text{Cos}[c+d\,x])^3\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2d}$$

Result (type 3, 327 leaves):

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

Problem 193: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 133 leaves, 15 steps):

$$\frac{3a^2b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{3b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2d}-\frac{a^3\,\text{Cot}[c+d\,x]}{d}-\frac{3ab^2\,\text{Cot}[c+d\,x]}{d}-\frac{3a^2b\,\text{Csc}[c+d\,x]}{d}-\frac{3b^3\,\text{Csc}[c+d\,x]}{2d}+\frac{b^3\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^2}{2d}+\frac{3ab^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 406 leaves):

$$-\frac{1}{16\,d\left(-1+\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^2}\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^5\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\Big(12\,a^2\,b+2\,b^3+6\,a\,(a^2+2\,b^2)\,\text{Cos}[c+d\,x]+6\,(2\,a^2\,b+b^3)\,\text{Cos}[2\,(c+d\,x)]+2\,a^3\,\text{Cos}[3\,(c+d\,x)]+12\,a\,b^2\,\text{Cos}[3\,(c+d\,x)]+6\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]+3\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]-6\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]-3\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[c+d\,x]+6\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]+3\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]-6\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]-3\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\text{Sin}[3\,(c+d\,x)]\Big)$$

Problem 194: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^4\,(a+b\,\text{Sec}[c+d\,x])^3\,dx$$

Optimal (type 3, 205 leaves, 17 steps):

$$\frac{3\,a^2\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{5\,b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{a^3\,\text{Cot}[c+d\,x]}{d}-\frac{6\,a\,b^2\,\text{Cot}[c+d\,x]}{d}-\frac{a^3\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{a\,b^2\,\text{Cot}[c+d\,x]^3}{d}-\frac{3\,a^2\,b\,\text{Csc}[c+d\,x]}{d}-\frac{5\,b^3\,\text{Csc}[c+d\,x]}{2\,d}-\frac{a^2\,b\,\text{Csc}[c+d\,x]^3}{d}-\frac{5\,b^3\,\text{Csc}[c+d\,x]^3}{6\,d}+\frac{b^3\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^2}{2\,d}+\frac{3\,a\,b^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 610 leaves):

$$-\frac{1}{768\, d \left(-1+\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}$$
$$\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^7 \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^3 \Big(84\,a^2\,b+22\,b^3+32\,a\,(a^2+3\,b^2)\,\text{Cos}[c+d\,x]+$$
$$8\,(6\,a^2\,b+5\,b^3)\,\text{Cos}[2\,(c+d\,x)]+4\,a^3\,\text{Cos}[3\,(c+d\,x)]+48\,a\,b^2\,\text{Cos}[3\,(c+d\,x)]-$$
$$36\,a^2\,b\,\text{Cos}[4\,(c+d\,x)]-30\,b^3\,\text{Cos}[4\,(c+d\,x)]-4\,a^3\,\text{Cos}[5\,(c+d\,x)]-$$
$$48\,a\,b^2\,\text{Cos}[5\,(c+d\,x)]+36\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]+$$
$$30\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]-$$
$$36\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]-$$
$$30\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[c+d\,x]+$$
$$18\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]+$$
$$15\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]-$$
$$18\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]-$$
$$15\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[3\,(c+d\,x)]-$$
$$18\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]-$$
$$15\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]+$$
$$18\,a^2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]+$$
$$15\,b^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\text{Sin}[5\,(c+d\,x)]\Big)$$

Problem 195: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 279 leaves, 17 steps):

$$\frac{3\,a^2\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{7\,b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{a^3\,\text{Cot}[c+d\,x]}{d}-\frac{9\,a\,b^2\,\text{Cot}[c+d\,x]}{d}-$$
$$\frac{2\,a^3\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{3\,a\,b^2\,\text{Cot}[c+d\,x]^3}{d}-\frac{a^3\,\text{Cot}[c+d\,x]^5}{5\,d}-\frac{3\,a\,b^2\,\text{Cot}[c+d\,x]^5}{5\,d}-$$
$$\frac{3\,a^2\,b\,\text{Csc}[c+d\,x]}{d}-\frac{7\,b^3\,\text{Csc}[c+d\,x]}{2\,d}-\frac{a^2\,b\,\text{Csc}[c+d\,x]^3}{d}-\frac{7\,b^3\,\text{Csc}[c+d\,x]^3}{6\,d}-$$
$$\frac{3\,a^2\,b\,\text{Csc}[c+d\,x]^5}{5\,d}-\frac{7\,b^3\,\text{Csc}[c+d\,x]^5}{10\,d}+\frac{b^3\,\text{Csc}[c+d\,x]^5\,\text{Sec}[c+d\,x]^2}{2\,d}+\frac{3\,a\,b^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 812 leaves):

$$-\frac{1}{61440\,d\left(-1+\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\text{Csc}\left[\frac{1}{2}(c+d x)\right]^9\text{Sec}\left[\frac{1}{2}(c+d x)\right]^5$$
$$\Big(1176\,a^2 b+412\,b^3+80\,a\left(5\,a^2+18\,b^2\right)\text{Cos}[c+d x]+66\left(6\,a^2 b+7\,b^3\right)\text{Cos}[2(c+d x)]+$$
$$16\,a^3\text{Cos}[3(c+d x)]+288\,a\,b^2\text{Cos}[3(c+d x)]-600\,a^2 b\,\text{Cos}[4(c+d x)]-$$
$$700\,b^3\text{Cos}[4(c+d x)]-48\,a^3\text{Cos}[5(c+d x)]-864\,a\,b^2\text{Cos}[5(c+d x)]+$$
$$180\,a^2 b\,\text{Cos}[6(c+d x)]+210\,b^3\text{Cos}[6(c+d x)]+16\,a^3\text{Cos}[7(c+d x)]+$$
$$288\,a\,b^2\text{Cos}[7(c+d x)]+450\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[c+d x]+$$
$$525\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[c+d x]-$$
$$450\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[c+d x]-$$
$$525\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[c+d x]+$$
$$90\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[3(c+d x)]+$$
$$105\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[3(c+d x)]-$$
$$90\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[3(c+d x)]-$$
$$105\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[3(c+d x)]-$$
$$270\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[5(c+d x)]-$$
$$315\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[5(c+d x)]+$$
$$270\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[5(c+d x)]+$$
$$315\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[5(c+d x)]+$$
$$90\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[7(c+d x)]+$$
$$105\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[7(c+d x)]-$$
$$90\,a^2 b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[7(c+d x)]-$$
$$105\,b^3\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sin}[7(c+d x)]\Big)$$

Problem 202: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 179 leaves, 7 steps):

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

Result (type 3, 409 leaves):

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

Problem 226: Result unnecessarily involves imaginary or complex numbers.

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

Optimal (type 3, 229 leaves, 5 steps):

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

Result (type 3, 332 leaves):

$$-\frac{2\,i\,(3a^4 b+8a^2 b^3+b^5)\,(c+d x)}{(a-b)^4\,(a+b)^4\,d}-\frac{i\,(-a-2b)\,\text{ArcTan}[\text{Tan}[c+d x]]}{2\,(-a+b)^4\,d}-\frac{i\,(a-2b)\,\text{ArcTan}[\text{Tan}[c+d x]]}{2\,(a+b)^4\,d}-\frac{b^3}{2\,(-a+b)^2\,(a+b)^2\,d\,(b+a\,\text{Cos}[c+d x])^2}-\frac{b^2\,(3a^2+b^2)}{(-a+b)^3\,(a+b)^3\,d\,(b+a\,\text{Cos}[c+d x])}-\frac{\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2}{8\,(a+b)^3\,d}+\frac{(-a-2b)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\right]}{4\,(-a+b)^4\,d}+\frac{(3a^4 b+8a^2 b^3+b^5)\,\text{Log}[b+a\,\text{Cos}[c+d x]]}{(-a^2+b^2)^4\,d}+\frac{(a-2b)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(c+d x)\right]^2\right]}{4\,(a+b)^4\,d}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{8\,(-a+b)^3\,d}$$

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

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

Optimal (type 3, 313 leaves, 7 steps):

$$-\frac{a^2 b^3}{2\,(a^2-b^2)^3\,d\,(b+a\,\text{Cos}[c+d x])^2}+\frac{3a^2 b^2\,(a^2+b^2)}{(a^2-b^2)^4\,d\,(b+a\,\text{Cos}[c+d x])}+\frac{1}{8\,(a^2-b^2)^4\,d}\left(4b\,(3a^4+8a^2 b^2+b^4)-3a\,(a^4+10a^2 b^2+5b^4)\,\text{Cos}[c+d x]\right)\text{Csc}[c+d x]^2+\frac{\left(b\,(3a^2+b^2)-a\,(a^2+3b^2)\,\text{Cos}[c+d x]\right)\text{Csc}[c+d x]^4}{4\,(a^2-b^2)^3\,d}+\frac{3a\,(a-3b)\,\text{Log}[1-\text{Cos}[c+d x]]}{16\,(a+b)^5\,d}-\frac{3a\,(a+3b)\,\text{Log}[1+\text{Cos}[c+d x]]}{16\,(a-b)^5\,d}+\frac{3a^2 b\,(a^4+5a^2 b^2+2b^4)\,\text{Log}[b+a\,\text{Cos}[c+d x]]}{(a^2-b^2)^5\,d}$$

Result (type 3, 780 leaves):

$$\frac{a^2 b^3 \left(b+a \cos[c+d x]\right) \sec[c+d x]^3}{2 (-a+b)^3 (a+b)^3 d \left(a+b \sec[c+d x]\right)^3}+\frac{3 a^2 b^2 (-i a+b) (i a+b) \left(b+a \cos[c+d x]\right)^2 \sec[c+d x]^3}{(-a+b)^4 (a+b)^4 d \left(a+b \sec[c+d x]\right)^3}-$$
$$\left(6 i \left(a^6 b+5 a^4 b^3+2 a^2 b^5\right) (c+d x) \left(b+a \cos[c+d x]\right)^3 \sec[c+d x]^3\right) \Big/ \left((a-b)^5 (a+b)^5 d \left(a+b \sec[c+d x]\right)^3\right)+$$
$$\left(3 i \left(-a^2+3 a b\right) \text{ArcTan}[\tan[c+d x]] \left(b+a \cos[c+d x]\right)^3 \sec[c+d x]^3\right) \Big/ \left(8 (a+b)^5 d \left(a+b \sec[c+d x]\right)^3\right)-$$
$$\left(3 i \left(a^2+3 a b\right) \text{ArcTan}[\tan[c+d x]] \left(b+a \cos[c+d x]\right)^3 \sec[c+d x]^3\right) \Big/ \left(8 (-a+b)^5 d \left(a+b \sec[c+d x]\right)^3\right)+$$
$$\frac{3 (-a+b) \left(b+a \cos[c+d x]\right)^3 \csc\left[\frac{1}{2} (c+d x)\right]^2 \sec[c+d x]^3}{32 (a+b)^4 d \left(a+b \sec[c+d x]\right)^3}-\frac{\left(b+a \cos[c+d x]\right)^3 \csc\left[\frac{1}{2} (c+d x)\right]^4 \sec[c+d x]^3}{64 (a+b)^3 d \left(a+b \sec[c+d x]\right)^3}+$$
$$\left(3 \left(a^2+3 a b\right) \left(b+a \cos[c+d x]\right)^3 \log\left[\cos\left[\frac{1}{2} (c+d x)\right]^2\right] \sec[c+d x]^3\right) \Big/ \left(16 (-a+b)^5 d \left(a+b \sec[c+d x]\right)^3\right)-$$
$$\left(3 \left(a^6 b+5 a^4 b^3+2 a^2 b^5\right) \left(b+a \cos[c+d x]\right)^3 \log[b+a \cos[c+d x]] \sec[c+d x]^3\right) \Big/ \left(\left(-a^2+b^2\right)^5 d \left(a+b \sec[c+d x]\right)^3\right)-$$
$$\left(3 \left(-a^2+3 a b\right) \left(b+a \cos[c+d x]\right)^3 \log\left[\sin\left[\frac{1}{2} (c+d x)\right]^2\right] \sec[c+d x]^3\right) \Big/ \left(16 (a+b)^5 d \left(a+b \sec[c+d x]\right)^3\right)+$$
$$\frac{3 (a+b) \left(b+a \cos[c+d x]\right)^3 \sec\left[\frac{1}{2} (c+d x)\right]^2 \sec[c+d x]^3}{32 (-a+b)^4 d \left(a+b \sec[c+d x]\right)^3}-\frac{\left(b+a \cos[c+d x]\right)^3 \sec\left[\frac{1}{2} (c+d x)\right]^4 \sec[c+d x]^3}{64 (-a+b)^3 d \left(a+b \sec[c+d x]\right)^3}$$

Problem 228: Result more than twice size of optimal antiderivative.

$$\int \frac{\sin[c+d x]^6}{\left(a+b \sec[c+d x]\right)^3} \, dx$$

Optimal (type 3, 539 leaves, 11 steps):

$$\frac{\left(5 a^6-180 a^4 b^2+600 a^2 b^4-448 b^6\right) x}{16 a^9}-\frac{\sqrt{a-b}\, b \sqrt{a+b}\left(6 a^4-47 a^2 b^2+56 b^4\right) \text{ArcTanh}\left[\frac{\sqrt{a-b}\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a+b}}\right]}{a^9 d}+\frac{b\left(213 a^4-985 a^2 b^2+840 b^4\right) \text{Sin}[c+d x]}{30 a^8 d}-\frac{\left(43 a^4-244 a^2 b^2+224 b^4\right) \text{Cos}[c+d x] \text{Sin}[c+d x]}{16 a^7 d}+\frac{\left(45 a^4-291 a^2 b^2+280 b^4\right) \text{Cos}[c+d x]^2 \text{Sin}[c+d x]}{30 a^6 b d}-\frac{\left(24 a^4-169 a^2 b^2+168 b^4\right) \text{Cos}[c+d x]^3 \text{Sin}[c+d x]}{24 a^5 b^2 d}-\frac{\text{Cos}[c+d x]^4 \text{Sin}[c+d x]}{4 b d(b+a \text{Cos}[c+d x])^2}+\frac{a \text{Cos}[c+d x]^5 \text{Sin}[c+d x]}{10 b^2 d(b+a \text{Cos}[c+d x])^2}+\frac{\left(9 a^4-60 a^2 b^2+56 b^4\right) \text{Cos}[c+d x]^5 \text{Sin}[c+d x]}{60 a^3 b^2 d(b+a \text{Cos}[c+d x])^2}+\frac{4 b \text{Cos}[c+d x]^6 \text{Sin}[c+d x]}{15 a^2 d(b+a \text{Cos}[c+d x])^2}-\frac{\text{Cos}[c+d x]^7 \text{Sin}[c+d x]}{6 a d(b+a \text{Cos}[c+d x])^2}+\frac{\left(15 a^4-110 a^2 b^2+112 b^4\right) \text{Cos}[c+d x]^4 \text{Sin}[c+d x]}{20 a^4 b^2 d(b+a \text{Cos}[c+d x])}$$

Result (type 3, 2091 leaves):

$$-\left(\left((b+a \text{Cos}[c+d x])^3 \text{Sec}[c+d x]^3\left(8(c+d x)+\frac{2 b\left(15 a^4-20 a^2 b^2+8 b^4\right) \text{ArcTanh}\left[\frac{(-a+b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\left(a^2-b^2\right)^{5/2}}+\frac{a b\left(3 a^2-4 b^2\right) \text{Sin}[c+d x]}{(a-b)(a+b)(b+a \text{Cos}[c+d x])^2}-\frac{3 a\left(2 a^4-7 a^2 b^2+4 b^4\right) \text{Sin}[c+d x]}{(a-b)^2(a+b)^2(b+a \text{Cos}[c+d x])}\right)\right) \Big/ \left(64 a^3 d(a+b \text{Sec}[c+d x])^3\right)\right)+\left(3(b+a \text{Cos}[c+d x])^3 \text{Sec}[c+d x]^3\left(\frac{6 a b \text{ArcTanh}\left[\frac{(-a+b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2-b^2}}\right]}{\sqrt{a^2-b^2}}+\frac{\left(b\left(a^2+2 b^2\right)+a\left(2 a^2+b^2\right) \text{Cos}[c+d x]\right) \text{Sin}[c+d x]}{(b+a \text{Cos}[c+d x])^2}\right)\right) \Big/$$

$$\left(256\,(a-b)^2\,(a+b)^2\,d\,(a+b\,\text{Sec}[c+d\,x])^3\right)+$$

$$\frac{1}{1024\,a^7\,d\,(a+b\,\text{Sec}[c+d\,x])^3}$$

$$3\,(b+a\,\text{Cos}[c+d\,x])^3\,\text{Sec}[c+d\,x]^3$$

$$\Bigg(\frac{1}{(a^2-b^2)^{5/2}}12\,b\,(105\,a^8-840\,a^6\,b^2+2016\,a^4\,b^4-1920\,a^2\,b^6+640\,b^8)$$

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

$$\Big(48\,a^{10}\,c-960\,a^8\,b^2\,c+1776\,a^6\,b^4\,c+2976\,a^4\,b^6\,c-7680\,a^2\,b^8\,c+3840\,b^{10}\,c+48\,a^{10}\,d\,x-$$
$$960\,a^8\,b^2\,d\,x+1776\,a^6\,b^4\,d\,x+2976\,a^4\,b^6\,d\,x-7680\,a^2\,b^8\,d\,x+3840\,b^{10}\,d\,x+192\,a\,b\,(a^2-b^2)^2$$
$$(a^4-20\,a^2\,b^2+40\,b^4)\,(c+d\,x)\,\text{Cos}[c+d\,x]+48\,(a^3-a\,b^2)^2\,(a^4-20\,a^2\,b^2+40\,b^4)\,(c+d\,x)$$
$$\text{Cos}[2\,(c+d\,x)]+114\,a^9\,b\,\text{Sin}[c+d\,x]+788\,a^7\,b^3\,\text{Sin}[c+d\,x]-5696\,a^5\,b^5\,\text{Sin}[c+d\,x]+$$
$$8640\,a^3\,b^7\,\text{Sin}[c+d\,x]-3840\,a\,b^9\,\text{Sin}[c+d\,x]-36\,a^{10}\,\text{Sin}[2\,(c+d\,x)]+$$
$$1221\,a^8\,b^2\,\text{Sin}[2\,(c+d\,x)]-5182\,a^6\,b^4\,\text{Sin}[2\,(c+d\,x)]+6880\,a^4\,b^6\,\text{Sin}[2\,(c+d\,x)]-$$
$$2880\,a^2\,b^8\,\text{Sin}[2\,(c+d\,x)]+120\,a^9\,b\,\text{Sin}[3\,(c+d\,x)]-560\,a^7\,b^3\,\text{Sin}[3\,(c+d\,x)]+$$
$$760\,a^5\,b^5\,\text{Sin}[3\,(c+d\,x)]-320\,a^3\,b^7\,\text{Sin}[3\,(c+d\,x)]-8\,a^{10}\,\text{Sin}[4\,(c+d\,x)]+$$
$$56\,a^8\,b^2\,\text{Sin}[4\,(c+d\,x)]-88\,a^6\,b^4\,\text{Sin}[4\,(c+d\,x)]+40\,a^4\,b^6\,\text{Sin}[4\,(c+d\,x)]-$$
$$8\,a^9\,b\,\text{Sin}[5\,(c+d\,x)]+16\,a^7\,b^3\,\text{Sin}[5\,(c+d\,x)]-8\,a^5\,b^5\,\text{Sin}[5\,(c+d\,x)]+$$
$$2\,a^{10}\,\text{Sin}[6\,(c+d\,x)]-4\,a^8\,b^2\,\text{Sin}[6\,(c+d\,x)]+2\,a^6\,b^4\,\text{Sin}[6\,(c+d\,x)]\Big)\Bigg)+$$

$$\frac{1}{256\,(a+b\,\text{Sec}[c+d\,x])^3}\,(b+a\,\text{Cos}[c+d\,x])^3\,\text{Sec}[c+d\,x]^3$$

$$\Bigg(-\Bigg(\Bigg(b\,(-693\,a^{10}+9240\,a^8\,b^2-36\,960\,a^6\,b^4+63\,360\,a^4\,b^6-49\,280\,a^2\,b^8+14\,336\,b^{10})$$

$$\text{ArcTanh}\Big[\frac{(-a+b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\Big]\Bigg)\Big/\left(a^9\,\sqrt{a^2-b^2}\,(-a^2+b^2)^2\,d\right)\Bigg)-$$

$$\frac{1}{60\,a^9\,(a^2-b^2)^2\,d\,(b+a\,\text{Cos}[c+d\,x])^2}\,\Big(-1200\,a^{12}\,(c+d\,x)+43\,200\,a^{10}\,b^2\,(c+d\,x)-$$
$$198\,000\,a^8\,b^4\,(c+d\,x)+83\,040\,a^6\,b^6\,(c+d\,x)+691\,200\,a^4\,b^8\,(c+d\,x)-$$
$$1\,048\,320\,a^2\,b^{10}\,(c+d\,x)+430\,080\,b^{12}\,(c+d\,x)-4800\,a^{11}\,b\,(c+d\,x)\,\text{Cos}[c+d\,x]+$$
$$182\,400\,a^9\,b^3\,(c+d\,x)\,\text{Cos}[c+d\,x]-1\,156\,800\,a^7\,b^5\,(c+d\,x)\,\text{Cos}[c+d\,x]+$$
$$2\,645\,760\,a^5\,b^7\,(c+d\,x)\,\text{Cos}[c+d\,x]-2\,526\,720\,a^3\,b^9\,(c+d\,x)\,\text{Cos}[c+d\,x]+$$
$$860\,160\,a\,b^{11}\,(c+d\,x)\,\text{Cos}[c+d\,x]-1200\,a^{12}\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$
$$45\,600\,a^{10}\,b^2\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-289\,200\,a^8\,b^4\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$
$$661\,440\,a^6\,b^6\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-631\,680\,a^4\,b^8\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$
$$215\,040\,a^2\,b^{10}\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-4530\,a^{11}\,b\,\text{Sin}[c+d\,x]-$$
$$11\,060\,a^9\,b^3\,\text{Sin}[c+d\,x]+332\,800\,a^7\,b^5\,\text{Sin}[c+d\,x]-1\,042\,880\,a^5\,b^7\,\text{Sin}[c+d\,x]+$$
$$1\,155\,840\,a^3\,b^9\,\text{Sin}[c+d\,x]-430\,080\,a\,b^{11}\,\text{Sin}[c+d\,x]+900\,a^{12}\,\text{Sin}[2\,(c+d\,x)]-$$
$$49\,125\,a^{10}\,b^2\,\text{Sin}[2\,(c+d\,x)]+362\,830\,a^8\,b^4\,\text{Sin}[2\,(c+d\,x)]-903\,680\,a^6\,b^6\,\text{Sin}[2\,(c+d\,x)]+$$
$$911\,680\,a^4\,b^8\,\text{Sin}[2\,(c+d\,x)]-322\,560\,a^2\,b^{10}\,\text{Sin}[2\,(c+d\,x)]-$$

$4344\, a^{11}\, b\, \text{Sin}[3\, (c+d\, x)] + 37808\, a^9\, b^3\, \text{Sin}[3\, (c+d\, x)] - 98424\, a^7\, b^5\, \text{Sin}[3\, (c+d\, x)] + 100800\, a^5\, b^7\, \text{Sin}[3\, (c+d\, x)] - 35840\, a^3\, b^9\, \text{Sin}[3\, (c+d\, x)] + 200\, a^{12}\, \text{Sin}[4\, (c+d\, x)] - 3256\, a^{10}\, b^2\, \text{Sin}[4\, (c+d\, x)] + 10392\, a^8\, b^4\, \text{Sin}[4\, (c+d\, x)] - 11816\, a^6\, b^6\, \text{Sin}[4\, (c+d\, x)] + 4480\, a^4\, b^8\, \text{Sin}[4\, (c+d\, x)] + 392\, a^{11}\, b\, \text{Sin}[5\, (c+d\, x)] - 1680\, a^9\, b^3\, \text{Sin}[5\, (c+d\, x)] + 2184\, a^7\, b^5\, \text{Sin}[5\, (c+d\, x)] - 896\, a^5\, b^7\, \text{Sin}[5\, (c+d\, x)] - 50\, a^{12}\, \text{Sin}[6\, (c+d\, x)] + 324\, a^{10}\, b^2\, \text{Sin}[6\, (c+d\, x)] - 498\, a^8\, b^4\, \text{Sin}[6\, (c+d\, x)] + 224\, a^6\, b^6\, \text{Sin}[6\, (c+d\, x)] - 64\, a^{11}\, b\, \text{Sin}[7\, (c+d\, x)] + 128\, a^9\, b^3\, \text{Sin}[7\, (c+d\, x)] - 64\, a^7\, b^5\, \text{Sin}[7\, (c+d\, x)] + 20\, a^{12}\, \text{Sin}[8\, (c+d\, x)] - 40\, a^{10}\, b^2\, \text{Sin}[8\, (c+d\, x)] + 20\, a^8\, b^4\, \text{Sin}[8\, (c+d\, x)]\Big)\Bigg)$

Problem 229: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 333 leaves, 9 steps):

$$\frac{3\, (a^4-24\, a^2\, b^2+40\, b^4)\, x}{8\, a^7} - \frac{3\, b\, (2\, a^4-11\, a^2\, b^2+10\, b^4)\, \text{ArcTanh}\left[\frac{\sqrt{a-b}\, \text{Tan}\left[\frac{1}{2}\, (c+d\, x)\right]}{\sqrt{a+b}}\right]}{a^7\, \sqrt{a-b}\, \sqrt{a+b}\, d} + \frac{b\, (13\, a^2-30\, b^2)\, \text{Sin}[c+d\, x]}{2\, a^6\, d} - \frac{3\, (7\, a^2-20\, b^2)\, \text{Cos}[c+d\, x]\, \text{Sin}[c+d\, x]}{8\, a^5\, d} + \frac{(3\, a^2-10\, b^2)\, \text{Cos}[c+d\, x]^2\, \text{Sin}[c+d\, x]}{2\, a^4\, b\, d} - \frac{(4\, a^2-15\, b^2)\, \text{Cos}[c+d\, x]^3\, \text{Sin}[c+d\, x]}{4\, a^3\, b^2\, d} - \frac{(a^2-b^2)\, \text{Cos}[c+d\, x]^4\, \text{Sin}[c+d\, x]}{2\, a^2\, b\, d\, (b+a\, \text{Cos}[c+d\, x])^2} + \frac{(2\, a^2-7\, b^2)\, \text{Cos}[c+d\, x]^4\, \text{Sin}[c+d\, x]}{2\, a^2\, b^2\, d\, (b+a\, \text{Cos}[c+d\, x])}$$

Result (type 3, 1320 leaves):

$$-\Bigg(\Bigg(3\, (b+a\, \text{Cos}[c+d\, x])^3\, \text{Sec}[c+d\, x]^3 \left(8\, (c+d\, x) + \frac{2\, b\, (15\, a^4-20\, a^2\, b^2+8\, b^4)\, \text{ArcTanh}\left[\frac{(-a+b)\, \text{Tan}\left[\frac{1}{2}\, (c+d\, x)\right]}{\sqrt{a^2-b^2}}\right]}{(a^2-b^2)^{5/2}} + \frac{a\, b\, (3\, a^2-4\, b^2)\, \text{Sin}[c+d\, x]}{(a-b)\, (a+b)\, (b+a\, \text{Cos}[c+d\, x])^2} - \frac{3\, a\, (2\, a^4-7\, a^2\, b^2+4\, b^4)\, \text{Sin}[c+d\, x]}{(a-b)^2\, (a+b)^2\, (b+a\, \text{Cos}[c+d\, x])}\right)\Bigg)\Bigg/$$

$$\left(128\, a^3\, d\, \left(a+b\,\text{Sec}[c+d\,x]\right)^3\right)\Bigg) + \Bigg(3\, \left(b+a\,\text{Cos}[c+d\,x]\right)^3\, \text{Sec}[c+d\,x]^3$$

