Rubi 4.16.0.4 Integration Test Results

on the problems in the test-suite directory "4 Trig functions"

Test results for the 538 problems in "4.1.0 (a sin)^m (b trg)^n.m"

Test results for the 348 problems in "4.1.10 (c+d x)^m (a+b sin)^n.m"

Test results for the 72 problems in "4.1.1.1 (a+b sin)^n.m"

Test results for the 113 problems in "4.1.11 (e x)^m (a+b x^n)^p sin.m"

Test results for the 357 problems in "4.1.12 (e x)^m (a+b sin(c+d x^n))^p.m"

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

Problem 648: Result valid but suboptimal antiderivative.

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

Optimal (type 5, 311 leaves, ? steps):

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

Result (type 5, 420 leaves, 5 steps) :

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

Test results for the 36 problems in "4.1.13 (d+e x)^m sin(a+b x+c x^2)^n.m"

Test results for the 208 problems in "4.1.1.3 (g tan)^p (a+b sin)^m.m"

Test results for the 837 problems in "4.1.2.1 (a+b sin)^m (c+d sin)^n.m"

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

(c+d sin)^n.m"

Problem 1479: Unable to integrate problem.

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

Optimal (type 4, 312 leaves, ? steps):

$$\frac{\text{Sec}[e+f x] \, (b+a \,\text{Sin}[e+f x]) \, \sqrt{a+b \,\text{Sin}[e+f x]}}{f \sqrt{d \,\text{Sin}[e+f x]}} - \frac{1}{\sqrt{d} \, f} (a+b)^{3/2} \sqrt{-\frac{a \, (-1+\text{Csc}[e+f x])}{a+b}} \sqrt{\frac{a \, (1+\text{Csc}[e+f x])}{a-b}} \,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d} \, \sqrt{a+b \,\text{Sin}[e+f x]}}{\sqrt{a+b} \, \sqrt{d \,\text{Sin}[e+f x]}}\right], -\frac{a+b}{a-b}\right] \text{Tan}[e+f x] - \left(b \, (a+b) \sqrt{-\frac{a \, (-1+\text{Csc}[e+f x])}{a+b}} \sqrt{\frac{b+a \,\text{Csc}[e+f x]}{-a+b}} \,\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{b+a \,\text{Csc}[e+f x]}{a-b}}\right], \frac{-a+b}{a+b}\right] (1+\text{Sin}[e+f x]) \,\text{Tan}[e+f x]\right) \Big/ \left(f \sqrt{\frac{a \, (1+\text{Csc}[e+f x])}{a-b}} \sqrt{d \,\text{Sin}[e+f x]} \sqrt{a+b \,\text{Sin}[e+f x]}\right)$$

Result (type 8, 37 leaves, 0 steps):

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

Problem 1480: Unable to integrate problem.

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

Optimal (type 4, 366 leaves, ? steps):

$$\frac{5\,a\,\text{Sec}[e+f\,x]\,\left(b+a\,\text{Sin}[e+f\,x]\right)\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{6\,f\,\sqrt{d\,\text{Sin}[e+f\,x]}}+$$

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

$$5\,a\,(a+b)^{3/2}\,\sqrt{-\frac{a\,\left(-1+\text{Csc}[e+f\,x]\right)}{a+b}}\,\sqrt{\frac{a\,\left(1+\text{Csc}[e+f\,x]\right)}{a-b}}$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\text{Sin}[e+f\,x]}}\right],-\frac{a+b}{a-b}\right]\,\text{Tan}[e+f\,x]-$$

$$\left(5\,a\,b\,(a+b)\,\sqrt{-\frac{a\,\left(-1+\text{Csc}[e+f\,x]\right)}{a+b}}\,\sqrt{\frac{b+a\,\text{Csc}[e+f\,x]}{-a+b}}\right.$$

$$\left.\text{EllipticE}\left[\text{ArcSin}\left[\sqrt{-\frac{b+a\,\text{Csc}[e+f\,x]}{a-b}}\right],\frac{-a+b}{a+b}\right]\,\left(1+\text{Sin}[e+f\,x]\right)\,\text{Tan}[e+f\,x]\right)\Big/$$

$$\left(6\,f\,\sqrt{\frac{a\,\left(1+\text{Csc}[e+f\,x]\right)}{a-b}}\,\sqrt{d\,\text{Sin}[e+f\,x]}\,\sqrt{a+b\,\text{Sin}[e+f\,x]}\right)$$

Result (type 8, 87 leaves, 1 step):

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

$$\frac{5}{6}\,a\,\text{Unintegrable}\left[\frac{\text{Sec}[e+f\,x]^2\,\left(a+b\,\text{Sin}[e+f\,x]\right)^{3/2}}{\sqrt{d\,\text{Sin}[e+f\,x]}},x\right]$$

Problem 1515: Unable to integrate problem.

$$\int\frac{\text{Sec}[e+f\,x]^6\,\left(a+b\,\text{Sin}[e+f\,x]\right)^{9/2}}{\sqrt{d\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 4, 502 leaves, ? steps):

$$-\frac{3\,a\,b\,\left(-2\,a^2+b^2\right)\,\mathrm{Cos}[e+f\,x]\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{5\,f\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}+\frac{\mathrm{Sec}[e+f\,x]^5\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)^{9/2}}{5\,d\,f}-\frac{1}{20\,d\,f}$$

$$3\,a\,\mathrm{Sec}[e+f\,x]^3\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\,\left(-a\,\left(7\,a^2+b^2\right)+2\,b\,\left(-7\,a^2+b^2\right)\,\mathrm{Sin}[e+f\,x]+5\,a\,\left(a^2-b^2\right)\,\mathrm{Sin}[e+f\,x]^2+\left(8\,a^2\,b-4\,b^3\right)\,\mathrm{Sin}[e+f\,x]^3\right)-$$

$$\frac{1}{20\,\sqrt{d}\,f}3\,a\,(a+b)^{3/2}\,\left(5\,a^2+3\,a\,b-4\,b^2\right)\,\sqrt{-\frac{a\,\left(-1+\mathrm{Csc}[e+f\,x]\right)}{a+b}}\,\sqrt{\frac{a\,\left(1+\mathrm{Csc}[e+f\,x]\right)}{a-b}}$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}}{\sqrt{a+b}\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}}\right],\,-\frac{a+b}{a-b}\right]\,\mathrm{Tan}[e+f\,x]-$$

$$\left(3\,b\,\left(2\,a^4-3\,a^2\,b^2+b^4\right)\,\sqrt{-\frac{a\,\left(-1+\mathrm{Csc}[e+f\,x]\right)}{a+b}}\,\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\sqrt{-\frac{b+a\,\mathrm{Csc}[e+f\,x]}{a-b}}\right],\right.\right.$$

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

$$\left.\mathrm{Tan}[e+f\,x]\right)\Big/\left(5\,d\,f\,\sqrt{a+b\,\mathrm{Sin}[e+f\,x]}\right)$$

Result (type 8, 87 leaves, 1 step):

$$\frac{\mathrm{Sec}[e+f\,x]^5\,\sqrt{d\,\mathrm{Sin}[e+f\,x]}\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)^{9/2}}{5\,d\,f}+\frac{9}{10}\,a\,\mathrm{Unintegrable}\left[\frac{\mathrm{Sec}[e+f\,x]^4\,\left(a+b\,\mathrm{Sin}[e+f\,x]\right)^{7/2}}{\sqrt{d\,\mathrm{Sin}[e+f\,x]}},\,x\right]$$

Test results for the 51 problems in "4.1.2.3 (g sin)^p (a+b sin)^m (c+d sin)^n.m"

Test results for the 358 problems in "4.1.3.1 (a+b sin)^m (c+d sin)^n (A+B sin).m"

Test results for the 19 problems in "4.1.4.1 (a+b sin)^m (A+B sin+C sin^2).m"

Test results for the 34 problems in "4.1.4.2 (a+b sin)^m (c+d sin)^n

(A+B sin+C sin^2).m"

Test results for the 594 problems in "4.1.7 (d trig)^m (a+b (c sin)^n)^p.m"

Problem 391: Unable to integrate problem.

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

Optimal (type 3, 299 leaves, ? steps):

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

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

Result (type 8, 25 leaves, 0 steps):

$$\text{Unintegrable}\Big[\frac{\text{Sec}[c+d\,x]^2}{a+b\,\text{Sin}[c+d\,x]^3},\,x\Big]$$

Problem 392: Unable to integrate problem.

$$\int \frac{\text{Sec}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]^3}\,dx$$

Optimal (type 3, 1093 leaves, ? steps):

$$-\frac{2\,(-1)^{2/3}\,a^{2/3}\,b^{8/3}\,\text{ArcTan}\left[\frac{(-1)^{1/3}\,b^{1/3}-a^{1/3}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^{2/3}-(-1)^{2/3}\,b^{2/3}}}\right]}{\sqrt{a^{2/3}-(-1)^{2/3}\,b^{2/3}}\,\left(a^2-b^2\right)^2\,d}-$$

$$\frac{2\,b^2\,\left(2\,a^2+b^2\right)\,\text{ArcTan}\left[\frac{(-1)^{1/3}\,b^{1/3}-a^{1/3}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^{2/3}-(-1)^{2/3}\,b^{2/3}}}\right]}{3\,a^{2/3}\,\sqrt{a^{2/3}-(-1)^{2/3}\,b^{2/3}}\,\left(a^2-b^2\right)^2\,d}+\frac{2\,a^{2/3}\,b^{8/3}\,\text{ArcTan}\left[\frac{b^{1/3}+a^{1/3}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^{2/3}-b^{2/3}}}\right]}{\sqrt{a^{2/3}-b^{2/3}}\,\left(a^2-b^2\right)^2\,d}+$$

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

$$\frac{2\,(-1)^{1/3}\,a^{2/3}\,b^{8/3}\,\text{ArcTan}\left[\frac{(-1)^{2/3}\,b^{1/3}+a^{1/3}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^{2/3}+(-1)^{1/3}\,b^{2/3}}}\right]}{\sqrt{a^{2/3}+(-1)^{1/3}\,b^{2/3}}\,\left(a^2-b^2\right)^2\,d}+$$

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

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

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

$$\frac{\text{Cos}[c+d\,x]}{12\,(a+b)\,d\,(1-\text{Sin}[c+d\,x])}+\frac{(a+4\,b)\,\text{Cos}[c+d\,x]}{4\,(a+b)^2\,d\,(1-\text{Sin}[c+d\,x])}-$$

$$\frac{\text{Cos}[c+d\,x]}{12\,(a-b)\,d\,(1+\text{Sin}[c+d\,x])^2}-\frac{(a-4\,b)\,\text{Cos}[c+d\,x]}{4\,(a-b)^2\,d\,(1+\text{Sin}[c+d\,x])}-\frac{\text{Cos}[c+d\,x]}{12\,(a-b)\,d\,(1+\text{Sin}[c+d\,x])}$$

Result (type 8, 25 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{\text{Sec}[c+d\,x]^4}{a+b\,\text{Sin}[c+d\,x]^3},\,x\right]$$

Problem 593: Unable to integrate problem.

$$\int\sqrt{a+\left(c\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]\right)^2}\,dx$$

Optimal (type 4, 79 leaves, 3 steps):

$$\left(\text{EllipticE}\left[e+f\,x+\text{ArcTan}[b,c],-\frac{b^2+c^2}{a}\right]\sqrt{a+\left(c\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]\right)^2}\right)\Bigg/\left(f\sqrt{1+\frac{\left(c\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]\right)^2}{a}}\right)$$

Result (type 8, 115 leaves, 3 steps):

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

Problem 594: Unable to integrate problem.

$$\int\frac{1}{\sqrt{a+\left(c\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]\right)^2}}\,dx$$

Optimal (type 4, 79 leaves, 3 steps):

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

Result (type 8, 115 leaves, 3 steps):

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

Test results for the 9 problems in "4.1.8 (a+b sin)^m (c+d trig)^n.m"

Test results for the 19 problems in "4.1.9 trig^m (a+b sin^n+c sin^(2 n))^p.m"

Test results for the 294 problems in "4.2.0 (a cos)^m (b trg)^n.m"

Test results for the 189 problems in "4.2.10 (c+d x)^m (a+b cos)^n.m"

Test results for the 62 problems in "4.2.1.1 (a+b cos)^n.m"

Test results for the 99 problems in "4.2.12 (e x)^m (a+b cos(c+d x^n))^p.m"

Test results for the 88 problems in "4.2.1.2 (g sin)^p (a+b cos)^m.m"

Test results for the 34 problems in "4.2.13 (d+e x)^m cos(a+b x+c x^2)^n.m"

Test results for the 22 problems in "4.2.1.3 (g tan)^p (a+b cos)^m.m"

Test results for the 932 problems in "4.2.2.1 (a+b cos)^m (c+d cos)^n.m"

Test results for the 4 problems in "4.2.2.2 (g sin)^p (a+b cos)^m (c+d cos)^n.m"

Test results for the 1 problems in "4.2.2.3 (g cos)^p (a+b cos)^m (c+d cos)^n.m"

Test results for the 644 problems in "4.2.3.1 (a+b cos)^m (c+d cos)^n (A+B cos).m"

Test results for the 393 problems in "4.2.4.1 (a+b cos)^m (A+B cos+C cos^2).m"

Test results for the 1541 problems in "4.2.4.2 (a+b cos)^m (c+d cos)^n (A+B cos+C cos^2).m"

Test results for the 98 problems in "4.2.7 (d trig)^m (a+b (c cos)^n)^p.m"

Test results for the 21 problems in "4.2.8 (a+b cos)^m (c+d trig)^n.m"

Test results for the 20 problems in "4.2.9 trig^m (a+b cos^n+c cos^(2 n))^p.m"

Test results for the 387 problems in "4.3.0 (a trg)^m (b tan)^n.m"

Test results for the 63 problems in "4.3.10 (c+d x)^m (a+b tan)^n.m"

Problem 17: Unable to integrate problem.

$$\int \left(\frac{x^2}{\sqrt{\text{Tan}\left[a+b x^2\right]}}+\frac{\sqrt{\text{Tan}\left[a+b x^2\right]}}{b}+x^2 \text{Tan}\left[a+b x^2\right]^{3/2}\right) dx$$

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

$$\frac{x \sqrt{\text{Tan}\left[a+b x^2\right]}}{b}$$

Result (type 8, 55 leaves, 1 step):

$$\text{Unintegrable}\left[\frac{x^2}{\sqrt{\text{Tan}\left[a+b x^2\right]}}, x\right]+\frac{\text{Unintegrable}\left[\sqrt{\text{Tan}\left[a+b x^2\right]}, x\right]}{b}+\text{Unintegrable}\left[x^2 \text{Tan}\left[a+b x^2\right]^{3/2}, x\right]$$

Test results for the 66 problems in "4.3.11 (e x)^m (a+b tan(c+d x^n))^p.m"

Test results for the 700 problems in "4.3.1.2 (d sec)^m (a+b tan)^n.m"

Test results for the 91 problems in "4.3.1.3 (d sin)^m (a+b tan)^n.m"

Test results for the 1328 problems in "4.3.2.1 (a+b tan)^m (c+d tan)^n.m"

Test results for the 855 problems in "4.3.3.1 (a+b tan)^m (c+d tan)^n (A+B tan).m"

Test results for the 171 problems in "4.3.4.2 (a+b tan)^m (c+d tan)^n (A+B tan+C tan^2).m"

Test results for the 499 problems in "4.3.7 (d trig)^m (a+b (c tan)^n)^p.m"

Test results for the 51 problems in "4.3.9 trig^m (a+b tan^n+c tan^(2 n))^p.m"

Test results for the 52 problems in "4.4.0 (a trg)^m (b cot)^n.m"

Test results for the 61 problems in "4.4.10 (c+d x)^m (a+b cot)^n.m"

Test results for the 23 problems in "4.4.1.2 (d csc)^m (a+b cot)^n.m"

Test results for the 19 problems in "4.4.1.3 (d cos)^m (a+b cot)^n.m"

Test results for the 106 problems in "4.4.2.1 (a+b cot)^m (c+d cot)^n.m"

Test results for the 64 problems in "4.4.7 (d trig)^m (a+b (c cot)^n)^p.m"

Test results for the 32 problems in "4.4.9 trig^m (a+b cot^n+c cot^(2 n))^p.m"

Test results for the 299 problems in "4.5.0 (a sec)^m (b trg)^n.m"

Test results for the 46 problems in "4.5.10 (c+d x)^m (a+b sec)^n.m"

Test results for the 83 problems in "4.5.11 (e x)^m (a+b sec(c+d x^n))^p.m"

Test results for the 879 problems in "4.5.1.2 (d sec)^n (a+b sec)^m.m"

Problem 286: Result unnecessarily involves higher level functions.