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

$$\left(128\,(a-b)^2\,(a+b)^2\,d\,\left(a+b\,\text{Sec}[c+d\,x]\right)^3\right) -$$

$$\Bigg(\left(b+a\,\text{Cos}[c+d\,x]\right)^3\,\text{Sec}[c+d\,x]^3\,\Bigg(-24\,\left(a^2-8\,b^2\right)\,(c+d\,x) + \frac{1}{\left(a^2-b^2\right)^{5/2}}$$

$$6\,b\,\left(-35\,a^6+140\,a^4\,b^2-168\,a^2\,b^4+64\,b^6\right)\,\text{ArcTanh}\left[\frac{(-a+b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2-b^2}}\right] -$$

$$96\,a\,b\,\text{Sin}[c+d\,x] + \frac{a\,b\,\left(-5\,a^4+20\,a^2\,b^2-16\,b^4\right)\,\text{Sin}[c+d\,x]}{(a-b)\,(a+b)\,\left(b+a\,\text{Cos}[c+d\,x]\right)^2} +$$

$$\frac{a\,\left(10\,a^6-115\,a^4\,b^2+220\,a^2\,b^4-112\,b^6\right)\,\text{Sin}[c+d\,x]}{(a-b)^2\,(a+b)^2\,\left(b+a\,\text{Cos}[c+d\,x]\right)} + 8\,a^2\,\text{Sin}\left[2\,(c+d\,x)\right]\Bigg)\Bigg)\Big/$$

$$\left(128\,a^5\,d\,\left(a+b\,\text{Sec}[c+d\,x]\right)^3\right) + \frac{1}{256\,a^7\,d\,\left(a+b\,\text{Sec}[c+d\,x]\right)^3}$$

$$\left(b+a\,\text{Cos}[c+d\,x]\right)^3\,\text{Sec}[c+d\,x]^3$$

$$\Bigg(\frac{1}{\left(a^2-b^2\right)^{5/2}}12\,b\,\left(105\,a^8-840\,a^6\,b^2+2016\,a^4\,b^4-1920\,a^2\,b^6+640\,b^8\right)$$

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

$$\Big(48\,a^{10}\,c-960\,a^8\,b^2\,c+1776\,a^6\,b^4\,c+2976\,a^4\,b^6\,c-7680\,a^2\,b^8\,c+3840\,b^{10}\,c+48\,a^{10}\,d\,x-$$
$$960\,a^8\,b^2\,d\,x+1776\,a^6\,b^4\,d\,x+2976\,a^4\,b^6\,d\,x-7680\,a^2\,b^8\,d\,x+3840\,b^{10}\,d\,x+192\,a\,b\,\left(a^2-b^2\right)^2$$
$$\left(a^4-20\,a^2\,b^2+40\,b^4\right)\,(c+d\,x)\,\text{Cos}[c+d\,x]+48\,\left(a^3-a\,b^2\right)^2\,\left(a^4-20\,a^2\,b^2+40\,b^4\right)\,(c+d\,x)$$
$$\text{Cos}\left[2\,(c+d\,x)\right]+114\,a^9\,b\,\text{Sin}[c+d\,x]+788\,a^7\,b^3\,\text{Sin}[c+d\,x]-5696\,a^5\,b^5\,\text{Sin}[c+d\,x]+$$
$$8640\,a^3\,b^7\,\text{Sin}[c+d\,x]-3840\,a\,b^9\,\text{Sin}[c+d\,x]-36\,a^{10}\,\text{Sin}\left[2\,(c+d\,x)\right]+$$
$$1221\,a^8\,b^2\,\text{Sin}\left[2\,(c+d\,x)\right]-5182\,a^6\,b^4\,\text{Sin}\left[2\,(c+d\,x)\right]+6880\,a^4\,b^6\,\text{Sin}\left[2\,(c+d\,x)\right]-$$
$$2880\,a^2\,b^8\,\text{Sin}\left[2\,(c+d\,x)\right]+120\,a^9\,b\,\text{Sin}\left[3\,(c+d\,x)\right]-560\,a^7\,b^3\,\text{Sin}\left[3\,(c+d\,x)\right]+$$
$$760\,a^5\,b^5\,\text{Sin}\left[3\,(c+d\,x)\right]-320\,a^3\,b^7\,\text{Sin}\left[3\,(c+d\,x)\right]-8\,a^{10}\,\text{Sin}\left[4\,(c+d\,x)\right]+$$
$$56\,a^8\,b^2\,\text{Sin}\left[4\,(c+d\,x)\right]-88\,a^6\,b^4\,\text{Sin}\left[4\,(c+d\,x)\right]+40\,a^4\,b^6\,\text{Sin}\left[4\,(c+d\,x)\right]-$$
$$8\,a^9\,b\,\text{Sin}\left[5\,(c+d\,x)\right]+16\,a^7\,b^3\,\text{Sin}\left[5\,(c+d\,x)\right]-8\,a^5\,b^5\,\text{Sin}\left[5\,(c+d\,x)\right]+$$
$$2\,a^{10}\,\text{Sin}\left[6\,(c+d\,x)\right]-4\,a^8\,b^2\,\text{Sin}\left[6\,(c+d\,x)\right]+2\,a^6\,b^4\,\text{Sin}\left[6\,(c+d\,x)\right]\Big)\Bigg)$$

Problem 233: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 516 leaves, 15 steps):

$$-\frac{b\,(a^2-b^2)^{5/4}\,e^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}\,\sqrt{e}}\right]}{a^{9/2}\,d}-\frac{b\,(a^2-b^2)^{5/4}\,e^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}\,\sqrt{e}}\right]}{a^{9/2}\,d}+$$
$$\left(2\,(5\,a^4-28\,a^2\,b^2+21\,b^4)\,e^4\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(21\,a^5\,d\,\sqrt{e\,\text{Sin}[c+d\,x]}\right)+$$
$$\left(b^2\,(a^2-b^2)^2\,e^4\,\text{EllipticPi}\left[\frac{2\,a}{a-\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(a^5\left(a^2-b^2-a\,\sqrt{a^2-b^2}\right)d\,\sqrt{e\,\text{Sin}[c+d\,x]}\right)+$$
$$\left(b^2\,(a^2-b^2)^2\,e^4\,\text{EllipticPi}\left[\frac{2\,a}{a+\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(a^5\left(a^2-b^2+a\,\sqrt{a^2-b^2}\right)d\,\sqrt{e\,\text{Sin}[c+d\,x]}\right)+$$
$$\frac{2\,e^3\,\left(21\,b\,(a^2-b^2)-a\,(5\,a^2-7\,b^2)\,\text{Cos}[c+d\,x]\right)\sqrt{e\,\text{Sin}[c+d\,x]}}{21\,a^4\,d}+$$
$$\frac{2\,e\,(7\,b-5\,a\,\text{Cos}[c+d\,x])\,(e\,\text{Sin}[c+d\,x])^{5/2}}{35\,a^2\,d}$$

Result (type 6, 2249 leaves):

$$\left((b+a\,\text{Cos}[c+d\,x])\left(-\frac{(23\,a^2-28\,b^2)\,\text{Cos}[c+d\,x]}{42\,a^3}-\frac{b\,\text{Cos}[2\,(c+d\,x)]}{5\,a^2}+\frac{\text{Cos}[3\,(c+d\,x)]}{14\,a}\right)\right.$$
$$\left.\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]\,(e\,\text{Sin}[c+d\,x])^{7/2}\right)\Big/\left(d\,(a+b\,\text{Sec}[c+d\,x])\right)-$$
$$\frac{1}{420\,a^3\,d\,(a+b\,\text{Sec}[c+d\,x])\,\text{Sin}[c+d\,x]^{7/2}}\,(b+a\,\text{Cos}[c+d\,x])\,\text{Sec}[c+d\,x]$$
$$(e\,\text{Sin}[c+d\,x])^{7/2}\left(\frac{1}{(b+a\,\text{Cos}[c+d\,x])\,(1-\text{Sin}[c+d\,x]^2)}\right.$$
$$2\,(-100\,a^3+98\,a\,b^2)\,\text{Cos}[c+d\,x]^2\left(b+a\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right)$$
$$\left(\left(b\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-\right.\right.\right.$$

$$\text{Log}\left[\sqrt{-a^2+b^2}-\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d x]}+a\,\text{Sin}[c+d x]\right]+$$
$$\left.\left.\text{Log}\left[\sqrt{-a^2+b^2}+\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d x]}+a\,\text{Sin}[c+d x]\right]\right)\right)\Big/$$
$$\left(4\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{3/4}\right)-\left(5\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\right.\right.$$
$$\left.\left.\text{Sin}[c+d x]^2,\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d x]}\,\sqrt{1-\text{Sin}[c+d x]^2}\right)\Big/$$
$$\left(\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d x]^2,\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+\right.\right.$$
$$2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d x]^2,\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+\left(-a^2+b^2\right)\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d x]^2,\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d x]^2\right)$$
$$\left.\left(b^2+a^2\left(-1+\text{Sin}[c+d x]^2\right)\right)\right)\Bigg)+\frac{1}{\left(b+a\,\text{Cos}[c+d x]\right)\sqrt{1-\text{Sin}[c+d x]^2}}$$
$$2\left(89\,a^2\,b-70\,b^3\right)\text{Cos}[c+d x]\left(b+a\sqrt{1-\text{Sin}[c+d x]^2}\right)\left(-\frac{1}{\left(a^2-b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{a}\right.$$
$$\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4}}\right]+\right.$$
$$\text{Log}\left[\sqrt{a^2-b^2}-(1+i)\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d x]}+i\,a\,\text{Sin}[c+d x]\right]-$$
$$\left.\text{Log}\left[\sqrt{a^2-b^2}+(1+i)\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d x]}+i\,a\,\text{Sin}[c+d x]\right]\right)+$$
$$\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d x]^2,\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d x]}\right)\Big/$$
$$\left(\sqrt{1-\text{Sin}[c+d x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d x]^2,\right.\right.\right.$$
$$\left.\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d x]^2,\right.\right.$$
$$\left.\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Sin}[c+d x]^2,\right.$$
$$\left.\left.\left.\left.\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d x]^2\right)\left(b^2+a^2\left(-1+\text{Sin}[c+d x]^2\right)\right)\right)\right)+$$
$$\frac{1}{\left(b+a\,\text{Cos}[c+d x]\right)\left(1-2\,\text{Sin}[c+d x]^2\right)\sqrt{1-\text{Sin}[c+d x]^2}}\left(-231\,a^2\,b+210\,b^3\right)$$
$$\text{Cos}[c+d x]\,\text{Cos}\left[2\,(c+d x)\right]$$
$$\left(b+a\sqrt{1-\text{Sin}[c+d x]^2}\right)$$

$$\left(\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(a^2-2b^2\right)\text{ArcTan}\left[1-\frac{(1+i)\sqrt{a}\sqrt{\text{Sin}[c+dx]}}{\left(a^2-b^2\right)^{1/4}}\right]}{a^{3/2}\left(a^2-b^2\right)^{3/4}}-\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\left(a^2-2b^2\right)\text{ArcTan}\left[1+\frac{(1+i)\sqrt{a}\sqrt{\text{Sin}[c+dx]}}{\left(a^2-b^2\right)^{1/4}}\right]}{a^{3/2}\left(a^2-b^2\right)^{3/4}}+\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(a^2-2b^2\right)\text{Log}\left[\sqrt{a^2-b^2}-(1+i)\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+dx]}+i\,a\,\text{Sin}[c+dx]\right]\right)\Big/\left(a^{3/2}\left(a^2-b^2\right)^{3/4}\right)-\left(\left(\frac{1}{4}-\frac{i}{4}\right)\left(a^2-2b^2\right)\text{Log}\left[\sqrt{a^2-b^2}+(1+i)\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+dx]}+i\,a\,\text{Sin}[c+dx]\right]\right)\Big/\left(a^{3/2}\left(a^2-b^2\right)^{3/4}\right)+\frac{4\sqrt{\text{Sin}[c+dx]}}{a}+\left(10b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+dx]}\right)\Big/\left(\sqrt{1-\text{Sin}[c+dx]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]+2\left(2a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]\right)\text{Sin}[c+dx]^2\right)\left(b^2+a^2\left(-1+\text{Sin}[c+dx]^2\right)\right)\right)+\left(36b\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]\text{Sin}[c+dx]^{5/2}\right)\Big/\left(5\sqrt{1-\text{Sin}[c+dx]^2}\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]+2\left(2a^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Sin}[c+dx]^2,\frac{a^2\,\text{Sin}[c+dx]^2}{a^2-b^2}\right]\right)\text{Sin}[c+dx]^2\right)\left(b^2+a^2\left(-1+\text{Sin}[c+dx]^2\right)\right)\right)\right)$$

Problem 234: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 430 leaves, 14 steps):

$$\frac{b\left(a^2-b^2\right)^{3/4} e^{5/2} \text{ArcTan}\left[\frac{\sqrt{a}\sqrt{e\,\text{Sin}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}\sqrt{e}}\right]}{a^{7/2}\,d}-\frac{b\left(a^2-b^2\right)^{3/4} e^{5/2} \text{ArcTanh}\left[\frac{\sqrt{a}\sqrt{e\,\text{Sin}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}\sqrt{e}}\right]}{a^{7/2}\,d}-$$
$$\left(b^2\left(a^2-b^2\right)e^3\,\text{EllipticPi}\left[\frac{2\,a}{a-\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(a^4\left(a-\sqrt{a^2-b^2}\right)d\sqrt{e\,\text{Sin}[c+d\,x]}\right)-$$
$$\left(b^2\left(a^2-b^2\right)e^3\,\text{EllipticPi}\left[\frac{2\,a}{a+\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$
$$\left(a^4\left(a+\sqrt{a^2-b^2}\right)d\sqrt{e\,\text{Sin}[c+d\,x]}\right)+$$
$$\frac{2\left(3\,a^2-5\,b^2\right)e^2\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{e\,\text{Sin}[c+d\,x]}}{5\,a^3\,d\sqrt{\text{Sin}[c+d\,x]}}+$$
$$\frac{2\,e\left(5\,b-3\,a\,\text{Cos}[c+d\,x]\right)\left(e\,\text{Sin}[c+d\,x]\right)^{3/2}}{15\,a^2\,d}$$

Result (type 6, 1247 leaves):

$$-\frac{1}{5\,a^2\,d\left(a+b\,\text{Sec}[c+d\,x]\right)\text{Sin}[c+d\,x]^{5/2}}\left(b+a\,\text{Cos}[c+d\,x]\right)\text{Sec}[c+d\,x]\left(e\,\text{Sin}[c+d\,x]\right)^{5/2}$$
$$\left(\frac{1}{\left(b+a\,\text{Cos}[c+d\,x]\right)\left(1-\text{Sin}[c+d\,x]^2\right)}2\left(-3\,a^2+5\,b^2\right)\text{Cos}[c+d\,x]^2\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\right.$$
$$\left(\left(b\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{a}\sqrt{\text{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{a}\sqrt{\text{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\text{Log}\left[\right.\right.\right.\right.$$
$$\sqrt{-a^2+b^2}-\sqrt{2}\sqrt{a}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\Big]-\text{Log}\Big[$$
$$\left.\left.\left.\sqrt{-a^2+b^2}+\sqrt{2}\sqrt{a}\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\right]\right)\right)\Big/$$
$$\left(4\sqrt{2}\,a^{3/2}\left(-a^2+b^2\right)^{1/4}\right)-\left(7\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\right.\right.$$
$$\left.\left.\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\text{Sin}[c+d\,x]^{3/2}\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\Big/$$
$$\left(3\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\right.\right.$$
$$\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)$$
$$\left.\left.\left.\text{Sin}[c+d\,x]^2\right)\left(b^2+a^2\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\right)\right)+$$
$$\frac{1}{6\left(b+a\,\text{Cos}[c+d\,x]\right)\sqrt{1-\text{Sin}[c+d\,x]^2}}a\,b\,\text{Cos}[c+d\,x]\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)$$

$$\Bigg(\Bigg(\Big(3+3\,i\Big)\Big(2\,\text{ArcTan}\Big[1-\frac{(1+i)\sqrt{a}\sqrt{\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]-2\,\text{ArcTan}\Big[1+\frac{(1+i)\sqrt{a}\sqrt{\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}}\Big]-\text{Log}\Big[\sqrt{a^2-b^2}-(1+i)\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\Big]+\text{Log}\Big[\sqrt{a^2-b^2}+(1+i)\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\Big]\Big)\Bigg)\Big/\Big(\sqrt{a}\,(a^2-b^2)^{1/4}\Big)+$$

$$\Big(56\,b\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\,\text{Sin}[c+d\,x]^{3/2}\Big)\Big/$$

$$\Big(\sqrt{1-\text{Sin}[c+d\,x]^2}\,\Big(7\,(a^2-b^2)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Big(2\,a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+(a^2-b^2)\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Big)\,\text{Sin}[c+d\,x]^2\Big)\,\Big(b^2+a^2\,\big(-1+\text{Sin}[c+d\,x]^2\big)\Big)\Big)\Bigg)\Bigg)+$$

$$\Bigg((b+a\,\text{Cos}[c+d\,x])\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]\,(e\,\text{Sin}[c+d\,x])^{5/2}\Big(\frac{2\,b\,\text{Sin}[c+d\,x]}{3\,a^2}-\frac{\text{Sin}[2\,(c+d\,x)]}{5\,a}\Big)\Bigg)\Big/\Big(d\,\big(a+b\,\text{Sec}[c+d\,x]\big)\Big)$$

Problem 235: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 444 leaves, 14 steps):

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

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

$$\left(b^2\left(a^2-b^2\right) e^2\,\text{EllipticPi}\left[\frac{2\,a}{a-\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$

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

$$\left(b^2\left(a^2-b^2\right) e^2\,\text{EllipticPi}\left[\frac{2\,a}{a+\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$

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

Result (type 6, 2159 leaves):

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

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

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

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

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

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

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

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

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

$$2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)$$

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

$$2\,b\,\text{Cos}[c+d\,x]\,\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\left(-\frac{1}{\left(a^2-b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{\mathrm{i}}{8}\right)\sqrt{a}\right.$$

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

$$\text{Log}\left[\sqrt{a^2-b^2}-(1+\mathrm{i})\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+\mathrm{i}\,a\,\text{Sin}[c+d\,x]\right]-$$

$$\left.\text{Log}\left[\sqrt{a^2-b^2}+(1+\mathrm{i})\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+\mathrm{i}\,a\,\text{Sin}[c+d\,x]\right]\right)+$$

$$\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Sin}[c+d\,x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\right.$$

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

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

$$\text{Cos}[2\,(c+d\,x)]$$

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

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

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

$$\left.\text{Log}\left[\sqrt{a^2-b^2}-(1+\mathrm{i})\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+\mathrm{i}\,a\,\text{Sin}[c+d\,x]\right]\right)\Big/$$

$$\left(a^{3/2}\left(a^2-b^2\right)^{3/4}\right)-\left(\left(\frac{1}{4}-\frac{\mathrm{i}}{4}\right)\left(a^2-2\,b^2\right)\text{Log}\left[\sqrt{a^2-b^2}+(1+\mathrm{i})\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\right.\right.$$

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

$$\left(10\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Sin}[c+d\,x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\right.\right.\right.$$

$$\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\Big]+2\Big(2 a^2 \operatorname{AppellF1}\Big[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\operatorname{Sin}[c+d x]^2,\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\operatorname{Sin}[c+d x]^2,\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\Big]\Big) \operatorname{Sin}[c+d x]^2\Big)\left(b^2+a^2\left(-1+\operatorname{Sin}[c+d x]^2\right)\right)\Big)+$$

$$\left(36 b\left(-a^2+b^2\right) \operatorname{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\operatorname{Sin}[c+d x]^2,\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\Big] \operatorname{Sin}[c+d x]^{5/2}\right)\Big/$$

$$\Big(5 \sqrt{1-\operatorname{Sin}[c+d x]^2}\,\Big(9\left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\operatorname{Sin}[c+d x]^2,\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\Big]+2\Big(2 a^2 \operatorname{AppellF1}\Big[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\operatorname{Sin}[c+d x]^2,\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right) \operatorname{AppellF1}\Big[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\operatorname{Sin}[c+d x]^2,\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\Big]\Big) \operatorname{Sin}[c+d x]^2\Big)\left(b^2+a^2\left(-1+\operatorname{Sin}[c+d x]^2\right)\right)\Big)\Big)$$

Problem 236: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 356 leaves, 13 steps):

$$\frac{b \sqrt{e} \operatorname{ArcTan}\Big[\frac{\sqrt{a} \sqrt{e \operatorname{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\Big]}{a^{3/2}\left(a^2-b^2\right)^{1/4} d}-\frac{b \sqrt{e} \operatorname{ArcTanh}\Big[\frac{\sqrt{a} \sqrt{e \operatorname{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\Big]}{a^{3/2}\left(a^2-b^2\right)^{1/4} d}-$$

$$\frac{b^2 e \operatorname{EllipticPi}\Big[\frac{2 a}{a-\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),2\Big] \sqrt{\operatorname{Sin}[c+d x]}}{a^2\left(a-\sqrt{a^2-b^2}\right) d \sqrt{e \operatorname{Sin}[c+d x]}}-$$

$$\frac{b^2 e \operatorname{EllipticPi}\Big[\frac{2 a}{a+\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),2\Big] \sqrt{\operatorname{Sin}[c+d x]}}{a^2\left(a+\sqrt{a^2-b^2}\right) d \sqrt{e \operatorname{Sin}[c+d x]}}+$$

$$\frac{2 \operatorname{EllipticE}\Big[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),2\Big] \sqrt{e \operatorname{Sin}[c+d x]}}{a d \sqrt{\operatorname{Sin}[c+d x]}}$$

Result (type 6, 548 leaves):

$$\frac{1}{d\left(b+a\,\text{Cos}[c+d\,x]\right)\sqrt{\text{Sin}[c+d\,x]}}\,2\left(b+a\sqrt{\text{Cos}[c+d\,x]^2}\right)\sqrt{e\,\text{Sin}[c+d\,x]}\left(\left(b\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\text{Log}\left[\sqrt{-a^2+b^2}-\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\right]-\text{Log}\left[\sqrt{-a^2+b^2}+\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\right]\right)\right)\Big/\left(4\sqrt{2}\,a^{3/2}\left(-a^2+b^2\right)^{1/4}\right)-\left(7\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\sqrt{\text{Cos}[c+d\,x]^2}\,\text{Sin}[c+d\,x]^{3/2}\right)\Big/\left(3\left(-a^2+b^2+a^2\,\text{Sin}[c+d\,x]^2\right)\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)\right)\right)$$

Problem 237: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 370 leaves, 13 steps):

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

Result (type 6, 546 leaves):

$$\frac{1}{d\,(b+a\,\mathrm{Cos}[c+d\,x])\,\sqrt{e\,\mathrm{Sin}[c+d\,x]}}\,2\left(b+a\sqrt{\mathrm{Cos}[c+d\,x]^2}\right)\sqrt{\mathrm{Sin}[c+d\,x]}$$
$$\left(\left(b\left(-2\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\mathrm{Sin}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]+2\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\mathrm{Sin}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]-\right.\right.\right.$$
$$\mathrm{Log}\left[\sqrt{-a^2+b^2}-\sqrt{2}\,\sqrt{a}\,(-a^2+b^2)^{1/4}\sqrt{\mathrm{Sin}[c+d\,x]}+a\,\mathrm{Sin}[c+d\,x]\right]+$$
$$\left.\left.\mathrm{Log}\left[\sqrt{-a^2+b^2}+\sqrt{2}\,\sqrt{a}\,(-a^2+b^2)^{1/4}\sqrt{\mathrm{Sin}[c+d\,x]}+a\,\mathrm{Sin}[c+d\,x]\right]\right)\right)\Big/$$
$$\left(4\sqrt{2}\,\sqrt{a}\,(-a^2+b^2)^{3/4}\right)-\left(5\,a\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\mathrm{Sin}[c+d\,x]^2,\right.\right.$$
$$\left.\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]\sqrt{\mathrm{Cos}[c+d\,x]^2}\,\sqrt{\mathrm{Sin}[c+d\,x]}\Bigg)\Big/\left((-a^2+b^2+a^2\,\mathrm{Sin}[c+d\,x]^2)\right.$$
$$\left(5\,(a^2-b^2)\,\mathrm{AppellF1}\left[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\right.$$
$$2\left(2\,a^2\,\mathrm{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\right.$$
$$\left.\left.\left.(-a^2+b^2)\,\mathrm{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\mathrm{Sin}[c+d\,x]^2\right)\right)$$

Problem 238: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 430 leaves, 14 steps):

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

Result (type 6, 1229 leaves):

$$-\frac{1}{(a-b)\,(a+b)\,d\,(a+b\,\mathrm{Sec}[c+d\,x])\,(e\,\mathrm{Sin}[c+d\,x])^{3/2}}$$

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

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

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

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

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

$$\left(4\sqrt{2}\,a^{3/2}\left(-a^2+b^2\right)^{1/4}\right)-\Bigg(7\,a\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},$$

$$\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\,\text{Sin}[c+d\,x]^{3/2}\sqrt{1-\text{Sin}[c+d\,x]^2}\Bigg)\Bigg/$$

$$\Bigg(3\Bigg(7\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2$$

$$\Bigg(2\,a^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+$$

$$\left(-a^2+b^2\right)\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Bigg)$$

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

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

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

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

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

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

$$\Bigg(56\,b\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\,\text{Sin}[c+d\,x]^{3/2}\Bigg)\Bigg/$$

$$\Bigg(\sqrt{1-\text{Sin}[c+d\,x]^2}\,\Bigg(7\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\Bigg(2\,a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,$$

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

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

Problem 239: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 452 leaves, 14 steps):

$$-\frac{a^{3/2}\,b\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}\,\sqrt{e}}\right]}{\left(a^2-b^2\right)^{7/4}\,d\,e^{5/2}}-\frac{a^{3/2}\,b\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}\,\sqrt{e}}\right]}{\left(a^2-b^2\right)^{7/4}\,d\,e^{5/2}}+$$

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

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

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

Result (type 6, 1233 leaves):

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

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

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

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

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

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

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

$$\text{Sin}[c+d\,x]^2,\ \frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\ \sqrt{\text{Sin}[c+d\,x]}\ \sqrt{1-\text{Sin}[c+d\,x]^2}\Bigg)\Bigg/$$
$$\Bigg(\Bigg(5\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+$$
$$2\,\Bigg(2\,a^2\,\text{AppellF1}\Big[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+$$
$$\left(-a^2+b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Bigg)$$
$$\text{Sin}[c+d\,x]^2\Bigg)\,\left(b^2+a^2\,\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\Bigg)\Bigg)+$$
$$\frac{1}{(b+a\,\text{Cos}[c+d\,x])\,\sqrt{1-\text{Sin}[c+d\,x]^2}}\,4\,b\,\text{Cos}[c+d\,x]\,\left(b+a\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right)$$
$$\Bigg(-\frac{1}{\left(a^2-b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\,\sqrt{a}\,\Bigg(2\,\text{ArcTan}\Big[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]-$$
$$2\,\text{ArcTan}\Big[1+\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]+$$
$$\text{Log}\Big[\sqrt{a^2-b^2}-(1+i)\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\Big]-$$
$$\text{Log}\Big[\sqrt{a^2-b^2}+(1+i)\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\Big]\Bigg)+$$
$$\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\,\sqrt{\text{Sin}[c+d\,x]}\right)\Bigg/$$
$$\Bigg(\sqrt{1-\text{Sin}[c+d\,x]^2}\,\Bigg(5\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,$$
$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Bigg(2\,a^2\,\text{AppellF1}\Big[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,$$
$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,$$
$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Bigg)\,\text{Sin}[c+d\,x]^2\Bigg)\,\left(b^2+a^2\,\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\Bigg)\Bigg)\Bigg)-$$
$$\frac{2\,(b-a\,\text{Cos}[c+d\,x])\,(b+a\,\text{Cos}[c+d\,x])\,\text{Tan}[c+d\,x]}{3\,\left(-a^2+b^2\right)\,d\,(a+b\,\text{Sec}[c+d\,x])\,(e\,\text{Sin}[c+d\,x])^{5/2}}$$

Problem 240: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,\text{Sec}[c+d\,x])\,(e\,\text{Sin}[c+d\,x])^{7/2}}\,dx$$

Optimal (type 4, 511 leaves, 15 steps):

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

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

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

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

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

Result (type 6, 1324 leaves):

$$-\frac{1}{5\,(a-b)^2\,(a+b)^2\,d\,\left(a+b\,\text{Sec}[c+d\,x]\right)\,\left(e\,\text{Sin}[c+d\,x]\right)^{7/2}}$$
$$a\,\left(b+a\,\text{Cos}[c+d\,x]\right)\,\text{Sec}[c+d\,x]\,\text{Sin}[c+d\,x]^{7/2}$$
$$\left(\frac{1}{\left(b+a\,\text{Cos}[c+d\,x]\right)\,\left(1-\text{Sin}[c+d\,x]^2\right)}\,2\,\left(3\,a^3+2\,a\,b^2\right)\,\text{Cos}[c+d\,x]^2\,\left(b+a\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\right.$$
$$\left(\left(b\,\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\text{Log}\left[\right.\right.\right.\right.$$
$$\sqrt{-a^2+b^2}-\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\Big]-\text{Log}\Big[$$
$$\left.\left.\sqrt{-a^2+b^2}+\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\Big]\right)\right)\Big/$$
$$\left(4\,\sqrt{2}\,a^{3/2}\,\left(-a^2+b^2\right)^{1/4}\right)-\left(7\,a\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2},\,1,\,\frac{7}{4},\right.\right.$$
$$\left.\left.\text{Sin}[c+d\,x]^2,\,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\,\text{Sin}[c+d\,x]^{3/2}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\Big/$$
$$\left(3\,\left(7\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{3}{4},\,-\frac{1}{2},\,1,\,\frac{7}{4},\,\text{Sin}[c+d\,x]^2,\,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\right.\right.$$
$$\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},\,-\frac{1}{2},\,2,\,\frac{11}{4},\,\text{Sin}[c+d\,x]^2,\,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\right.$$
$$\left.\left(-a^2+b^2\right)\,\text{AppellF1}\left[\frac{7}{4},\,\frac{1}{2},\,1,\,\frac{11}{4},\,\text{Sin}[c+d\,x]^2,\,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)$$
$$\left.\left.\left.\text{Sin}[c+d\,x]^2\right)\,\left(b^2+a^2\,\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\right)\right)+$$

$$\frac{1}{12\,(b+a\,\text{Cos}[c+d\,x])\,\sqrt{1-\text{Sin}[c+d\,x]^2}}\left(8\,a^2\,b+2\,b^3\right)\text{Cos}[c+d\,x]\left(b+a\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\left(\left(\left(3+3\,i\right)\left(2\,\text{ArcTan}\left[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]-\text{Log}\left[\sqrt{a^2-b^2}-(1+i)\,\sqrt{a}\,(a^2-b^2)^{1/4}\,\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\right]+\text{Log}\left[\sqrt{a^2-b^2}+(1+i)\,\sqrt{a}\,(a^2-b^2)^{1/4}\,\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{a}\,(a^2-b^2)^{1/4}\right)+\left(56\,b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\text{Sin}[c+d\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Sin}[c+d\,x]^2}\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+(a^2-b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)\left(b^2+a^2\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\right)\right)+$$

$$\left((b+a\,\text{Cos}[c+d\,x])\left(-\frac{2\left(-5\,a^2\,b+3\,a^3\,\text{Cos}[c+d\,x]+2\,a\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{5\,(-a^2+b^2)^2}-\frac{2\,(b-a\,\text{Cos}[c+d\,x])\,\text{Csc}[c+d\,x]^3}{5\,(-a^2+b^2)}\right)\text{Sin}[c+d\,x]^3\,\text{Tan}[c+d\,x]\right)\Big/\left(d\,(a+b\,\text{Sec}[c+d\,x])\,(e\,\text{Sin}[c+d\,x])^{7/2}\right)$$

Problem 241: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 1070 leaves, 35 steps):

$$-\frac{7 b^3 \left(a^2-b^2\right)^{3/4} e^{9/2} \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{2 a^{13/2} d}+\frac{2 b \left(a^2-b^2\right)^{7/4} e^{9/2} \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{a^{13/2} d}+$$

$$\frac{7 b^3 \left(a^2-b^2\right)^{3/4} e^{9/2} \text{ArcTanh}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{2 a^{13/2} d}-\frac{2 b \left(a^2-b^2\right)^{7/4} e^{9/2} \text{ArcTanh}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{a^{13/2} d}+$$

$$\left(7 b^4 \left(a^2-b^2\right) e^5 \text{EllipticPi}\left[\frac{2 a}{a-\sqrt{a^2-b^2}}, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}\right) \Big/$$
$$\left(2 a^7 \left(a-\sqrt{a^2-b^2}\right) d \sqrt{e \text{Sin}[c+d x]}\right)-$$
$$\left(2 b^2 \left(a^2-b^2\right)^2 e^5 \text{EllipticPi}\left[\frac{2 a}{a-\sqrt{a^2-b^2}}, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}\right) \Big/$$
$$\left(a^7 \left(a-\sqrt{a^2-b^2}\right) d \sqrt{e \text{Sin}[c+d x]}\right)+$$
$$\left(7 b^4 \left(a^2-b^2\right) e^5 \text{EllipticPi}\left[\frac{2 a}{a+\sqrt{a^2-b^2}}, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}\right) \Big/$$
$$\left(2 a^7 \left(a+\sqrt{a^2-b^2}\right) d \sqrt{e \text{Sin}[c+d x]}\right)-$$
$$\left(2 b^2 \left(a^2-b^2\right)^2 e^5 \text{EllipticPi}\left[\frac{2 a}{a+\sqrt{a^2-b^2}}, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}\right) \Big/$$
$$\left(a^7 \left(a+\sqrt{a^2-b^2}\right) d \sqrt{e \text{Sin}[c+d x]}\right)+\frac{14 e^4 \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{e \text{Sin}[c+d x]}}{15 a^2 d \sqrt{\text{Sin}[c+d x]}}-$$

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

$$\frac{4 b^2 \left(8 a^2-5 b^2\right) e^4 \text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{e \text{Sin}[c+d x]}}{5 a^6 d \sqrt{\text{Sin}[c+d x]}}-$$

$$\frac{14 e^3 \text{Cos}[c+d x] (e \text{Sin}[c+d x])^{3/2}}{45 a^2 d}-\frac{7 b^2 e^3 (5 b-3 a \text{Cos}[c+d x]) (e \text{Sin}[c+d x])^{3/2}}{15 a^5 d}+$$

$$\frac{4 b e^3 \left(5 \left(a^2-b^2\right)+3 a b \text{Cos}[c+d x]\right) (e \text{Sin}[c+d x])^{3/2}}{15 a^5 d}+\frac{4 b e (e \text{Sin}[c+d x])^{7/2}}{7 a^3 d}-$$

$$\frac{2 e \text{Cos}[c+d x] (e \text{Sin}[c+d x])^{7/2}}{9 a^2 d}+\frac{b^2 e (e \text{Sin}[c+d x])^{7/2}}{a^3 d (b+a \text{Cos}[c+d x])}$$

Result (type 6, 1368 leaves):

$$\frac{1}{30 a^5 d (a+b \text{Sec}[c+d x])^2 \text{Sin}[c+d x]^{9/2}}$$
$$(b+a \text{Cos}[c+d x])^2 \text{Sec}[c+d x]^2 (e \text{Sin}[c+d x])^{9/2} \left(\frac{1}{(b+a \text{Cos}[c+d x]) \left(1-\text{Sin}[c+d x]^2\right)}\right.$$
$$2 \left(14 a^4-159 a^2 b^2+165 b^4\right) \text{Cos}[c+d x]^2 \left(b+a \sqrt{1-\text{Sin}[c+d x]^2}\right)$$

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

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

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

$$\left(4\sqrt{2}\,a^{3/2}\left(-a^2+b^2\right)^{1/4}\right)-\left(7\,a\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\right.\right.$$

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

$$\left(3\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\right.\right.$$

$$2\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\right.$$

$$\left.\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)$$

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

$$\frac{1}{12\left(b+a\,\text{Cos}[c+d\,x]\right)\sqrt{1-\text{Sin}[c+d\,x]^2}}\left(-46\,a^3\,b+66\,a\,b^3\right)\text{Cos}[c+d\,x]$$

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

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

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

$$\left.(1+i)\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\right]+\text{Log}\left[\sqrt{a^2-b^2}+\right.$$

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

$$\left(56\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\text{Sin}[c+d\,x]^{3/2}\right)\Big/$$

$$\left(\sqrt{1-\text{Sin}[c+d\,x]^2}\left(7\left(a^2-b^2\right)\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\right.$$

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

$$\left((b+a\,\text{Cos}[c+d\,x])^2\,\text{Csc}[c+d\,x]^4\,\text{Sec}[c+d\,x]^2\,(e\,\text{Sin}[c+d\,x])^{9/2}\right.$$
$$\left(-\frac{b\,(-37\,a^2+56\,b^2)\,\text{Sin}[c+d\,x]}{21\,a^5}+\frac{a^2\,b^2\,\text{Sin}[c+d\,x]-b^4\,\text{Sin}[c+d\,x]}{a^5\,(b+a\,\text{Cos}[c+d\,x])}-\frac{(19\,a^2-54\,b^2)\,\text{Sin}[2\,(c+d\,x)]}{90\,a^4}-\frac{b\,\text{Sin}[3\,(c+d\,x)]}{7\,a^3}+\left.\frac{\text{Sin}[4\,(c+d\,x)]}{36\,a^2}\right)\right)\Big/\left(d\,(a+b\,\text{Sec}[c+d\,x])^2\right)$$

Problem 242: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 1101 leaves, 35 steps):

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

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

$$\frac{2 b \left(a^2-b^2\right)^{5/4} e^{7/2} \text{ArcTanh}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{a^{11/2} d}+\frac{10 e^4 \text{EllipticF}\left[\frac{1}{2} \left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}}{21 a^2 d \sqrt{e \text{Sin}[c+d x]}}-$$

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

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

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

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

Result (type 6, 2295 leaves):

$$\left(\left(b+a \text{Cos}[c+d x]\right)^2 \left(-\frac{\left(23 a^2-84 b^2\right) \text{Cos}[c+d x]}{42 a^4}-\frac{b^2 \left(-a^2+b^2\right)}{a^5 \left(b+a \text{Cos}[c+d x]\right)}-\right.\right.$$

$$\left.\left.\frac{2\,b\,\text{Cos}[2\,(c+d\,x)]}{5\,a^3}+\frac{\text{Cos}[3\,(c+d\,x)]}{14\,a^2}\right)\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^2\,(e\,\text{Sin}[c+d\,x])^{7/2}\right)\Big/$$

$$\left(d\,(a+b\,\text{Sec}[c+d\,x])^2\right)+\frac{1}{210\,a^5\,d\,(a+b\,\text{Sec}[c+d\,x])^2\,\text{Sin}[c+d\,x]^{7/2}}$$

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

$$2\,(50\,a^4-273\,a^2\,b^2+105\,b^4)\,\text{Cos}[c+d\,x]^2\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)$$

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

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

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

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

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

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

$$2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+(-a^2+b^2)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)$$

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

$$2\,(-139\,a^3\,b+210\,a\,b^3)\,\text{Cos}[c+d\,x]\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\left(-\frac{1}{(a^2-b^2)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{a}\right.$$

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

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

$$\left.\text{Log}\left[\sqrt{a^2-b^2}+(1+i)\,\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\right]\right)+$$

$$\left(5\,b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Sin}[c+d\,x]^2}\left(5\,(a^2-b^2)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\right.\right.\right.$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Big(2\,a^2\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Sin}[c+d\,x]^2,$$

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

$$\frac{1}{\left(b+a\,\text{Cos}[c+d\,x]\right)\,\left(1-2\,\text{Sin}[c+d\,x]^2\right)\,\sqrt{1-\text{Sin}[c+d\,x]^2}}\,\left(231\,a^3\,b-420\,a\,b^3\right)$$

$$\text{Cos}[c+d\,x]\,\text{Cos}\left[2\,\left(c+d\,x\right)\right]$$

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

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

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

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

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

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

$$\Big(10\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Sin}[c+d\,x]^2,\,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\,\sqrt{\text{Sin}[c+d\,x]}\Big)\Big/$$

$$\Big(\sqrt{1-\text{Sin}[c+d\,x]^2}\,\Big(5\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{1}{4},\,\frac{1}{2},\,1,\,\frac{5}{4},\,\text{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Big(2\,a^2\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2},\,2,\,\frac{9}{4},\,\text{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{3}{2},\,1,\,\frac{9}{4},\,\text{Sin}[c+d\,x]^2,$$

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

$$\Big(36\,b\,\left(-a^2+b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Sin}[c+d\,x]^2,\,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\,\text{Sin}[c+d\,x]^{5/2}\Big)\Big/$$

$$\Big(5\,\sqrt{1-\text{Sin}[c+d\,x]^2}\,\Big(9\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{5}{4},\,\frac{1}{2},\,1,\,\frac{9}{4},\,\text{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Big(2\,a^2\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{1}{2},\,2,\,\frac{13}{4},\,\text{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{9}{4},\,\frac{3}{2},\,1,\,\frac{13}{4},\,\text{Sin}[c+d\,x]^2,$$

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

Problem 243: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 850 leaves, 32 steps):

$$-\frac{3\,b^3\,e^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}\,\sqrt{e}}\right]}{2\,a^{9/2}\,(a^2-b^2)^{1/4}\,d}+\frac{2\,b\,(a^2-b^2)^{3/4}\,e^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}\,\sqrt{e}}\right]}{a^{9/2}\,d}+$$

$$\frac{3\,b^3\,e^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}\,\sqrt{e}}\right]}{2\,a^{9/2}\,(a^2-b^2)^{1/4}\,d}-\frac{2\,b\,(a^2-b^2)^{3/4}\,e^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{e\,\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}\,\sqrt{e}}\right]}{a^{9/2}\,d}+$$

$$\frac{3\,b^4\,e^3\,\text{EllipticPi}\left[\frac{2\,a}{a-\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}}{2\,a^5\left(a-\sqrt{a^2-b^2}\right)d\,\sqrt{e\,\text{Sin}[c+d\,x]}}-$$

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

$$\left(a^5\left(a-\sqrt{a^2-b^2}\right)d\,\sqrt{e\,\text{Sin}[c+d\,x]}\right)+$$

$$\frac{3\,b^4\,e^3\,\text{EllipticPi}\left[\frac{2\,a}{a+\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}}{2\,a^5\left(a+\sqrt{a^2-b^2}\right)d\,\sqrt{e\,\text{Sin}[c+d\,x]}}-$$

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

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

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

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

Result (type 6, 1280 leaves):

$$-\frac{1}{10\,a^3\,d\,(a+b\,\text{Sec}[c+d\,x])^2\,\text{Sin}[c+d\,x]^{5/2}}$$

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

$$2\,\left(-6\,a^2+35\,b^2\right)\,\mathrm{Cos}[c+d\,x]^2\,\left(b+a\,\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\right)$$

$$\left(\left(b\,\left(-2\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\mathrm{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+2\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\mathrm{Sin}[c+d\,x]}}{\left(-a^2+b^2\right)^{1/4}}\right]+\mathrm{Log}\left[\right.\right.\right.\right.$$

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

$$\left.\left.\left.\sqrt{-a^2+b^2}+\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{1/4}\,\sqrt{\mathrm{Sin}[c+d\,x]}+a\,\mathrm{Sin}[c+d\,x]\right]\right)\right)\Big/$$

$$\left(4\,\sqrt{2}\,a^{3/2}\,\left(-a^2+b^2\right)^{1/4}\right)-\left(7\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\right.\right.$$

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

$$\left(3\,\left(7\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\right.\right.$$

$$\left(2\,a^2\,\mathrm{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\right.$$

$$\left.\left(-a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)$$

$$\left.\left.\left.\mathrm{Sin}[c+d\,x]^2\right)\,\left(b^2+a^2\,\left(-1+\mathrm{Sin}[c+d\,x]^2\right)\right)\right)\right)+$$

$$\frac{1}{6\,\left(b+a\,\mathrm{Cos}[c+d\,x]\right)\,\sqrt{1-\mathrm{Sin}[c+d\,x]^2}}\,7\,a\,b\,\mathrm{Cos}[c+d\,x]\,\left(b+a\,\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\right)$$

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

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

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

$$\left.\left.\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\,\sqrt{\mathrm{Sin}[c+d\,x]}+i\,a\,\mathrm{Sin}[c+d\,x]\Big]\right)\right)\Big/\left(\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\right)+$$

$$\left(56\,b\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]\,\mathrm{Sin}[c+d\,x]^{3/2}\right)\Big/$$

$$\left(\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\,\left(7\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\mathrm{Sin}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\,\left(2\,a^2\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\mathrm{Sin}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\,\mathrm{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\mathrm{Sin}[c+d\,x]^2,\right.$$

$$\left.\left.\left.\left.\frac{a^2 \operatorname{Sin}[c+d x]^2}{a^2-b^2}\right]\right) \operatorname{Sin}[c+d x]^2\right) \left(b^2+a^2 \left(-1+\operatorname{Sin}[c+d x]^2\right)\right)\right)\right) +$$

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

Problem 244: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

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

Optimal (type 4, 882 leaves, 32 steps) :

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

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

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

$$\frac{5 b^2 e^2 \text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}}{a^4 d \sqrt{e \text{Sin}[c+d x]}} -$$

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

$$\left(2 b^2 (a^2-b^2) e^2 \text{EllipticPi}\left[\frac{2 a}{a-\sqrt{a^2-b^2}}, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}\right) \Big/$$

$$\left(a^4 \left(a^2-b^2-a\sqrt{a^2-b^2}\right) d \sqrt{e \text{Sin}[c+d x]}\right) -$$

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

$$\left(2 b^2 (a^2-b^2) e^2 \text{EllipticPi}\left[\frac{2 a}{a+\sqrt{a^2-b^2}}, \frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}\right) \Big/$$

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

$$\frac{2 e \text{Cos}[c+d x] \sqrt{e \text{Sin}[c+d x]}}{3 a^2 d} + \frac{b^2 e \sqrt{e \text{Sin}[c+d x]}}{a^3 d (b+a \text{Cos}[c+d x])}$$

Result (type 6, 2212 leaves):

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

$$\left.\text{Csc}[c+d x] \text{Sec}[c+d x]^2 (e \text{Sin}[c+d x])^{3/2}\right) \Big/ \left(d (a+b \text{Sec}[c+d x])^2\right) -$$

$$\frac{1}{6 a^3 d (a+b \text{Sec}[c+d x])^2 \text{Sin}[c+d x]^{3/2}} (b+a \text{Cos}[c+d x])^2 \text{Sec}[c+d x]^2 (e \text{Sin}[c+d x])^{3/2}$$

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

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

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

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

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

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

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

$$2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)$$

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

$$8\,a\,b\,\text{Cos}[c+d\,x]\,\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\left(-\frac{1}{\left(a^2-b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{a}\right.$$

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

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

$$\left.\text{Log}\left[\sqrt{a^2-b^2}+(1+i)\,\sqrt{a}\,\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\right]\right)+$$

$$\left(5\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Sin}[c+d\,x]^2}\,\left(5\,\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\right.\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\,\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\right.$$

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

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

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

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

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

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

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

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

$$\left(10\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d x]^2,\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d x]}\right)\Big/$$

$$\left(\sqrt{1-\text{Sin}[c+d x]^2}\left(5\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d x]^2,\right.\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+2\left(2a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d x]^2,\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Sin}[c+d x]^2,\right.$$

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

$$\left(36\,b\left(-a^2+b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d x]^2,\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]\text{Sin}[c+d x]^{5/2}\right)\Big/$$

$$\left(5\sqrt{1-\text{Sin}[c+d x]^2}\left(9\left(a^2-b^2\right)\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d x]^2,\right.\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+2\left(2a^2\,\text{AppellF1}\left[\frac{9}{4},\frac{1}{2},2,\frac{13}{4},\text{Sin}[c+d x]^2,\right.\right.$$

$$\left.\frac{a^2\,\text{Sin}[c+d x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\text{AppellF1}\left[\frac{9}{4},\frac{3}{2},1,\frac{13}{4},\text{Sin}[c+d x]^2,\right.$$

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

Problem 245: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 809 leaves, 27 steps):

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

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

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

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

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

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

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

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

Result (type 6, 1248 leaves):

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

$$(b + a \,\text{Cos}[c+d x])^2 \text{Sec}[c+d x]^2 \sqrt{e \,\text{Sin}[c+d x]}$$

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

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

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

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

$$\left(4 \sqrt{2}\, a^{3/2} (-a^2+b^2)^{1/4}\right) - \left(7 a (a^2-b^2) \,\text{AppellF1}\left[\frac{3}{4}, -\frac{1}{2}, 1, \frac{7}{4},\right.\right.$$

$$\text{Sin}[c+d\,x]^2,\ \frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\ \text{Sin}[c+d\,x]^{3/2}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\Bigg)\Bigg/$$

$$\Bigg(3\,\Bigg(7\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Bigg(2\,a^2\,\text{AppellF1}\Big[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(-a^2+b^2\right)\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Bigg)\,\text{Sin}[c+d\,x]^2\Bigg)\,\left(b^2+a^2\,\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\Bigg)\Bigg)+$$

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

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

$$\left(56\,b\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\,\text{Sin}[c+d\,x]^{3/2}\right)\Bigg/$$

$$\Bigg(\sqrt{1-\text{Sin}[c+d\,x]^2}\,\Bigg(7\,\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Bigg(2\,a^2\,\text{AppellF1}\Big[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\,\text{AppellF1}\Big[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Bigg)\,\text{Sin}[c+d\,x]^2\Bigg)\,\left(b^2+a^2\,\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\Bigg)\Bigg)\Bigg)+$$

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

Problem 246: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\left(a+b\,\text{Sec}[c+d\,x]\right)^2\,\sqrt{e\,\text{Sin}[c+d\,x]}}\,dx$$

Optimal (type 4, 838 leaves, 27 steps):

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

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

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

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

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

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

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

Result (type 6, 1246 leaves):

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

$$\left(b+a \text{Cos}[c+d x]\right)^2 \text{Sec}[c+d x]^2 \sqrt{\text{Sin}[c+d x]}$$

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

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

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

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

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

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

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

$$2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(-a^2+b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)$$

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

$$4\,a\,b\,\text{Cos}[c+d\,x]\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\left(-\frac{1}{\left(a^2-b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{a}\right.$$

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

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

$$\left.\text{Log}\left[\sqrt{a^2-b^2}+(1+i)\sqrt{a}\left(a^2-b^2\right)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+i\,a\,\text{Sin}[c+d\,x]\right]\right)+$$

$$\left(5\,b\left(a^2-b^2\right)\text{AppellF1}\left[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\sqrt{\text{Sin}[c+d\,x]}\right)\Big/$$

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

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

$$2\left(2\,a^2\,\text{AppellF1}\left[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+\left(a^2-b^2\right)\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)$$

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

Problem 247: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 1054 leaves, 33 steps):

$$\frac{5 b^3 \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{2 \sqrt{a} \left(a^2-b^2\right)^{9/4} d e^{3/2}}+\frac{2 b \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{\sqrt{a} \left(a^2-b^2\right)^{5/4} d e^{3/2}}-$$

$$\frac{5 b^3 \text{ArcTanh}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{2 \sqrt{a} \left(a^2-b^2\right)^{9/4} d e^{3/2}}-\frac{2 b \text{ArcTanh}\left[\frac{\sqrt{a} \sqrt{e \text{Sin}[c+d x]}}{\left(a^2-b^2\right)^{1/4} \sqrt{e}}\right]}{\sqrt{a} \left(a^2-b^2\right)^{5/4} d e^{3/2}}-$$

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

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

$$\frac{5 b^4 \text{EllipticPi}\left[\frac{2 a}{a-\sqrt{a^2-b^2}}, \frac{1}{2} \left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}}{2 a \left(a^2-b^2\right)^2 \left(a-\sqrt{a^2-b^2}\right) d e \sqrt{e \text{Sin}[c+d x]}}-$$

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

$$\frac{5 b^4 \text{EllipticPi}\left[\frac{2 a}{a+\sqrt{a^2-b^2}}, \frac{1}{2} \left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}}{2 a \left(a^2-b^2\right)^2 \left(a+\sqrt{a^2-b^2}\right) d e \sqrt{e \text{Sin}[c+d x]}}-$$

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

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

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

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

Result (type 6, 1316 leaves) :

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

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

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

$$\left(\left(b\left(-2\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]+2\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(-a^2+b^2)^{1/4}}\right]+\text{Log}\left[\sqrt{-a^2+b^2}-\sqrt{2}\,\sqrt{a}\,(-a^2+b^2)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\right]-\text{Log}\left[\sqrt{-a^2+b^2}+\sqrt{2}\,\sqrt{a}\,(-a^2+b^2)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+a\,\text{Sin}[c+d\,x]\right]\right)\right)\Big/\left(4\sqrt{2}\,a^{3/2}\,(-a^2+b^2)^{1/4}\right)-\left(7\,a\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\text{Sin}[c+d\,x]^{3/2}\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\Big/\left(3\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},-\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},-\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+(-a^2+b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)\left(b^2+a^2\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\right)\right)+$$

$$\frac{1}{12\,(b+a\,\text{Cos}[c+d\,x])\sqrt{1-\text{Sin}[c+d\,x]^2}}\,(6\,a^2\,b+4\,b^3)\,\text{Cos}[c+d\,x]\left(b+a\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\left(\left(\left((3+3\,\mathbb{i})\left(2\,\text{ArcTan}\left[1-\frac{(1+\mathbb{i})\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]-2\,\text{ArcTan}\left[1+\frac{(1+\mathbb{i})\sqrt{a}\,\sqrt{\text{Sin}[c+d\,x]}}{(a^2-b^2)^{1/4}}\right]-\text{Log}\left[\sqrt{a^2-b^2}-(1+\mathbb{i})\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+\mathbb{i}\,a\,\text{Sin}[c+d\,x]\right]+\text{Log}\left[\sqrt{a^2-b^2}+(1+\mathbb{i})\sqrt{a}\,(a^2-b^2)^{1/4}\sqrt{\text{Sin}[c+d\,x]}+\mathbb{i}\,a\,\text{Sin}[c+d\,x]\right]\right)\right)\Big/\left(\sqrt{a}\,(a^2-b^2)^{1/4}\right)+\left(56\,b\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\text{Sin}[c+d\,x]^{3/2}\right)\Big/\left(\sqrt{1-\text{Sin}[c+d\,x]^2}\left(7\,(a^2-b^2)\,\text{AppellF1}\left[\frac{3}{4},\frac{1}{2},1,\frac{7}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+2\left(2\,a^2\,\text{AppellF1}\left[\frac{7}{4},\frac{1}{2},2,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]+(a^2-b^2)\,\text{AppellF1}\left[\frac{7}{4},\frac{3}{2},1,\frac{11}{4},\text{Sin}[c+d\,x]^2,\frac{a^2\,\text{Sin}[c+d\,x]^2}{a^2-b^2}\right]\right)\text{Sin}[c+d\,x]^2\right)\left(b^2+a^2\left(-1+\text{Sin}[c+d\,x]^2\right)\right)\right)\right)+$$

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

Problem 248: Result unnecessarily involves higher level functions.

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

Optimal (type 4, 1089 leaves, 33 steps) :

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

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

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

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

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

$$\frac{b^2\left(5\,a^2+2\,b^2\right)\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}}{3\,a^2\left(a^2-b^2\right)^2d\,e^2\sqrt{e\,\text{Sin}[c+d\,x]}}+$$

$$\frac{7\,b^4\,\text{EllipticPi}\left[\frac{2\,a}{a-\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}}{2\left(a^2-b^2\right)^2\left(a^2-b^2-a\sqrt{a^2-b^2}\right)d\,e^2\sqrt{e\,\text{Sin}[c+d\,x]}}+$$

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

$$\frac{7\,b^4\,\text{EllipticPi}\left[\frac{2\,a}{a+\sqrt{a^2-b^2}},\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}}{2\left(a^2-b^2\right)^2\left(a^2-b^2+a\sqrt{a^2-b^2}\right)d\,e^2\sqrt{e\,\text{Sin}[c+d\,x]}}+$$

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

Result (type 6, 1320 leaves) :

$$-\frac{1}{6\left(a-b\right)^2\left(a+b\right)^2d\left(a+b\,\text{Sec}[c+d\,x]\right)^2\left(e\,\text{Sin}[c+d\,x]\right)^{5/2}}$$

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

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

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

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

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

$$\left(4\sqrt{2}\,\sqrt{a}\,\left(-a^2+b^2\right)^{3/4}\right)-\Big(5\,a\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},$$

$$\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\sqrt{\mathrm{Sin}[c+d\,x]}\,\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\Big)\Big/$$

$$\Big(\Big(5\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{1}{4},-\frac{1}{2},1,\frac{5}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2$$

$$\Big(2\,a^2\,\mathrm{AppellF1}\Big[\frac{5}{4},-\frac{1}{2},2,\frac{9}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+$$

$$\left(-a^2+b^2\right)\,\mathrm{AppellF1}\Big[\frac{5}{4},\frac{1}{2},1,\frac{9}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Big)$$

$$\mathrm{Sin}[c+d\,x]^2\Big)\,\left(b^2+a^2\,\left(-1+\mathrm{Sin}[c+d\,x]^2\right)\right)\Big)\Big)+$$

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

$$\left(b+a\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\right)$$

$$\Big(-\frac{1}{\left(a^2-b^2\right)^{3/4}}\left(\frac{1}{8}-\frac{i}{8}\right)\sqrt{a}\,\Big(2\,\mathrm{ArcTan}\Big[1-\frac{(1+i)\,\sqrt{a}\,\sqrt{\mathrm{Sin}[c+d\,x]}}{\left(a^2-b^2\right)^{1/4}}\Big]-$$

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

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

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

$$\Big(5\,b\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Sin}[c+d\,x]^2,\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\sqrt{\mathrm{Sin}[c+d\,x]}\Big)\Big/$$

$$\Big(\sqrt{1-\mathrm{Sin}[c+d\,x]^2}\,\Big(5\,\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{1}{4},\frac{1}{2},1,\frac{5}{4},\mathrm{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+2\,\Big(2\,a^2\,\mathrm{AppellF1}\Big[\frac{5}{4},\frac{1}{2},2,\frac{9}{4},\mathrm{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]+\left(a^2-b^2\right)\,\mathrm{AppellF1}\Big[\frac{5}{4},\frac{3}{2},1,\frac{9}{4},\mathrm{Sin}[c+d\,x]^2,$$

$$\frac{a^2\,\mathrm{Sin}[c+d\,x]^2}{a^2-b^2}\Big]\Big)\,\mathrm{Sin}[c+d\,x]^2\Big)\,\left(b^2+a^2\,\left(-1+\mathrm{Sin}[c+d\,x]^2\right)\right)\Big)\Big)\Big)+$$

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

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

$$\left.\text{Sin}[c+d\,x]\,\text{Tan}[c+d\,x]^2\right)\Big/\left(d\,\left(a+b\,\text{Sec}[c+d\,x]\right)^2\right.$$

$$\left.\left(e\,\text{Sin}[c+d\,x]\right)^{5/2}\right)$$

Problem 249: Unable to integrate problem.