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

Optimal (type 5, 327 leaves, ? steps):

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

$$\left(\mathrm{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{3},\frac{5}{4},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^4\right]\left(\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\right)^{1/3}(a\,(1+\mathrm{Sec}[c+d\,x]))^{2/3}\,\mathrm{Tan}[c+d\,x]\right)\Big/\left(8\,d\left(\frac{1}{1+\mathrm{Cos}[c+d\,x]}\right)^{1/3}(1+\mathrm{Sec}[c+d\,x])^{4/3}\right)-$$

$$\left(5\,\mathrm{Hypergeometric2F1}\left[\frac{1}{3},\frac{3}{4},\frac{7}{4},\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^4\right]\left(\mathrm{Cos}[c+d\,x]\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^4\right)^{1/3}(a\,(1+\mathrm{Sec}[c+d\,x]))^{2/3}\,\mathrm{Tan}[c+d\,x]^3\right)\Big/\left(8\,d\left(\frac{1}{1+\mathrm{Cos}[c+d\,x]}\right)^{1/3}(1+\mathrm{Sec}[c+d\,x])^{10/3}\right)$$

Result (type 6, 79 leaves, 3 steps):

$$\left(2\times 2^{1/6}\,\mathrm{AppellF1}\left[\frac{1}{2},-\frac{2}{3},-\frac{1}{6},\frac{3}{2},1-\mathrm{Sec}[c+d\,x],\frac{1}{2}(1-\mathrm{Sec}[c+d\,x])\right](a+a\,\mathrm{Sec}[c+d\,x])^{2/3}\,\mathrm{Tan}[c+d\,x]\right)\Big/\left(d\,(1+\mathrm{Sec}[c+d\,x])^{7/6}\right)$$

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

Problem 271: Result optimal but 2 more steps used.

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

Optimal (type 5, 115 leaves, 4 steps):

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

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

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

Problem 276: Unable to integrate problem.

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

Optimal (type 6, 424 leaves, ? steps):

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

Result (type 8, 23 leaves, 0 steps):

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

Test results for the 365 problems in "4.5.1.4 (d tan)^n (a+b sec)^m.m"

Problem 207: Result valid but suboptimal antiderivative.

$$\int \frac{\text{Tan}[e+f\,x]^2}{(a+a\,\text{Sec}[e+f\,x])^{9/2}}\,dx$$

Optimal (type 3, 177 leaves, ? steps):

$$-\frac{2\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+f x]}{\sqrt{a+a\,\text{Sec}[e+f x]}}\right]}{a^{9/2} f}+\frac{91\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+f x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sec}[e+f x]}}\right]}{32\sqrt{2}\,a^{9/2} f}+\frac{\text{Tan}[e+f x]}{3 a f\,(a+a\,\text{Sec}[e+f x])^{7/2}}+\frac{11\,\text{Tan}[e+f x]}{24 a^2 f\,(a+a\,\text{Sec}[e+f x])^{5/2}}+\frac{27\,\text{Tan}[e+f x]}{32 a^3 f\,(a+a\,\text{Sec}[e+f x])^{3/2}}$$

Result (type 3, 227 leaves, 7 steps):

$$-\frac{2\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+f x]}{\sqrt{a+a\,\text{Sec}[e+f x]}}\right]}{a^{9/2} f}+\frac{91\,\text{ArcTan}\left[\frac{\sqrt{a}\,\text{Tan}[e+f x]}{\sqrt{2}\,\sqrt{a+a\,\text{Sec}[e+f x]}}\right]}{32\sqrt{2}\,a^{9/2} f}+\frac{27\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Sin}[e+f x]}{64 a^4 f\sqrt{a+a\,\text{Sec}[e+f x]}}+\frac{11\,\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^4\text{Sin}[e+f x]}{96 a^4 f\sqrt{a+a\,\text{Sec}[e+f x]}}+\frac{\text{Cos}[e+f x]^2\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^6\text{Sin}[e+f x]}{24 a^4 f\sqrt{a+a\,\text{Sec}[e+f x]}}$$

Problem 347: Unable to integrate problem.

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

Optimal (type 6, 266 leaves, ? steps):

$$\frac{1}{a f\,(1-n)}d\,\text{AppellF1}\left[1-n,\frac{1-n}{2},\frac{1-n}{2},2-n,\frac{a+b}{a+b\,\text{Sec}[e+f x]},\frac{a-b}{a+b\,\text{Sec}[e+f x]}\right]\left(-\frac{b\,(1-\text{Sec}[e+f x])}{a+b\,\text{Sec}[e+f x]}\right)^{\frac{1-n}{2}}\left(\frac{b\,(1+\text{Sec}[e+f x])}{a+b\,\text{Sec}[e+f x]}\right)^{\frac{1-n}{2}}(d\,\text{Tan}[e+f x])^{-1+n}\left(-\text{Tan}[e+f x]^2\right)^{\frac{1-n}{2}+\frac{1}{2}(-1+n)}-\frac{1}{a f\,(1+n)}d\,\text{Hypergeometric2F1}\left[1,\frac{1+n}{2},\frac{3+n}{2},-\text{Tan}[e+f x]^2\right](d\,\text{Tan}[e+f x])^{-1+n}\left(-\text{Tan}[e+f x]^2\right)^{\frac{1-n}{2}+\frac{1+n}{2}}$$

Result (type 8, 25 leaves, 0 steps):

$$\text{Unintegrable}\left[\frac{(d\,\text{Tan}[e+f x])^n}{a+b\,\text{Sec}[e+f x]},x\right]$$

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

Problem 217: Unable to integrate problem.

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

Optimal (type 4, 652 leaves, ? steps):

$$-\left(\left(\left(2\,c\,(c+d)\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{a\,(c+d)}{(a+b)\,c},\,\text{ArcSin}\left[\sqrt{\frac{(a+b)\,(c+d\,\text{Sec}[e+f\,x])}{(c+d)\,(a+b\,\text{Sec}[e+f\,x])}}\right],\right.\right.\right.\right.$$

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

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

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

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

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

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

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

$$\left(2\,(b\,c-a\,d)\,\text{Cot}[e+f\,x]\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{(a+b)\,(c+d\,\text{Sec}[e+f\,x])}{(c+d)\,(a+b\,\text{Sec}[e+f\,x])}}\right],\,\frac{(a-b)\,(c+d)}{(a+b)\,(c-d)}\right]\right.$$

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

$$\left.\sqrt{a+b\,\text{Sec}[e+f\,x]}\,\sqrt{c+d\,\text{Sec}[e+f\,x]}\right)\Big/\left(a\,b\,f\,\sqrt{\frac{(a+b)\,(c+d\,\text{Sec}[e+f\,x])}{(c+d)\,(a+b\,\text{Sec}[e+f\,x])}}\right)$$

Result (type 8, 31 leaves, 0 steps):

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

Test results for the 286 problems in "4.5.2.3 (g sec)^p (a+b sec)^m (c+d sec)^n.m"

Test results for the 634 problems in "4.5.3.1 (a+b sec)^m (d sec)^n

(A+B sec).m"

Test results for the 70 problems in "4.5.4.1 (a+b sec)^m (A+B sec+C sec^2).m"

Test results for the 1373 problems in "4.5.4.2 (a+b sec)^m (d sec)^n (A+B sec+C sec^2).m"

Test results for the 470 problems in "4.5.7 (d trig)^m (a+b (c sec)^n)^p.m"

Problem 132: Unable to integrate problem.

$$\int \left(a+b\,\text{Sec}[e+f\,x]^2\right)^p\,\left(d\,\text{Sin}[e+f\,x]\right)^m\,dx$$

Optimal (type 6, 123 leaves, ? steps):

$$\frac{1}{f\,(1+m)}\text{AppellF1}\left[\frac{1+m}{2},\frac{1}{2}+p,-p,\frac{3+m}{2},\text{Sin}[e+f\,x]^2,\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}\right]\left(\text{Cos}[e+f\,x]^2\right)^{\frac{1}{2}+p}$$
$$\left(a+b\,\text{Sec}[e+f\,x]^2\right)^p\,\left(d\,\text{Sin}[e+f\,x]\right)^m\,\left(\frac{a+b-a\,\text{Sin}[e+f\,x]^2}{a+b}\right)^{-p}\,\text{Tan}[e+f\,x]$$

Result (type 8, 27 leaves, 0 steps):

$$\text{Unintegrable}\left[\left(a+b\,\text{Sec}[e+f\,x]^2\right)^p\,\left(d\,\text{Sin}[e+f\,x]\right)^m,x\right]$$

Problem 228: Result valid but suboptimal antiderivative.

$$\int \text{Sec}[e+f\,x]^5\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,dx$$

Optimal (type 4, 372 leaves, 11 steps):

$$-\frac{1}{15\,b^2\,f}\left(2\,a^2-3\,a\,b-8\,b^2\right)\,\mathrm{Sin}[e+f\,x]\,\sqrt{\mathrm{Sec}[e+f\,x]^2\,\left(a+b-a\,\mathrm{Sin}[e+f\,x]^2\right)}\,+$$

$$\left(\left(2\,a^2-3\,a\,b-8\,b^2\right)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\,\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$

$$\left.\sqrt{\mathrm{Sec}[e+f\,x]^2\,\left(a+b-a\,\mathrm{Sin}[e+f\,x]^2\right)}\right)\Bigg/\left(15\,b^2\,f\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}\right)-$$

$$\left(\left(a-8\,b\right)\,\left(a+b\right)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$

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

$$\left(15\,b\,f\,\left(a+b-a\,\mathrm{Sin}[e+f\,x]^2\right)\right)+\frac{1}{15\,b\,f}\left(a+4\,b\right)\,\mathrm{Sec}[e+f\,x]$$

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

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

Result (type 4, 471 leaves, 11 steps) :

$$-\left(\left(\left(2a^2-3ab-8b^2\right)\sqrt{a+b\,\mathrm{Sec}[e+fx]^2}\,\mathrm{Sin}[e+fx]\sqrt{a+b-a\,\mathrm{Sin}[e+fx]^2}\right)\Big/\left(15b^2 f\sqrt{b+a\,\mathrm{Cos}[e+fx]^2}\right)\right)+$$

$$\left(\left(2a^2-3ab-8b^2\right)\sqrt{\mathrm{Cos}[e+fx]^2}\,\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+fx]],\frac{a}{a+b}\right]\sqrt{a+b\,\mathrm{Sec}[e+fx]^2}\sqrt{a+b-a\,\mathrm{Sin}[e+fx]^2}\right)\Big/\left(15b^2 f\sqrt{b+a\,\mathrm{Cos}[e+fx]^2}\sqrt{1-\frac{a\,\mathrm{Sin}[e+fx]^2}{a+b}}\right)-$$

$$\left((a-8b)(a+b)\sqrt{\mathrm{Cos}[e+fx]^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+fx]],\frac{a}{a+b}\right]\sqrt{a+b\,\mathrm{Sec}[e+fx]^2}\sqrt{1-\frac{a\,\mathrm{Sin}[e+fx]^2}{a+b}}\right)\Big/\left(15bf\sqrt{b+a\,\mathrm{Cos}[e+fx]^2}\sqrt{a+b-a\,\mathrm{Sin}[e+fx]^2}\right)+$$

$$\left((a+4b)\,\mathrm{Sec}[e+fx]\sqrt{a+b\,\mathrm{Sec}[e+fx]^2}\sqrt{a+b-a\,\mathrm{Sin}[e+fx]^2}\,\mathrm{Tan}[e+fx]\right)\Big/\left(15bf\sqrt{b+a\,\mathrm{Cos}[e+fx]^2}\right)+$$

$$\left(\mathrm{Sec}[e+fx]^3\sqrt{a+b\,\mathrm{Sec}[e+fx]^2}\sqrt{a+b-a\,\mathrm{Sin}[e+fx]^2}\,\mathrm{Tan}[e+fx]\right)\Big/\left(5f\sqrt{b+a\,\mathrm{Cos}[e+fx]^2}\right)$$

Problem 229: Result valid but suboptimal antiderivative.

$$\int \mathrm{Sec}[e+fx]^3\sqrt{a+b\,\mathrm{Sec}[e+fx]^2}\,dx$$

Optimal (type 4, 288 leaves, 10 steps):

$$\frac{(a+2b)\,\text{Sin}[e+fx]\,\sqrt{\text{Sec}[e+fx]^2\,(a+b-a\,\text{Sin}[e+fx]^2)}}{3bf}-$$

$$\left((a+2b)\,\sqrt{\text{Cos}[e+fx]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+fx]],\,\frac{a}{a+b}\right]\right.$$

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

$$\left(2\,(a+b)\,\sqrt{\text{Cos}[e+fx]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+fx]],\,\frac{a}{a+b}\right]\right.$$

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

$$\frac{\text{Sec}[e+fx]\,\sqrt{\text{Sec}[e+fx]^2\,(a+b-a\,\text{Sin}[e+fx]^2)}\,\text{Tan}[e+fx]}{3f}$$

Result (type 4, 364 leaves, 10 steps):

$$\frac{(a+2b)\,\sqrt{a+b\,\text{Sec}[e+fx]^2}\,\text{Sin}[e+fx]\,\sqrt{a+b-a\,\text{Sin}[e+fx]^2}}{3bf\,\sqrt{b+a\,\text{Cos}[e+fx]^2}}-$$

$$\left((a+2b)\,\sqrt{\text{Cos}[e+fx]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+fx]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+fx]^2}\right.$$

$$\left.\sqrt{a+b-a\,\text{Sin}[e+fx]^2}\right)\bigg/\left(3bf\,\sqrt{b+a\,\text{Cos}[e+fx]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+fx]^2}{a+b}}\right)+$$

$$\left(2\,(a+b)\,\sqrt{\text{Cos}[e+fx]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+fx]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+fx]^2}\right.$$

$$\left.\sqrt{1-\frac{a\,\text{Sin}[e+fx]^2}{a+b}}\right)\bigg/\left(3f\,\sqrt{b+a\,\text{Cos}[e+fx]^2}\,\sqrt{a+b-a\,\text{Sin}[e+fx]^2}\right)+$$

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

$$\left(3f\,\sqrt{b+a\,\text{Cos}[e+fx]^2}\right)$$

Problem 230: Result valid but suboptimal antiderivative.

$$\int \text{Sec}[e+fx]\,\sqrt{a+b\,\text{Sec}[e+fx]^2}\,dx$$

Optimal (type 4, 218 leaves, 10 steps):

$$\frac{\text{Sin}[e+f\,x]\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}}{f}-$$
$$\left(\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$
$$\left.\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\right)\Bigg/\left(f\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)+$$
$$\left((a+b)\,\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$
$$\left.\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Bigg/\left(f\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)\right)$$