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

Optimal (type 4, 125 leaves, 1 step):

$$-\frac{1}{\sqrt{a+b}\,f}2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{a}{a+b},\,\text{ArcSin}\left[\frac{\sqrt{a+b}}{\sqrt{a+b\,\text{Sec}[e+f\,x]}}\right],\,\frac{a-b}{a+b}\right]$$

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

Result (type 8, 16 leaves):

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

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

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

Optimal (type 4, 309 leaves, 5 steps):

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

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

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

Result (type 4, 882 leaves):

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

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

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

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

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

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

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

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

$$\dot{\imath}\,(a-b)\,b\,\text{EllipticE}\left[\dot{\imath}\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],\frac{a+b}{a-b}\right]\sqrt{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}$$
$$\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{a+b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{a+b}}\,-$$
$$\dot{\imath}\,(a-b)^2\,\text{EllipticF}\left[\dot{\imath}\,\text{ArcSinh}\left[\sqrt{\frac{-a+b}{a+b}}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],\frac{a+b}{a-b}\right]\sqrt{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}$$
$$\left.\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{a+b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{a+b}}\right)\right)\Big/$$
$$\left(\sqrt{\frac{-a+b}{a+b}}\,f\,(b+a\,\text{Cos}[e+f\,x])^{3/2}\,\text{Sec}[e+f\,x]^{3/2}\sqrt{\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\right.$$
$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{3/2}$$
$$\left.\sqrt{\frac{a+b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\right)$$

Problem 253: Unable to integrate problem.

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

Optimal (type 4, 106 leaves, 1 step):

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

Result (type 8, 16 leaves):

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

Problem 255: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 4, 347 leaves, 6 steps):

$$\frac{1}{a\sqrt{a+b}\,f}2\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\frac{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]\sqrt{\frac{b\,(1-\mathrm{Sec}[e+f\,x])}{a+b}}\sqrt{-\frac{b\,(1+\mathrm{Sec}[e+f\,x])}{a-b}}-\frac{1}{a\sqrt{a+b}\,f}2\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]\sqrt{\frac{b\,(1-\mathrm{Sec}[e+f\,x])}{a+b}}\sqrt{-\frac{b\,(1+\mathrm{Sec}[e+f\,x])}{a-b}}-\frac{1}{a^2\,f}2\sqrt{a+b}\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticPi}\left[\frac{a+b}{a},\mathrm{ArcSin}\left[\frac{\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}{\sqrt{a+b}}\right],\frac{a+b}{a-b}\right]\sqrt{\frac{b\,(1-\mathrm{Sec}[e+f\,x])}{a+b}}\sqrt{-\frac{b\,(1+\mathrm{Sec}[e+f\,x])}{a-b}}+\frac{2\,b^2\,\mathrm{Tan}[e+f\,x]}{a\,(a^2-b^2)\,f\sqrt{a+b\,\mathrm{Sec}[e+f\,x]}}$$

Result (type 4, 1249 leaves):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Problem 256: Unable to integrate problem.

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

Optimal (type 4, 318 leaves, 6 steps):

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

Result (type 8, 25 leaves):

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

Problem 260: Result more than twice size of optimal antiderivative.

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

Optimal (type 6, 232 leaves, 4 steps):

$$-\frac{1}{a^2 d\,(1-m)} b\,e\,\text{AppellF1}\left[1-m,\frac{1-m}{2},\frac{1-m}{2},2-m,-\frac{a-b}{b+a\,\text{Cos}[c+d\,x]},\frac{a+b}{b+a\,\text{Cos}[c+d\,x]}\right] \left(-\frac{a\,(1-\text{Cos}[c+d\,x])}{b+a\,\text{Cos}[c+d\,x]}\right)^{\frac{1-m}{2}} \left(\frac{a\,(1+\text{Cos}[c+d\,x])}{b+a\,\text{Cos}[c+d\,x]}\right)^{\frac{1-m}{2}} (e\,\text{Sin}[c+d\,x])^{-1+m}+ \left(\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1+m}{2},\frac{3+m}{2},\text{Sin}[c+d\,x]^2\right](e\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/ \left(a\,d\,e\,(1+m)\sqrt{\text{Cos}[c+d\,x]^2}\right)$$

Result (type 6, 3387 leaves):

$$-\left(\left(2\,\text{Sin}[c+d\,x]^m\,(e\,\text{Sin}[c+d\,x])^m\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right.\right.$$
$$\left(-\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\left(\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m-\right.$$
$$\left(b\,(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$
$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left((b+a\,\text{Cos}[c+d\,x])\left(-(a+b)\,(3+m)\right.\right.$$
$$\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+$$
$$2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$
$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},$$
$$\left.\left.\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\right)\Big/$$
$$\left(a\,d\,(1+m)\,(a+b\,\text{Sec}[c+d\,x])\left(-\frac{1}{a\,(1+m)}\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sin}[c+d\,x]^m\right.\right.$$
$$\left(-\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\left(\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m-\right.$$
$$\left(b\,(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

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

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

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

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

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

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

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

$$\Bigg(-\text{Hypergeometric2F1}\Big[\frac{1+m}{2},\,1+m,\,\frac{3+m}{2},\,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Big]\,\left(\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m-$$

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

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

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

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

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

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

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

$$\frac{1}{a\,(1+m)}\,2\,\mathrm{Sin}[c+d\,x]^m\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\,\Bigg(-m\,\mathrm{Hypergeometric2F1}\left[\frac{1+m}{2},\,1+m,\right.$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\frac{1}{2}\left(1+m\right)\mathrm{Csc}\left[\frac{1}{2}\left(c+d\,x\right)\right]\mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]\left(\mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^m$$

$$\Bigg(-\mathrm{Hypergeometric2F1}\Big[\frac{1+m}{2},\ 1+m,\ \frac{3+m}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Big]+$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Optimal (type 6, 405 leaves, 6 steps):

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

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

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

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

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

$$\left(\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{1+m}{2},\,\frac{3+m}{2},\,\text{Sin}[c+d\,x]^2\right](e\,\text{Sin}[c+d\,x])^{1+m}\right)\Big/$$

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

Result (type 6, 9072 leaves):

$$\left(2^{1+m}\,(e\,\text{Sin}[c+d\,x])^m\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m\right.$$

$$\left(\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^m-\right.$$

$$\left(2 a b^2 (a+b)(3+m)\right.$$

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

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

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

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

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

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

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

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

$$\left.\frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+2\left((-a+b)\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+\right.$$

$$\left.\left.m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)$$

$$\left.\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+\left(b^2 (a+b)(3+m)\right.$$

$$\left.\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\Big/$$

$$\left((a-b)\left(-(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\right)\right)\Big/$$

$$\left(a^2\,d\,(1+m)\,(a+b\,\text{Sec}[c+d\,x])^2\left(\frac{1}{a^2\,(1+m)}2^m\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m\right.\right.$$

$$\left(\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m-\right.$$

$$\left(2\,a\,b^2\,(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\Big/$$

$$\left((a-b)\left(-(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left(-2(a-b)\,\text{AppellF1}\left[\frac{3+m}{2},m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)-$$

$$\left(2\,a\,b\,(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\Bigg/\left((a-b)\left(-(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+\left(b^2\,(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\Bigg/$$

$$\left((a-b)\left(-(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\Bigg)\Bigg)+$$

$$\frac{1}{a^2\,(1+m)}\,2^{1+m}\,m\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^{-1+m}$$

$$\left(-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right)$$

$$\left(\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m-\right.$$

$$\left(2\,a\,b^2\,(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\Big/$$

$$\left((a-b)\left(-(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left(-2\,(a-b)\,\text{AppellF1}\left[\frac{3+m}{2},m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)-$$

$$\left(2\,a\,b\,(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\Big/\left((a-b)\left(-(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+\left(b^2\,(a+b)\,(3+m)\right.$$

$$\left.\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\Big/$$

$$\left((a-b)\left(-(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)\Bigg)+$$

$$\frac{1}{a^2(1+m)}2^{1+m}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^m$$

$$\Bigg(m\,\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^{-1+m}+\Bigg(4\,a\,b^2(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\left(a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]-b\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Bigg)\Bigg/$$

$$\left((a-b)\left(-(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+2\left(-2(a-b)\,\text{AppellF1}\left[\frac{3+m}{2},m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)^3\right)+$$

$$\left(2\,a\,b\,\left(a+b\right)\,\left(3+m\right)\,\text{AppellF1}\left[\frac{1+m}{2},\,m,\,1,\,\frac{3+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\right.\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]$$

$$\left.\left(a\,\text{Sec}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-b\,\text{Sec}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\right)\Big/$$

$$\left(\left(a-b\right)\,\left(-\left(a+b\right)\,\left(3+m\right)\,\text{AppellF1}\left[\frac{1+m}{2},\,m,\,1,\,\frac{3+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\right.\right.\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]+2\,\left(\left(-a+b\right)\,\text{AppellF1}\left[\frac{3+m}{2},\,m,\,2,\,\frac{5+m}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]+\left(a+b\right)\,m\,\text{AppellF1}\left[\right.$$

$$\left.\left.\frac{3+m}{2},\,1+m,\,1,\,\frac{5+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]\right)$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2\right)\,\left(a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2\right)-b\,\left(1+\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2\right)\right)^2\right)-$$

$$\left(b^2\,\left(a+b\right)\,\left(3+m\right)\,\text{AppellF1}\left[\frac{1+m}{2},\,m,\,1,\,\frac{3+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\right.\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]$$

$$\left.\left(a\,\text{Sec}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]-b\,\text{Sec}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]\right)\right)\Big/$$

$$\left(\left(a-b\right)\,\left(-\left(a+b\right)\,\left(3+m\right)\,\text{AppellF1}\left[\frac{1+m}{2},\,m,\,1,\,\frac{3+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\right.\right.\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]+2\,\left(\left(-a+b\right)\,\text{AppellF1}\left[\frac{3+m}{2},\,m,\,2,\,\frac{5+m}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]+\left(a+b\right)\,m\,\text{AppellF1}\left[\right.$$

$$\left.\left.\frac{3+m}{2},\,1+m,\,1,\,\frac{5+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\,\left(c+d\,x\right)\right]^2}{a+b}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)^2\Bigg)-$$

$$\Bigg(2 a b^2 (a+b)(3+m)\Bigg(\Bigg(2(a-b)(1+m)\text{AppellF1}\Big[1+\frac{1+m}{2}, m, 3, 1+\frac{3+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Big/\left((a+b)(3+m)\right)-\frac{1}{3+m}$$

$$m(1+m)\text{AppellF1}\Big[1+\frac{1+m}{2}, 1+m, 2, 1+\frac{3+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg/$$

$$\Bigg((a-b)\Bigg(-(a+b)(3+m)\text{AppellF1}\Big[\frac{1+m}{2}, m, 2, \frac{3+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]+2\Bigg(-2(a-b)\text{AppellF1}\Big[\frac{3+m}{2}, m, 3, \frac{5+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]+(a+b)\,m\,\text{AppellF1}\Big[$$

$$\frac{3+m}{2}, 1+m, 2, \frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)^2\Bigg)-$$

$$\Bigg(2 a b (a+b)(3+m)\Bigg(\Bigg((a-b)(1+m)\text{AppellF1}\Big[1+\frac{1+m}{2}, m, 2, 1+\frac{3+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Big/\left((a+b)(3+m)\right)-\frac{1}{3+m}$$

$$m(1+m)\text{AppellF1}\Big[1+\frac{1+m}{2}, 1+m, 1, 1+\frac{3+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg/$$

$$\left((a-b)\left(-(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\right.$$

$$\left.\left.\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(b^2(a+b)(3+m)\left(\left((a-b)(1+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},m,2,1+\frac{3+m}{2},\right.\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left((a+b)(3+m)\right)-\frac{1}{3+m}$$

$$m(1+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1+m,1,1+\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left((a-b)\left(-(a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left((-a+b)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\right.$$

$$\left.\left.\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\frac{1}{2}(1+m)\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m$$

$$\left(-\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right]+\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^{-1-m}\right)+$$

$$\left(2\,a\,b\,\left(a+b\right)\,\left(3+m\right)\,\text{AppellF1}\left[\frac{1+m}{2},m,1,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\left(2\,\left(\left(-a+b\right)\,\text{AppellF1}\left[\frac{3+m}{2},m,2,\frac{5+m}{2},\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\left(a+b\right)\,m\,\text{AppellF1}\left[\right.$$

$$\left.\left.\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\right)$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\left(a+b\right)\,\left(3+m\right)\,\left(\left(\left(a-b\right)\,\left(1+m\right)\,\text{AppellF1}\left[\right.\right.\right.$$

$$\left.1+\frac{1+m}{2},m,2,1+\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\bigg/\left(\left(\left(a+b\right)\,\left(3+m\right)\right)-\frac{1}{3+m}\right.$$

$$m\,\left(1+m\right)\,\text{AppellF1}\left[1+\frac{1+m}{2},1+m,1,1+\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)+$$

$$2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\left(\left(-a+b\right)\,\left(\left(2\,\left(a-b\right)\,\left(3+m\right)\,\text{AppellF1}\left[1+\frac{3+m}{2},m,\right.\right.\right.\right.$$

$$\left.3,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\bigg/\left(\left(\left(a+b\right)\,\left(5+m\right)\right)-\frac{1}{5+m}\right.$$

$$m\,\left(3+m\right)\,\text{AppellF1}\left[1+\frac{3+m}{2},1+m,2,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)+$$

$$(a+b)\, m \Bigg(\Bigg(\Big((a-b)\,(3+m)\,\text{AppellF1}\Big[1+\frac{3+m}{2}, 1+m, 2, 1+\frac{5+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]\Big)\Big/\Big((a+b)\,(5+m)\Big) - \frac{1}{5+m}(1+m)\,(3+m)\,\text{AppellF1}\Big[1+\frac{3+m}{2}, 2+m, 1, 1+\frac{5+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]\Bigg)\Bigg)\Bigg/$$

$$\Bigg((a-b)\,\Bigg(-(a+b)\,(3+m)\,\text{AppellF1}\Big[\frac{1+m}{2}, m, 1, \frac{3+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big] + 2\,\Big((-a+b)\,\text{AppellF1}\Big[\frac{3+m}{2}, m, 2, \frac{5+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big] + (a+b)\, m\,\text{AppellF1}\Big[\frac{3+m}{2}, 1+m, 1, \frac{5+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2\Bigg)^2\,\Bigg(a\,\Big(-1+\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2\Big) - b\,\Big(1+\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2\Big)\Bigg)\Bigg) -$$

$$\Bigg(b^2\,(a+b)\,(3+m)\,\text{AppellF1}\Big[\frac{1+m}{2}, m, 1, \frac{3+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big]\,\Bigg(2\,\Big((-a+b)\,\text{AppellF1}\Big[\frac{3+m}{2}, m, 2, \frac{5+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big] + (a+b)\, m\,\text{AppellF1}\Big[\frac{3+m}{2}, 1+m, 1, \frac{5+m}{2}, -\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^2, \frac{(a-b)\,\text{Tan}\big[\frac{1}{2}(c+d x)\big]^2}{a+b}\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(c+d x)\Big] - (a+b)\,(3+m)\,\Bigg(\Bigg((a-b)\,(1+m)\,\text{AppellF1}\Big[$$

$$1+\frac{1+m}{2},\ m,\ 2,\ 1+\frac{3+m}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Big/\left(\left(a+b\right)\ \left(3+m\right)\right)-\frac{1}{3+m}$$

$$m\ \left(1+m\right)\ \mathrm{AppellF1}\Big[1+\frac{1+m}{2},\ 1+m,\ 1,\ 1+\frac{3+m}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

$$\frac{\left(a-b\right)\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\ \mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)+$$

$$2\,\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Bigg(\left(-a+b\right)\ \Bigg(\Bigg(2\ \left(a-b\right)\ \left(3+m\right)\ \mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ m,$$

$$3,\ 1+\frac{5+m}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Big/\left(\left(a+b\right)\ \left(5+m\right)\right)-\frac{1}{5+m}$$

$$m\ \left(3+m\right)\ \mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ 1+m,\ 2,\ 1+\frac{5+m}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

$$\frac{\left(a-b\right)\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\ \mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)+$$

$$\left(a+b\right)\ m\ \Bigg(\Bigg(\left(a-b\right)\ \left(3+m\right)\ \mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ 1+m,\ 2,\ 1+\frac{5+m}{2},$$

$$-\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\ \mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Big/\left(\left(a+b\right)\ \left(5+m\right)\right)-\frac{1}{5+m}\left(1+m\right)\ \left(3+m\right)$$

$$\mathrm{AppellF1}\Big[1+\frac{3+m}{2},\ 2+m,\ 1,\ 1+\frac{5+m}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

$$\frac{\left(a-b\right)\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\ \mathrm{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(\left(a-b\right)\ \Bigg(-\left(a+b\right)\ \left(3+m\right)\ \mathrm{AppellF1}\Big[\frac{1+m}{2},\ m,\ 1,\ \frac{3+m}{2},\ -\mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

$$\frac{\left(a-b\right)\ \mathrm{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]+2\ \Bigg(\left(-a+b\right)\ \mathrm{AppellF1}\Big[\frac{3+m}{2},\ m,\ 2,\ \frac{5+m}{2},$$

$$-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\ \frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,m\,\mathrm{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big)^2\left(a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-b\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Bigg)+$$

$$\Bigg(2\,a\,b^2\,(a+b)\,(3+m)\,\mathrm{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\Bigg(2\Bigg(-2\,(a-b)\,\mathrm{AppellF1}\left[\frac{3+m}{2},m,3,\frac{5+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,m\,\mathrm{AppellF1}\left[\frac{3+m}{2},1+m,2,\frac{5+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\Bigg)\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]-(a+b)\,(3+m)\,\Bigg(\Bigg(2\,(a-b)\,(1+m)\,\mathrm{AppellF1}\left[1+\frac{1+m}{2},m,3,1+\frac{3+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Big/\left((a+b)\,(3+m)\right)-\frac{1}{3+m}$$

$$m\,(1+m)\,\mathrm{AppellF1}\left[1+\frac{1+m}{2},1+m,2,1+\frac{3+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)+$$

$$2\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg(-2\,(a-b)\,\Bigg(\Bigg(3\,(a-b)\,(3+m)\,\mathrm{AppellF1}\left[1+\frac{3+m}{2},m,4,1+\frac{5+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Big/\left((a+b)\,(5+m)\right)-\frac{1}{5+m}$$

$$m\,(3+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},1+m,3,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)+$$

$$(a+b)\,m\,\Bigg(\Bigg(2\,(a-b)\,(3+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},1+m,3,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)\Big/\left((a+b)\,(5+m)\right)-\frac{1}{5+m}(1+m)\,(3+m)$$

$$\text{AppellF1}\left[1+\frac{3+m}{2},2+m,2,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg((a-b)\,\Bigg(-(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},m,2,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+$$

$$2\,\Bigg(-2\,(a-b)\,\text{AppellF1}\left[\frac{3+m}{2},m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,m\,\text{AppellF1}\left[\frac{3+m}{2},1+m,2,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\Bigg)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)^2$$

$$\left(a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-b\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 262: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Sin}[c+d\,x])^m}{(a+b\,\text{Sec}[c+d\,x])^3}\,dx$$

Optimal (type 6, 580 leaves, 7 steps):

$$-\frac{1}{a^4 d (1-m)} 3 b e \text{AppellF1}\left[1-m, \frac{1-m}{2}, \frac{1-m}{2}, 2-m, -\frac{a-b}{b+a \text{Cos}[c+d x]}, \frac{a+b}{b+a \text{Cos}[c+d x]}\right] \left(-\frac{a (1-\text{Cos}[c+d x])}{b+a \text{Cos}[c+d x]}\right)^{\frac{1-m}{2}} \left(\frac{a (1+\text{Cos}[c+d x])}{b+a \text{Cos}[c+d x]}\right)^{\frac{1-m}{2}} (e \text{Sin}[c+d x])^{-1+m} - \left(b^3 e \text{AppellF1}\left[3-m, \frac{1-m}{2}, \frac{1-m}{2}, 4-m, -\frac{a-b}{b+a \text{Cos}[c+d x]}, \frac{a+b}{b+a \text{Cos}[c+d x]}\right] \left(-\frac{a (1-\text{Cos}[c+d x])}{b+a \text{Cos}[c+d x]}\right)^{\frac{1-m}{2}} \left(\frac{a (1+\text{Cos}[c+d x])}{b+a \text{Cos}[c+d x]}\right)^{\frac{1-m}{2}} (e \text{Sin}[c+d x])^{-1+m}\right) \Big/ \left(a^4 d (3-m) (b+a \text{Cos}[c+d x])^2\right) + \left(3 b^2 e \text{AppellF1}\left[2-m, \frac{1-m}{2}, \frac{1-m}{2}, 3-m, -\frac{a-b}{b+a \text{Cos}[c+d x]}, \frac{a+b}{b+a \text{Cos}[c+d x]}\right] \left(-\frac{a (1-\text{Cos}[c+d x])}{b+a \text{Cos}[c+d x]}\right)^{\frac{1-m}{2}} \left(\frac{a (1+\text{Cos}[c+d x])}{b+a \text{Cos}[c+d x]}\right)^{\frac{1-m}{2}} (e \text{Sin}[c+d x])^{-1+m}\right) \Big/ \left(a^4 d (2-m) (b+a \text{Cos}[c+d x])\right) + \left(\text{Cos}[c+d x] \text{Hypergeometric2F1}\left[\frac{1}{2}, \frac{1+m}{2}, \frac{3+m}{2}, \text{Sin}[c+d x]^2\right] (e \text{Sin}[c+d x])^{1+m}\right) \Big/ \left(a^3 d e (1+m) \sqrt{\text{Cos}[c+d x]^2}\right)$$

Result (type 6, 12 336 leaves):

$$\left((e \text{Sin}[c+d x])^m \left(\left(\left((a+b) (3+m) \text{AppellF1}\left[\frac{1+m}{2}, 1+m, 3, \frac{3+m}{2}, -\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{a+b}\right] \left(\frac{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}\right)^{1+m}\right) \Big/ \left((1+m) \left(a+b-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2+b \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)^3 \left(-(a+b) (3+m) \text{AppellF1}\left[\frac{1+m}{2}, 1+m, 3, \frac{3+m}{2}, -\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{a+b}\right] + 2 \left(-3 (a-b) \text{AppellF1}\left[\frac{3+m}{2}, 1+m, 4, \frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{a+b}\right] + (a+b) (1+m) \text{AppellF1}\left[\frac{3+m}{2}, 2+m, 3, \frac{5+m}{2},\right.\right.\right.\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big)\Big) -$$

$$\Big(3\,(a+b)\,(5+m)\,\text{AppellF1}\Big[\frac{3+m}{2}, 1+m, 3, \frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{1+m}\Big)\Big/$$

$$\Big((3+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^3\Big(-(a+b)\,(5+m)$$

$$\text{AppellF1}\Big[\frac{3+m}{2}, 1+m, 3, \frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] +$$

$$2\Big(-3\,(a-b)\,\text{AppellF1}\Big[\frac{5+m}{2}, 1+m, 4, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] + (a+b)\,(1+m)\,\text{AppellF1}\Big[\frac{5+m}{2}, 2+m, 3, \frac{7+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big)\Big) +$$

$$\Big(3\,(a+b)\,(7+m)\,\text{AppellF1}\Big[\frac{5+m}{2}, 1+m, 3, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^4\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{1+m}\Big)\Big/$$

$$\Big((5+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^3\Big(-(a+b)\,(7+m)$$

$$\text{AppellF1}\Big[\frac{5+m}{2}, 1+m, 3, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] +$$

$$2\Big(-3\,(a-b)\,\text{AppellF1}\Big[\frac{7+m}{2}, 1+m, 4, \frac{9+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] + (a+b)\,(1+m)\,\text{AppellF1}\Big[\frac{7+m}{2}, 2+m, 3, \frac{9+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big)\Big) -$$

$$\left((a+b)\,(9+m)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.\right.$$
$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^6\left(\frac{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^{1+m}\right)\Big/$$
$$\left((7+m)\,\left(a+b-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^3\left(-(a+b)\,(9+m)\right.\right.$$
$$\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+$$
$$2\left(-3\,(a-b)\,\text{AppellF1}\left[\frac{9+m}{2},1+m,4,\frac{11+m}{2},-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.\right.$$
$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{9+m}{2},2+m,3,\frac{11+m}{2},\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)\Big/$$
$$\left(d\,(a+b\,\text{Sec}[c+d\,x])^3\left(-\left(\left(3\,(a+b)\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},1+m,3,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.\right.\right.\right.\right.$$
$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\left(-a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+\right.$$
$$\left.\left.b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(\frac{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^{1+m}\right)\Big/$$
$$\left((1+m)\,\left(a+b-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^4\left(-(a+b)\,(3+m)\right.\right.$$
$$\text{AppellF1}\left[\frac{1+m}{2},1+m,3,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+$$
$$2\left(-3\,(a-b)\,\text{AppellF1}\left[\frac{3+m}{2},1+m,4,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.\right.$$
$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{3+m}{2},2+m,3,\frac{5+m}{2},\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)+$$

$$\left((a+b)\ (3+m)\ \left(\frac{1}{(a+b)\ (3+m)}3\ (a-b)\ (1+m)\ \text{AppellF1}\left[1+\frac{1+m}{2},1+m,4,1+\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]-\frac{1}{3+m}(1+m)^2\ \text{AppellF1}\left[1+\frac{1+m}{2},2+m,3,1+\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\left(\frac{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}\right)^{1+m}\right)\Big/$$

$$\left((1+m)\ \left(a+b-a\,\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2\right)^3\left(-(a+b)\ (3+m)\ \text{AppellF1}\left[\frac{1+m}{2},1+m,3,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]+2\left(-3\ (a-b)\ \text{AppellF1}\left[\frac{3+m}{2},1+m,4,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]+(a+b)\ (1+m)\ \text{AppellF1}\left[\frac{3+m}{2},2+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2\right)\right)+$$

$$\left(9\ (a+b)\ (5+m)\ \text{AppellF1}\left[\frac{3+m}{2},1+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2\left(-a\,\text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]+b\,\text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\left(\frac{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}\right)^{1+m}\right)\Big/$$

$$\left((3+m)\ \left(a+b-a\,\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2\right)^4\left(-(a+b)\ (5+m)\ \text{AppellF1}\left[\frac{3+m}{2},1+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]+\right.\right.$$

$$2 \left(-3 (a-b) \text{AppellF1}\left[\frac{5+m}{2}, 1+m, 4, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b)(1+m) \text{AppellF1}\left[\frac{5+m}{2}, 2+m, 3, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Bigg) -$$

$$\Bigg(3 (a+b)(5+m) \text{AppellF1}\left[\frac{3+m}{2}, 1+m, 3, \frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] \left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{1+m}\Bigg) \Bigg/$$

$$\Bigg((3+m)\left(a+b-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2+b \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^3 \Bigg(-(a+b)(5+m)$$

$$\text{AppellF1}\left[\frac{3+m}{2}, 1+m, 3, \frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] +$$

$$2 \left(-3 (a-b) \text{AppellF1}\left[\frac{5+m}{2}, 1+m, 4, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b)(1+m) \text{AppellF1}\left[\frac{5+m}{2}, 2+m, 3, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Bigg) -$$

$$\Bigg(3 (a+b)(5+m) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2 \Bigg(\frac{1}{(a+b)(5+m)} 3 (a-b)(3+m)$$

$$\text{AppellF1}\left[1+\frac{3+m}{2}, 1+m, 4, 1+\frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] - \frac{1}{5+m}(1+m)(3+m)$$

$$\text{AppellF1}\left[1+\frac{3+m}{2}, 2+m, 3, 1+\frac{5+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg) \left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{1+m}\Bigg) \Bigg/$$

$$\left((3+m)\left(a+b-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^3\left(-(a+b)\,(5+m)\right.\right.$$

$$\mathrm{AppellF1}\left[\frac{3+m}{2},1+m,3,\frac{5+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+$$

$$2\left(-3\,(a-b)\,\mathrm{AppellF1}\left[\frac{5+m}{2},1+m,4,\frac{7+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\mathrm{AppellF1}\left[\frac{5+m}{2},2+m,3,\frac{7+m}{2},\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)-$$

$$\left(9\,(a+b)\,(7+m)\,\mathrm{AppellF1}\left[\frac{5+m}{2},1+m,3,\frac{7+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^4$$

$$\left(-a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left.\left(\frac{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^{1+m}\right)\Big/$$

$$\left((5+m)\left(a+b-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^4\left(-(a+b)\,(7+m)\right.\right.$$

$$\mathrm{AppellF1}\left[\frac{5+m}{2},1+m,3,\frac{7+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+$$

$$2\left(-3\,(a-b)\,\mathrm{AppellF1}\left[\frac{7+m}{2},1+m,4,\frac{9+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\mathrm{AppellF1}\left[\frac{7+m}{2},2+m,3,\frac{9+m}{2},\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)+$$

$$\left(6\,(a+b)\,(7+m)\,\mathrm{AppellF1}\left[\frac{5+m}{2},1+m,3,\frac{7+m}{2},-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^3\left(\frac{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^{1+m}\Bigg)\Bigg/$$

$$\Bigg((5+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^3\Bigg(-(a+b)\,(7+m)$$

$$\text{AppellF1}\left[\frac{5+m}{2},\,1+m,\,3,\,\frac{7+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+$$

$$2\Bigg(-3\,(a-b)\,\text{AppellF1}\left[\frac{7+m}{2},\,1+m,\,4,\,\frac{9+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{7+m}{2},\,2+m,\,3,\,\frac{9+m}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,(a+b)\,(7+m)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^4\Bigg(\frac{1}{(a+b)\,(7+m)}3\,(a-b)\,(5+m)$$

$$\text{AppellF1}\left[1+\frac{5+m}{2},\,1+m,\,4,\,1+\frac{7+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]$$

$$\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{1}{7+m}(1+m)\,(5+m)$$

$$\text{AppellF1}\left[1+\frac{5+m}{2},\,2+m,\,3,\,1+\frac{7+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]$$

$$\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)\left(\frac{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^{1+m}\Bigg)\Bigg/$$

$$\Bigg((5+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^3\Bigg(-(a+b)\,(7+m)$$

$$\text{AppellF1}\left[\frac{5+m}{2},\,1+m,\,3,\,\frac{7+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+$$

$$2\Bigg(-3\,(a-b)\,\text{AppellF1}\left[\frac{7+m}{2},\,1+m,\,4,\,\frac{9+m}{2},\,-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{7+m}{2},\,2+m,\,3,\,\frac{9+m}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)+$$

$$\left(3\,(a+b)\,(9+m)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^6\left(-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^{1+m}\right)\Big/$$

$$\left((7+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^4\left(-(a+b)\,(9+m)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left(-3\,(a-b)\,\text{AppellF1}\left[\frac{9+m}{2},1+m,4,\frac{11+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{9+m}{2},2+m,3,\frac{11+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)-$$

$$\left(3\,(a+b)\,(9+m)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^5\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^{1+m}\right)\Big/$$

$$\left((7+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^3\left(-(a+b)\,(9+m)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\left(-3\,(a-b)\,\text{AppellF1}\left[\frac{9+m}{2},1+m,4,\frac{11+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{9+m}{2},2+m,3,\frac{11+m}{2},\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\Big)\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Big)\Big)-$$

$$\Big(\left(a+b\right)\,\left(9+m\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^6\,\Big(\frac{1}{\left(a+b\right)\,\left(9+m\right)}3\,\left(a-b\right)\,\left(7+m\right)\,\text{AppellF1}\Big[$$

$$1+\frac{7+m}{2},\ 1+m,\ 4,\ 1+\frac{9+m}{2},\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]-\frac{1}{9+m}\left(1+m\right)\,\left(7+m\right)$$

$$\text{AppellF1}\Big[1+\frac{7+m}{2},\ 2+m,\ 3,\ 1+\frac{9+m}{2},\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Big)\,\left(\frac{\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}\right)^{1+m}\Big)\Big/$$

$$\Big(\left(7+m\right)\,\left(a+b-a\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^3\,\Big(-\left(a+b\right)\,\left(9+m\right)$$

$$\text{AppellF1}\Big[\frac{7+m}{2},\ 1+m,\ 3,\ \frac{9+m}{2},\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]+$$

$$2\,\Big(-3\,\left(a-b\right)\,\text{AppellF1}\Big[\frac{9+m}{2},\ 1+m,\ 4,\ \frac{11+m}{2},\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

$$\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]+\left(a+b\right)\,\left(1+m\right)\,\text{AppellF1}\Big[\frac{9+m}{2},\ 2+m,\ 3,\ \frac{11+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\Big)\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Big)\Big)+$$

$$\Big(\left(a+b\right)\,\left(3+m\right)\,\text{AppellF1}\Big[\frac{1+m}{2},\ 1+m,\ 3,\ \frac{3+m}{2},\ -\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,$$

$$\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\,\left(\frac{\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}\right)^m$$

$$\left(-\frac{\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{2\,\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right)\Big)\Big/$$

$$\Big(\left(a+b-a\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^3\,\Big(-\left(a+b\right)\,\left(3+m\right)$$

$$\text{AppellF1}\left[\frac{1+m}{2},1+m,3,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$

$$2\left(-3(a-b)\,\text{AppellF1}\left[\frac{3+m}{2},1+m,4,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)(1+m)\,\text{AppellF1}\left[\frac{3+m}{2},2+m,3,\frac{5+m}{2},\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)-$$

$$\left(3(a+b)(1+m)(5+m)\,\text{AppellF1}\left[\frac{3+m}{2},1+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^m$$

$$\left.\left(-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right)\right)\Bigg/$$

$$\left((3+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^3\left(-(a+b)(5+m)\right.\right.$$

$$\text{AppellF1}\left[\frac{3+m}{2},1+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$

$$2\left(-3(a-b)\,\text{AppellF1}\left[\frac{5+m}{2},1+m,4,\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)(1+m)\,\text{AppellF1}\left[\frac{5+m}{2},2+m,3,\frac{7+m}{2},\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)+$$

$$\left(3(a+b)(1+m)(7+m)\,\text{AppellF1}\left[\frac{5+m}{2},1+m,3,\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^4\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^m$$

$$\left.\left(-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right)\right)\Bigg/$$

$$\left((5+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^3\left(-(a+b)(7+m)\right.\right.$$

$$\text{AppellF1}\left[\frac{5+m}{2},1+m,3,\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+$$

$$2\left(-3(a-b)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,4,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)(1+m)\,\text{AppellF1}\left[\frac{7+m}{2},2+m,3,\frac{9+m}{2},\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)-$$

$$\left((a+b)(1+m)(9+m)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^6\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m$$

$$\left.\left.\left(-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right)\right)\right)\Big/$$

$$\left((7+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^3\left(-(a+b)(9+m)\right.\right.$$

$$\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+$$

$$2\left(-3(a-b)\,\text{AppellF1}\left[\frac{9+m}{2},1+m,4,\frac{11+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)(1+m)\,\text{AppellF1}\left[\frac{9+m}{2},2+m,3,\frac{11+m}{2},\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)-$$

$$\left((a+b)(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},1+m,3,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^{1+m}$$

$$\left(2\left(-3\,(a-b)\,\text{AppellF1}\left[\frac{3+m}{2},1+m,4,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{3+m}{2},2+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-(a+b)\,(3+m)\left(\left(3\,(a-b)\,(1+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1+m,4,1+\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left((a+b)\,(3+m)\right)-\frac{1}{3+m}$$

$$(1+m)^2\,\text{AppellF1}\left[1+\frac{1+m}{2},2+m,3,1+\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\left(-3\,(a-b)\left(\left(4\,(a-b)\,(3+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},1+m,5,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left((a+b)\,(5+m)\right)-\frac{1}{5+m}$$

$$(1+m)\,(3+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},2+m,4,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)+$$

$$(a+b)\,(1+m)\left(\left(3\,(a-b)\,(3+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},2+m,4,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left((a+b)\,(5+m)\right)-\frac{1}{5+m}$$

$$(2+m)\ (3+m)\ \text{AppellF1}\left[1+\frac{3+m}{2},3+m,3,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\right.$$

$$\left.\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((1+m)\ \left(a+b-a\,\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2\right)^3\ \Bigg(-(a+b)\ (3+m)$$

$$\text{AppellF1}\left[\frac{1+m}{2},1+m,3,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]+$$

$$2\ \Bigg(-3\ (a-b)\ \text{AppellF1}\left[\frac{3+m}{2},1+m,4,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\right.$$

$$\left.\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]+(a+b)\ (1+m)\ \text{AppellF1}\left[\frac{3+m}{2},2+m,3,\frac{5+m}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\Bigg)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2\Bigg)^2\Bigg)+$$

$$\Bigg(3\ (a+b)\ (5+m)\ \text{AppellF1}\left[\frac{3+m}{2},1+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\right.$$

$$\left.\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2\ \left(\frac{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}\right)^{1+m}$$

$$\Bigg(2\ \Bigg(-3\ (a-b)\ \text{AppellF1}\left[\frac{5+m}{2},1+m,4,\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\right.$$

$$\left.\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]+(a+b)\ (1+m)\ \text{AppellF1}\left[\frac{5+m}{2},2+m,3,\right.$$

$$\left.\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]\Bigg)\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]-(a+b)\ (5+m)\ \Bigg(\Bigg(3\ (a-b)\ (3+m)\ \text{AppellF1}\left[1+\frac{3+m}{2},\right.$$

$$\left.1+m,4,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\frac{(a-b)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{a+b}\right]$$

$$\text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]\Bigg)\Bigg/\ ((a+b)\ (5+m))-\frac{1}{5+m}$$

$$(1+m)\ (3+m)\ \text{AppellF1}\left[1+\frac{3+m}{2},2+m,3,1+\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2,\right.$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg(-3\,(a-b)\,\Bigg(\Bigg(4\,(a-b)\,(5+m)\,\text{AppellF1}\Big[1+\frac{5+m}{2},1+m,$$

$$5,1+\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Big/\left(\left((a+b)\,(7+m)\right)-\frac{1}{7+m}\right.$$

$$(1+m)\,(5+m)\,\text{AppellF1}\Big[1+\frac{5+m}{2},2+m,4,1+\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)+$$

$$(a+b)\,(1+m)\,\Bigg(\Bigg(3\,(a-b)\,(5+m)\,\text{AppellF1}\Big[1+\frac{5+m}{2},2+m,4,1+\frac{7+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Big/\left(\left((a+b)\,(7+m)\right)-\frac{1}{7+m}\right.$$

$$(2+m)\,(5+m)\,\text{AppellF1}\Big[1+\frac{5+m}{2},3+m,3,1+\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg((3+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^3\Bigg(-(a+b)\,(5+m)$$

$$\text{AppellF1}\Big[\frac{3+m}{2},1+m,3,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]+$$

$$2\,\Bigg(-3\,(a-b)\,\text{AppellF1}\Big[\frac{5+m}{2},1+m,4,\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]+(a+b)\,(1+m)\,\text{AppellF1}\Big[\frac{5+m}{2},2+m,3,\frac{7+m}{2},$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)^2\Bigg)-$$

$$\left(3\,(a+b)\,(7+m)\,\text{AppellF1}\left[\frac{5+m}{2},1+m,3,\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^4\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^{1+m}\right.$$

$$\left(2\left(-3\,(a-b)\,\text{AppellF1}\left[\frac{7+m}{2},1+m,4,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{7+m}{2},2+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-(a+b)\,(7+m)\left(\left(3\,(a-b)\,(5+m)\,\text{AppellF1}\left[1+\frac{5+m}{2},1+m,4,1+\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left((a+b)\,(7+m)\right)-\frac{1}{7+m}$$

$$(1+m)\,(5+m)\,\text{AppellF1}\left[1+\frac{5+m}{2},2+m,3,1+\frac{7+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\left(-3\,(a-b)\left(\left(4\,(a-b)\,(7+m)\,\text{AppellF1}\left[1+\frac{7+m}{2},1+m,5,1+\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left((a+b)\,(9+m)\right)-\frac{1}{9+m}$$

$$(1+m)\,(7+m)\,\text{AppellF1}\left[1+\frac{7+m}{2},2+m,4,1+\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)+$$

$$(a+b)\,(1+m)\left(\left(3\,(a-b)\,(7+m)\,\text{AppellF1}\left[1+\frac{7+m}{2},2+m,4,1+\frac{9+m}{2},\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg) \Bigg/ \left(\left((a+b)\,(9+m)\right) - \frac{1}{9+m}\right.$$

$$(2+m)\,(7+m)\,\text{AppellF1}\left[1+\frac{7+m}{2}, 3+m, 3, 1+\frac{9+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((5+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^3\Bigg(-(a+b)\,(7+m)$$

$$\text{AppellF1}\left[\frac{5+m}{2}, 1+m, 3, \frac{7+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$

$$2\Bigg(-3\,(a-b)\,\text{AppellF1}\left[\frac{7+m}{2}, 1+m, 4, \frac{9+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{7+m}{2}, 2+m, 3, \frac{9+m}{2},\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg((a+b)\,(9+m)\,\text{AppellF1}\left[\frac{7+m}{2}, 1+m, 3, \frac{9+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^6\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{1+m}$$

$$\Bigg(2\Bigg(-3\,(a-b)\,\text{AppellF1}\left[\frac{9+m}{2}, 1+m, 4, \frac{11+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{9+m}{2}, 2+m, 3,\right.$$

$$\left.\frac{11+m}{2}, -\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right] - (a+b)\,(9+m)\left(\left(3\,(a-b)\,(7+m)\,\text{AppellF1}\left[1+\frac{7+m}{2},\right.\right.\right.$$

$$\left.1+m,\,4,\,1+\frac{9+m}{2},\,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\bigg/\left((a+b)\,(9+m)\right) - \frac{1}{9+m}$$

$$(1+m)\,(7+m)\,\text{AppellF1}\left[1+\frac{7+m}{2},\,2+m,\,3,\,1+\frac{9+m}{2},\,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\left(-3\,(a-b)\left(\left(4\,(a-b)\,(9+m)\,\text{AppellF1}\left[1+\frac{9+m}{2},\,1+m,\right.\right.\right.\right.$$

$$\left.5,\,1+\frac{11+m}{2},\,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\bigg/\left((a+b)\,(11+m)\right) - \frac{1}{11+m}$$

$$(1+m)\,(9+m)\,\text{AppellF1}\left[1+\frac{9+m}{2},\,2+m,\,4,\,1+\frac{11+m}{2},\,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)+$$

$$(a+b)\,(1+m)\left(\left(3\,(a-b)\,(9+m)\,\text{AppellF1}\left[1+\frac{9+m}{2},\,2+m,\,4,\,1+\frac{11+m}{2},\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\bigg/\left((a+b)\,(11+m)\right) - \frac{1}{11+m}$$

$$(2+m)\,(9+m)\,\text{AppellF1}\left[1+\frac{9+m}{2},\,3+m,\,3,\,1+\frac{11+m}{2},\,-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)\right)\bigg/$$

$$\left((7+m)\left(a+b-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^3\left(-(a+b)\,(9+m)\right.\right.$$

$$\text{AppellF1}\left[\frac{7+m}{2},1+m,3,\frac{9+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$
$$2\left(-3(a-b)\,\text{AppellF1}\left[\frac{9+m}{2},1+m,4,\frac{11+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$
$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,(1+m)\,\text{AppellF1}\left[\frac{9+m}{2},2+m,3,\frac{11+m}{2},\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right)\right)\right)$$

Problem 268: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int(a+b\,\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^5\,dx$$

Optimal (type 5, 150 leaves, 6 steps):

$$\frac{1}{a^2 d(1+n)}b\,\text{Hypergeometric2F1}\left[2,1+n,2+n,1+\frac{b\,\text{Sec}[c+d x]}{a}\right](a+b\,\text{Sec}[c+d x])^{1+n}-$$
$$\frac{1}{a^4 d(1+n)}2b^3\,\text{Hypergeometric2F1}\left[4,1+n,2+n,1+\frac{b\,\text{Sec}[c+d x]}{a}\right](a+b\,\text{Sec}[c+d x])^{1+n}+$$
$$\frac{1}{a^6 d(1+n)}b^5\,\text{Hypergeometric2F1}\left[6,1+n,2+n,1+\frac{b\,\text{Sec}[c+d x]}{a}\right](a+b\,\text{Sec}[c+d x])^{1+n}$$

Result (type 6, 8397 leaves):

$$\left(16(a-b)(a+b\,\text{Sec}[c+d x])^n\,\text{Sin}[c+d x]^5\right.$$
$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^{-4+n}\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n$$
$$\left(-\left(\left(20\,\text{AppellF1}\left[3,n,-n,4,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right.\right.\right.$$
$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right)\Big/$$
$$\left(-n\left(a\,\text{AppellF1}\left[4,n,1-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]+\right.\right.$$
$$(-a+b)\,\text{AppellF1}\left[4,1+n,-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.$$

$$\left.\left.\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\right)+2\,(a-b)\,\mathrm{AppellF1}\Big[3,\,n,\,-n,\,4,$$

$$\left.\left.\left.\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(75\,\mathrm{AppellF1}\left[4,\,n,\,-n,\,5,\,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]$$

$$\left.\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Big/$$

$$\Bigg(-2\,n\,\Bigg(a\,\mathrm{AppellF1}\left[5,\,n,\,1-n,\,6,\,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]+$$

$$(-a+b)\,\mathrm{AppellF1}\Big[5,\,1+n,\,-n,\,6,\,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\left.\left.\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\right)+5\,(a-b)\,\mathrm{AppellF1}\Big[4,\,n,\,-n,\,5,$$

$$\left.\left.\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)-$$

$$\left.\left(18\,\mathrm{AppellF1}\left[5,\,n,\,-n,\,6,\,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\right)\right/$$

$$\Bigg(-n\,\Bigg(a\,\mathrm{AppellF1}\left[6,\,n,\,1-n,\,7,\,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]+$$

$$(-a+b)\,\mathrm{AppellF1}\Big[6,\,1+n,\,-n,\,7,\,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\left.\left.\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\right)+3\,(a-b)\,\mathrm{AppellF1}\Big[5,\,n,\,-n,\,6,$$

$$\left.\left.\left.\left.\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\right)\Big/$$

$$\Bigg(15\,d\,\Bigg(\frac{16}{15}\,(a-b)\,n\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^n\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^{-4+n}$$

$$\Bigg(-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}-$$

$$\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(a-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^2}\Bigg)$$

$$\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^{-1+n}$$

$$\Bigg(-\Bigg(\Bigg(20\,\text{AppellF1}\left[3,\,n,\,-n,\,4,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^2\Bigg)\Bigg/\Bigg(-n\,\Bigg(a\,\text{AppellF1}\Bigg[4,\,n,\,1-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\Bigg]+(-a+b)\,\text{AppellF1}\Bigg[4,\,1+n,$$

$$-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\Bigg]\Bigg)+$$

$$2\,(a-b)\,\text{AppellF1}\Bigg[3,\,n,\,-n,\,4,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\Bigg]\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg)\Bigg)+$$

$$\Bigg(75\,\text{AppellF1}\left[4,\,n,\,-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg)\Bigg/\Bigg(-2\,n\,\Bigg(a\,\text{AppellF1}\Bigg[5,\,n,\,1-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\Bigg]+(-a+b)\,\text{AppellF1}\Bigg[5,\,1+n,$$

$$-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\Bigg]\Bigg)+$$

$$5\,(a-b)\,\text{AppellF1}\Bigg[4,\,n,\,-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\Bigg]\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg)-$$

$$\left(18\,\text{AppellF1}\left[5, n, -n, 6, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right) \Big/$$

$$\left(-n\left(a\,\text{AppellF1}\left[6, n, 1-n, 7, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right] + (-a+b)\,\text{AppellF1}\left[6, 1+n, -n, 7, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right) + 3(a-b)\,\text{AppellF1}\left[5, n, -n, 6, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right) +$$

$$\frac{16}{15}(a-b)(-4+n)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^{-5+n}$$

$$\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n$$

$$\left(-\left(\left(20\,\text{AppellF1}\left[3, n, -n, 4, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right) \Big/ \left(-n\left(a\,\text{AppellF1}\left[4, n, 1-n, 5, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right] + (-a+b)\,\text{AppellF1}\left[4, 1+n, -n, 5, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right) + 2(a-b)\,\text{AppellF1}\left[3, n, -n, 4, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right) +$$

$$\left(75\,\text{AppellF1}\left[4, n, -n, 5, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg) \Bigg/ \Bigg(-2 n \Bigg(a \,\text{AppellF1}\left[5, n, 1-n, 6, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right] + (-a+b)\,\text{AppellF1}\left[5, 1+n, -n, 6, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\Bigg) +$$

$$5 (a-b)\,\text{AppellF1}\left[4, n, -n, 5, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg) -$$

$$\left(18\,\text{AppellF1}\left[5, n, -n, 6, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right) \Bigg/$$

$$\Bigg(-n \Bigg(a\,\text{AppellF1}\left[6, n, 1-n, 7, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right] + (-a+b)\,\text{AppellF1}\left[6, 1+n, -n, 7, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\Bigg) + 3 (a-b)\,\text{AppellF1}\left[5, n, -n, 6, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg)\Bigg) +$$

$$\frac{16}{15}(a-b)\, n\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{1+n}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^{-4+n}$$

$$\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n$$

$$\Bigg(-\Bigg(\Bigg(20\,\text{AppellF1}\left[3, n, -n, 4, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\Bigg) \Bigg/ \Bigg(-n \Bigg(a\,\text{AppellF1}\left[4, n, 1-n, 5, \frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.$$

$$\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]+(-a+b)\,\text{AppellF1}\Big[4,1+n,$$

$$-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\Bigg)+$$

$$2\,(a-b)\,\text{AppellF1}\Big[3,n,-n,4,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg)\Bigg)+$$

$$\Bigg(75\,\text{AppellF1}\Big[4,n,-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg)\Big/\Bigg(-2\,n\,\Bigg(a\,\text{AppellF1}\Big[5,n,1-n,6,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]+(-a+b)\,\text{AppellF1}\Big[5,1+n,$$

$$-n,6,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\Bigg)+$$

$$5\,(a-b)\,\text{AppellF1}\Big[4,n,-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg)-$$

$$\Bigg(18\,\text{AppellF1}\Big[5,n,-n,6,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\Bigg)\Big/$$

$$\Bigg(-n\,\Bigg(a\,\text{AppellF1}\Big[6,n,1-n,7,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]+$$

$$(-a+b)\,\text{AppellF1}\Big[6,1+n,-n,7,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\Bigg)+3\,(a-b)\,\text{AppellF1}\Big[5,n,-n,6,$$

$$\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg)\Bigg)+$$

$$\frac{16}{15}(a-b)\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^{-4+n}$$

$$\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n$$

$$\left(-\left(\left(40\,\text{AppellF1}\left[3,n,-n,4,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right.\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Big/\left(-n\left(a\,\text{AppellF1}\left[\right.\right.\right.$$

$$4,n,1-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\Bigg]+$$

$$(-a+b)\,\text{AppellF1}\left[4,1+n,-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.$$

$$\left.\left.\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right)+2(a-b)\,\text{AppellF1}\left[3,n,-n,4,\right.$$

$$\left.\left.\left.\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left(20\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\left(\left(3\,a\,n\,\text{AppellF1}\left[4,n,1-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.\right.\right.\right.$$

$$\left.\left.\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/$$

$$\left(2(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right)-\left(3\,n\,\text{AppellF1}\left[4,1+n,-n,5,\right.\right.$$

$$\left.\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]$$

$$\left.\left.\left.\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\left(2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right)\right)\right)\Big/$$

$$\left(-n\left(a\,\text{AppellF1}\left[4,n,1-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\frac{2a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]+\right.\right.$$

$$(-a+b)\,\text{AppellF1}\left[4,1+n,-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.$$

$$\left.\left.\frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right)+2(a-b) \operatorname{AppellF1}\left[3, n,-n, 4,\right.$$

$$\left.\left.\frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)+$$

$$\left(75 \operatorname{AppellF1}\left[4, n,-n, 5, \frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right.$$

$$\left.\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \Big/ \left(-2 n\right.$$

$$\left(a \operatorname{AppellF1}\left[5, n, 1-n, 6, \frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]+\right.$$

$$(-a+b) \operatorname{AppellF1}\left[5, 1+n,-n, 6, \frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.$$

$$\left.\left.\frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\right)+5(a-b) \operatorname{AppellF1}\left[4, n,-n, 5,\right.$$

$$\left.\left.\frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)+$$

$$\left(75\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\left(\left(8 a n \operatorname{AppellF1}\left[5, n, 1-n, 6, \frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.\right.\right.\right.$$

$$\left.\left.\frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right] \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \Big/$$

$$\left(5(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right)-\left(8 n \operatorname{AppellF1}\left[5, 1+n,-n, 6,\right.\right.$$

$$\left.\frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right] \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\left.\left.\left.\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \Big/ \left(5\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right)\right)\right) \Big/ \left(-2 n\right.$$

$$\left(a \operatorname{AppellF1}\left[5, n, 1-n, 6, \frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}, \frac{2 a}{(a-b)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}\right]+\right.$$

$$(-a+b) \operatorname{AppellF1}\left[5, 1+n,-n, 6, \frac{2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2},\right.$$

$$\left.\left.\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\right)+5\,(a-b)\,\text{AppellF1}\left[4,n,-n,5,\right.$$

$$\left.\left.\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)-$$

$$\left(18\left(\left(5\,a\,n\,\text{AppellF1}\left[6,n,1-n,7,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\right.\right.\right.\right.$$

$$\left.\left.\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/$$

$$\left(3\,(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)-\left(5\,n\,\text{AppellF1}\left[6,1+n,-n,7,\right.\right.$$

$$\left.\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]$$

$$\left.\left.\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left(3\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)\right)\right)\Big/$$

$$\left(-n\left(a\,\text{AppellF1}\left[6,n,1-n,7,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]+\right.\right.$$

$$(-a+b)\,\text{AppellF1}\left[6,1+n,-n,7,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\right.$$

$$\left.\left.\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\right)+3\,(a-b)\,\text{AppellF1}\left[5,n,-n,6,\right.$$

$$\left.\left.\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)+$$

$$\left(20\,\text{AppellF1}\left[3,n,-n,4,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\left(2\,(a-b)\,\text{AppellF1}\left[3,n,-n,4,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\right.\right.$$

$$\left.\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+2\,(a-b)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\left(\left(3\,a\,n\,\text{AppellF1}\left[4,n,1-n,5,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\right.\right.\right.$$

$$\left.\left.\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/$$

$$\left(2\,(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)-\Bigg(3\,n\,\text{AppellF1}\Big[4,\,1+n,\,-n,$$

$$5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left(2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)\Bigg)-$$

$$n\Bigg(a\Bigg(-\Bigg(\Bigg(8\,a\,(1-n)\,\text{AppellF1}\Big[5,\,n,\,2-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\Big[\frac{1}{2}(c+$$

$$\left.d\,x)\Big]\right)\Big/\left(5\,(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)\Bigg)-\Bigg(8\,n\,\text{AppellF1}\Big[5,$$

$$1+n,\,1-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left(5\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)\Bigg)+$$

$$(-a+b)\Bigg(\Bigg(\Bigg(8\,a\,n\,\text{AppellF1}\Big[5,\,1+n,\,1-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},$$

$$\left.\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/$$

$$\left(5\,(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)-\Bigg(8\,(1+n)\,\text{AppellF1}\Big[5,\,2+n,$$

$$-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left(5\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2\right)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(-n\Bigg(a\,\text{AppellF1}\Big[4,\,n,\,1-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2},\,\frac{2\,a}{(a-b)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}\Big]+$$

$$\left(-a+b\right)\text{AppellF1}\left[4,\,1+n,\,-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\right.$$

$$\left.\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right]\right)+2\left(a-b\right)\text{AppellF1}\left[3,\,n,\,-n,\,4,\right.$$

$$\left.\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\,\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)\Bigg)^2-$$

$$\Bigg(75\,\text{AppellF1}\left[4,\,n,\,-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\,\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)\Bigg(5\left(a-b\right)\text{AppellF1}\left[4,\,n,\,-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\right.$$

$$\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right]\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+5\left(a-b\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)\Bigg(\Bigg(\Bigg(8\,a\,n\,\text{AppellF1}\left[5,\,n,\,1-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\right.$$

$$\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right]\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Bigg/$$

$$\left(5\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^2\right)-\Bigg(8\,n\,\text{AppellF1}\left[5,\,1+n,\,-n,\right.$$

$$\left.6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\,\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right]$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Bigg/\left(5\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^2\right)\Bigg)-$$