Result (type 4, 271 leaves, 10 steps):

$$\frac{\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\;\text{Sin}[e+f\,x]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}{f\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}}-$$
$$\left(\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right.$$
$$\left.\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Bigg/\left(f\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)+$$
$$\left((a+b)\,\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right.$$
$$\left.\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Bigg/\left(f\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 231: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 80 leaves, 5 steps):

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

Result (type 4, 103 leaves, 5 steps):

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

Problem 232: Result valid but suboptimal antiderivative.

$$\int \text{Cos}[e+f x]^3\sqrt{a+b\,\text{Sec}[e+f x]^2}\,dx$$

Optimal (type 4, 246 leaves, 9 steps):

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

Result (type 4, 299 leaves, 9 steps):

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

Problem 233: Result valid but suboptimal antiderivative.

$$\int \text{Cos}[e+f x]^5 \sqrt{a+b\,\text{Sec}[e+f x]^2}\, dx$$

Optimal (type 4, 338 leaves, 10 steps):

$$\frac{1}{15\,a\,f}2\,(2\,a-b)\,\text{Cos}[e+f x]^2\,\text{Sin}[e+f x]\,\sqrt{\text{Sec}[e+f x]^2\,(a+b-a\,\text{Sin}[e+f x]^2)}+\frac{1}{5\,a\,f}\text{Cos}[e+f x]^2\,\text{Sin}[e+f x]\,(a+b-a\,\text{Sin}[e+f x]^2)\,\sqrt{\text{Sec}[e+f x]^2\,(a+b-a\,\text{Sin}[e+f x]^2)}+\left((8\,a^2+3\,a\,b-2\,b^2)\,\sqrt{\text{Cos}[e+f x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right]\sqrt{\text{Sec}[e+f x]^2\,(a+b-a\,\text{Sin}[e+f x]^2)}\right)\Big/\left(15\,a^2\,f\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)-\left(2\,(2\,a-b)\,b\,(a+b)\,\sqrt{\text{Cos}[e+f x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right]\sqrt{\text{Sec}[e+f x]^2\,(a+b-a\,\text{Sin}[e+f x]^2)}\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)\Big/\left(15\,a^2\,f\,(a+b-a\,\text{Sin}[e+f x]^2)\right)$$

Result (type 4, 400 leaves, 10 steps):

$$\left(2\,(2\,a-b)\,\text{Cos}[e+f x]^2\,\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\text{Sin}[e+f x]\,\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)\Big/\left(15\,a\,f\,\sqrt{b+a\,\text{Cos}[e+f x]^2}\right)+\left(\text{Cos}[e+f x]^2\,\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\text{Sin}[e+f x]\,(a+b-a\,\text{Sin}[e+f x]^2)^{3/2}\right)\Big/\left(5\,a\,f\,\sqrt{b+a\,\text{Cos}[e+f x]^2}\right)+\left((8\,a^2+3\,a\,b-2\,b^2)\,\sqrt{\text{Cos}[e+f x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)\Big/\left(15\,a^2\,f\,\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)-\left(2\,(2\,a-b)\,b\,(a+b)\,\sqrt{\text{Cos}[e+f x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)\Big/\left(15\,a^2\,f\,\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)$$

Problem 241: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 450 leaves, 12 steps):

$$-\frac{1}{35 b^2 f}2 (a+2 b) \left(a^2-4 a b-4 b^2\right) \text{Sin}[e+f x] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a\,\text{Sin}[e+f x]^2\right)}+\left(2 (a+2 b) \left(a^2-4 a b-4 b^2\right) \sqrt{\text{Cos}[e+f x]^2}\ \text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a\,\text{Sin}[e+f x]^2\right)}\right)\Big/\left(35 b^2 f \sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)-\left((a+b) \left(a^2-16 a b-16 b^2\right) \sqrt{\text{Cos}[e+f x]^2}\ \text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a\,\text{Sin}[e+f x]^2\right)} \sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)\Big/\left(35 b f \left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)+\frac{1}{35 b f}\left(a^2+11 a b+8 b^2\right) \text{Sec}[e+f x] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a\,\text{Sin}[e+f x]^2\right)}\ \text{Tan}[e+f x]+\frac{1}{35 f}2 (4 a+3 b) \text{Sec}[e+f x]^3 \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a\,\text{Sin}[e+f x]^2\right)}\ \text{Tan}[e+f x]+\frac{b\,\text{Sec}[e+f x]^5 \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a\,\text{Sin}[e+f x]^2\right)}\ \text{Tan}[e+f x]}{7 f}$$

Result (type 4, 572 leaves, 12 steps):

$$-\left(\left(2\,(a+2\,b)\,\left(a^2-4\,a\,b-4\,b^2\right)\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\;\mathrm{Sin}[e+f\,x]\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\right)\Big/\left(35\,b^2\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\right)\right)+$$

$$\left(2\,(a+2\,b)\,\left(a^2-4\,a\,b-4\,b^2\right)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\;\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\right)\Big/$$

$$\left(35\,b^2\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}\right)-$$

$$\left((a+b)\,\left(a^2-16\,a\,b-16\,b^2\right)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$

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

$$\left(35\,b\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\right)+$$

$$\left(\left(a^2+11\,a\,b+8\,b^2\right)\,\mathrm{Sec}[e+f\,x]\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\;\mathrm{Tan}[e+f\,x]\right)\Big/$$

$$\left(35\,b\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\right)+$$

$$\left(2\,(4\,a+3\,b)\,\mathrm{Sec}[e+f\,x]^3\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\;\mathrm{Tan}[e+f\,x]\right)\Big/$$

$$\left(35\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\right)+$$

$$\left(b\,\mathrm{Sec}[e+f\,x]^5\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\;\mathrm{Tan}[e+f\,x]\right)\Big/$$

$$\left(7\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\right)$$

Problem 242: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 371 leaves, 11 steps):

$$\frac{1}{15\,b\,f}\left(3\,a^2+13\,a\,b+8\,b^2\right)\,\text{Sin}[e+f\,x]\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\,-$$

$$\left(\left(3\,a^2+13\,a\,b+8\,b^2\right)\,\sqrt{\text{Cos}[e+f\,x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$

$$\left.\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\right)\Big/\left(15\,b\,f\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)+$$

$$\left((a+b)\,(9\,a+8\,b)\,\sqrt{\text{Cos}[e+f\,x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$

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

$$\left(15\,f\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)\right)+\frac{1}{15\,f}2\,(3\,a+2\,b)\,\text{Sec}[e+f\,x]$$

$$\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\,\text{Tan}[e+f\,x]+$$

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

Result (type 4, 470 leaves, 11 steps):

$$\left(\left(3 a^2+13 a b+8 b^2\right) \sqrt{a+b \operatorname{Sec}[e+f x]^2} \operatorname{Sin}[e+f x] \sqrt{a+b-a \operatorname{Sin}[e+f x]^2}\right) \Big/ \left(15 b f \sqrt{b+a \operatorname{Cos}[e+f x]^2}\right) - \left(\left(3 a^2+13 a b+8 b^2\right) \sqrt{\operatorname{Cos}[e+f x]^2} \operatorname{EllipticE}\left[\operatorname{ArcSin}[\operatorname{Sin}[e+f x]], \frac{a}{a+b}\right] \sqrt{a+b \operatorname{Sec}[e+f x]^2} \sqrt{a+b-a \operatorname{Sin}[e+f x]^2}\right) \Big/ \left(15 b f \sqrt{b+a \operatorname{Cos}[e+f x]^2} \sqrt{1-\frac{a \operatorname{Sin}[e+f x]^2}{a+b}}\right) + \left((a+b)(9 a+8 b) \sqrt{\operatorname{Cos}[e+f x]^2} \operatorname{EllipticF}\left[\operatorname{ArcSin}[\operatorname{Sin}[e+f x]], \frac{a}{a+b}\right] \sqrt{a+b \operatorname{Sec}[e+f x]^2} \sqrt{1-\frac{a \operatorname{Sin}[e+f x]^2}{a+b}}\right) \Big/ \left(15 f \sqrt{b+a \operatorname{Cos}[e+f x]^2} \sqrt{a+b-a \operatorname{Sin}[e+f x]^2}\right) + \left(2 (3 a+2 b) \operatorname{Sec}[e+f x] \sqrt{a+b \operatorname{Sec}[e+f x]^2} \sqrt{a+b-a \operatorname{Sin}[e+f x]^2} \operatorname{Tan}[e+f x]\right) \Big/ \left(15 f \sqrt{b+a \operatorname{Cos}[e+f x]^2}\right) + \left(b \operatorname{Sec}[e+f x]^3 \sqrt{a+b \operatorname{Sec}[e+f x]^2} \sqrt{a+b-a \operatorname{Sin}[e+f x]^2} \operatorname{Tan}[e+f x]\right) \Big/ \left(5 f \sqrt{b+a \operatorname{Cos}[e+f x]^2}\right)$$

Problem 243: Result valid but suboptimal antiderivative.

$$\int \operatorname{Sec}[e+f x] \left(a+b \operatorname{Sec}[e+f x]^2\right)^{3/2} dx$$

Optimal (type 4, 290 leaves, 10 steps) :

$$\frac{2\,(2a+b)\,\mathrm{Sin}[e+f x]\,\sqrt{\mathrm{Sec}[e+f x]^2\,(a+b-a\,\mathrm{Sin}[e+f x]^2)}}{3 f}-$$

$$\left(2\,(2a+b)\,\sqrt{\mathrm{Cos}[e+f x]^2}\ \mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f x]],\frac{a}{a+b}\right]\right.$$

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

$$\left((a+b)\,(3a+2b)\,\sqrt{\mathrm{Cos}[e+f x]^2}\ \mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f x]],\frac{a}{a+b}\right]\right.$$

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

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

Result (type 4, 366 leaves, 10 steps):

$$\frac{2\,(2a+b)\,\sqrt{a+b\,\mathrm{Sec}[e+f x]^2}\ \mathrm{Sin}[e+f x]\,\sqrt{a+b-a\,\mathrm{Sin}[e+f x]^2}}{3 f\,\sqrt{b+a\,\mathrm{Cos}[e+f x]^2}}-$$

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

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

$$\left((a+b)\,(3a+2b)\,\sqrt{\mathrm{Cos}[e+f x]^2}\ \mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f x]],\frac{a}{a+b}\right]\sqrt{a+b\,\mathrm{Sec}[e+f x]^2}\right.$$

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

$$\left(b\,\mathrm{Sec}[e+f x]\,\sqrt{a+b\,\mathrm{Sec}[e+f x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f x]^2}\ \mathrm{Tan}[e+f x]\right)\Big/$$

$$\left(3 f\,\sqrt{b+a\,\mathrm{Cos}[e+f x]^2}\right)$$

Problem 244: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 224 leaves, 9 steps):

$$\frac{b\,\text{Sin}[e+f\,x]\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}}{f}+$$
$$\left(\left(a-b\right)\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$
$$\left.\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\right)\Big/\left(f\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)+$$
$$\left(b\,\left(a+b\right)\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$
$$\left.\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/\left(f\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)\right)$$

Result (type 4, 277 leaves, 9 steps):

$$\frac{b\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\;\text{Sin}[e+f\,x]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}{f\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}}+$$
$$\left(\left(a-b\right)\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right.$$
$$\left.\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/\left(f\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)+$$
$$\left(b\,\left(a+b\right)\sqrt{\text{Cos}[e+f\,x]^2}\;\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right.$$
$$\left.\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/\left(f\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 245: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 241 leaves, 9 steps):

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

$$\left(2\,(a+2\,b)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\;\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$

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

$$\left(b\,(a+b)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$

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

Result (type 4, 294 leaves, 9 steps):

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

$$\left(3\,f\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\right)+$$

$$\left(2\,(a+2\,b)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\;\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\right.$$

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

$$\left(b\,(a+b)\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\right.$$

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

Problem 246: Result valid but suboptimal antiderivative.

$$\int \mathrm{Cos}[e+f\,x]^5\,\left(a+b\,\mathrm{Sec}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 4, 319 leaves, 10 steps):

$$-\frac{1}{15 f}2 \left(a-3 (a+b)\right) \text{Cos}[e+f x]^2 \text{Sin}[e+f x] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a \text{Sin}[e+f x]^2\right)}+\frac{a \text{Cos}[e+f x]^4 \text{Sin}[e+f x] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a \text{Sin}[e+f x]^2\right)}}{5 f}+\left(\left(8 a^2+13 a b+3 b^2\right) \sqrt{\text{Cos}[e+f x]^2} \text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a \text{Sin}[e+f x]^2\right)}\right)\Bigg/\left(15 a f \sqrt{1-\frac{a \text{Sin}[e+f x]^2}{a+b}}\right)-\left(b (a+b) (4 a+3 b) \sqrt{\text{Cos}[e+f x]^2} \text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a \text{Sin}[e+f x]^2\right)} \sqrt{1-\frac{a \text{Sin}[e+f x]^2}{a+b}}\right)\Bigg/\left(15 a f \left(a+b-a \text{Sin}[e+f x]^2\right)\right)$$

Result (type 4, 395 leaves, 10 steps):

$$-\left(\left(2 \left(a-3 (a+b)\right) \text{Cos}[e+f x]^2 \sqrt{a+b \text{Sec}[e+f x]^2} \text{Sin}[e+f x] \sqrt{a+b-a \text{Sin}[e+f x]^2}\right)\Bigg/\left(15 f \sqrt{b+a \text{Cos}[e+f x]^2}\right)\right)+\left(a \text{Cos}[e+f x]^4 \sqrt{a+b \text{Sec}[e+f x]^2} \text{Sin}[e+f x] \sqrt{a+b-a \text{Sin}[e+f x]^2}\right)\Bigg/\left(5 f \sqrt{b+a \text{Cos}[e+f x]^2}\right)+\left(\left(8 a^2+13 a b+3 b^2\right) \sqrt{\text{Cos}[e+f x]^2} \text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{a+b \text{Sec}[e+f x]^2} \sqrt{a+b-a \text{Sin}[e+f x]^2}\right)\Bigg/\left(15 a f \sqrt{b+a \text{Cos}[e+f x]^2} \sqrt{1-\frac{a \text{Sin}[e+f x]^2}{a+b}}\right)-\left(b (a+b) (4 a+3 b) \sqrt{\text{Cos}[e+f x]^2} \text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{a+b \text{Sec}[e+f x]^2} \sqrt{1-\frac{a \text{Sin}[e+f x]^2}{a+b}}\right)\Bigg/\left(15 a f \sqrt{b+a \text{Cos}[e+f x]^2} \sqrt{a+b-a \text{Sin}[e+f x]^2}\right)$$

Problem 257: Result valid but suboptimal antiderivative.

$$\int \frac{\text{Sec}[e+f x]^5}{\sqrt{a+b \text{Sec}[e+f x]^2}} \, dx$$

Optimal (type 4, 330 leaves, 10 steps):

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

Result (type 4, 380 leaves, 10 steps):

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

Problem 258: Result valid but suboptimal antiderivative.

$$\int\frac{\text{Sec}[e+f\,x]^3}{\sqrt{a+b\,\text{Sec}[e+f\,x]^2}}\,dx$$

Optimal (type 4, 170 leaves, 7 steps):

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

Result (type 4, 202 leaves, 7 steps):

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

Problem 259: Result valid but suboptimal antiderivative.

$$\int\frac{\text{Sec}[e+f\,x]}{\sqrt{a+b\,\text{Sec}[e+f\,x]^2}}\,dx$$

Optimal (type 4, 80 leaves, 5 steps):

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

Result (type 4, 103 leaves, 5 steps):

$$\left(\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\;\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\frac{a}{a+b}\right]\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/\left(f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 260: Result valid but suboptimal antiderivative.