$$2\,n\,\Bigg(a\,\Bigg(-\Bigg(\Bigg(5\,a\left(1-n\right)\text{AppellF1}\left[6,\,n,\,2-n,\,7,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\right.$$

$$\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\right]\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+\right.\right.$$

$$\left.\left.d\,x\right)\right]\Bigg)\Bigg/\left(3\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^2\right)\Bigg)-\Bigg(5\,n\,\text{AppellF1}\left[6,\right.$$

$$1+n,\,1-n,\,7,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2},\,\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}\Bigg]$$

$$\left.\left.\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\Big/\left(3\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)^{2}\right)\right)+$$

$$\left(-a+b\right)\left(\left(\left(5\,a\,n\,\text{AppellF1}\left[6,\,1+n,\,1-n,\,7,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\right.\right.\right.\right.$$

$$\left.\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)}\right]\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\Big/$$

$$\left(3\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)^{2}\right)-\left(5\left(1+n\right)\text{AppellF1}\left[6,\,2+n,\right.\right.$$

$$\left.-n,\,7,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\,\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)}\right]$$

$$\left.\left.\left.\left.\left.\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\Big/\left(3\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)^{2}\right)\right)\right)\right)\right)\Big/$$

$$\left(-2\,n\left(a\,\text{AppellF1}\left[5,\,n,\,1-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\right.\right.\right.$$

$$\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)}\right]+\left(-a+b\right)\text{AppellF1}\left[5,\,1+n,\right.$$

$$\left.\left.-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\,\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)}\right]\right)+$$

$$5\left(a-b\right)\text{AppellF1}\left[4,\,n,\,-n,\,5,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\right.$$

$$\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)}\right]\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)^{2}+$$

$$\left(18\,\text{AppellF1}\left[5,\,n,\,-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\,\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)}\right]\right.$$

$$\left(3\left(a-b\right)\text{AppellF1}\left[5,\,n,\,-n,\,6,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\right.\right.$$

$$\left.\frac{2\,a}{\left(a-b\right)\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)}\right]\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+3\left(a-b\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}\right)\left(\left(5\,a\,n\,\text{AppellF1}\left[6,\,n,\,1-n,\,7,\,\frac{2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^{2}},\right.\right.\right.$$

$$\frac{2a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}\Big]\,\mathrm{Sec}\left[\frac{1}{2}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]\Bigg)\Big/$$

$$\left(3(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2\right)-\Bigg(5\,n\,\mathrm{AppellF1}\Big[6,1+n,-n,$$

$$7,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2},\frac{2a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]\Bigg)\Big/\left(3\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2\right)\Bigg)-$$

$$n\Bigg(a\Bigg(-\Bigg(\Bigg(12a(1-n)\,\mathrm{AppellF1}\Big[7,n,2-n,8,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2},$$

$$\frac{2a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}\Big]\,\mathrm{Sec}\left[\frac{1}{2}(c+dx)\right]^2\mathrm{Tan}\Big[\frac{1}{2}(c+$$

$$dx)\Big]\Bigg)\Big/\left(7(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2\right)\Bigg)-\Bigg(12\,n\,\mathrm{AppellF1}\Big[7,$$

$$1+n,1-n,8,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2},\frac{2a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]\Bigg)\Big/\left(7\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2\right)\Bigg)+$$

$$(-a+b)\Bigg(\Bigg(12\,a\,n\,\mathrm{AppellF1}\Big[7,1+n,1-n,8,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2},$$

$$\frac{2a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}\Big]\,\mathrm{Sec}\left[\frac{1}{2}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]\Bigg)\Big/$$

$$\left(7(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2\right)-\Bigg(12(1+n)\,\mathrm{AppellF1}\Big[7,$$

$$2+n,-n,8,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2},\frac{2a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}(c+dx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]\Bigg)\Big/\left(7\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2\right)\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(-n\Bigg(a\,\mathrm{AppellF1}\Big[6,n,1-n,7,\frac{2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2},\frac{2a}{(a-b)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}\Big]+$$

$$(-a+b)\,\text{AppellF1}\Big[6,\,1+n,\,-n,\,7,\,\frac{2}{1+\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]^2},\,\frac{2\,a}{(a-b)\left(1+\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]^2\right)}\Big]\Bigg)+$$
$$3\,(a-b)\,\text{AppellF1}\Big[5,\,n,\,-n,\,6,\,\frac{2}{1+\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]^2},\,\frac{2\,a}{(a-b)\left(1+\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]^2\right)}\Big]\left(1+\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^2\right)\Bigg)^2\Bigg)\Bigg)\Bigg)$$

Problem 269: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Sec}[c+d\,x])^n\,\text{Sin}[c+d\,x]^3\,dx$$

Optimal (type 5, 121 leaves, 3 steps):

$$\frac{1}{6\,a^4\,d\,(1+n)}b\left(6\,a^2-b^2\left(2-3\,n+n^2\right)\right)\text{Hypergeometric2F1}\Big[2,\,1+n,\,2+n,\,1+\frac{b\,\text{Sec}[c+d\,x]}{a}\Big]\,(a+b\,\text{Sec}[c+d\,x])^{1+n}+\frac{\text{Cos}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^{1+n}\,(2\,a-b\,(2-n)\,\text{Sec}[c+d\,x])}{6\,a^2\,d}$$

Result (type 6, 4523 leaves):

$$\Bigg(4\,(a-b)\,(b+a\,\text{Cos}[c+d\,x])^n\left(\text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\right)^{-2+n}$$
$$\Bigg(-\Bigg(\Bigg(9\,\text{AppellF1}\Big[2,\,n,\,-n,\,3,\,2\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\,\frac{2\,a\,\text{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\Bigg)\Big/$$
$$\Bigg(-2\,a\,n\,\text{AppellF1}\Big[3,\,n,\,1-n,\,4,\,2\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\,\frac{2\,a\,\text{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]+(a-b)\Bigg(2\,n\,\text{AppellF1}\Big[3,\,1+n,\,-n,\,4,\,2\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\,\frac{2\,a\,\text{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]+3\,\text{AppellF1}\Big[2,\,n,\,-n,\,3,\,2\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\,\frac{2\,a\,\text{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,\text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\Bigg)\Bigg)\Bigg)+$$
$$\Bigg(4\,\text{AppellF1}\Big[3,\,n,\,-n,\,4,\,2\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\,\frac{2\,a\,\text{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\Bigg)\Big/$$

$$\left(-a\,n\,\text{AppellF1}\left[4,\,n,\,1-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+(a-b)\right.$$

$$\left(n\,\text{AppellF1}\left[4,\,1+n,\,-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+2\,\text{AppellF1}\left[\right.\right.$$

$$\left.\left.\left.3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)$$

$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]\right)^n\,(a+b\,\text{Sec}[c+d\,x])^n$$

$$\left.\text{Sin}[c+d\,x]^3\right)\Big/\left(3\right.$$

$$d$$

$$\left(-\frac{4}{3}\,a\,(a-b)\,n\,(b+a\,\text{Cos}[c+d\,x])^{-1+n}\,\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^{-2+n}\right.$$

$$\left(-\left(\left(9\,\text{AppellF1}\left[2,\,n,\,-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\right.\right.\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\left(-2\,a\,n\,\text{AppellF1}\left[3,\,n,\,1-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+(a-b)\,\left(2\,n\,\text{AppellF1}\left[3,\,1+n,\,-n,\,4,\right.\right.$$

$$\left.2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+3\,\text{AppellF1}\left[2,\,n,\,-n,\right.$$

$$\left.\left.\left.\left.3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(4\,\text{AppellF1}\left[3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\right)\Big/$$

$$\left(-a\,n\,\text{AppellF1}\left[4,\,n,\,1-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.$$

$$(a-b)\,\left(n\,\text{AppellF1}\left[4,\,1+n,\,-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.$$

$$2\,\text{AppellF1}\left[3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)\Bigg)$$

$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]\right)^n\,\text{Sin}[c+d\,x]+\frac{4}{3}\,(a-b)\,(-2+n)$$

$$(b+a\,\text{Cos}[c+d\,x])^n$$

$$\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^{-2+n}$$

$$\Bigg(-\Bigg(\Bigg(9\,\text{AppellF1}\Big[2,\,n,\,-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg/\Bigg(-2\,a\,n\,\text{AppellF1}\Big[3,\,n,\,1-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,$$

$$\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+(a-b)\,\Bigg(2\,n\,\text{AppellF1}\Big[3,\,1+n,\,-n,\,4,$$

$$2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+3\,\text{AppellF1}\Big[2,\,n,\,-n,$$

$$3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)\Bigg)+$$

$$\Bigg(4\,\text{AppellF1}\Big[3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\Bigg)\Bigg/$$

$$\Bigg(-a\,n\,\text{AppellF1}\Big[4,\,n,\,1-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+$$

$$(a-b)\,\Bigg(n\,\text{AppellF1}\Big[4,\,1+n,\,-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+$$

$$2\,\text{AppellF1}\Big[3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,$$

$$\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)\Bigg)$$

$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]\right)^n\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+\frac{4}{3}\,(a-b)$$

$$(b+a\,\text{Cos}[c+d\,x])^n$$

$$\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^{-2+n}$$

$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]\right)^n$$

$$\Bigg(-\Bigg(\Bigg(9\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(\frac{1}{3\,(a-b)}4\,a\,n\,\text{AppellF1}\left[3,\,n,\,1-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{4}{3}\,n$$

$$\text{AppellF1}\left[3,\,1+n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]$$

$$\left.\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\Bigg)\Bigg/\Bigg(-2\,a\,n\,\text{AppellF1}\Big[3,\,n,\,1-n,\,4,\,2$$

$$\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+(a-b)\,\Bigg(2\,n\,\text{AppellF1}\Big[3,\,1+n,$$

$$-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+3\,\text{AppellF1}\Big[2,\,n,$$

$$-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)\Bigg)+$$

$$\Bigg(4\,\Bigg(\frac{1}{2\,(a-b)}3\,a\,n\,\text{AppellF1}\left[4,\,n,\,1-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]$$

$$\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{3}{2}\,n\,\text{AppellF1}\Big[4,\,1+n,\,-n,\,5,\,2$$

$$\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(-a\,n\,\text{AppellF1}\left[4,\,n,\,1-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+$$

$$(a-b)\,\Bigg(n\,\text{AppellF1}\left[4,\,1+n,\,-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+$$

$$2\,\text{AppellF1}\Big[3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,$$

$$\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(9\,\text{AppellF1}\left[2,\,n,\,-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg) \Big/$$

$$\Bigg(-2 a n \,\text{AppellF1}\left[3, n, 1-n, 4, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2, \frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] +$$

$$(a-b)\Bigg(2 n \,\text{AppellF1}\left[3, 1+n, -n, 4, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2, \frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] +$$

$$3 \,\text{AppellF1}\left[2, n, -n, 3, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Bigg) +$$

$$\Bigg(9 \,\text{AppellF1}\left[2, n, -n, 3, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2, \frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\Bigg(-2 a n \Bigg(-\frac{1}{2(a-b)} 3 a (1-n) \,\text{AppellF1}\left[4, n, 2-n, 5, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] \text{Cos}\left[\frac{1}{2}(c+d x)\right] \text{Sin}\left[\frac{1}{2}(c+d x)\right] - \frac{3}{2} n \,\text{AppellF1}\left[4,\right.$$

$$\left.1+n, 1-n, 5, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2, \frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] \text{Cos}\left[\frac{1}{2}(c+d x)\right]$$

$$\text{Sin}\left[\frac{1}{2}(c+d x)\right]\Bigg) + (a-b)\Bigg(3 \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \Bigg(\frac{1}{3(a-b)} 4 a n \,\text{AppellF1}\left[3,\right.$$

$$\left.n, 1-n, 4, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2, \frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] \text{Cos}\left[\frac{1}{2}(c+d x)\right]$$

$$\text{Sin}\left[\frac{1}{2}(c+d x)\right] - \frac{4}{3} n \,\text{AppellF1}\left[3, 1+n, -n, 4, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] \text{Cos}\left[\frac{1}{2}(c+d x)\right] \text{Sin}\left[\frac{1}{2}(c+d x)\right]\Bigg) + 2 n \Bigg(\frac{1}{2(a-b)}$$

$$3 a n \,\text{AppellF1}\left[4, 1+n, 1-n, 5, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2, \frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]$$

$$\text{Cos}\left[\frac{1}{2}(c+d x)\right] \text{Sin}\left[\frac{1}{2}(c+d x)\right] - \frac{3}{2}(1+n) \,\text{AppellF1}\left[4, 2+n, -n,\right.$$

$$\left.5, 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2, \frac{2 a \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right] \text{Cos}\left[\frac{1}{2}(c+d x)\right]$$

$$\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)+3\,\text{AppellF1}\left[2,\,n,\,-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(-2\,a\,n\,\text{AppellF1}\left[3,\,n,\,1-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+$$

$$(a-b)\,\Bigg(2\,n\,\text{AppellF1}\left[3,\,1+n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+$$

$$3\,\text{AppellF1}\left[2,\,n,\,-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)^2-$$

$$\Bigg(4\,\text{AppellF1}\left[3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]$$

$$\Bigg(-a\,n\,\Bigg(-\frac{1}{5\,(a-b)}8\,a\,(1-n)\,\text{AppellF1}\left[5,\,n,\,2-n,\,6,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{8}{5}\,n\,\text{AppellF1}\Big[5,$$

$$1+n,\,1-n,\,6,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]$$

$$\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)+(a-b)\,\Bigg(2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\Bigg(\frac{1}{2\,(a-b)}3\,a\,n\,\text{AppellF1}\Big[4,$$

$$n,\,1-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]$$

$$\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{3}{2}\,n\,\text{AppellF1}\left[4,\,1+n,\,-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)+n\,\Bigg(\frac{1}{5\,(a-b)}$$

$$8\,a\,n\,\text{AppellF1}\left[5,\,1+n,\,1-n,\,6,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]$$

$$\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-\frac{8}{5}\,(1+n)\,\text{AppellF1}\Big[5,\,2+n,\,-n,$$

$$6,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\ \text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]$$

$$\left.\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)+2\,\text{AppellF1}\Big[3,\ n,\ -n,\ 4,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,$$

$$\left.\left.\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\right)\Big/$$

$$\left(-a\,n\,\text{AppellF1}\Big[4,\ n,\ 1-n,\ 5,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+\right.$$

$$(a-b)\ \left(n\,\text{AppellF1}\Big[4,\ 1+n,\ -n,\ 5,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+\right.$$

$$2\,\text{AppellF1}\Big[3,\ n,\ -n,\ 4,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,$$

$$\left.\left.\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)^2\right)+$$

$$\frac{4}{3}\,(a-b)\,n\,\left(b+a\,\text{Cos}[c+d\,x]\right)^n\,\left(\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^{-2+n}$$

$$\left(-\left(\left(9\,\text{AppellF1}\Big[2,\ n,\ -n,\ 3,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.\right.\right.$$

$$\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/$$

$$\left(-2\,a\,n\,\text{AppellF1}\Big[3,\ n,\ 1-n,\ 4,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+\right.$$

$$(a-b)\ \left(2\,n\,\text{AppellF1}\Big[3,\ 1+n,\ -n,\ 4,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]+\right.$$

$$3\,\text{AppellF1}\Big[2,\ n,\ -n,\ 3,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,$$

$$\left.\left.\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(4\,\text{AppellF1}\Big[3,\ n,\ -n,\ 4,\ 2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\Big]\right)\Big/$$

$$\left(-a\,n\,\text{AppellF1}\left[4,\,n,\,1-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.$$
$$(a-b)\left(n\,\text{AppellF1}\left[4,\,1+n,\,-n,\,5,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.$$
$$2\,\text{AppellF1}\left[3,\,n,\,-n,\,4,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$
$$\left.\left.\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)$$
$$\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]\right)^{-1+n}\,\left(-\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Sec}[c+d\,x]\right.$$
$$\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+$$
$$\left.\left.\left.\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\right)\right)\right)$$

Problem 270: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Sec}[c+d\,x])^n\,\text{Sin}[c+d\,x]\,dx$$

Optimal (type 5, 48 leaves, 2 steps):

$$\frac{1}{a^2\,d\,(1+n)}b\,\text{Hypergeometric2F1}\left[2,\,1+n,\,2+n,\,1+\frac{b\,\text{Sec}[c+d\,x]}{a}\right]\,(a+b\,\text{Sec}[c+d\,x])^{1+n}$$

Result (type 6, 1849 leaves):

$$-\left(\left(\left(2\,(a-b)\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\right.\right.\right.$$
$$\left.(b+a\,\text{Cos}[c+d\,x])^n\,\text{Sec}[c+d\,x]^n\,(a+b\,\text{Sec}[c+d\,x])^n\,\text{Sin}[c+d\,x]\right)\Big/$$
$$\left(d\,\left(-a\,n\,\text{AppellF1}\left[2,\,n,\,1-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.\right.$$
$$(a-b)\,\left(n\,\text{AppellF1}\left[2,\,1+n,\,-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.$$
$$\left.\left.\text{AppellF1}\left[1,\,n,\,-n,\,2,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)$$

$$\Bigg(-\Bigg(\Bigg(2\,(a-b)\,(b+a\,\mathrm{Cos}[c+d\,x])^n\,\mathrm{Sec}[c+d\,x]^n\,\Bigg(\frac{1}{a-b}a\,n\,\mathrm{AppellF1}\Big[2,n,1-n,3,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\,\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]-n\,\mathrm{AppellF1}\Big[2,1+n,-n,3,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\,\mathrm{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\Bigg)\Bigg)\Big/$$

$$\Bigg(-a\,n\,\mathrm{AppellF1}\Big[2,n,1-n,3,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]+(a-b)\Bigg(n\,\mathrm{AppellF1}\Big[2,1+n,-n,3,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]+\mathrm{AppellF1}\Big[1,n,-n,2,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\Bigg)\Bigg)\Bigg)+$$

$$\Bigg(2\,a\,(a-b)\,n\,\mathrm{AppellF1}\Big[1,n,-n,2,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,(b+a\,\mathrm{Cos}[c+d\,x])^{-1+n}\,\mathrm{Sec}[c+d\,x]^n\,\mathrm{Sin}[c+d\,x]\Bigg)\Big/$$

$$\Bigg(-a\,n\,\mathrm{AppellF1}\Big[2,n,1-n,3,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]+(a-b)\Bigg(n\,\mathrm{AppellF1}\Big[2,1+n,-n,3,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]+\mathrm{AppellF1}\Big[1,n,-n,2,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\Bigg)\Bigg)-$$

$$\Bigg(2\,(a-b)\,n\,\mathrm{AppellF1}\Big[1,n,-n,2,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]\,(b+a\,\mathrm{Cos}[c+d\,x])^n\,\mathrm{Sec}[c+d\,x]^{1+n}\,\mathrm{Sin}[c+d\,x]\Bigg)\Big/$$

$$\Bigg(-a\,n\,\mathrm{AppellF1}\Big[2,n,1-n,3,2\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2,\frac{2\,a\,\mathrm{Cos}\big[\frac{1}{2}(c+d\,x)\big]^2}{a-b}\Big]+(a-b)$$

$$\left(n\,\text{AppellF1}\left[2,1+n,-n,3,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]+\text{AppellF1}\left[1,\right.\right.$$

$$\left.\left.n,-n,2,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)+$$

$$\left(2\,(a-b)\,\text{AppellF1}\left[1,n,-n,2,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\right.$$

$$(b+a\,\text{Cos}[c+d\,x])^n\,\text{Sec}[c+d\,x]^n\left(-a\,n\left(-\frac{1}{3\,(a-b)}4\,a\,(1-n)\,\text{AppellF1}\left[3,n,2-n,4,\right.\right.\right.$$

$$2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\Big]\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-$$

$$\frac{4}{3}\,n\,\text{AppellF1}\left[3,1+n,1-n,4,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]$$

$$\left.\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)+(a-b)\left(\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\left(\frac{1}{a-b}a\,n\,\text{AppellF1}\left[2,n,1-n,3,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\right.$$

$$\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-n\,\text{AppellF1}\Big[2,1+n,-n,3,2\,\text{Cos}\Big[\frac{1}{2}(c+$$

$$\left.d\,x)\Big]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)+$$

$$n\left(\frac{1}{3\,(a-b)}4\,a\,n\,\text{AppellF1}\Big[3,1+n,1-n,4,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\Big]\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-\frac{4}{3}(1+n)$$

$$\text{AppellF1}\left[3,2+n,-n,4,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\text{Cos}\Big[$$

$$\left.\frac{1}{2}(c+d\,x)\Big]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)+\text{AppellF1}\Big[1,n,-n,2,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2,$$

$$\left.\left.\left.\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)\right)\Big/$$

$$\left(-a\,n\,\text{AppellF1}\left[2,\,n,\,1-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.$$
$$(a-b)\left(n\,\text{AppellF1}\left[2,\,1+n,\,-n,\,3,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.$$
$$\text{AppellF1}\left[1,\,n,\,-n,\,2,\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$
$$\left.\left.\left.\left.\left.\frac{2\,a\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)^2\right)\right)\right)$$

Problem 271: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]\,(a+b\,\text{Sec}[c+d\,x])^n\,dx$$

Optimal (type 5, 115 leaves, 6 steps):

$$\frac{\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\text{Sec}[c+d\,x]}{a-b}\right]\,(a+b\,\text{Sec}[c+d\,x])^{1+n}}{2\,(a-b)\,d\,(1+n)}-$$
$$\left(\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\text{Sec}[c+d\,x]}{a+b}\right]\,(a+b\,\text{Sec}[c+d\,x])^{1+n}\right)\Big/$$
$$(2\,(a+b)\,d\,(1+n))$$

Result (type 6, 3438 leaves):

$$\left(b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\right.\right.$$
$$\left.\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]$$
$$\left.(b+a\,\text{Cos}[c+d\,x])^n\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^{-1+n}\,(a+b\,\text{Sec}[c+d\,x])^n\right)\Big/$$
$$\left(d\,(-1+n)\,\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.\right.\right.$$
$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2+$$
$$\left(-(a-b)\,n\,\text{AppellF1}\left[2-n,\,1-n,\,1,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.\right.$$
$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]-2\,b\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-n,\right.$$

$$\left.\left.\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Cos}[c+d\,x]\Bigg)$$

$$\Bigg(-\Bigg(\Bigg(b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\right.$$

$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\,(b+a\,\text{Cos}[c+d\,x])^n\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\text{Sec}[c+d\,x]^{-1+n}\Bigg)\Bigg/\Bigg((-1+n)\,\Bigg(2\,b\,(-2+n)\,\text{AppellF1}\Big[1-n,\,-n,\,1,\,2-n,$$

$$\left.\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]$$

$$\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2+\Bigg(-(a-b)\,n\,\text{AppellF1}\Big[2-n,\,1-n,\,1,\,3-n,$$

$$\left.\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-2$$

$$b\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\right.$$

$$\left.\left.\left.\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\text{Cos}[c+d\,x]\right)\right)\right)-$$

$$\Bigg(a\,b\,(-2+n)\,n\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\right.$$

$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\,(b+a\,\text{Cos}[c+d\,x])^{-1+n}$$

$$\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]^{-1+n}\,\text{Sin}[c+d\,x]\Bigg)\Bigg/$$

$$\Bigg((-1+n)\,\Bigg(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\right.$$

$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2+\Bigg(-(a-b)\,n\,\text{AppellF1}\Big[2-n,\,1-n,$$

$$\left.1,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right]-$$

$$2\,b\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\,b},\right.$$

$$\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big]\Bigg)\,\text{Cos}[c+d\,x]\Bigg)\Bigg)+$$

$$\Bigg(b\,(-2+n)\,\text{AppellF1}\Big[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},$$

$$\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big]$$

$$(b+a\,\text{Cos}[c+d\,x])^n\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]^n\,\text{Sin}[c+d\,x]\Bigg)\Big/$$

$$\Bigg(2\,b\,(-2+n)\,\text{AppellF1}\Big[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},$$

$$\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big]\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2+\Bigg(-(a-b)\,n\,\text{AppellF1}\Big[2-n,\,1-n,\,1,$$

$$3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big]-$$

$$2\,b\,\text{AppellF1}\Big[2-n,\,-n,\,2,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},$$

$$\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big]\Bigg)\,\text{Cos}[c+d\,x]\Bigg)+$$

$$\Bigg(b\,(-2+n)\,(b+a\,\text{Cos}[c+d\,x])^n\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]^{-1+n}$$

$$\Bigg(\frac{1}{2-n}(1-n)\,\text{AppellF1}\Big[2-n,\,-n,\,2,\,3-n,$$

$$\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big]$$

$$\left(-\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)-$$

$$\frac{1}{2-n}(1-n)\,n\,\text{AppellF1}\Big[2-n,\,1-n,\,1,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},$$

$$\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big]\,\Bigg(-\frac{(-a+b)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Sin}[c+d\,x]}{2\,b}+$$

$$\frac{1}{2\,b}(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg)\Bigg)\Bigg)\Big/$$

$$\left((-1+n)\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.\right.\right.$$

$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2+\left(-(a-b)\,n\,\text{AppellF1}\left[2-n,\,1-n,\right.\right.$$

$$\left.1,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]-$$

$$2\,b\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.$$

$$\left.\left.\left.\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\right)\text{Cos}[c+d\,x]\right)\right)-$$

$$\left(b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.\right.$$

$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\,(b+a\,\text{Cos}[c+d\,x])^n\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Sec}[c+d\,x]^{-1+n}$$

$$\left(-2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.\right.$$

$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-$$

$$\left(-(a-b)\,n\,\text{AppellF1}\left[2-n,\,1-n,\,1,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.\right.$$

$$\left.\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]-2\,b\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-\right.$$

$$\left.\left.n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\right)$$

$$\text{Sin}[c+d\,x]+2\,b\,(-2+n)\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(\frac{1}{2-n}(1-n)\,\text{AppellF1}\left[2-n,\,-n,\right.\right.$$

$$\left.2,\,3-n,\,\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]$$

$$\left(-\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Sin}[c+d\,x]+\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)-\frac{1}{2-n}(1-n)\,n\,\text{AppellF1}\left[2-n,\,1-n,\,1,\,3-n,\right.$$

$$\left.\frac{(-a+b)\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\,\text{Cos}[c+d\,x]\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]$$

$$\left(-\frac{(-a+b)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Sin}[c+d x]}{2 b}+\frac{1}{2 b}(-a+b)\,\text{Cos}[c+d x]\right.$$

$$\left.\left.\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right)+\text{Cos}[c+d x]\left(-2 b\left(\frac{1}{3-n}\right.\right.$$

$$2(2-n)\,\text{AppellF1}\left[3-n,-n,3,4-n,\frac{(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2 b},\right.$$

$$\left.\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right]\left(-\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Sin}[c+d x]+\right.$$

$$\left.\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)-\frac{1}{3-n}(2-n)\,n$$

$$\text{AppellF1}\left[3-n,1-n,2,4-n,\frac{(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2 b},\right.$$

$$\left.\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right]\left(-\frac{(-a+b)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Sin}[c+d x]}{2 b}+\frac{1}{2 b}\right.$$

$$\left.\left.(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right)-(a-b)\,n\left(\frac{1}{3-n}\right.$$

$$(2-n)\,\text{AppellF1}\left[3-n,1-n,2,4-n,\frac{(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2 b},\right.$$

$$\left.\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right]\left(-\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Sin}[c+d x]+\right.$$

$$\left.\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)+\frac{1}{3-n}(1-n)\,(2-n)$$

$$\text{AppellF1}\left[3-n,2-n,1,4-n,\frac{(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2 b},\right.$$

$$\left.\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right]\left(-\frac{(-a+b)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Sin}[c+d x]}{2 b}+\right.$$

$$\left.\left.\left.\left.\left.\left.\frac{1}{2 b}(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right)\right)\right)\right)\right)\Big/$$

$$\left((-1+n)\left(2 b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2 b},\right.\right.\right.$$

$$\left.\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2+$$

$$\left(-(a-b)\,n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\frac{(-a+b)\,\text{Cos}[c+d x]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2 b},\right.\right.$$

$$\text{Cos}[c+d\,x]\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Big] - 2\,b$$

$$\text{AppellF1}\left[2-n,\ -n,\ 2,\ 3-n,\ \frac{(-a+b)\ \text{Cos}[c+d\,x]\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,b},\right.$$

$$\left.\text{Cos}[c+d\,x]\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\Bigg)\ \text{Cos}[c+d\,x]\Bigg)^2\Bigg)\Bigg)\Bigg)$$

Problem 272: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^n\,dx$$

Optimal (type 5, 231 leaves, 9 steps):

$$\frac{\text{Hypergeometric2F1}\left[1,\ 1+n,\ 2+n,\ \frac{a+b\,\text{Sec}[c+d\,x]}{a-b}\right]\ (a+b\,\text{Sec}[c+d\,x])^{1+n}}{4\,(a-b)\ d\ (1+n)} -$$

$$\left(\text{Hypergeometric2F1}\left[1,\ 1+n,\ 2+n,\ \frac{a+b\,\text{Sec}[c+d\,x]}{a+b}\right]\ (a+b\,\text{Sec}[c+d\,x])^{1+n}\right)\Big/$$

$$(4\,(a+b)\ d\ (1+n)) +$$

$$\left(b\,\text{Hypergeometric2F1}\left[2,\ 1+n,\ 2+n,\ \frac{a+b\,\text{Sec}[c+d\,x]}{a-b}\right]\ (a+b\,\text{Sec}[c+d\,x])^{1+n}\right)\Big/$$

$$\left(4\,(a-b)^2\,d\ (1+n)\right) +$$

$$\left(b\,\text{Hypergeometric2F1}\left[2,\ 1+n,\ 2+n,\ \frac{a+b\,\text{Sec}[c+d\,x]}{a+b}\right]\ (a+b\,\text{Sec}[c+d\,x])^{1+n}\right)\Big/$$

$$\left(4\,(a+b)^2\,d\ (1+n)\right)$$

Result (type 6, 7420 leaves):

$$\left(\text{Csc}[c+d\,x]^3\,(a+b\,\text{Sec}[c+d\,x])^n\left(\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^n\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^n\right.$$

$$\left(-\left(\left((a-b)\ \text{AppellF1}\left[1,\ n,\ -n,\ 2,\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{(a+b)\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\right)\Big/\right.\right.$$

$$\left(-n\left((a+b)\ \text{AppellF1}\left[2,\ n,\ 1-n,\ 3,\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{(a+b)\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]+\right.\right.$$

$$\left.(-a+b)\ \text{AppellF1}\left[2,\ 1+n,\ -n,\ 3,\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{(a+b)\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]\right)+$$

$$2\,(a-b)\ \text{AppellF1}\left[1,\ n,\ -n,\ 2,\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\ \frac{(a+b)\ \text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a-b}\right]$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg((a+b)\,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg/$$

$$\Bigg(2\,(a+b)\,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+$$

$$n\,\Bigg((-a+b)\,\text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+$$

$$(a+b)\,\text{AppellF1}\left[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)-$$

$$\Bigg(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{2\,b},\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg)\Bigg/$$

$$\Bigg((-1+n)\,\Bigg(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{2\,b},\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]+\Bigg((a-b)\,n\,\text{AppellF1}\left[2-n,1-n,1,3-\right.$$

$$\left.n,\frac{(a-b)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{2\,b},1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]+$$

$$2\,b\,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{(a-b)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{2\,b},1-\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right]\Bigg)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(4\,d\,\Bigg(\frac{1}{4}\,n\,\left(\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^n\,\Bigg(-\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}-$$

$$\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)$$

$$\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{-1+n}$$

$$\left(-\left(\left((a-b)\,\text{AppellF1}\left[1,n,-n,2,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\right)\right/\right.$$

$$\left(-n\left((a+b)\,\text{AppellF1}\left[2,n,1-n,3,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]+\right.\right.$$

$$(-a+b)\,\text{AppellF1}\left[2,1+n,-n,3,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\right)+2\,(a-b)\,\text{AppellF1}\left[1,n,-n,2,\right.$$

$$\left.\left.\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)+$$

$$\left((a+b)\,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/$$

$$\left(2\,(a+b)\,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$

$$n\left((-a+b)\,\text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$

$$(a+b)\,\text{AppellF1}\left[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-$$

$$\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2\,b},\right.\right.$$

$$\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Big/$$

$$\left((-1+n)\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,\,-n,\,1,\,2-n,\,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},\right.\right.\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+\left((a-b)\,n\,\text{AppellF1}\left[2-n,\,1-n,\,1,\,3-n,\right.\right.$$

$$\left.\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},\,1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+$$

$$2\,b\,\text{AppellF1}\left[2-n,\,-n,\,2,\,3-n,\,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},\right.$$

$$\left.\left.\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\right)+$$

$$\frac{1}{4}\,n\left(\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^{-1+n}\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\right.$$

$$\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^n$$

$$\left(-\left(\left((a-b)\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\right)\Big/\right.\right.$$

$$\left(-n\left((a+b)\,\text{AppellF1}\left[2,\,n,\,1-n,\,3,\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]+\right.\right.$$

$$(-a+b)\,\text{AppellF1}\left[2,\,1+n,\,-n,\,3,\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\right)+2\,(a-b)\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\right.$$

$$\left.\left.\left.\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2}{a-b}\right]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)+$$

$$\left((a+b)\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/$$

$$\left(2\,(a+b)\,\text{AppellF1}\left[1,\,n,\,-n,\,2,\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+\right.$$

$$n\left((-a+b)\,\text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$

$$(a+b)\,\text{AppellF1}\left[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)-$$

$$\left(2 b(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},\right.\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg)\Big/$$

$$\left((-1+n)\left(2 b(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},\right.\right.\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\left((a-b)\,n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\right.\right.$$

$$\left.\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+$$

$$2 b\,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},\right.$$

$$\left.\left.\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)\right)+$$

$$\frac{1}{4}\left(\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n$$

$$\left(-\left(\left((a-b)\left(\frac{1}{2(a-b)}(a+b)\,n\,\text{AppellF1}\left[2,n,1-n,3,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.\right.\right.\right.$$

$$\left.\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2-\frac{1}{2}n$$

$$\text{AppellF1}\left[2,1+n,-n,3,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]$$

$$\left.\left.\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Big/\left(-n\left((a+b)\,\text{AppellF1}\left[2,n,1-n,3,\right.\right.\right.$$

$$\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]+(-a+b)\,\text{AppellF1}\left[2,1+n,\right.$$

$$\left.-n,3,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\Bigg)+2\,(a-b)\,\text{AppellF1}\left[1,\right.$$

$$\left.n,-n,2,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg((a+b)\,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Big/$$

$$\Bigg(2\,(a+b)\,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$

$$n\Bigg((-a+b)\,\text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$

$$(a+b)\,\text{AppellF1}\left[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\Bigg)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)+$$

$$\Bigg((a+b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg(-\frac{1}{2\,(a+b)}(a-b)\,n\,\text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+$$

$$\frac{1}{2}n\,\text{AppellF1}\left[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg)\Big/$$

$$\Bigg(2\,(a+b)\,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$

$$n\Bigg((-a+b)\,\text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+$$

$$\left(a+b\right)\text{AppellF1}\left[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a+b}\right]\left.\text{Tan}\left[\frac{1}{2}\left(c+dx\right)\right]^2\right)\right)+$$

$$\left(\left(a-b\right)\text{AppellF1}\left[1,n,-n,2,\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]\right.$$

$$\left(-n\left(\left(a+b\right)\left(-\frac{1}{3\left(a-b\right)}2\left(a+b\right)\left(1-n\right)\text{AppellF1}\left[3,n,2-n,4,\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\right.\right.\right.\right.$$

$$\left.\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]\text{Csc}\left[\frac{1}{2}\left(c+dx\right)\right]^2-$$

$$\frac{2}{3}n\,\text{AppellF1}\left[3,1+n,1-n,4,\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\right.$$

$$\left.\left.\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]\text{Csc}\left[\frac{1}{2}\left(c+dx\right)\right]^2\right)+$$

$$\left(-a+b\right)\left(\frac{1}{3\left(a-b\right)}2\left(a+b\right)n\,\text{AppellF1}\left[3,1+n,1-n,4,\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\right.\right.$$

$$\left.\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]\text{Csc}\left[\frac{1}{2}\left(c+dx\right)\right]^2-\frac{2}{3}\left(1+n\right)$$

$$\text{AppellF1}\left[3,2+n,-n,4,\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]$$

$$\left.\left.\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]\text{Csc}\left[\frac{1}{2}\left(c+dx\right)\right]^2\right)\right)+2\left(a-b\right)\text{AppellF1}\left[1,n,-n,2,\right.$$

$$\left.\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]\text{Sec}\left[\frac{1}{2}\left(c+dx\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+dx\right)\right]+$$

$$2\left(a-b\right)\left(\frac{1}{2\left(a-b\right)}\left(a+b\right)n\,\text{AppellF1}\left[2,n,1-n,3,\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\right.\right.$$

$$\left.\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]\text{Csc}\left[\frac{1}{2}\left(c+dx\right)\right]^2-$$

$$\frac{1}{2}n\,\text{AppellF1}\left[2,1+n,-n,3,\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2,\frac{\left(a+b\right)\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]^2}{a-b}\right]$$

$$\left.\left.\left.\text{Cot}\left[\frac{1}{2}\left(c+dx\right)\right]\text{Csc}\left[\frac{1}{2}\left(c+dx\right)\right]^2\right)\text{Tan}\left[\frac{1}{2}\left(c+dx\right)\right]^2\right)\right)\Big/$$

$$\left(-n\left((a+b)\,\text{AppellF1}\left[2,n,1-n,3,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]+\right.\right.$$

$$(-a+b)\,\text{AppellF1}\left[2,1+n,-n,3,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\right)+2\,(a-b)\,\text{AppellF1}\left[1,n,-n,2,\right.$$

$$\left.\left.\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a+b)\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2}{a-b}\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2-$$

$$\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2\,b},\right.\right.$$

$$\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]\right)\Big/$$

$$\left((-1+n)\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2\,b},\right.\right.\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\left((a-b)\,n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\right.\right.$$

$$\left.\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2\,b},1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+$$

$$2\,b\,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2\,b},\right.$$

$$\left.\left.\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2\,b},\right.\right.$$

$$\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(c+d x)\right]\text{Csc}\left[\frac{1}{2}(c+d x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Big/$$

$$\left((-1+n)\left(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2\,b},\right.\right.\right.$$

$$1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big]+\Big((a-b)\,n\,\text{AppellF1}\Big[2-n,1-n,1,3-n,$$

$$\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b}, 1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+$$

$$2 b \,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},\right.$$

$$\left.\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left(2 b(-2+n) \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]^2\left(-\frac{1}{2 b(2-n)}(a-b)(1-n)\, n \,\text{AppellF1}\left[2-n,\right.\right.\right.$$

$$1-n,1,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b}, 1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]-\frac{1}{2-n}(1-n) \,\text{AppellF1}\left[2-n,-n,\right.$$

$$2,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b}, 1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]$$

$$\left.\left.\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Big/$$

$$\left((-1+n)\left(2 b(-2+n) \,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},\right.\right.\right.$$

$$1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+\left((a-b)\, n \,\text{AppellF1}\left[2-n,1-n,1,3-n,\right.\right.$$

$$\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b}, 1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]+$$

$$2 b \,\text{AppellF1}\left[2-n,-n,2,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},\right.$$

$$\left.\left.\left.1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left((a+b) \,\text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b) \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\left(n\left((-a+b) \,\text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b) \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.\right.$$

$$\left(a+b\right) \text{AppellF1}\left[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}\left(c+d x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]+2\left(a+b\right)\Bigg(-\frac{1}{2\left(a+b\right)}\left(a-b\right) n \text{AppellF1}\Big[2,$$

$$n,1-n,3,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\Big] \text{Sec}\left[\frac{1}{2}\left(c+d x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]+\frac{1}{2} n \text{AppellF1}\Big[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,$$

$$\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\Big] \text{Sec}\left[\frac{1}{2}\left(c+d x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]\Bigg)+$$

$$n \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2\Bigg(\left(-a+b\right)\Bigg(\frac{1}{3\left(a+b\right)}2\left(a-b\right)\left(1-n\right) \text{AppellF1}\Big[3,n,$$

$$2-n,4,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\Big] \text{Sec}\left[\frac{1}{2}\left(c+d x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]+\frac{2}{3} n \text{AppellF1}\Big[3,1+n,1-n,4,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,$$

$$\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\Big] \text{Sec}\left[\frac{1}{2}\left(c+d x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]\Bigg)+$$

$$\left(a+b\right)\Bigg(-\frac{1}{3\left(a+b\right)}2\left(a-b\right) n \text{AppellF1}\Big[3,1+n,1-n,4,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,$$

$$\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\Big] \text{Sec}\left[\frac{1}{2}\left(c+d x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]+$$

$$\frac{2}{3}\left(1+n\right) \text{AppellF1}\Big[3,2+n,-n,4,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,$$

$$\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\Big] \text{Sec}\left[\frac{1}{2}\left(c+d x\right)\right]^2 \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\left(a+b\right) \text{AppellF1}\left[1,n,-n,2,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]+$$

$$n\Bigg(\left(-a+b\right) \text{AppellF1}\left[2,n,1-n,3,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]+$$

$$\left(a+b\right) \text{AppellF1}\Big[2,1+n,-n,3,\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)^2+$$

$$\Bigg(2\,b\,(-2+n)\,\text{AppellF1}\left[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)$$

$$\Bigg(\Bigg((a-b)\,n\,\text{AppellF1}\left[2-n,1-n,1,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]+2\,b\,\text{AppellF1}\Big[2-n,-n,2,3-n,$$

$$\left.\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\Bigg)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+2\,b\,(-2+n)\left(-\frac{1}{2\,b\,(2-n)}(a-b)\,(1-n)\,n\,\text{AppellF1}\Big[\right.$$

$$2-n,1-n,1,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-\frac{1}{2-n}(1-n)\,\text{AppellF1}\Big[2-n,$$

$$-n,2,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Big]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)+\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg((a-b)\,n$$

$$\Bigg(-\frac{1}{3-n}(2-n)\,\text{AppellF1}\left[3-n,1-n,2,4-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},\right.$$

$$\left.1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+$$

$$\frac{1}{2\,b\,(3-n)}(a-b)\,(1-n)\,(2-n)\,\text{AppellF1}\Big[3-n,2-n,1,4-n,$$

$$\left.\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)+2\,b\left(-\frac{1}{2\,b\,(3-n)}(a-b)\,(2-n)\right.$$

$$n\,\text{AppellF1}\left[3-n,1-n,2,4-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{2\,b},\right.$$

$$1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]-\frac{1}{3-n}$$

$$2(2-n)\,\text{AppellF1}\Big[3-n,-n,3,4-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},$$

$$1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((-1+n)\Bigg(2 b(-2+n)\,\text{AppellF1}\Big[1-n,-n,1,2-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},$$

$$1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big]+\Bigg((a-b)\,n\,\text{AppellF1}\Big[2-n,1-n,1,3-n,$$

$$\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big]+$$

$$2 b\,\text{AppellF1}\Big[2-n,-n,2,3-n,\frac{(a-b)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{2 b},$$

$$1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Big]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 275: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d x]^2\,(a+b\,\text{Sec}[c+d x])^n\,dx$$

Optimal (type 6, 136 leaves, 4 steps):

$$-\frac{\text{Cot}[c+d x]\,(a+b\,\text{Sec}[c+d x])^n}{d}+$$

$$\Bigg(\sqrt{2}\,b\,n\,\text{AppellF1}\Big[\frac{1}{2},\frac{1}{2},1-n,\frac{3}{2},\frac{1}{2}(1-\text{Sec}[c+d x]),\frac{b(1-\text{Sec}[c+d x])}{a+b}\Big]$$

$$(a+b\,\text{Sec}[c+d x])^n\left(\frac{a+b\,\text{Sec}[c+d x]}{a+b}\right)^{-n}\text{Tan}[c+d x]\Bigg)\Bigg/\left((a+b)\,d\,\sqrt{1+\text{Sec}[c+d x]}\right)$$

Result (type 6, 4339 leaves):

$$\Big((a+b)\,(b+a\,\text{Cos}[c+d x])^n\,\text{Csc}[c+d x]^2\,\text{Sec}[c+d x]^n\,(a+b\,\text{Sec}[c+d x])^n$$

$$\Bigg(\Bigg(3\,\text{AppellF1}\Big[\frac{1}{2},n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg/$$

$$\left(3\,(a+b)\,\text{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+\right.$$

$$2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{3}{2},n,1-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+\right.$$

$$(a+b)\,\text{AppellF1}\left[\frac{3}{2},1+n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-$$

$$\text{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\Big/$$

$$\left((a+b)\,\text{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{1}{2},n,1-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,\text{AppellF1}\left[\frac{1}{2},1+n,-n,\frac{3}{2},$$

$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3\right)\right)\right)\Big/$$

$$\left(2\,d\left(-\frac{1}{2}\,a\,(a+b)\,n\,(b+a\,\text{Cos}[c+d\,x])^{-1+n}\,\text{Sec}[c+d\,x]^n\,\text{Sin}[c+d\,x]\right.\right.$$

$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/\left(3\,(a+b)\,\text{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{3}{2},n,1-n,\frac{5}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,\text{AppellF1}\left[\frac{3}{2},1+n,$$

$$\left.\left.-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-$$

$$\text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \Big/$$

$$\Bigg((a+b)\,\text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] + 2 n \Bigg((-a+b)\,\text{AppellF1}\left[\frac{1}{2}, n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b)\,\text{AppellF1}\left[\frac{1}{2}, 1+n, -n, \frac{3}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^3\Bigg)\Bigg) +$$

$$\frac{1}{2}(a+b)\,n\,(b+a\,\text{Cos}[c+d x])^n\,\text{Sec}[c+d x]^{1+n}\,\text{Sin}[c+d x]\,\Bigg(\Bigg(3\,\text{AppellF1}\left[\frac{1}{2}, n,\right.$$

$$\left.-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg) \Big/$$

$$\Bigg(3(a+b)\,\text{AppellF1}\left[\frac{1}{2}, n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] +$$

$$2 n \Bigg((-a+b)\,\text{AppellF1}\left[\frac{3}{2}, n, 1-n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] +$$

$$(a+b)\,\text{AppellF1}\left[\frac{3}{2}, 1+n, -n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg) -$$

$$\text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \Big/$$

$$\Bigg((a+b)\,\text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] + 2 n \Bigg((-a+b)\,\text{AppellF1}\left[\frac{1}{2}, n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b)\,\text{AppellF1}\left[\frac{1}{2}, 1+n, -n, \frac{3}{2},\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^3\Bigg)\Bigg) +$$

$$\frac{1}{2}(a+b)\,(b+a\,\text{Cos}[c+d x])^n\,\text{Sec}[c+d x]^n\,\Bigg(\Bigg(3\,\text{AppellF1}\Big[\frac{1}{2}, n, -n, \frac{3}{2},$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Big/$$

$$\Bigg(2\,\Bigg(3\,(a+b)\,\text{AppellF1}\Big[\frac{1}{2}, n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] +$$

$$2\,n\,\Bigg((-a+b)\,\text{AppellF1}\Big[\frac{3}{2}, n, 1-n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] + (a+b)\,\text{AppellF1}\Big[\frac{3}{2}, 1+n, -n, \frac{5}{2},$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Bigg) +$$

$$\Bigg(3\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\,\Bigg(-\frac{1}{3\,(a+b)}(a-b)\,n\,\text{AppellF1}\Big[\frac{3}{2}, n, 1-n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d x)\right] +$$

$$\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{2}, 1+n, -n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\Bigg)\Bigg)\Big/$$

$$\Bigg(3\,(a+b)\,\text{AppellF1}\Big[\frac{1}{2}, n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] +$$

$$2\,n\,\Bigg((-a+b)\,\text{AppellF1}\Big[\frac{3}{2}, n, 1-n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big] +$$

$$(a+b)\,\text{AppellF1}\Big[\frac{3}{2}, 1+n, -n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg) -$$

$$\left(\frac{1}{a+b}(a-b)\, n\, \text{AppellF1}\left[\frac{1}{2}, n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] - n\, \text{AppellF1}\left[\frac{1}{2}, 1+n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \Big/$$

$$\left((a+b)\, \text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right] + 2 n \left((-a+b)\, \text{AppellF1}\left[\frac{1}{2}, n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b)\, \text{AppellF1}\left[\frac{1}{2}, 1+n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^3\right) +$$

$$\left(\text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right.$$

$$\left(\frac{1}{2}(a+b)\, \text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 + 3 n \left((-a+b)\, \text{AppellF1}\left[\frac{1}{2}, n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b)\, \text{AppellF1}\left[\frac{1}{2}, 1+n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2 + (a+b)\, \text{Tan}\left[\frac{1}{2}(c+d x)\right] \left(\frac{1}{a+b}(a-b)\, n\, \text{AppellF1}\left[\frac{1}{2}, n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] - n\, \text{AppellF1}\left[\frac{1}{2}, 1+n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) +$$

$$2\,n\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^3\left((-a+b)\left(\frac{1}{3\,(a+b)}(a-b)\,(1-n)\,\mathrm{AppellF1}\left[\frac{3}{2},\,n,\,2-n,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+\frac{1}{3}\,n\,\mathrm{AppellF1}\left[\frac{3}{2},\,1+n,\,1-n,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)+(a+b)\left(-\frac{1}{3\,(a+b)}(a-b)\,n\,\mathrm{AppellF1}\left[\frac{3}{2},\,1+n,\,1-n,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+\frac{1}{3}\,(1+n)\,\mathrm{AppellF1}\left[\frac{3}{2},\,2+n,\,-n,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left((a+b)\,\mathrm{AppellF1}\left[-\frac{1}{2},\,n,\,-n,\,\frac{1}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+2\,n\left((-a+b)\,\mathrm{AppellF1}\left[\frac{1}{2},\,n,\,1-n,\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,\mathrm{AppellF1}\left[\frac{1}{2},\,1+n,\,-n,\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^3\right)^2-$$

$$\Bigg(3\,\mathrm{AppellF1}\left[\frac{1}{2},\,n,\,-n,\,\frac{3}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\Bigg(2\,n\left((-a+b)\,\mathrm{AppellF1}\left[\frac{3}{2},\,n,\,1-n,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,\mathrm{AppellF1}\left[\frac{3}{2},\,1+n,\,-n,\,\frac{5}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2,\,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}\right]\right)\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]+3(a+b)\left(-\frac{1}{3(a+b)}(a-b)\,n\,\text{AppellF1}\left[\frac{3}{2},n,1-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+\frac{1}{3}n\,\text{AppellF1}\left[\frac{3}{2},1+n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)+$$

$$2\,n\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\left((-a+b)\left(\frac{1}{5(a+b)}3(a-b)(1-n)\,\text{AppellF1}\left[\frac{5}{2},n,2-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+\frac{3}{5}n\,\text{AppellF1}\left[\frac{5}{2},1+n,1-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)+\right.$$

$$\left.(a+b)\left(-\frac{1}{5(a+b)}3(a-b)\,n\,\text{AppellF1}\left[\frac{5}{2},1+n,1-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+\frac{3}{5}(1+n)\,\text{AppellF1}\left[\frac{5}{2},2+n,-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right)\Bigg)\Bigg)\Bigg/$$

$$\left(3(a+b)\,\text{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{3}{2},n,1-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,\text{AppellF1}\left[\frac{3}{2},1+n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\Bigg)\Bigg)\Bigg)$$

Problem 276: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d x]^4 \, (a+b\,\mathrm{Sec}[c+d x])^n \, dx$$

Optimal (type 6, 424 leaves, ? steps):

$$-\frac{1}{2\sqrt{2}\,d} 3\,\mathrm{AppellF1}\left[-\frac{1}{2},\frac{5}{2},-n,\frac{1}{2},\frac{1}{2}(1-\mathrm{Sec}[c+d x]),\frac{b(1-\mathrm{Sec}[c+d x])}{a+b}\right] \mathrm{Cot}[c+d x]\sqrt{1+\mathrm{Sec}[c+d x]}\,(a+b\,\mathrm{Sec}[c+d x])^n\left(\frac{a+b\,\mathrm{Sec}[c+d x]}{a+b}\right)^{-n}-\frac{1}{6\sqrt{2}\,d}\mathrm{AppellF1}\left[-\frac{3}{2},\frac{5}{2},-n,-\frac{1}{2},\frac{1}{2}(1-\mathrm{Sec}[c+d x]),\frac{b(1-\mathrm{Sec}[c+d x])}{a+b}\right] \mathrm{Cot}[c+d x]^3(1+\mathrm{Sec}[c+d x])^{3/2}(a+b\,\mathrm{Sec}[c+d x])^n\left(\frac{a+b\,\mathrm{Sec}[c+d x]}{a+b}\right)^{-n}+\left(\mathrm{AppellF1}\left[\frac{1}{2},\frac{3}{2},-n,\frac{3}{2},\frac{1}{2}(1-\mathrm{Sec}[c+d x]),\frac{b(1-\mathrm{Sec}[c+d x])}{a+b}\right] (a+b\,\mathrm{Sec}[c+d x])^n\left(\frac{a+b\,\mathrm{Sec}[c+d x]}{a+b}\right)^{-n}\mathrm{Tan}[c+d x]\right)\Big/\left(\sqrt{2}\,d\sqrt{1+\mathrm{Sec}[c+d x]}\right)+\left(\mathrm{AppellF1}\left[\frac{1}{2},\frac{5}{2},-n,\frac{3}{2},\frac{1}{2}(1-\mathrm{Sec}[c+d x]),\frac{b(1-\mathrm{Sec}[c+d x])}{a+b}\right](a+b\,\mathrm{Sec}[c+d x])^n \left(\frac{a+b\,\mathrm{Sec}[c+d x]}{a+b}\right)^{-n}\mathrm{Tan}[c+d x]\right)\Big/\left(2\sqrt{2}\,d\sqrt{1+\mathrm{Sec}[c+d x]}\right)$$