$$\int \frac{\text{Cos}[e+f x]}{\sqrt{a+b\,\text{Sec}[e+f x]^2}}\,dx$$

Optimal (type 4, 105 leaves, 5 steps):

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

Result (type 4, 128 leaves, 5 steps):

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

Problem 261: Result valid but suboptimal antiderivative.

$$\int \frac{\text{Cos}[e+f x]^3}{\sqrt{a+b\,\text{Sec}[e+f x]^2}}\,dx$$

Optimal (type 4, 255 leaves, 9 steps):

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

Result (type 4, 296 leaves, 9 steps):

$$\frac{\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\;\text{Sin}[e+f\,x]\;\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}{3\,a\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}}+$$
$$\left(2\,(a-b)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\;\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/$$
$$\left(3\,a^2\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\;\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\;\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\left((a-2\,b)\,b\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\;\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/$$
$$\left(3\,a^2\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\;\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\;\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 262: Result valid but suboptimal antiderivative.

$$\int \frac{\text{Cos}[e+f\,x]^5}{\sqrt{a+b\,\text{Sec}[e+f\,x]^2}}\,dx$$

Optimal (type 4, 345 leaves, 10 steps):

$$\frac{4\,(a-b)\,\text{Sin}[e+f\,x]\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}{15\,a^2\,f\,\sqrt{\text{Sec}[e+f\,x]^2}\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}+\frac{\text{Cos}[e+f\,x]^2\,\text{Sin}[e+f\,x]\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}{5\,a\,f\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}}+$$
$$\left(\left(8\,a^2-7\,a\,b+8\,b^2\right)\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)\right)\Big/$$
$$\left(15\,a^3\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\;\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\;\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\left(b\,\left(4\,a^2-3\,a\,b+8\,b^2\right)\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/$$
$$\left(15\,a^3\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\;\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\right)$$

Result (type 4, 395 leaves, 10 steps):

$$\frac{4\,(a-b)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}{15\,a^2\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}}+$$

$$\left(\text{Cos}[e+f\,x]^2\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/$$
$$\left(5\,a\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right)+\left(\left(8\,a^2-7\,a\,b+8\,b^2\right)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\right.$$
$$\left.\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/$$
$$\left(15\,a^3\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\left(b\,\left(4\,a^2-3\,a\,b+8\,b^2\right)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\right.$$
$$\left.\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/\left(15\,a^3\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 270: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 289 leaves, 10 steps):

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

Result (type 4, 367 leaves, 10 steps):

$$\frac{a\,(2\,a+b)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]}{b^2\,(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}-$$

$$\left((2\,a+b)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/$$

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

$$\left(\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/$$

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

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

Problem 271: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 150 leaves, 7 steps):

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

$$\left(\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)\right)\Big/$$

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

Result (type 4, 182 leaves, 7 steps):

$$-\frac{a\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]}{b\,(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}+$$

$$\left(\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/$$

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

Problem 272: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 229 leaves, 9 steps):

$$\frac{\text{Sin}[e+f x]}{(a+b)\,f\,\sqrt{\text{Sec}[e+f x]^2\,\left(a+b-a\,\text{Sin}[e+f x]^2\right)}}-\left(\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\,\frac{a}{a+b}\right]\,\left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)\Big/\left(a\,(a+b)\,f\,\sqrt{\text{Cos}[e+f x]^2}\,\sqrt{\text{Sec}[e+f x]^2\,\left(a+b-a\,\text{Sin}[e+f x]^2\right)}\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)+\frac{\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}}{a\,f\,\sqrt{\text{Cos}[e+f x]^2}\,\sqrt{\text{Sec}[e+f x]^2\,\left(a+b-a\,\text{Sin}[e+f x]^2\right)}}$$

Result (type 4, 284 leaves, 9 steps):

$$\frac{\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{Sin}[e+f x]}{(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f x]^2}}-\left(\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\,\frac{a}{a+b}\right]\,\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)\Big/\left(a\,(a+b)\,f\,\sqrt{\text{Cos}[e+f x]^2}\,\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)+\left(\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)\Big/\left(a\,f\,\sqrt{\text{Cos}[e+f x]^2}\,\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)$$

Problem 273: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 240 leaves, 9 steps):

$$-\frac{b\,\mathrm{Sin}[e+f\,x]}{a\,(a+b)\,f\,\sqrt{\mathrm{Sec}[e+f\,x]^2\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)}}+$$
$$\left((a+2\,b)\,\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)\right)\Big/$$
$$\left(a^2\,(a+b)\,f\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\,\sqrt{\mathrm{Sec}[e+f\,x]^2\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)}\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\frac{2\,b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}}{a^2\,f\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\,\sqrt{\mathrm{Sec}[e+f\,x]^2\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)}}$$

Result (type 4, 295 leaves, 9 steps):

$$-\frac{b\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sin}[e+f\,x]}{a\,(a+b)\,f\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}}+$$
$$\left((a+2\,b)\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\right)\Big/$$
$$\left(a^2\,(a+b)\,f\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\left(2\,b\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}\right)\Big/$$
$$\left(a^2\,f\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\right)$$

Problem 274: Result valid but suboptimal antiderivative.

$$\int\frac{\mathrm{Cos}[e+f\,x]^3}{(a+b\,\mathrm{Sec}[e+f\,x]^2)^{3/2}}\,dx$$

Optimal (type 4, 335 leaves, 10 steps):

$$-\frac{b \operatorname{Cos}[e+f x]^2 \operatorname{Sin}[e+f x]}{a (a+b) f \sqrt{\operatorname{Sec}[e+f x]^2 \left(a+b-a \operatorname{Sin}[e+f x]^2\right)}}+\frac{(a+4 b) \operatorname{Sin}[e+f x] \left(a+b-a \operatorname{Sin}[e+f x]^2\right)}{3 a^2 (a+b) f \sqrt{\operatorname{Sec}[e+f x]^2 \left(a+b-a \operatorname{Sin}[e+f x]^2\right)}}+\left(\left(2 a^2-3 a b-8 b^2\right) \operatorname{EllipticE}\left[\operatorname{ArcSin}[\operatorname{Sin}[e+f x]], \frac{a}{a+b}\right] \left(a+b-a \operatorname{Sin}[e+f x]^2\right)\right) \Big/ \left(3 a^3 (a+b) f \sqrt{\operatorname{Cos}[e+f x]^2} \sqrt{\operatorname{Sec}[e+f x]^2 \left(a+b-a \operatorname{Sin}[e+f x]^2\right)} \sqrt{1-\frac{a \operatorname{Sin}[e+f x]^2}{a+b}}\right)-\frac{(a-8 b) b \operatorname{EllipticF}\left[\operatorname{ArcSin}[\operatorname{Sin}[e+f x]], \frac{a}{a+b}\right] \sqrt{1-\frac{a \operatorname{Sin}[e+f x]^2}{a+b}}}{3 a^3 f \sqrt{\operatorname{Cos}[e+f x]^2} \sqrt{\operatorname{Sec}[e+f x]^2 \left(a+b-a \operatorname{Sin}[e+f x]^2\right)}}$$

Result (type 4, 399 leaves, 10 steps):

$$-\frac{b \operatorname{Cos}[e+f x]^2 \sqrt{b+a \operatorname{Cos}[e+f x]^2} \operatorname{Sin}[e+f x]}{a (a+b) f \sqrt{a+b \operatorname{Sec}[e+f x]^2} \sqrt{a+b-a \operatorname{Sin}[e+f x]^2}}+\frac{(a+4 b) \sqrt{b+a \operatorname{Cos}[e+f x]^2} \operatorname{Sin}[e+f x] \sqrt{a+b-a \operatorname{Sin}[e+f x]^2}}{3 a^2 (a+b) f \sqrt{a+b \operatorname{Sec}[e+f x]^2}}+\left(\left(2 a^2-3 a b-8 b^2\right) \sqrt{b+a \operatorname{Cos}[e+f x]^2} \operatorname{EllipticE}\left[\operatorname{ArcSin}[\operatorname{Sin}[e+f x]], \frac{a}{a+b}\right] \sqrt{a+b-a \operatorname{Sin}[e+f x]^2}\right) \Big/ \left(3 a^3 (a+b) f \sqrt{\operatorname{Cos}[e+f x]^2} \sqrt{a+b \operatorname{Sec}[e+f x]^2} \sqrt{1-\frac{a \operatorname{Sin}[e+f x]^2}{a+b}}\right)-\left((a-8 b) b \sqrt{b+a \operatorname{Cos}[e+f x]^2} \operatorname{EllipticF}\left[\operatorname{ArcSin}[\operatorname{Sin}[e+f x]], \frac{a}{a+b}\right] \sqrt{1-\frac{a \operatorname{Sin}[e+f x]^2}{a+b}}\right) \Big/ \left(3 a^3 f \sqrt{\operatorname{Cos}[e+f x]^2} \sqrt{a+b \operatorname{Sec}[e+f x]^2} \sqrt{a+b-a \operatorname{Sin}[e+f x]^2}\right)$$

Problem 275: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 436 leaves, 11 steps):

$$-\frac{b\,\text{Cos}[e+f\,x]^4\,\text{Sin}[e+f\,x]}{a\,(a+b)\,f\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}}+\frac{\left(4\,a^2-5\,a\,b-24\,b^2\right)\,\text{Sin}[e+f\,x]\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}{15\,a^3\,(a+b)\,f\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}}+\frac{(a+6\,b)\,\text{Cos}[e+f\,x]^2\,\text{Sin}[e+f\,x]\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}{5\,a^2\,(a+b)\,f\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}}+\left(\left(8\,a^3-9\,a^2\,b+16\,a\,b^2+48\,b^3\right)\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)\right)\Big/\left(15\,a^4\,(a+b)\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-\left(4\,b\,\left(a^2-2\,a\,b+12\,b^2\right)\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/\left(15\,a^4\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{\text{Sec}[e+f\,x]^2\,\left(a+b-a\,\text{Sin}[e+f\,x]^2\right)}\right)$$

Result (type 4, 509 leaves, 11 steps):

$$-\frac{b\,\text{Cos}[e+f\,x]^4\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]}{a\,(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}+\left(\left(4\,a^2-5\,a\,b-24\,b^2\right)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/\left(15\,a^3\,(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right)+\left((a+6\,b)\,\text{Cos}[e+f\,x]^2\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/\left(5\,a^2\,(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right)+\left(\left(8\,a^3-9\,a^2\,b+16\,a\,b^2+48\,b^3\right)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/\left(15\,a^4\,(a+b)\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-\left(4\,b\,\left(a^2-2\,a\,b+12\,b^2\right)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/\left(15\,a^4\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 283: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 321 leaves, 10 steps):

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

Result (type 4, 383 leaves, 10 steps):

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

Problem 284: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 319 leaves, 10 steps):

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

$$\left((a-b)\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right]\left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)\Big/$$

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

$$\frac{\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}}{3 a (a+b) f \sqrt{\text{Cos}[e+f x]^2} \sqrt{\text{Sec}[e+f x]^2 \left(a+b-a\,\text{Sin}[e+f x]^2\right)}}$$

Result (type 4, 381 leaves, 10 steps):

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

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

$$\left((a-b) \sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)\Big/$$

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

$$\left(\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)\Big/$$

$$\left(3 a (a+b) f \sqrt{\text{Cos}[e+f x]^2} \sqrt{a+b\,\text{Sec}[e+f x]^2} \sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)$$

Problem 285: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 327 leaves, 10 steps):

$$\frac{2\,(2\,a+b)\,\mathrm{Sin}[e+f\,x]}{3\,a\,(a+b)^2\,f\,\sqrt{\mathrm{Sec}[e+f\,x]^2\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)}} -$$

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

$$\left(2\,(2\,a+b)\,\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)\right)\Big/$$

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

$$\frac{(3\,a+2\,b)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}}{3\,a^2\,(a+b)\,f\,\sqrt{\mathrm{Cos}[e+f\,x]^2}\,\sqrt{\mathrm{Sec}[e+f\,x]^2\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)}}$$

Result (type 4, 389 leaves, 10 steps):

$$-\frac{b\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sin}[e+f\,x]}{3\,a\,(a+b)\,f\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,(a+b-a\,\mathrm{Sin}[e+f\,x]^2)^{3/2}} +$$

$$\frac{2\,(2\,a+b)\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sin}[e+f\,x]}{3\,a\,(a+b)^2\,f\,\sqrt{a+b\,\mathrm{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}} - \Bigg(2\,(2\,a+b)$$

$$\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,\sqrt{a+b-a\,\mathrm{Sin}[e+f\,x]^2}\Bigg)\Big/$$

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

$$\left((3\,a+2\,b)\,\sqrt{b+a\,\mathrm{Cos}[e+f\,x]^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f\,x]],\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\mathrm{Sin}[e+f\,x]^2}{a+b}}\right)\Big/$$

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

Problem 286: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 349 leaves, 10 steps):

$$-\frac{2\,b\,(3\,a+2\,b)\,\text{Sin}[e+f\,x]}{3\,a^2\,(a+b)^2\,f\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}}-\left(b\,\text{Cos}[e+f\,x]^2\,\text{Sin}[e+f\,x]\right)\Big/$$
$$\left(3\,a\,(a+b)\,f\,(a+b-a\,\text{Sin}[e+f\,x]^2)\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}\right)+$$
$$\left((3\,a^2+13\,a\,b+8\,b^2)\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,(a+b-a\,\text{Sin}[e+f\,x]^2)\right)\Big/$$
$$\left(3\,a^3\,(a+b)^2\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\frac{b\,(9\,a+8\,b)\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}}{3\,a^3\,(a+b)\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}}$$

Result (type 4, 411 leaves, 10 steps):

$$-\frac{b\,\text{Cos}[e+f\,x]^2\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]}{3\,a\,(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,(a+b-a\,\text{Sin}[e+f\,x]^2)^{3/2}}-$$
$$\frac{2\,b\,(3\,a+2\,b)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]}{3\,a^2\,(a+b)^2\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}+$$
$$\left((3\,a^2+13\,a\,b+8\,b^2)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\right.$$
$$\left.\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/$$
$$\left(3\,a^3\,(a+b)^2\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-\left(b\,(9\,a+8\,b)\right.$$
$$\left.\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/$$
$$\left(3\,a^3\,(a+b)\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 287: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 441 leaves, 11 steps):

$$-\frac{2\,b\,(4\,a+3\,b)\,\text{Cos}[e+f\,x]^2\,\text{Sin}[e+f\,x]}{3\,a^2\,(a+b)^2\,f\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}}-(b\,\text{Cos}[e+f\,x]^4\,\text{Sin}[e+f\,x])\Big/$$
$$\left(3\,a\,(a+b)\,f\,(a+b-a\,\text{Sin}[e+f\,x]^2)\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}\right)+$$
$$\frac{(a^2+11\,a\,b+8\,b^2)\,\text{Sin}[e+f\,x]\,(a+b-a\,\text{Sin}[e+f\,x]^2)}{3\,a^3\,(a+b)^2\,f\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}}+$$
$$\left(2\,(a+2\,b)\,(a^2-4\,a\,b-4\,b^2)\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,(a+b-a\,\text{Sin}[e+f\,x]^2)\right)\Big/$$
$$\left(3\,a^4\,(a+b)^2\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\left(b\,(a^2-16\,a\,b-16\,b^2)\,\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)\Big/$$
$$\left(3\,a^4\,(a+b)\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{\text{Sec}[e+f\,x]^2\,(a+b-a\,\text{Sin}[e+f\,x]^2)}\right)$$

Result (type 4, 512 leaves, 11 steps):

$$-\frac{b\,\text{Cos}[e+f\,x]^4\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]}{3\,a\,(a+b)\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,(a+b-a\,\text{Sin}[e+f\,x]^2)^{3/2}}-$$
$$\frac{2\,b\,(4\,a+3\,b)\,\text{Cos}[e+f\,x]^2\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]}{3\,a^2\,(a+b)^2\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}}+$$
$$\left((a^2+11\,a\,b+8\,b^2)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}\,\text{Sin}[e+f\,x]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)\Big/$$
$$\left(3\,a^3\,(a+b)^2\,f\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\right)+\Bigg(2\,(a+2\,b)\,(a^2-4\,a\,b-4\,b^2)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}$$
$$\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\Bigg)\Big/$$
$$\left(3\,a^4\,(a+b)^2\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\right)-$$
$$\Bigg(b\,(a^2-16\,a\,b-16\,b^2)\,\sqrt{b+a\,\text{Cos}[e+f\,x]^2}$$
$$\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f\,x]],\,\frac{a}{a+b}\right]\,\sqrt{1-\frac{a\,\text{Sin}[e+f\,x]^2}{a+b}}\Bigg)\Big/$$
$$\left(3\,a^4\,(a+b)\,f\,\sqrt{\text{Cos}[e+f\,x]^2}\,\sqrt{a+b\,\text{Sec}[e+f\,x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f\,x]^2}\right)$$

Problem 288: Result valid but suboptimal antiderivative.

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

Optimal (type 4, 559 leaves, 12 steps):

$$-\frac{2 b (5 a+4 b) \mathrm{Cos}[e+f x]^4 \mathrm{Sin}[e+f x]}{3 a^2 (a+b)^2 f \sqrt{\mathrm{Sec}[e+f x]^2 \left(a+b-a \mathrm{Sin}[e+f x]^2\right)}}-\left(b \mathrm{Cos}[e+f x]^6 \mathrm{Sin}[e+f x]\right)\Big/$$
$$\left(3 a (a+b) f \left(a+b-a \mathrm{Sin}[e+f x]^2\right) \sqrt{\mathrm{Sec}[e+f x]^2 \left(a+b-a \mathrm{Sin}[e+f x]^2\right)}\right)+$$
$$\frac{2 \left(2 a^3-3 a^2 b-42 a b^2-32 b^3\right) \mathrm{Sin}[e+f x] \left(a+b-a \mathrm{Sin}[e+f x]^2\right)}{15 a^4 (a+b)^2 f \sqrt{\mathrm{Sec}[e+f x]^2 \left(a+b-a \mathrm{Sin}[e+f x]^2\right)}}+$$
$$\left(\left(3 a^2+61 a b+48 b^2\right) \mathrm{Cos}[e+f x]^2 \mathrm{Sin}[e+f x] \left(a+b-a \mathrm{Sin}[e+f x]^2\right)\right)\Big/$$
$$\left(15 a^3 (a+b)^2 f \sqrt{\mathrm{Sec}[e+f x]^2 \left(a+b-a \mathrm{Sin}[e+f x]^2\right)}\right)+$$
$$\left(\left(8 a^4-11 a^3 b+27 a^2 b^2+184 a b^3+128 b^4\right)\right.$$
$$\left.\mathrm{EllipticE}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f x]],\frac{a}{a+b}\right] \left(a+b-a \mathrm{Sin}[e+f x]^2\right)\right)\Big/$$
$$\left(15 a^5 (a+b)^2 f \sqrt{\mathrm{Cos}[e+f x]^2} \sqrt{\mathrm{Sec}[e+f x]^2 \left(a+b-a \mathrm{Sin}[e+f x]^2\right)} \sqrt{1-\frac{a \mathrm{Sin}[e+f x]^2}{a+b}}\right)-$$
$$\left(b \left(4 a^3-9 a^2 b+120 a b^2+128 b^3\right)\right.$$
$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}[\mathrm{Sin}[e+f x]],\frac{a}{a+b}\right] \sqrt{1-\frac{a \mathrm{Sin}[e+f x]^2}{a+b}}\right)\Big/$$
$$\left(15 a^5 (a+b) f \sqrt{\mathrm{Cos}[e+f x]^2} \sqrt{\mathrm{Sec}[e+f x]^2 \left(a+b-a \mathrm{Sin}[e+f x]^2\right)}\right)$$

Result (type 4, 639 leaves, 12 steps):

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

$$\left(2\left(2\,a^3-3\,a^2\,b-42\,a\,b^2-32\,b^3\right)\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{Sin}[e+f x]\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)\Big/$$
$$\left(15\,a^4\,(a+b)^2\,f\sqrt{a+b\,\text{Sec}[e+f x]^2}\right)+$$
$$\left(\left(3\,a^2+61\,a\,b+48\,b^2\right)\text{Cos}[e+f x]^2\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{Sin}[e+f x]\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)\Big/$$
$$\left(15\,a^3\,(a+b)^2\,f\sqrt{a+b\,\text{Sec}[e+f x]^2}\right)+\Bigg(\left(8\,a^4-11\,a^3\,b+27\,a^2\,b^2+184\,a\,b^3+128\,b^4\right)$$
$$\sqrt{b+a\,\text{Cos}[e+f x]^2}\,\text{EllipticE}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right]\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\Bigg)\Big/$$
$$\left(15\,a^5\,(a+b)^2\,f\sqrt{\text{Cos}[e+f x]^2}\,\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\right)-$$
$$\Bigg(b\left(4\,a^3-9\,a^2\,b+120\,a\,b^2+128\,b^3\right)\sqrt{b+a\,\text{Cos}[e+f x]^2}$$
$$\text{EllipticF}\left[\text{ArcSin}[\text{Sin}[e+f x]],\frac{a}{a+b}\right]\sqrt{1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}}\Bigg)\Big/$$
$$\left(15\,a^5\,(a+b)\,f\sqrt{\text{Cos}[e+f x]^2}\,\sqrt{a+b\,\text{Sec}[e+f x]^2}\,\sqrt{a+b-a\,\text{Sin}[e+f x]^2}\right)$$

Problem 298: Unable to integrate problem.

$$\int(d\,\text{Sec}[e+f x])^m\left(a+b\,\text{Sec}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 111 leaves, ? steps):

$$\frac{1}{f\,m}\text{AppellF1}\left[\frac{m}{2},\frac{1}{2},-p,\frac{2+m}{2},\text{Sec}[e+f x]^2,-\frac{b\,\text{Sec}[e+f x]^2}{a}\right]\text{Cot}[e+f x]$$
$$(d\,\text{Sec}[e+f x])^m\left(a+b\,\text{Sec}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Sec}[e+f x]^2}{a}\right)^{-p}\sqrt{-\text{Tan}[e+f x]^2}$$

Result (type 8, 27 leaves, 0 steps):

$$\text{Unintegrable}\left[(d\,\text{Sec}[e+f x])^m\left(a+b\,\text{Sec}[e+f x]^2\right)^p,x\right]$$

Problem 299: Result valid but suboptimal antiderivative.

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

Optimal (type 6, 103 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\,2+p,\,-p,\,\frac{3}{2},\,\text{Sin}[e+f x]^2,\,\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p \text{Sin}[e+f x]\left(\text{Sec}[e+f x]^2\left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Result (type 6, 124 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\,2+p,\,-p,\,\frac{3}{2},\,\text{Sin}[e+f x]^2,\,\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p\left(b+a\,\text{Cos}[e+f x]^2\right)^{-p}\left(a+b\,\text{Sec}[e+f x]^2\right)^p\text{Sin}[e+f x]\left(a+b-a\,\text{Sin}[e+f x]^2\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Problem 300: Result valid but suboptimal antiderivative.

$$\int \text{Sec}[e+f x]\left(a+b\,\text{Sec}[e+f x]^2\right)^p\, dx$$

Optimal (type 6, 103 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\,1+p,\,-p,\,\frac{3}{2},\,\text{Sin}[e+f x]^2,\,\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p \text{Sin}[e+f x]\left(\text{Sec}[e+f x]^2\left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Result (type 6, 124 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\,1+p,\,-p,\,\frac{3}{2},\,\text{Sin}[e+f x]^2,\,\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p\left(b+a\,\text{Cos}[e+f x]^2\right)^{-p}\left(a+b\,\text{Sec}[e+f x]^2\right)^p\text{Sin}[e+f x]\left(a+b-a\,\text{Sin}[e+f x]^2\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Problem 301: Result valid but suboptimal antiderivative.

$$\int \text{Cos}[e+f x]\left(a+b\,\text{Sec}[e+f x]^2\right)^p\, dx$$

Optimal (type 6, 101 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\,p,\,-p,\,\frac{3}{2},\,\text{Sin}[e+f x]^2,\,\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p \text{Sin}[e+f x]\left(\text{Sec}[e+f x]^2\left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Result (type 6, 122 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\ p,\ -p,\ \frac{3}{2},\ \text{Sin}[e+f x]^2,\ \frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p\left(b+a\,\text{Cos}[e+f x]^2\right)^{-p}\left(a+b\,\text{Sec}[e+f x]^2\right)^p\text{Sin}[e+f x]\left(a+b-a\,\text{Sin}[e+f x]^2\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Problem 302: Result valid but suboptimal antiderivative.

$$\int \text{Cos}[e+f x]^3\left(a+b\,\text{Sec}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 103 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\ -1+p,\ -p,\ \frac{3}{2},\ \text{Sin}[e+f x]^2,\ \frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p\ \text{Sin}[e+f x]\left(\text{Sec}[e+f x]^2\left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Result (type 6, 124 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\ -1+p,\ -p,\ \frac{3}{2},\ \text{Sin}[e+f x]^2,\ \frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p\left(b+a\,\text{Cos}[e+f x]^2\right)^{-p}\left(a+b\,\text{Sec}[e+f x]^2\right)^p\text{Sin}[e+f x]\left(a+b-a\,\text{Sin}[e+f x]^2\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Problem 303: Result valid but suboptimal antiderivative.

$$\int \text{Cos}[e+f x]^5\left(a+b\,\text{Sec}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 103 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\ -2+p,\ -p,\ \frac{3}{2},\ \text{Sin}[e+f x]^2,\ \frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p\ \text{Sin}[e+f x]\left(\text{Sec}[e+f x]^2\left(a+b-a\,\text{Sin}[e+f x]^2\right)\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Result (type 6, 124 leaves, 5 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\ -2+p,\ -p,\ \frac{3}{2},\ \text{Sin}[e+f x]^2,\ \frac{a\,\text{Sin}[e+f x]^2}{a+b}\right]\left(\text{Cos}[e+f x]^2\right)^p\left(b+a\,\text{Cos}[e+f x]^2\right)^{-p}\left(a+b\,\text{Sec}[e+f x]^2\right)^p\text{Sin}[e+f x]\left(a+b-a\,\text{Sin}[e+f x]^2\right)^p\left(1-\frac{a\,\text{Sin}[e+f x]^2}{a+b}\right)^{-p}$$

Test results for the 70 problems in "4.6.0 (a csc)^m (b trg)^n.m"

Test results for the 84 problems in "4.6.11 (e x)^m (a+b csc(c+d x^n))^p.m"

Test results for the 59 problems in "4.6.1.2 (d csc)^n (a+b csc)^m.m"

Test results for the 16 problems in "4.6.1.3 (d cos)^n (a+b csc)^m.m"

Test results for the 23 problems in "4.6.1.4 (d cot)^n (a+b csc)^m.m"

Test results for the 24 problems in "4.6.3.1 (a+b csc)^m (d csc)^n (A+B csc).m"

Test results for the 1 problems in "4.6.4.2 (a+b csc)^m (d csc)^n (A+B csc+C csc^2).m"

Test results for the 27 problems in "4.6.7 (d trig)^m (a+b (c csc)^n)^p.m"

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

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

Problem 15: Result valid but suboptimal antiderivative.

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

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

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

Result (type 3, 283 leaves, 19 steps):

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

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

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

Problem 23: Result valid but suboptimal antiderivative.

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

Optimal (type 3, 92 leaves, ? steps):

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

Result (type 3, 300 leaves, 13 steps) :

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

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

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

Problem 123: Result valid but suboptimal antiderivative.

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

Optimal (type 3, 138 leaves, ? steps):

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

Result (type 3, 231 leaves, 11 steps):

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

Problem 131: Result valid but suboptimal antiderivative.

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

Optimal (type 3, 216 leaves, ? steps):

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

Result (type 3, 492 leaves, 15 steps):

$$-\frac{3 b^4 \left(a^2+2 b^2\right) \text{ArcTanh}\left[\frac{b-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{7/2} d}+\frac{4 b^4 \left(3 a^2+2 b^2\right) \text{ArcTanh}\left[\frac{b-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{7/2} d}-$$

$$\frac{2 b^2 \left(6 a^4+3 a^2 b^2+b^4\right) \text{ArcTanh}\left[\frac{b-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{a^2 \left(a^2+b^2\right)^{7/2} d}+\frac{2 \left(b \left(3 a^2-b^2\right)+a \left(a^2-3 b^2\right) \text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a^2+b^2\right)^3 d \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)}+$$

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

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

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

Problem 133: Result valid but suboptimal antiderivative.

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

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

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

Result (type 3, 225 leaves, 6 steps):

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

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

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

Problem 142: Result valid but suboptimal antiderivative.

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

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

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

Result (type 3, 362 leaves, 7 steps):

$$-\frac{a\left(2 a^2-3 b^2\right) \text{ArcTanh}\left[\frac{b-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}\right]}{\left(a^2+b^2\right)^{7/2} d}-$$
$$\frac{8 b^3\left(a\left(a^2+2 b^2\right)+b\left(3 a^2+4 b^2\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{3 a^5\left(a^2+b^2\right) d\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^3}+$$
$$\left(2 b^2\left(b\left(15 a^4+18 a^2 b^2+8 b^4\right)+a\left(9 a^4+30 a^2 b^2+16 b^4\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right) \Big/$$
$$\left(3 a^5\left(a^2+b^2\right)^2 d\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2\right)-$$
$$\left(b\left(6 a^6+9 a^4 b^2+12 a^2 b^4+4 b^6+a b\left(9 a^4+6 a^2 b^2+2 b^4\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right) \Big/$$
$$\left(a^4\left(a^2+b^2\right)^3 d\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)$$

Test results for the 397 problems in "4.7.3 (c+d x)^m trig^n trig^p.m"

Test results for the 9 problems in "4.7.4 x^m (a+b trig^n)^p.m"

Test results for the 330 problems in "4.7.5 x^m trig(a+b log(c x^n))^p.m"

Problem 135: Unable to integrate problem.

$$\int x^3 \text{Tan}[a+i \text{Log}[x]] \, dx$$

Optimal (type 3, 47 leaves, 5 steps):

$$-i e^{2 i a} x^2+\frac{i x^4}{4}+i e^{4 i a} \text{Log}\left[e^{2 i a}+x^2\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^3 \,\text{Tan}[a + i \,\text{Log}[x]], x\right]$$

Problem 136: Unable to integrate problem.

$$\int x^2 \,\text{Tan}[a + i \,\text{Log}[x]] \, dx$$

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

$$-2 i e^{2 i a} x + \frac{i x^3}{3} + 2 i e^{3 i a} \,\text{ArcTan}\left[e^{-i a} x\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^2 \,\text{Tan}[a + i \,\text{Log}[x]], x\right]$$

Problem 137: Unable to integrate problem.

$$\int x \,\text{Tan}[a + i \,\text{Log}[x]] \, dx$$

Optimal (type 3, 33 leaves, 5 steps):

$$\frac{i x^2}{2} - i e^{2 i a} \,\text{Log}\left[e^{2 i a} + x^2\right]$$

Result (type 8, 13 leaves, 0 steps):

$$\text{CannotIntegrate}[x \,\text{Tan}[a + i \,\text{Log}[x]], x]$$

Problem 138: Unable to integrate problem.