Result (type 6, 8963 leaves) :

$$\left((a+b)\,\mathrm{Csc}[c+d x]^4(a+b\,\mathrm{Sec}[c+d x])^n\left(\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n\left(b+\frac{a-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n\right.$$
$$\left(\left(27\,\mathrm{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/\right.$$
$$\left(3(a+b)\,\mathrm{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$
$$2n\left((-a+b)\,\mathrm{AppellF1}\left[\frac{3}{2},n,1-n,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$
$$\left.(a+b)\,\mathrm{AppellF1}\left[\frac{3}{2},1+n,-n,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)$$
$$\left.\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)+\left(5\,\mathrm{AppellF1}\left[\frac{3}{2},n,-n,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3\right)\Big/$$

$$\left(5\,(a+b)\,\text{AppellF1}\left[\frac{3}{2},n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+\right.$$

$$2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{5}{2},n,1-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+\right.$$

$$(a+b)\,\text{AppellF1}\left[\frac{5}{2},1+n,-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)-$$

$$\left(9\,\text{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\Big/$$

$$\left((a+b)\,\text{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{1}{2},n,1-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,\text{AppellF1}\left[\frac{1}{2},1+n,-n,\frac{3}{2},\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3\right)-$$

$$\text{AppellF1}\left[-\frac{3}{2},n,-n,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\Big/$$

$$\left((a+b)\,\text{AppellF1}\left[-\frac{3}{2},n,-n,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3+2\,n\left((a-b)\,\text{AppellF1}\left[-\frac{1}{2},n,1-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]-(a+b)\,\text{AppellF1}\left[-\frac{1}{2},1+n,-n,\frac{1}{2},\right.$$

$$\left.\left.\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^5\right)\right)\right)\Big/$$

$$\left(24\,d\left(\frac{1}{24}\left(a+b\right)n\left(\frac{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}\right)^n\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}-\right.\right.\right.$$

$$\left.\frac{\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\left(a-a\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)^2}\right)$$

$$\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}\right)^{-1+n}\left(\left(\left(27\,\text{AppellF1}\left[\frac{1}{2},\,n,\,-n,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\right)\Big/$$

$$\left(3\left(a+b\right)\text{AppellF1}\left[\frac{1}{2},\,n,\,-n,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\right.$$

$$2\,n\left(\left(-a+b\right)\text{AppellF1}\left[\frac{3}{2},\,n,\,1-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\right.$$

$$\left.\left(a+b\right)\text{AppellF1}\left[\frac{3}{2},\,1+n,\,-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\right)$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)+\left(5\,\text{AppellF1}\left[\frac{3}{2},\,n,\,-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.\right.$$

$$\left.\left.\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^3\right)\Big/$$

$$\left(5\left(a+b\right)\text{AppellF1}\left[\frac{3}{2},\,n,\,-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\right.$$

$$2\,n\left(\left(-a+b\right)\text{AppellF1}\left[\frac{5}{2},\,n,\,1-n,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\right.$$

$$\left(a+b\right)\text{AppellF1}\left[\frac{5}{2},\,1+n,\,-n,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\left.\left.\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\right)-$$

$$\left(9\,\text{AppellF1}\left[-\frac{1}{2},\,n,\,-n,\,\frac{1}{2},\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\,\frac{\left(a-b\right)\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\right)\Big/$$

$$\left((a+b)\,\text{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]+2 n\left((-a+b)\,\text{AppellF1}\left[\frac{1}{2},n,1-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,\text{AppellF1}\left[\frac{1}{2},1+n,-n,\frac{3}{2},\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^3\right)-$$

$$\text{AppellF1}\left[-\frac{3}{2},n,-n,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\Big/$$

$$\left((a+b)\,\text{AppellF1}\left[-\frac{3}{2},n,-n,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^3+2 n\left((a-b)\,\text{AppellF1}\left[-\frac{1}{2},n,1-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]-(a+b)\,\text{AppellF1}\left[-\frac{1}{2},1+n,-n,\frac{1}{2},\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^5\right)\right)+$$

$$\frac{1}{24}(a+b)\,n\left(\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{-1+n}\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}+\right.$$

$$\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)$$

$$\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^n\left(\left(27\,\text{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Big/$$

$$\left(3(a+b)\,\text{AppellF1}\left[\frac{1}{2},n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$

$$2 n\left((-a+b)\,\text{AppellF1}\left[\frac{3}{2},n,1-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$

$$\left(a+b\right) \text{AppellF1}\left[\frac{3}{2}, 1+n, -n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2\Bigg) + \Bigg(5 \text{AppellF1}\left[\frac{3}{2}, n, -n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right] \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^3\Bigg) \Big/$$

$$\Bigg(5 \left(a+b\right) \text{AppellF1}\left[\frac{3}{2}, n, -n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right] +$$

$$2 n \Bigg(\left(-a+b\right) \text{AppellF1}\left[\frac{5}{2}, n, 1-n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right] +$$

$$\left(a+b\right) \text{AppellF1}\left[\frac{5}{2}, 1+n, -n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]\Bigg) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2\Bigg) -$$

$$\Bigg(9 \text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]\Bigg) \Big/$$

$$\Bigg(\left(a+b\right) \text{AppellF1}\left[-\frac{1}{2}, n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right] + 2 n \Bigg(\left(-a+b\right) \text{AppellF1}\left[\frac{1}{2}, n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right] + \left(a+b\right) \text{AppellF1}\left[\frac{1}{2}, 1+n, -n, \frac{3}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]\Bigg) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^3\Bigg) -$$

$$\text{AppellF1}\left[-\frac{3}{2}, n, -n, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right] \Big/$$

$$\Bigg(\left(a+b\right) \text{AppellF1}\left[-\frac{3}{2}, n, -n, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2, \frac{\left(a-b\right) \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^3 + 2 n \Bigg(\left(a-b\right) \text{AppellF1}\left[-\frac{1}{2}, n, 1-n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}\left(c+d x\right)\right]^2,\right.$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big] - (a+b)\,\text{AppellF1}\Big[-\frac{1}{2},\,1+n,\,-n,\,\frac{1}{2},$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^5\Bigg)\Bigg) +$$

$$\frac{1}{24}(a+b)\left(\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^n\left(b+\frac{a-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^n$$

$$\Bigg(\Bigg(27\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,-n,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)\Big/$$

$$\Bigg(2\,\Bigg(3\,(a+b)\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,-n,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big] +$$

$$2\,n\,\Bigg((-a+b)\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,1-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big] + (a+b)\,\text{AppellF1}\Big[\frac{3}{2},\,1+n,\,-n,\,\frac{5}{2},$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg)\Bigg) +$$

$$\Bigg(27\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\,\Bigg(-\frac{1}{3(a+b)}(a-b)\,n\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,1-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,$$

$$\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big]\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right] +$$

$$\frac{1}{3}\,n\,\text{AppellF1}\Big[\frac{3}{2},\,1+n,\,-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big]$$

$$\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Bigg)\Bigg)\Big/$$

$$\Bigg(3\,(a+b)\,\text{AppellF1}\Big[\frac{1}{2},\,n,\,-n,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big] +$$

$$2\,n\,\Bigg((-a+b)\,\text{AppellF1}\Big[\frac{3}{2},\,n,\,1-n,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\Big] +$$

$$\left.(a+b)\,\text{AppellF1}\left[\frac{3}{2},1+n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)+\left(15\,\text{AppellF1}\left[\frac{3}{2},n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/$$

$$\left(2\left(5\,(a+b)\,\text{AppellF1}\left[\frac{3}{2},n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.\right.$$

$$2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{5}{2},n,1-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+(a+b)\,\text{AppellF1}\left[\frac{5}{2},1+n,-n,\frac{7}{2},\right.$$

$$\left.\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)+$$

$$\left(5\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^3\left(-\frac{1}{5\,(a+b)}3\,(a-b)\,n\,\text{AppellF1}\left[\frac{5}{2},n,1-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]+$$

$$\frac{3}{5}\,n\,\text{AppellF1}\left[\frac{5}{2},1+n,-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]$$

$$\left.\left.\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right)\Big/$$

$$\left(5\,(a+b)\,\text{AppellF1}\left[\frac{3}{2},n,-n,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$

$$2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{5}{2},n,1-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]+\right.$$

$$(a+b)\,\text{AppellF1}\left[\frac{5}{2},1+n,-n,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)-$$

$$\left(9\left(\frac{1}{a+b}(a-b)\,n\,\text{AppellF1}\left[\frac{1}{2},n,1-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-n\,\text{AppellF1}\left[\frac{1}{2},1+n,-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+\right.\right.$$

$$\left.\left.\left.\left.d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left((a+b)\,\text{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+2\,n\left((-a+b)\,\text{AppellF1}\left[\frac{1}{2},n,1-n,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,\text{AppellF1}\left[\frac{1}{2},1+n,-n,\frac{3}{2},\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3\right)-$$

$$\left(-\frac{1}{a+b}3\,(a-b)\,n\,\text{AppellF1}\left[-\frac{1}{2},n,1-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+$$

$$3\,n\,\text{AppellF1}\left[-\frac{1}{2},1+n,-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\Big/$$

$$\left((a+b)\,\text{AppellF1}\left[-\frac{3}{2},n,-n,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3+2\,n\left((a-b)\,\text{AppellF1}\left[-\frac{1}{2},n,1-n,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]-(a+b)\,\text{AppellF1}\left[-\frac{1}{2},1+n,-n,\frac{1}{2},\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^5\right)+$$

$$\left(\text{AppellF1}\left[-\frac{3}{2}, n, -n, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right.$$

$$\left(\frac{3}{2}(a+b)\,\text{AppellF1}\left[-\frac{3}{2}, n, -n, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right.$$

$$\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2 + 5 n \left((a-b)\,\text{AppellF1}\left[-\frac{1}{2}, n, 1-n, \frac{1}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] - (a+b)\,\text{AppellF1}\left[-\frac{1}{2}, 1+n,\right.$$

$$\left.\left.-n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^4 + (a+b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^3 \left(-\frac{1}{a+b} 3 (a-b)\, n\, \text{AppellF1}\left[-\frac{1}{2},\right.\right.$$

$$\left. n, 1-n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] + 3 n\, \text{AppellF1}\left[-\frac{1}{2}, 1+n, -n, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) +$$

$$2 n\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^5 \left((a-b)\left(-\frac{1}{a+b}(a-b)\,(1-n)\,\text{AppellF1}\left[\frac{1}{2}, n, 2-n,\right.\right.\right.$$

$$\left.\frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] - n\,\text{AppellF1}\left[\frac{1}{2}, 1+n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) -$$

$$(a+b)\left(\frac{1}{a+b}(a-b)\, n\, \text{AppellF1}\left[\frac{1}{2}, 1+n, 1-n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] -$$

$$(1+n)\,\text{AppellF1}\left[\frac{1}{2}, 2+n, -n, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2,\right.$$

$$\left.\left.\left.\left.\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)\right)\right)\Big/$$

$$\left((a+b)\,\mathrm{AppellF1}\left[-\frac{3}{2},n,-n,-\frac{1}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3+2\,n\left((a-b)\,\mathrm{AppellF1}\left[-\frac{1}{2},n,1-n,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]-(a+b)\,\mathrm{AppellF1}\left[-\frac{1}{2},1+n,-n,\frac{1}{2},\right.$$

$$\left.\left.\left.\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^5\right)^2+$$

$$\left(9\,\mathrm{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\left(\frac{1}{2}(a+b)\,\mathrm{AppellF1}\left[-\frac{1}{2},n,-n,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right.$$

$$\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+3\,n\left((-a+b)\,\mathrm{AppellF1}\left[\frac{1}{2},n,1-n,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.\right.$$

$$\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]+(a+b)\,\mathrm{AppellF1}\left[\frac{1}{2},1+n,-n,\frac{3}{2},\right.$$

$$\left.\left.\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2+(a+b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(\frac{1}{a+b}(a-b)\,n\,\mathrm{AppellF1}\left[\frac{1}{2},\right.\right.$$

$$\left.n,1-n,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-n\,\mathrm{AppellF1}\left[\frac{1}{2},1+n,-n,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\right.$$

$$\left.\left.\frac{(a-b)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{a+b}\right]\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)+$$

$$2\,n\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3\left((-a+b)\left(\frac{1}{3(a+b)}(a-b)(1-n)\,\mathrm{AppellF1}\left[\frac{3}{2},n,\right.\right.\right.$$

$$2-n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\Big]\ \text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{1}{3}\,n\,\text{AppellF1}\left[\frac{3}{2},\ 1+n,\ 1-n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\ \text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)+$$

$$\left(a+b\right)\ \Bigg(-\frac{1}{3\,\left(a+b\right)}\left(a-b\right)\,n\,\text{AppellF1}\left[\frac{3}{2},\ 1+n,\ 1-n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\ \text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+$$

$$\frac{1}{3}\left(1+n\right)\,\text{AppellF1}\left[\frac{3}{2},\ 2+n,\ -n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\ \text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(a+b\right)\,\text{AppellF1}\left[-\frac{1}{2},\ n,\ -n,\ \frac{1}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+2\,n\,\Bigg(\left(-a+b\right)\,\text{AppellF1}\left[\frac{1}{2},\ n,\ 1-n,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\left(a+b\right)\,\text{AppellF1}\left[\frac{1}{2},\ 1+n,\ -n,\ \frac{3}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\Bigg)\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^3\Bigg)^2-$$

$$\Bigg(27\,\text{AppellF1}\left[\frac{1}{2},\ n,\ -n,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\ \Bigg(2\,n\,\Bigg(\left(-a+b\right)\,\text{AppellF1}\left[\frac{3}{2},\ n,\ 1-n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\left(a+b\right)\,\text{AppellF1}\left[\frac{3}{2},\ 1+n,\ -n,\ \frac{5}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\Bigg)\ \text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+3\,\left(a+b\right)\ \Bigg(-\frac{1}{3\,\left(a+b\right)}\left(a-b\right)\,n\,\text{AppellF1}\left[\frac{3}{2},\ n,\ 1-n,\right.$$

$$\frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{1}{3}\,n\,\text{AppellF1}\left[\frac{3}{2},\ 1+n,\ -n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)+$$

$$2\,n\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\Bigg(\left(-a+b\right)\,\Bigg(\frac{1}{5\,\left(a+b\right)}3\,\left(a-b\right)\,\left(1-n\right)\,\text{AppellF1}\left[\frac{5}{2},\ n,\right.$$

$$2-n,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+\frac{3}{5}\,n\,\text{AppellF1}\left[\frac{5}{2},\ 1+n,\ 1-n,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)+$$

$$\left(a+b\right)\,\Bigg(-\frac{1}{5\,\left(a+b\right)}3\,\left(a-b\right)\,n\,\text{AppellF1}\left[\frac{5}{2},\ 1+n,\ 1-n,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]+$$

$$\frac{3}{5}\,\left(1+n\right)\,\text{AppellF1}\left[\frac{5}{2},\ 2+n,\ -n,\ \frac{7}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\,\text{Sec}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(3\,\left(a+b\right)\,\text{AppellF1}\left[\frac{1}{2},\ n,\ -n,\ \frac{3}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+$$

$$2\,n\,\Bigg(\left(-a+b\right)\,\text{AppellF1}\left[\frac{3}{2},\ n,\ 1-n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\right.$$

$$\left.\frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]+\left(a+b\right)\,\text{AppellF1}\left[\frac{3}{2},\ 1+n,\ -n,\ \frac{5}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2\Bigg)^2-$$

$$\Bigg(5\,\text{AppellF1}\left[\frac{3}{2},\ n,\ -n,\ \frac{5}{2},\ \text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2,\ \frac{\left(a-b\right)\,\text{Tan}\left[\frac{1}{2}\left(c+d\,x\right)\right]^2}{a+b}\right]$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^3 \left(2 n \left((-a+b)\,\text{AppellF1}\left[\frac{5}{2}, n, 1-n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b)\,\text{AppellF1}\left[\frac{5}{2}, 1+n, -n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right] + 5 (a+b) \left(-\frac{1}{5 (a+b)} 3 (a-b)\, n\, \text{AppellF1}\left[\frac{5}{2}, n, 1-n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] + \frac{3}{5} n\, \text{AppellF1}\left[\frac{5}{2}, 1+n, -n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) +$$

$$2 n\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2 \left((-a+b) \left(\frac{1}{7 (a+b)} 5 (a-b) (1-n)\, \text{AppellF1}\left[\frac{7}{2}, n, 2-n, \frac{9}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] + \frac{5}{7} n\, \text{AppellF1}\left[\frac{7}{2}, 1+n, 1-n, \frac{9}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) +\right.$$

$$(a+b) \left(-\frac{1}{7 (a+b)} 5 (a-b)\, n\, \text{AppellF1}\left[\frac{7}{2}, 1+n, 1-n, \frac{9}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right] + \frac{5}{7} (1+n)\, \text{AppellF1}\left[\frac{7}{2}, 2+n, -n, \frac{9}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\Bigg)\Bigg)\Bigg) \Bigg/$$

$$\left(5 (a+b)\, \text{AppellF1}\left[\frac{3}{2}, n, -n, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] +\right.$$

$$2 n \left((-a+b) \text{AppellF1}\left[\frac{5}{2}, n, 1-n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right] + (a+b) \text{AppellF1}\left[\frac{5}{2}, 1+n, -n, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2, \frac{(a-b) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{a+b}\right]\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\Bigg)\Bigg)\Bigg)$$

Problem 294: Result unnecessarily involves higher level functions.

$$\int \frac{(e \,\text{Csc}[c+d x])^{3/2}}{a+a \,\text{Sec}[c+d x]} \, dx$$

Optimal (type 4, 145 leaves, 8 steps):

$$-\frac{4 e \,\text{Cos}[c+d x] \sqrt{e \,\text{Csc}[c+d x]}}{5 a d} + \frac{2 e \,\text{Cot}[c+d x] \,\text{Csc}[c+d x] \sqrt{e \,\text{Csc}[c+d x]}}{5 a d} - \frac{2 e \,\text{Csc}[c+d x]^2 \sqrt{e \,\text{Csc}[c+d x]}}{5 a d} - \frac{4 e \sqrt{e \,\text{Csc}[c+d x]} \,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right), 2\right] \sqrt{\text{Sin}[c+d x]}}{5 a d}$$

Result (type 5, 219 leaves):

$$\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 (e \,\text{Csc}[c+d x])^{3/2} \left(\left(8 \sqrt{2} \, e^{-i (c+d x)} \sqrt{\frac{i e^{i (c+d x)}}{-1+e^{2 i (c+d x)}}} \left(-1+e^{2 i (c+d x)}+\left(1+e^{2 i c}\right) \sqrt{1-e^{2 i (c+d x)}} \,\text{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, e^{2 i (c+d x)}\right]\right) \text{Sec}[c+d x]\right) \Big/ \left(d \left(1+e^{2 i c}\right) \text{Csc}[c+d x]^{3/2}\right) - \frac{2 \left(4 \,\text{Cos}[d x] \,\text{Sec}[c] + \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \text{Tan}[c+d x]}{d}\right)\right) \Big/ (5 a (1+\text{Sec}[c+d x]))$$

Problem 296: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{e \,\text{Csc}[c+d x]} \, (a+a \,\text{Sec}[c+d x])} \, dx$$

Optimal (type 4, 99 leaves, 7 steps):

$$\frac{2\,\text{Cot}[c+d\,x]}{a\,d\,\sqrt{e\,\text{Csc}[c+d\,x]}}-\frac{2\,\text{Csc}[c+d\,x]}{a\,d\,\sqrt{e\,\text{Csc}[c+d\,x]}}+\frac{4\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]}{a\,d\,\sqrt{e\,\text{Csc}[c+d\,x]}\,\sqrt{\text{Sin}[c+d\,x]}}$$

Result (type 5, 82 leaves):

$$-\left(\left(2\left(2\,i-\text{Cot}[c+d\,x]+\text{Csc}[c+d\,x]-\frac{4\,i\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2\,i\,(c+d\,x)}\right]}{\sqrt{1-e^{2\,i\,(c+d\,x)}}}\right)\right)\Big/\left(a\,d\,\sqrt{e\,\text{Csc}[c+d\,x]}\right)\right)$$

Problem 298: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(e\,\text{Csc}[c+d\,x])^{5/2}\,(a+a\,\text{Sec}[c+d\,x])}\,dx$$

Optimal (type 4, 120 leaves, 7 steps):

$$-\frac{4\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]}{5\,a\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}\,\sqrt{\text{Sin}[c+d\,x]}}+\frac{2\,\text{Sin}[c+d\,x]}{3\,a\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}-\frac{2\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{5\,a\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}$$

Result (type 5, 91 leaves):

$$\left(24\,i-\frac{48\,i\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2\,i\,(c+d\,x)}\right]}{\sqrt{1-e^{2\,i\,(c+d\,x)}}}+20\,\text{Sin}[c+d\,x]-6\,\text{Sin}[2\,(c+d\,x)]\right)\Big/\left(30\,a\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}\right)$$

Problem 301: Result unnecessarily involves higher level functions.

$$\int\frac{(e\,\text{Csc}[c+d\,x])^{3/2}}{(a+a\,\text{Sec}[c+d\,x])^2}\,dx$$

Optimal (type 4, 250 leaves, 16 steps):

$$-\frac{4\,e\,\text{Cos}[c+d\,x]\,\sqrt{e\,\text{Csc}[c+d\,x]}}{15\,a^2\,d}+\frac{16\,e\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]\,\sqrt{e\,\text{Csc}[c+d\,x]}}{45\,a^2\,d}-\frac{2\,e\,\text{Cot}[c+d\,x]^3\,\text{Csc}[c+d\,x]\,\sqrt{e\,\text{Csc}[c+d\,x]}}{9\,a^2\,d}-\frac{4\,e\,\text{Csc}[c+d\,x]^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}{5\,a^2\,d}-\frac{2\,e\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3\,\sqrt{e\,\text{Csc}[c+d\,x]}}{9\,a^2\,d}+\frac{4\,e\,\text{Csc}[c+d\,x]^4\,\sqrt{e\,\text{Csc}[c+d\,x]}}{9\,a^2\,d}-\frac{4\,e\,\sqrt{e\,\text{Csc}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]\,\sqrt{\text{Sin}[c+d\,x]}}{15\,a^2\,d}$$

Result (type 5, 238 leaves):

$$\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]^4 (e\,\text{Csc}[c+d x])^{3/2}\,\text{Sec}[c+d x]\left(\left(16\sqrt{2}\,e^{-i(c+d x)}\sqrt{\frac{i\,e^{i(c+d x)}}{-1+e^{2 i(c+d x)}}}\left(-1+e^{2 i(c+d x)}+\left(1+e^{2 i c}\right)\sqrt{1-e^{2 i(c+d x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2 i(c+d x)}\right]\right)\text{Sec}[c+d x]\right)\Big/\left(d\left(1+e^{2 i c}\right)\text{Csc}[c+d x]^{3/2}\right)-\frac{1}{3 d}2\left(24\,\text{Cos}[d x]\,\text{Sec}[c]+(8+13\,\text{Cos}[c+d x])\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^4\right)\text{Tan}[c+d x]\right)\right)\Big/\left(15 a^2 (1+\text{Sec}[c+d x])^2\right)$$

Problem 303: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{e\,\text{Csc}[c+d x]}\,(a+a\,\text{Sec}[c+d x])^2}\,dx$$

Optimal (type 4, 199 leaves, 14 steps):

$$\frac{16\,\text{Cot}[c+d x]}{5 a^2 d\sqrt{e\,\text{Csc}[c+d x]}}-\frac{2\,\text{Cot}[c+d x]^3}{5 a^2 d\sqrt{e\,\text{Csc}[c+d x]}}-\frac{4\,\text{Csc}[c+d x]}{a^2 d\sqrt{e\,\text{Csc}[c+d x]}}-\frac{2\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]^2}{5 a^2 d\sqrt{e\,\text{Csc}[c+d x]}}+\frac{4\,\text{Csc}[c+d x]^3}{5 a^2 d\sqrt{e\,\text{Csc}[c+d x]}}+\frac{28\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d x\right),2\right]}{5 a^2 d\sqrt{e\,\text{Csc}[c+d x]}\sqrt{\text{Sin}[c+d x]}}$$

Result (type 5, 241 leaves):

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^4\sqrt{\text{Csc}[c+d x]}\,\text{Sec}[c+d x]^2\left(-\frac{1}{1+e^{2 i c}}28\sqrt{2}\,e^{-i(c+d x)}\sqrt{\frac{i\,e^{i(c+d x)}}{-1+e^{2 i(c+d x)}}}\left(-1+e^{2 i(c+d x)}+\left(1+e^{2 i c}\right)\sqrt{1-e^{2 i(c+d x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2 i(c+d x)}\right]\right)+\sqrt{\text{Csc}[c+d x]}\left(-(-23+5\,\text{Cos}[2 c])\,\text{Cos}[d x]\,\text{Sec}[c]+2\left(-10+\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2+5\,\text{Sin}[c]\,\text{Sin}[d x]\right)\right)\right)\right)\Big/\left(5 a^2 d\sqrt{e\,\text{Csc}[c+d x]}\,(1+\text{Sec}[c+d x])^2\right)$$

Problem 305: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(e\,\text{Csc}[c+d\,x])^{5/2}\,(a+a\,\text{Sec}[c+d\,x])^2}\,dx$$

Optimal (type 4, 215 leaves, 13 steps):

$$-\frac{2\,\text{Cot}[c+d\,x]}{a^2\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}-\frac{2\,\text{Cos}[c+d\,x]^2\,\text{Cot}[c+d\,x]}{a^2\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}+\frac{4\,\text{Csc}[c+d\,x]}{a^2\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}-\frac{44\,\text{EllipticE}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]}{5\,a^2\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}\,\sqrt{\text{Sin}[c+d\,x]}}+\frac{4\,\text{Sin}[c+d\,x]}{3\,a^2\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}-\frac{12\,\text{Cos}[c+d\,x]\,\text{Sin}[c+d\,x]}{5\,a^2\,d\,e^2\,\sqrt{e\,\text{Csc}[c+d\,x]}}$$

Result (type 5, 351 leaves):

$$\left(176\,\sqrt{2}\,e^{-i\,(c+d\,x)}\,\sqrt{\frac{i\,e^{i\,(c+d\,x)}}{-1+e^{2\,i\,(c+d\,x)}}}\,\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,\text{Csc}[c+d\,x]^{5/2}\left(-1+e^{2\,i\,(c+d\,x)}+\left(1+e^{2\,i\,c}\right)\sqrt{1-e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},e^{2\,i\,(c+d\,x)}\right]\right)\text{Sec}[c+d\,x]^2\right)\Big/\left(5\,d\,\left(1+e^{2\,i\,c}\right)\,(e\,\text{Csc}[c+d\,x])^{5/2}\,(a+a\,\text{Sec}[c+d\,x])^2\right)+$$

$$\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]^2\left(\frac{56}{3\,d}-\frac{8\,\text{Cos}[2\,c]\,\text{Cos}[2\,d\,x]}{3\,d}+\frac{2\,\text{Cos}[3\,c]\,\text{Cos}[3\,d\,x]}{5\,d}+\frac{(-129+47\,\text{Cos}[2\,c])\,\text{Cos}[d\,x]\,\text{Sec}[c]}{5\,d}-\frac{94\,\text{Sin}[c]\,\text{Sin}[d\,x]}{5\,d}+\frac{8\,\text{Sin}[2\,c]\,\text{Sin}[2\,d\,x]}{3\,d}-\frac{2\,\text{Sin}[3\,c]\,\text{Sin}[3\,d\,x]}{5\,d}\right)\right)\Big/\left((e\,\text{Csc}[c+d\,x])^{5/2}\,(a+a\,\text{Sec}[c+d\,x])^2\right)$$

Problem 306: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(e\,\text{Csc}[c+d\,x])^{7/2}\,(a+a\,\text{Sec}[c+d\,x])^2}\,dx$$

Optimal (type 4, 172 leaves, 13 steps):

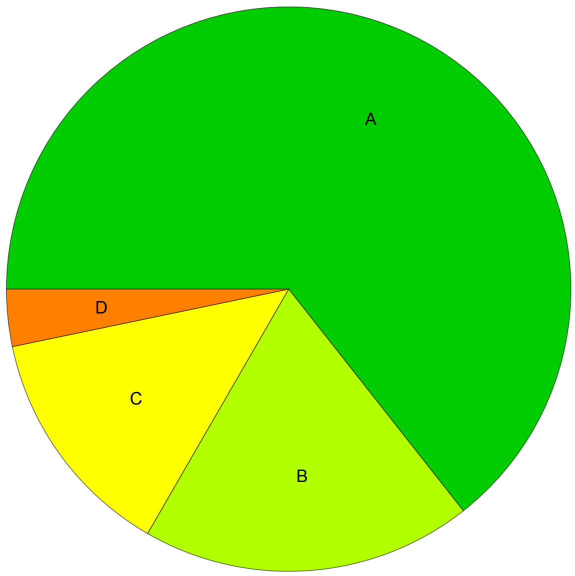
$$-\frac{4}{a^2\,d\,e^3\,\sqrt{e\,\text{Csc}[c+d\,x]}}+\frac{26\,\text{Cos}[c+d\,x]}{21\,a^2\,d\,e^3\,\sqrt{e\,\text{Csc}[c+d\,x]}}+\frac{2\,\text{Cos}[c+d\,x]^3}{7\,a^2\,d\,e^3\,\sqrt{e\,\text{Csc}[c+d\,x]}}+\frac{52\,\text{EllipticF}\left[\frac{1}{2}\left(c-\frac{\pi}{2}+d\,x\right),2\right]}{21\,a^2\,d\,e^3\,\sqrt{e\,\text{Csc}[c+d\,x]}\,\sqrt{\text{Sin}[c+d\,x]}}+\frac{4\,\text{Sin}[c+d\,x]^2}{5\,a^2\,d\,e^3\,\sqrt{e\,\text{Csc}[c+d\,x]}}$$

Result (type 4, 365 leaves):

$$\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\text{Csc}[c+d\,x]^4\,\text{Sec}[c+d\,x]^2\right.$$
$$\left(\frac{58\,\text{Cos}[2\,d\,x]\,\text{Sin}[2\,c]}{21\,d}-\frac{2\,\text{Cos}[d\,x]\,\text{Sec}[c]\,\left(-520\,\text{Sin}[c]+357\,\text{Sin}[2\,c]\right)}{105\,d}-\right.$$
$$\frac{4\,\text{Cos}[3\,d\,x]\,\text{Sin}[3\,c]}{5\,d}+\frac{\text{Cos}[4\,d\,x]\,\text{Sin}[4\,c]}{7\,d}-\frac{4\,\left(-260+357\,\text{Cos}[c]\right)\,\text{Sin}[d\,x]}{105\,d}+$$
$$\left.\left.\frac{58\,\text{Cos}[2\,c]\,\text{Sin}[2\,d\,x]}{21\,d}-\frac{4\,\text{Cos}[3\,c]\,\text{Sin}[3\,d\,x]}{5\,d}+\frac{\text{Cos}[4\,c]\,\text{Sin}[4\,d\,x]}{7\,d}\right)\right)\Big/$$
$$\left(\left(e\,\text{Csc}[c+d\,x]\right)^{7/2}\left(a+a\,\text{Sec}[c+d\,x]\right)^2\right)-\left(104\,\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]^4\text{Csc}[c+d\,x]^{7/2}\,\text{Sec}[c+d\,x]^2\right.$$
$$\left(\frac{1}{d}2\,\sqrt{\text{Csc}[c+d\,x]}\;\text{EllipticF}\left[\frac{1}{2}\left(-c+\frac{\pi}{2}-d\,x\right),2\right]\sqrt{\text{Sin}[c+d\,x]}+\left(2\,\text{Cos}[c+d\,x]^2\,\text{Sec}[c]\right)\Big/\right.$$
$$\left.\left.\left(d\,\sqrt{\text{Csc}[c+d\,x]}\,\sqrt{\left(-1+\text{Csc}[c+d\,x]^2\right)\text{Sin}[c+d\,x]^2}\,\sqrt{1-\text{Sin}[c+d\,x]^2}\right)\right)\right)\Big/$$
$$\left(21\,\left(e\,\text{Csc}[c+d\,x]\right)^{7/2}\left(a+a\,\text{Sec}[c+d\,x]\right)^2\right)$$

Summary of Integration Test Results

306 integration problems



A - 197 optimal antiderivatives

B - 58 more than twice size of optimal antiderivatives

C - 41 unnecessarily complex antiderivatives

D - 10 unable to integrate problems

E - 0 integration timeouts