$$\int \text{Tan}[a + i \,\text{Log}[x]] \, dx$$

Optimal (type 3, 27 leaves, 4 steps):

$$i x - 2 i e^{i a} \,\text{ArcTan}\left[e^{-i a} x\right]$$

Result (type 8, 11 leaves, 0 steps):

$$\text{CannotIntegrate}[\text{Tan}[a + i \,\text{Log}[x]], x]$$

Problem 140: Unable to integrate problem.

$$\int \frac{\text{Tan}[a + i \,\text{Log}[x]]}{x^2} \, dx$$

Optimal (type 3, 29 leaves, 4 steps):

$$\frac{i}{x} + 2 i e^{-i a} \,\text{ArcTan}\left[e^{-i a} x\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}[a+i\,\text{Log}[x]]}{x^2},x\right]$$

Problem 141: Unable to integrate problem.

$$\int \frac{\text{Tan}[a+i\,\text{Log}[x]]}{x^3}\,dx$$

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

$$\frac{i}{2\,x^2}-i\,e^{-2\,i\,a}\,\text{Log}\left[1+\frac{e^{2\,i\,a}}{x^2}\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}[a+i\,\text{Log}[x]]}{x^3},x\right]$$

Problem 142: Unable to integrate problem.

$$\int \frac{\text{Tan}[a+i\,\text{Log}[x]]}{x^4}\,dx$$

Optimal (type 3, 45 leaves, 5 steps):

$$\frac{i}{3\,x^3}-\frac{2\,i\,e^{-2\,i\,a}}{x}-2\,i\,e^{-3\,i\,a}\,\text{ArcTan}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}[a+i\,\text{Log}[x]]}{x^4},x\right]$$

Problem 143: Unable to integrate problem.

$$\int x^3\,\text{Tan}[a+i\,\text{Log}[x]]^2\,dx$$

Optimal (type 3, 63 leaves, 5 steps):

$$2\,e^{2\,i\,a}\,x^2-\frac{x^4}{4}-\frac{2\,e^{6\,i\,a}}{e^{2\,i\,a}+x^2}-4\,e^{4\,i\,a}\,\text{Log}\left[e^{2\,i\,a}+x^2\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^3\,\text{Tan}[a+i\,\text{Log}[x]]^2,x\right]$$

Problem 144: Unable to integrate problem.

$$\int x^2\,\text{Tan}[a+i\,\text{Log}[x]]^2\,dx$$

Optimal (type 3, 62 leaves, 6 steps):

$$6\,e^{2\,i\,a}\,x-\frac{x^3}{3}-\frac{2\,e^{2\,i\,a}\,x^3}{e^{2\,i\,a}+x^2}-6\,e^{3\,i\,a}\,\text{ArcTan}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^2\,\text{Tan}[a+i\,\text{Log}[x]]^2,\,x\right]$$

Problem 145: Unable to integrate problem.

$$\int x\,\text{Tan}[a+i\,\text{Log}[x]]^2\,dx$$

Optimal (type 3, 51 leaves, 5 steps):

$$-\frac{x^2}{2}+\frac{2\,e^{4\,i\,a}}{e^{2\,i\,a}+x^2}+2\,e^{2\,i\,a}\,\text{Log}\left[e^{2\,i\,a}+x^2\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x\,\text{Tan}[a+i\,\text{Log}[x]]^2,\,x\right]$$

Problem 146: Unable to integrate problem.

$$\int \text{Tan}[a+i\,\text{Log}[x]]^2\,dx$$

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

$$-x-\frac{2\,e^{2\,i\,a}\,x}{e^{2\,i\,a}+x^2}+2\,e^{i\,a}\,\text{ArcTan}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 13 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Tan}[a+i\,\text{Log}[x]]^2,\,x\right]$$

Problem 148: Unable to integrate problem.

$$\int \frac{\text{Tan}[a+i\,\text{Log}[x]]^2}{x^2}\,dx$$

Optimal (type 3, 60 leaves, 5 steps):

$$\frac{e^{2\,i\,a}}{x\,\left(e^{2\,i\,a}+x^2\right)}+\frac{3\,x}{e^{2\,i\,a}+x^2}+2\,e^{-i\,a}\,\text{ArcTan}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}[a+i\,\text{Log}[x]]^2}{x^2},\,x\right]$$

Problem 149: Unable to integrate problem.

$$\int \frac{\text{Tan}[a+i\,\text{Log}[x]]^2}{x^3}\,dx$$

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

$$-\frac{2 e^{-2 i a}}{1+\frac{e^{2 i a}}{x^2}}+\frac{1}{2 x^2}-2 e^{-2 i a} \text{Log}\left[1+\frac{e^{2 i a}}{x^2}\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}[a+i \text{Log}[x]]^2}{x^3}, x\right]$$

Problem 150: Unable to integrate problem.

$$\int (e x)^m \text{Tan}[a+i \text{Log}[x]] \, dx$$

Optimal (type 5, 71 leaves, 4 steps):

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

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e x)^m \text{Tan}[a+i \text{Log}[x]], x\right]$$

Problem 151: Unable to integrate problem.

$$\int (e x)^m \text{Tan}[a+i \text{Log}[x]]^2 \, dx$$

Optimal (type 5, 77 leaves, 5 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e x)^m \text{Tan}[a+i \text{Log}[x]]^2, x\right]$$

Problem 152: Unable to integrate problem.

$$\int (e x)^m \text{Tan}[a+i \text{Log}[x]]^3 \, dx$$

Optimal (type 5, 184 leaves, 6 steps):

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

Result (type 8, 19 leaves, 0 steps):

CannotIntegrate[(e x)^m Tan[a + i Log[x]]^3, x]

Problem 153: Unable to integrate problem.

$$\int \text{Tan}[a + b\,\text{Log}[x]]^p \, dx$$

Optimal (type 6, 142 leaves, 4 steps):

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

Result (type 8, 11 leaves, 0 steps):

CannotIntegrate[Tan[a + b Log[x]]^p, x]

Problem 154: Unable to integrate problem.

$$\int (e x)^m \,\text{Tan}[a + b\,\text{Log}[x]]^p \, dx$$

Optimal (type 6, 162 leaves, 4 steps):

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

Result (type 8, 17 leaves, 0 steps):

CannotIntegrate[(e x)^m Tan[a + b Log[x]]^p, x]

Problem 155: Unable to integrate problem.

$$\int \text{Tan}[a + \text{Log}[x]]^p \, dx$$

Optimal (type 6, 120 leaves, 4 steps):

$$\left(1 - e^{2 i a} x^{2 i}\right)^{-p} \left(\frac{i \left(1 - e^{2 i a} x^{2 i}\right)}{1 + e^{2 i a} x^{2 i}}\right)^p \left(1 + e^{2 i a} x^{2 i}\right)^p$$
$$x\,\text{AppellF1}\left[-\frac{i}{2}, -p, p, 1 - \frac{i}{2}, e^{2 i a} x^{2 i}, -e^{2 i a} x^{2 i}\right]$$

Result (type 8, 9 leaves, 0 steps):

CannotIntegrate[Tan[a + Log[x]]^p, x]

Problem 156: Unable to integrate problem.

$$\int \text{Tan}[a+2\,\text{Log}[x]]^p\,dx$$

Optimal (type 6, 120 leaves, 4 steps):

$$\left(1-e^{2 i a} x^{4 i}\right)^{-p} \left(\frac{i \left(1-e^{2 i a} x^{4 i}\right)}{1+e^{2 i a} x^{4 i}}\right)^p \left(1+e^{2 i a} x^{4 i}\right)^p$$
$$x\,\text{AppellF1}\left[-\frac{i}{4}, -p, p, 1-\frac{i}{4}, e^{2 i a} x^{4 i}, -e^{2 i a} x^{4 i}\right]$$

Result (type 8, 11 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Tan}[a+2\,\text{Log}[x]]^p, x\right]$$

Problem 157: Unable to integrate problem.

$$\int \text{Tan}[a+3\,\text{Log}[x]]^p\,dx$$

Optimal (type 6, 120 leaves, 4 steps):

$$\left(1-e^{2 i a} x^{6 i}\right)^{-p} \left(\frac{i \left(1-e^{2 i a} x^{6 i}\right)}{1+e^{2 i a} x^{6 i}}\right)^p \left(1+e^{2 i a} x^{6 i}\right)^p$$
$$x\,\text{AppellF1}\left[-\frac{i}{6}, -p, p, 1-\frac{i}{6}, e^{2 i a} x^{6 i}, -e^{2 i a} x^{6 i}\right]$$

Result (type 8, 11 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Tan}[a+3\,\text{Log}[x]]^p, x\right]$$

Problem 158: Unable to integrate problem.

$$\int x^3\,\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]dx$$

Optimal (type 5, 71 leaves, 4 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^3\,\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right], x\right]$$

Problem 159: Unable to integrate problem.

$$\int x^2\,\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]dx$$

Optimal (type 5, 75 leaves, 4 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^2 \text{Tan}\left[d \left(a+b \text{Log}\left[c x^n\right]\right)\right],x\right]$$

Problem 160: Unable to integrate problem.

$$\int x \text{Tan}\left[d \left(a+b \text{Log}\left[c x^n\right]\right)\right] dx$$

Optimal (type 5, 69 leaves, 4 steps):

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

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x \text{Tan}\left[d \left(a+b \text{Log}\left[c x^n\right]\right)\right],x\right]$$

Problem 161: Unable to integrate problem.

$$\int \text{Tan}\left[d \left(a+b \text{Log}\left[c x^n\right]\right)\right] dx$$

Optimal (type 5, 67 leaves, 4 steps):

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

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Tan}\left[d \left(a+b \text{Log}\left[c x^n\right]\right)\right],x\right]$$

Problem 163: Unable to integrate problem.

$$\int \frac{\text{Tan}\left[d \left(a+b \text{Log}\left[c x^n\right]\right)\right]}{x^2} dx$$

Optimal (type 5, 71 leaves, 4 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}\left[d \left(a+b \text{Log}\left[c x^n\right]\right)\right]}{x^2},x\right]$$

Problem 164: Unable to integrate problem.

$$\int \frac{\text{Tan}[d\,(a+b\,\text{Log}[c\,x^n])]}{x^3}\,dx$$

Optimal (type 5, 69 leaves, 4 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}[d\,(a+b\,\text{Log}[c\,x^n])]}{x^3},x\right]$$

Problem 165: Unable to integrate problem.

$$\int x^3\,\text{Tan}[d\,(a+b\,\text{Log}[c\,x^n])]^2\,dx$$

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

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^3\,\text{Tan}[d\,(a+b\,\text{Log}[c\,x^n])]^2,x\right]$$

Problem 166: Unable to integrate problem.

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

Optimal (type 5, 163 leaves, 5 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^2\,\text{Tan}[d\,(a+b\,\text{Log}[c\,x^n])]^2,x\right]$$

Problem 167: Unable to integrate problem.

$$\int x \operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2 dx$$

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

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x \operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2, x\right]$$

Problem 168: Unable to integrate problem.

$$\int \operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2 dx$$

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

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

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2, x\right]$$

Problem 170: Unable to integrate problem.

$$\int \frac{\operatorname{Tan}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2}{x^2} dx$$

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

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2}{x^2},\,x\right]$$

Problem 171: Unable to integrate problem.

$$\int\frac{\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2}{x^3}\,dx$$

Optimal (type 5, 156 leaves, 5 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2}{x^3},\,x\right]$$

Problem 175: Unable to integrate problem.

$$\int(e\,x)^m\,\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,dx$$

Optimal (type 5, 101 leaves, 4 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m\,\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right],\,x\right]$$

Problem 176: Unable to integrate problem.

$$\int(e\,x)^m\,\text{Tan}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2\,dx$$

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

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

Result (type 8, 23 leaves, 0 steps):

CannotIntegrate[(e x)^m Tan[d (a + b Log[c x^n])]^2, x]

Problem 177: Unable to integrate problem.

$$\int (e\,x)^m \operatorname{Tan}\left[d\left(a+b\operatorname{Log}\left[c\,x^n\right]\right)\right]^3 \, dx$$

Optimal (type 5, 351 leaves, 6 steps):

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

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

$$\frac{1}{b^2\,d^2\,e\,(1+m)\,n^2}\,i\left(1+2\,m+m^2-2\,b^2\,d^2\,n^2\right)(e\,x)^{1+m}$$

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

Result (type 8, 23 leaves, 0 steps):

CannotIntegrate[(e x)^m Tan[d (a + b Log[c x^n])]^3, x]

Problem 178: Unable to integrate problem.

$$\int \operatorname{Tan}\left[d\left(a+b\operatorname{Log}\left[c\,x^n\right]\right)\right]^p \, dx$$

Optimal (type 6, 190 leaves, 5 steps):

$$x\left(1-e^{2\,i\,a\,d}\left(c\,x^n\right)^{2\,i\,b\,d}\right)^{-p}\left(\frac{i\left(1-e^{2\,i\,a\,d}\left(c\,x^n\right)^{2\,i\,b\,d}\right)}{1+e^{2\,i\,a\,d}\left(c\,x^n\right)^{2\,i\,b\,d}}\right)^p\left(1+e^{2\,i\,a\,d}\left(c\,x^n\right)^{2\,i\,b\,d}\right)^p$$

$$\text{AppellF1}\left[-\frac{i}{2\,b\,d\,n},-p,p,1-\frac{i}{2\,b\,d\,n},e^{2\,i\,a\,d}\left(c\,x^n\right)^{2\,i\,b\,d},-e^{2\,i\,a\,d}\left(c\,x^n\right)^{2\,i\,b\,d}\right]$$

Result (type 8, 17 leaves, 0 steps):

CannotIntegrate[Tan[d (a + b Log[c x^n])]^p, x]

Problem 179: Unable to integrate problem.

$$\int (e\,x)^m \operatorname{Tan}\left[d\left(a+b\operatorname{Log}\left[c\,x^n\right]\right)\right]^p \, dx$$

Optimal (type 6, 210 leaves, 5 steps):

$$\frac{1}{e\,(1+m)}\,(e\,x)^{1+m}\left(1-e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right)^{-p}\left(\frac{i\left(1-e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right)}{1+e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}}\right)^p\left(1+e^{2\,i\,a\,d}\,(c\,x^n)^{2\,i\,b\,d}\right)^p$$

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

Result (type 8, 23 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m\,\text{Tan}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^p,\,x\right]$$

Problem 186: Unable to integrate problem.

$$\int x^3\,\text{Cot}\left[a+i\,\text{Log}[x]\right]\,dx$$

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

$$-i\,e^{2\,i\,a}\,x^2-\frac{i\,x^4}{4}-i\,e^{4\,i\,a}\,\text{Log}\left[e^{2\,i\,a}-x^2\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^3\,\text{Cot}\left[a+i\,\text{Log}[x]\right],\,x\right]$$

Problem 187: Unable to integrate problem.

$$\int x^2\,\text{Cot}\left[a+i\,\text{Log}[x]\right]\,dx$$

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

$$-2\,i\,e^{2\,i\,a}\,x-\frac{i\,x^3}{3}+2\,i\,e^{3\,i\,a}\,\text{ArcTanh}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^2\,\text{Cot}\left[a+i\,\text{Log}[x]\right],\,x\right]$$

Problem 188: Unable to integrate problem.

$$\int x\,\text{Cot}\left[a+i\,\text{Log}[x]\right]\,dx$$

Optimal (type 3, 35 leaves, 5 steps):

$$-\frac{i\,x^2}{2}-i\,e^{2\,i\,a}\,\text{Log}\left[e^{2\,i\,a}-x^2\right]$$

Result (type 8, 13 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x\,\text{Cot}\left[a+i\,\text{Log}[x]\right],\,x\right]$$

Problem 189: Unable to integrate problem.

$$\int \text{Cot}[a + i \, \text{Log}[x]] \, dx$$

Optimal (type 3, 27 leaves, 4 steps):

$$-i\,x + 2\,i\,e^{i\,a}\,\text{ArcTanh}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 11 leaves, 0 steps):

$$\text{CannotIntegrate}[\text{Cot}[a + i\,\text{Log}[x]], x]$$

Problem 191: Unable to integrate problem.

$$\int \frac{\text{Cot}[a + i\,\text{Log}[x]]}{x^2} \, dx$$

Optimal (type 3, 29 leaves, 4 steps):

$$-\frac{i}{x} + 2\,i\,e^{-i\,a}\,\text{ArcTanh}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}[a + i\,\text{Log}[x]]}{x^2}, x\right]$$

Problem 192: Unable to integrate problem.

$$\int \frac{\text{Cot}[a + i\,\text{Log}[x]]}{x^3} \, dx$$

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

$$-\frac{i}{2\,x^2} - i\,e^{-2\,i\,a}\,\text{Log}\left[1 - \frac{e^{2\,i\,a}}{x^2}\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}[a + i\,\text{Log}[x]]}{x^3}, x\right]$$

Problem 193: Unable to integrate problem.

$$\int \frac{\text{Cot}[a + i\,\text{Log}[x]]}{x^4} \, dx$$

Optimal (type 3, 45 leaves, 5 steps):

$$-\frac{i}{3\,x^3} - \frac{2\,i\,e^{-2\,i\,a}}{x} + 2\,i\,e^{-3\,i\,a}\,\text{ArcTanh}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}[a + i\,\text{Log}[x]]}{x^4}, x\right]$$

Problem 194: Unable to integrate problem.

$$\int x^3\,\text{Cot}[a + i\,\text{Log}[x]]^2\,dx$$

Optimal (type 3, 67 leaves, 5 steps):

$$-2\,e^{2\,i\,a}\,x^2 - \frac{x^4}{4} - \frac{2\,e^{6\,i\,a}}{e^{2\,i\,a} - x^2} - 4\,e^{4\,i\,a}\,\text{Log}\left[e^{2\,i\,a} - x^2\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^3\,\text{Cot}[a + i\,\text{Log}[x]]^2, x\right]$$

Problem 195: Unable to integrate problem.

$$\int x^2\,\text{Cot}[a + i\,\text{Log}[x]]^2\,dx$$

Optimal (type 3, 64 leaves, 6 steps):

$$-6\,e^{2\,i\,a}\,x - \frac{x^3}{3} - \frac{2\,e^{2\,i\,a}\,x^3}{e^{2\,i\,a} - x^2} + 6\,e^{3\,i\,a}\,\text{ArcTanh}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^2\,\text{Cot}[a + i\,\text{Log}[x]]^2, x\right]$$

Problem 196: Unable to integrate problem.

$$\int x\,\text{Cot}[a + i\,\text{Log}[x]]^2\,dx$$

Optimal (type 3, 55 leaves, 5 steps):

$$-\frac{x^2}{2} - \frac{2\,e^{4\,i\,a}}{e^{2\,i\,a} - x^2} - 2\,e^{2\,i\,a}\,\text{Log}\left[e^{2\,i\,a} - x^2\right]$$

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x\,\text{Cot}[a + i\,\text{Log}[x]]^2, x\right]$$

Problem 197: Unable to integrate problem.

$$\int \text{Cot}[a + i\,\text{Log}[x]]^2\,dx$$

Optimal (type 3, 48 leaves, 6 steps):

$$-x - \frac{2\,e^{2\,i\,a}\,x}{e^{2\,i\,a} - x^2} + 2\,e^{i\,a}\,\text{ArcTanh}\left[e^{-i\,a}\,x\right]$$

Result (type 8, 13 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Cot}[a+i\,\text{Log}[x]]^2,\ x\right]$$

Problem 199: Unable to integrate problem.

$$\int \frac{\text{Cot}[a+i\,\text{Log}[x]]^2}{x^2}\,dx$$

Optimal (type 3, 64 leaves, 5 steps):

$$\frac{e^{2 i a}}{x\left(e^{2 i a}-x^2\right)}-\frac{3 x}{e^{2 i a}-x^2}-2 e^{-i a}\,\text{ArcTanh}\left[e^{-i a} x\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}[a+i\,\text{Log}[x]]^2}{x^2},\ x\right]$$

Problem 200: Unable to integrate problem.

$$\int \frac{\text{Cot}[a+i\,\text{Log}[x]]^2}{x^3}\,dx$$

Optimal (type 3, 57 leaves, 4 steps):

$$\frac{2 e^{-2 i a}}{1-\frac{e^{2 i a}}{x^2}}+\frac{1}{2 x^2}+2 e^{-2 i a}\,\text{Log}\left[1-\frac{e^{2 i a}}{x^2}\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}[a+i\,\text{Log}[x]]^2}{x^3},\ x\right]$$

Problem 201: Unable to integrate problem.

$$\int (e\,x)^m\,\text{Cot}[a+i\,\text{Log}[x]]\,dx$$

Optimal (type 5, 70 leaves, 4 steps):

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

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m\,\text{Cot}[a+i\,\text{Log}[x]],\ x\right]$$

Problem 202: Unable to integrate problem.

$$\int (e\,x)^m\,\text{Cot}[a+i\,\text{Log}[x]]^2\,dx$$

Optimal (type 5, 77 leaves, 5 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m\,\text{Cot}\left[a+i\,\text{Log}[x]\right]^2,\,x\right]$$

Problem 203: Unable to integrate problem.

$$\int (e\,x)^m\,\text{Cot}\left[a+i\,\text{Log}[x]\right]^3\,dx$$

Optimal (type 5, 169 leaves, 6 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m\,\text{Cot}\left[a+i\,\text{Log}[x]\right]^3,\,x\right]$$

Problem 204: Unable to integrate problem.

$$\int \text{Cot}\left[a+b\,\text{Log}[x]\right]^p\,dx$$

Optimal (type 6, 142 leaves, 4 steps):

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

Result (type 8, 11 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Cot}\left[a+b\,\text{Log}[x]\right]^p,\,x\right]$$

Problem 205: Unable to integrate problem.

$$\int (e\,x)^m\,\text{Cot}\left[a+b\,\text{Log}[x]\right]^p\,dx$$

Optimal (type 6, 162 leaves, 4 steps):

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

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^{m}\,\text{Cot}[a+b\,\text{Log}[x]]^{p},\,x\right]$$

Problem 206: Unable to integrate problem.

$$\int \text{Cot}[a+\text{Log}[x]]^{p}\,dx$$

Optimal (type 6, 120 leaves, 4 steps):

$$\left(1-e^{2\,i\,a}\,x^{2\,i}\right)^{p}\left(1+e^{2\,i\,a}\,x^{2\,i}\right)^{-p}\left(-\frac{i\left(1+e^{2\,i\,a}\,x^{2\,i}\right)}{1-e^{2\,i\,a}\,x^{2\,i}}\right)^{p}$$
$$x\,\text{AppellF1}\left[-\frac{i}{2},\,p,\,-p,\,1-\frac{i}{2},\,e^{2\,i\,a}\,x^{2\,i},\,-e^{2\,i\,a}\,x^{2\,i}\right]$$

Result (type 8, 9 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Cot}[a+\text{Log}[x]]^{p},\,x\right]$$

Problem 207: Unable to integrate problem.

$$\int \text{Cot}[a+2\,\text{Log}[x]]^{p}\,dx$$

Optimal (type 6, 120 leaves, 4 steps):

$$\left(1-e^{2\,i\,a}\,x^{4\,i}\right)^{p}\left(1+e^{2\,i\,a}\,x^{4\,i}\right)^{-p}\left(-\frac{i\left(1+e^{2\,i\,a}\,x^{4\,i}\right)}{1-e^{2\,i\,a}\,x^{4\,i}}\right)^{p}$$
$$x\,\text{AppellF1}\left[-\frac{i}{4},\,p,\,-p,\,1-\frac{i}{4},\,e^{2\,i\,a}\,x^{4\,i},\,-e^{2\,i\,a}\,x^{4\,i}\right]$$

Result (type 8, 11 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Cot}[a+2\,\text{Log}[x]]^{p},\,x\right]$$

Problem 208: Unable to integrate problem.

$$\int \text{Cot}[a+3\,\text{Log}[x]]^{p}\,dx$$

Optimal (type 6, 120 leaves, 4 steps):

$$\left(1-e^{2\,i\,a}\,x^{6\,i}\right)^{p}\left(1+e^{2\,i\,a}\,x^{6\,i}\right)^{-p}\left(-\frac{i\left(1+e^{2\,i\,a}\,x^{6\,i}\right)}{1-e^{2\,i\,a}\,x^{6\,i}}\right)^{p}$$
$$x\,\text{AppellF1}\left[-\frac{i}{6},\,p,\,-p,\,1-\frac{i}{6},\,e^{2\,i\,a}\,x^{6\,i},\,-e^{2\,i\,a}\,x^{6\,i}\right]$$

Result (type 8, 11 leaves, 0 steps):

$\text{CannotIntegrate}\left[\text{Cot}[a+3\,\text{Log}[x]]^p,\ x\right]$

Problem 209: Unable to integrate problem.

$$\int x^3\,\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,dx$$

Optimal (type 5, 70 leaves, 4 steps):

$$\frac{i\,x^4}{4}-\frac{1}{2}\,i\,x^4\,\text{Hypergeometric2F1}\left[1,\ -\frac{2\,i}{b\,d\,n},\ 1-\frac{2\,i}{b\,d\,n},\ e^{2\,i\,a\,d}\,\left(c\,x^n\right)^{2\,i\,b\,d}\right]$$

Result (type 8, 19 leaves, 0 steps):

$\text{CannotIntegrate}\left[x^3\,\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right],\ x\right]$

Problem 210: Unable to integrate problem.

$$\int x^2\,\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,dx$$

Optimal (type 5, 74 leaves, 4 steps):

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

Result (type 8, 19 leaves, 0 steps):

$\text{CannotIntegrate}\left[x^2\,\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right],\ x\right]$

Problem 211: Unable to integrate problem.

$$\int x\,\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,dx$$

Optimal (type 5, 68 leaves, 4 steps):

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

Result (type 8, 17 leaves, 0 steps):

$\text{CannotIntegrate}\left[x\,\text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right],\ x\right]$

Problem 212: Unable to integrate problem.

$$\int \text{Cot}\left[d\,\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,dx$$

Optimal (type 5, 66 leaves, 4 steps):

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

Result (type 8, 15 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right],\,x\right]$$

Problem 214: Unable to integrate problem.

$$\int \frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]}{x^2}\,dx$$

Optimal (type 5, 70 leaves, 4 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]}{x^2},\,x\right]$$

Problem 215: Unable to integrate problem.

$$\int \frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]}{x^3}\,dx$$

Optimal (type 5, 68 leaves, 4 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]}{x^3},\,x\right]$$

Problem 216: Unable to integrate problem.

$$\int x^3\,\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2\,dx$$

Optimal (type 5, 158 leaves, 5 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^3\,\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2,\,x\right]$$

Problem 217: Unable to integrate problem.

$$\int x^2 \operatorname{Cot}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2 \, dx$$

Optimal (type 5, 162 leaves, 5 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x^2 \operatorname{Cot}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2, x\right]$$

Problem 218: Unable to integrate problem.

$$\int x \operatorname{Cot}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2 \, dx$$

Optimal (type 5, 158 leaves, 5 steps):

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

Result (type 8, 19 leaves, 0 steps):

$$\text{CannotIntegrate}\left[x \operatorname{Cot}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2, x\right]$$

Problem 219: Unable to integrate problem.

$$\int \operatorname{Cot}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2 \, dx$$

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

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

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\operatorname{Cot}\left[d\left(a+b \operatorname{Log}\left[c x^n\right]\right)\right]^2, x\right]$$

Problem 221: Unable to integrate problem.

$$\int \frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2}{x^2}\,dx$$

Optimal (type 5, 156 leaves, 5 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2}{x^2},x\right]$$

Problem 222: Unable to integrate problem.

$$\int \frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2}{x^3}\,dx$$

Optimal (type 5, 155 leaves, 5 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]^2}{x^3},x\right]$$

Problem 226: Unable to integrate problem.

$$\int (e\,x)^m\,\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right]\,dx$$

Optimal (type 5, 100 leaves, 4 steps):

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

Result (type 8, 21 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m\,\text{Cot}\left[d\left(a+b\,\text{Log}\left[c\,x^n\right]\right)\right],x\right]$$

Problem 227: Unable to integrate problem.

$$\int (e\,x)^m \text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]^2\,dx$$

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

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

Result (type 8, 23 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m \text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]^2,x\right]$$

Problem 228: Unable to integrate problem.

$$\int (e\,x)^m \text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]^3\,dx$$

Optimal (type 5, 350 leaves, 6 steps):

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

Result (type 8, 23 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e\,x)^m \text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]^3,x\right]$$

Problem 229: Unable to integrate problem.

$$\int \text{Cot}[d\,(a+b\,\text{Log}[c\,x^n])]^p\,dx$$

Optimal (type 6, 190 leaves, 5 steps):

$$x\left(1-e^{2 i a d}\left(c x^{n}\right)^{2 i b d}\right)^{p}\left(1+e^{2 i a d}\left(c x^{n}\right)^{2 i b d}\right)^{-p}\left(-\frac{i\left(1+e^{2 i a d}\left(c x^{n}\right)^{2 i b d}\right)}{1-e^{2 i a d}\left(c x^{n}\right)^{2 i b d}}\right)^{p}$$
$$\text{AppellF1}\left[-\frac{i}{2 b d n}, p, -p, 1-\frac{i}{2 b d n}, e^{2 i a d}\left(c x^{n}\right)^{2 i b d}, -e^{2 i a d}\left(c x^{n}\right)^{2 i b d}\right]$$

Result (type 8, 17 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Cot}\left[d\left(a+b \text{Log}\left[c x^{n}\right]\right)\right]^{p}, x\right]$$

Problem 230: Unable to integrate problem.

$$\int (e x)^{m} \text{Cot}\left[d\left(a+b \text{Log}\left[c x^{n}\right]\right)\right]^{p} dx$$

Optimal (type 6, 210 leaves, 5 steps):

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

Result (type 8, 23 leaves, 0 steps):

$$\text{CannotIntegrate}\left[(e x)^{m} \text{Cot}\left[d\left(a+b \text{Log}\left[c x^{n}\right]\right)\right]^{p}, x\right]$$

Problem 259: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(-\left(1+b^{2} n^{2}\right) \text{Sec}\left[a+b \text{Log}\left[c x^{n}\right]\right]+2 b^{2} n^{2} \text{Sec}\left[a+b \text{Log}\left[c x^{n}\right]\right]^{3}\right) dx$$

Optimal (type 3, 41 leaves, ? steps):

$$-x \text{Sec}\left[a+b \text{Log}\left[c x^{n}\right]\right]+b n x \text{Sec}\left[a+b \text{Log}\left[c x^{n}\right]\right] \text{Tan}\left[a+b \text{Log}\left[c x^{n}\right]\right]$$

Result (type 5, 175 leaves, 7 steps):

$$-2 e^{i a}(1-i b n) x\left(c x^{n}\right)^{i b}$$
$$\text{Hypergeometric2F1}\left[1, \frac{1}{2}\left(1-\frac{i}{b n}\right), \frac{1}{2}\left(3-\frac{i}{b n}\right), -e^{2 i a}\left(c x^{n}\right)^{2 i b}\right]+\frac{1}{1+3 i b n}$$
$$16 b^{2} e^{3 i a} n^{2} x\left(c x^{n}\right)^{3 i b} \text{Hypergeometric2F1}\left[3, \frac{1}{2}\left(3-\frac{i}{b n}\right), \frac{1}{2}\left(5-\frac{i}{b n}\right), -e^{2 i a}\left(c x^{n}\right)^{2 i b}\right]$$

Problem 260: Result unnecessarily involves higher level functions.

$$\int x^{m} \text{Sec}\left[a+2 \text{Log}\left[c x^{\frac{1}{2}\sqrt{-(1+m)^{2}}}\right]\right]^{3} dx$$

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

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

Result (type 5, 146 leaves, 3 steps):

$$\left(8\,e^{3\,i\,a}\,x^{1+m}\left(c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right)^{6\,i}\,\mathrm{Hypergeometric2F1}\left[3,\,\frac{1}{2}\left(3-\frac{i\,(1+m)}{\sqrt{-(1+m)^2}}\right),\,\frac{1}{2}\left(5-\frac{i\,(1+m)}{\sqrt{-(1+m)^2}}\right),\,-e^{2\,i\,a}\left(c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right)^{4\,i}\right]\right)\Big/\left(1-i\left(i\,m-3\sqrt{-(1+m)^2}\right)\right)$$

Problem 301: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\left(-\left(1+b^2\,n^2\right)\mathrm{Csc}\left[a+b\,\mathrm{Log}\left[c\,x^n\right]\right]+2\,b^2\,n^2\,\mathrm{Csc}\left[a+b\,\mathrm{Log}\left[c\,x^n\right]\right]^3\right)\,dx$$

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

$$-x\,\mathrm{Csc}\left[a+b\,\mathrm{Log}\left[c\,x^n\right]\right]-b\,n\,x\,\mathrm{Cot}\left[a+b\,\mathrm{Log}\left[c\,x^n\right]\right]\,\mathrm{Csc}\left[a+b\,\mathrm{Log}\left[c\,x^n\right]\right]$$

Result (type 5, 172 leaves, 7 steps):

$$2\,e^{i\,a}\,(i+b\,n)\,x\,\left(c\,x^n\right)^{i\,b}\,\mathrm{Hypergeometric2F1}\left[1,\,\frac{1}{2}\left(1-\frac{i}{b\,n}\right),\,\frac{1}{2}\left(3-\frac{i}{b\,n}\right),\,e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]-\frac{1}{i-3\,b\,n}16\,b^2\,e^{3\,i\,a}\,n^2\,x\,\left(c\,x^n\right)^{3\,i\,b}\,\mathrm{Hypergeometric2F1}\left[3,\,\frac{1}{2}\left(3-\frac{i}{b\,n}\right),\,\frac{1}{2}\left(5-\frac{i}{b\,n}\right),\,e^{2\,i\,a}\left(c\,x^n\right)^{2\,i\,b}\right]$$

Problem 302: Result unnecessarily involves higher level functions.

$$\int x^m\,\mathrm{Csc}\left[a+2\,\mathrm{Log}\left[c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right]\right]^3\,dx$$

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

$$\frac{x^{1+m}\,\mathrm{Csc}\left[a+2\,\mathrm{Log}\left[c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right]\right]}{2\,(1+m)}-\frac{x^{1+m}\,\mathrm{Cot}\left[a+2\,\mathrm{Log}\left[c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right]\right]\,\mathrm{Csc}\left[a+2\,\mathrm{Log}\left[c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right]\right]}{2\sqrt{-(1+m)^2}}$$

Result (type 5, 142 leaves, 3 steps):

$$-\left(\left(8\,e^{3\,i\,a}\,x^{1+m}\left(c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right)^{6\,i}\,\mathrm{Hypergeometric2F1}\left[3,\,\frac{1}{2}\left(3-\frac{i\,(1+m)}{\sqrt{-(1+m)^2}}\right),\,\frac{1}{2}\left(5-\frac{i\,(1+m)}{\sqrt{-(1+m)^2}}\right),\,e^{2\,i\,a}\left(c\,x^{\frac{1}{2}\sqrt{-(1+m)^2}}\right)^{4\,i}\right]\right)\Big/\left(i+i\,m-3\sqrt{-(1+m)^2}\right)\right)$$

Test results for the 142 problems in "4.7.6 f^(a+b x+c x^2) trig(d+e x+f x^2)^n.m"

Problem 28: Unable to integrate problem.

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

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

$$-\left(\left(e^{-i\,d}\,F^{a\,c}\,(f\,x)^m\,\mathrm{Gamma}\left[1+m,\,x\,(i\,e-b\,c\,\mathrm{Log}[F])\right]\,\left(x\,(i\,e-b\,c\,\mathrm{Log}[F])\right)^{-m}\right)\Big/\left(2\,(e+i\,b\,c\,\mathrm{Log}[F])\right)\right)-\left(e^{i\,d}\,F^{a\,c}\,(f\,x)^m\,\mathrm{Gamma}\left[1+m,\,-x\,(i\,e+b\,c\,\mathrm{Log}[F])\right]\,\left(-x\,(i\,e+b\,c\,\mathrm{Log}[F])\right)^{-m}\right)\Big/\left(2\,(e-i\,b\,c\,\mathrm{Log}[F])\right)$$

Result (type 8, 24 leaves, 1 step):

$$\mathrm{CannotIntegrate}\left[F^{a\,c+b\,c\,x}\,(f\,x)^m\,\mathrm{Sin}[d+e\,x],\,x\right]$$

Problem 32: Unable to integrate problem.

$$\int f\,F^{c\,(a+b\,x)}\,(f\,x)^m\,\left(e\,x\,\mathrm{Cos}[d+e\,x]+(1+m+b\,c\,x\,\mathrm{Log}[F])\,\mathrm{Sin}[d+e\,x]\right)\,dx$$

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

$$f\,F^{c\,(a+b\,x)}\,x\,(f\,x)^m\,\mathrm{Sin}[d+e\,x]$$

Result (type 8, 89 leaves, 6 steps):

$$e\,\mathrm{CannotIntegrate}\left[F^{a\,c+b\,c\,x}\,(f\,x)^{1+m}\,\mathrm{Cos}[d+e\,x],\,x\right]+f\,(1+m)\,\mathrm{CannotIntegrate}\left[F^{a\,c+b\,c\,x}\,(f\,x)^m\,\mathrm{Sin}[d+e\,x],\,x\right]+b\,c\,\mathrm{CannotIntegrate}\left[F^{a\,c+b\,c\,x}\,(f\,x)^{1+m}\,\mathrm{Sin}[d+e\,x],\,x\right]\,\mathrm{Log}[F]$$

Test results for the 950 problems in "4.7.7 Trig functions.m"

Problem 759: Result valid but suboptimal antiderivative.

$$\int \left(\mathrm{Cos}[x]^{12}\,\mathrm{Sin}[x]^{10}-\mathrm{Cos}[x]^{10}\,\mathrm{Sin}[x]^{12}\right)\,dx$$

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

$$\frac{1}{11}\,\mathrm{Cos}[x]^{11}\,\mathrm{Sin}[x]^{11}$$

Result (type 3, 129 leaves, 25 steps):

$$\frac{3\,\text{Cos}[x]^{11}\,\text{Sin}[x]}{5632} - \frac{3\,\text{Cos}[x]^{13}\,\text{Sin}[x]}{5632} + \frac{1}{512}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^3 - \frac{7\,\text{Cos}[x]^{13}\,\text{Sin}[x]^3}{2816} + \frac{7\,\text{Cos}[x]^{11}\,\text{Sin}[x]^5}{1280} - \frac{7}{880}\,\text{Cos}[x]^{13}\,\text{Sin}[x]^5 + \frac{1}{80}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^7 - \frac{9}{440}\,\text{Cos}[x]^{13}\,\text{Sin}[x]^7 + \frac{1}{40}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^9 - \frac{1}{22}\,\text{Cos}[x]^{13}\,\text{Sin}[x]^9 + \frac{1}{22}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^{11}$$

Problem 796: Unable to integrate problem.

$$\int e^{\text{Sin}[x]}\,\text{Sec}[x]^2\,\left(x\,\text{Cos}[x]^3 - \text{Sin}[x]\right)\,dx$$

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

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

Result (type 8, 24 leaves, 2 steps):

$$\text{CannotIntegrate}\left[e^{\text{Sin}[x]}\,x\,\text{Cos}[x],\,x\right] - \text{CannotIntegrate}\left[e^{\text{Sin}[x]}\,\text{Sec}[x]\,\text{Tan}[x],\,x\right]$$

Problem 858: Result valid but suboptimal antiderivative.

$$\int \frac{1}{\text{Cos}[x]^{3/2}\,\sqrt{3\,\text{Cos}[x] + \text{Sin}[x]}}\,dx$$

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

$$\frac{2\,\sqrt{3\,\text{Cos}[x] + \text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}$$

Result (type 3, 88 leaves, 5 steps):

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

Problem 859: Unable to integrate problem.

$$\int \frac{\text{Csc}[x]\,\sqrt{\text{Cos}[x] + \text{Sin}[x]}}{\text{Cos}[x]^{3/2}}\,dx$$

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

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

Result (type 8, 20 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\frac{\text{Csc}[x]\,\sqrt{\text{Cos}[x] + \text{Sin}[x]}}{\text{Cos}[x]^{3/2}},\,x\right]$$

Problem 860: Result valid but suboptimal antiderivative.

$$\int \frac{\text{Cos}[x]+\text{Sin}[x]}{\sqrt{1+\text{Sin}[2\,x]}}\,dx$$

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

$$\frac{x\sqrt{1+\text{Sin}[2\,x]}}{\text{Cos}[x]+\text{Sin}[x]}$$

Result (type 3, 72 leaves, 17 steps):

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

Problem 912: Result valid but suboptimal antiderivative.

$$\int \frac{\text{Cos}[x]+\text{Sin}[x]}{\sqrt{\text{Cos}[x]}\,\sqrt{\text{Sin}[x]}}\,dx$$

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

$$-\sqrt{2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}\right]+\sqrt{2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}\right]$$

Result (type 3, 243 leaves, 22 steps):

$$\frac{\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{\text{Cos}[x]}}{\sqrt{\text{Sin}[x]}}\right]}{\sqrt{2}}-\frac{\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{\text{Cos}[x]}}{\sqrt{\text{Sin}[x]}}\right]}{\sqrt{2}}-\frac{\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}\right]}{\sqrt{2}}+$$
$$\frac{\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}\right]}{\sqrt{2}}-\frac{\text{Log}\left[1+\text{Cot}[x]-\frac{\sqrt{2}\,\sqrt{\text{Cos}[x]}}{\sqrt{\text{Sin}[x]}}\right]}{2\,\sqrt{2}}+\frac{\text{Log}\left[1+\text{Cot}[x]+\frac{\sqrt{2}\,\sqrt{\text{Cos}[x]}}{\sqrt{\text{Sin}[x]}}\right]}{2\,\sqrt{2}}+$$
$$\frac{\text{Log}\left[1-\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}+\text{Tan}[x]\right]}{2\,\sqrt{2}}-\frac{\text{Log}\left[1+\frac{\sqrt{2}\,\sqrt{\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}+\text{Tan}[x]\right]}{2\,\sqrt{2}}$$

Problem 914: Unable to integrate problem.

$$\int \left(10\,x^9\,\text{Cos}\left[x^5\,\text{Log}[x]\right]-x^{10}\,\left(x^4+5\,x^4\,\text{Log}[x]\right)\,\text{Sin}\left[x^5\,\text{Log}[x]\right]\right)\,dx$$

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

$$x^{10}\,\text{Cos}\left[x^5\,\text{Log}[x]\right]$$

Result (type 8, 48 leaves, 4 steps):

$$10\,\text{CannotIntegrate}\left[x^9\,\text{Cos}\left[x^5\,\text{Log}[x]\right],\,x\right]-\text{CannotIntegrate}\left[x^{14}\,\text{Sin}\left[x^5\,\text{Log}[x]\right],\,x\right]-5\,\text{CannotIntegrate}\left[x^{14}\,\text{Log}[x]\,\text{Sin}\left[x^5\,\text{Log}[x]\right],\,x\right]$$

Problem 915: Unable to integrate problem.

$$\int \text{Cos}\left[\frac{x}{2}\right]^2\,\text{Tan}\left[\frac{\pi}{4}+\frac{x}{2}\right]\,dx$$

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

$$\frac{x}{2}-\frac{\text{Cos}[x]}{2}-\text{Log}\left[\text{Cos}\left[\frac{\pi}{4}+\frac{x}{2}\right]\right]$$

Result (type 8, 23 leaves, 0 steps):

$$\text{CannotIntegrate}\left[\text{Cos}\left[\frac{x}{2}\right]^2\,\text{Tan}\left[\frac{\pi}{4}+\frac{x}{2}\right],\,x\right]$$

Problem 931: Unable to integrate problem.

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

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

$$\frac{2\,x^2\,\sqrt{x^3+3\,\text{Sin}[a+b\,x]}}{3\,b}$$

Result (type 8, 82 leaves, 1 step):

$$\frac{\text{CannotIntegrate}\left[\frac{x^4}{\sqrt{x^3+3\,\text{Sin}[a+b\,x]}},\,x\right]}{b}+\text{CannotIntegrate}\left[\frac{x^2\,\text{Cos}[a+b\,x]}{\sqrt{x^3+3\,\text{Sin}[a+b\,x]}},\,x\right]+\frac{4\,\text{CannotIntegrate}\left[x\,\sqrt{x^3+3\,\text{Sin}[a+b\,x]},\,x\right]}{3\,b}$$

Problem 933: Unable to integrate problem.

$$\int\frac{\text{Cos}[x]+\text{Sin}[x]}{e^{-x}+\text{Sin}[x]}\,dx$$

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

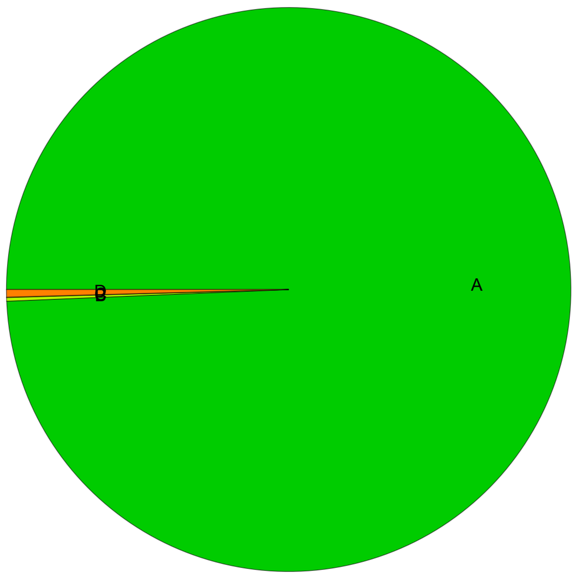
$$\text{Log}\left[1+e^x\,\text{Sin}[x]\right]$$

Result (type 8, 36 leaves, 5 steps):

$$x-\text{CannotIntegrate}\left[\frac{1}{1+e^x\,\text{Sin}[x]},\,x\right]-\text{CannotIntegrate}\left[\frac{\text{Cot}[x]}{1+e^x\,\text{Sin}[x]},\,x\right]+\text{Log}[\text{Sin}[x]]$$

Summary of Integration Test Results

22551 integration problems



A - 22402 optimal antiderivatives

B - 47 valid but suboptimal antiderivatives

C - 5 unnecessarily complex antiderivatives

D - 97 unable to integrate problems

E - 0 integration timeouts

F - 0 invalid antiderivatives