Mathematica 11.3 Integration Test Results

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"

Problem 9: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 148 leaves, 6 steps):

$$-\left(a^2 B-b^2 B-2 a b C\right) x+\frac{\left(2 a b B+a^2 C-b^2 C\right) \text{Log}[\text{Cos}[c+d x]]}{d}-\frac{b\,(b B+a C)\,\text{Tan}[c+d x]}{d}-\frac{C\,(a+b\,\text{Tan}[c+d x])^2}{2 d}+\frac{(4 b B-a C)\,(a+b\,\text{Tan}[c+d x])^3}{12 b^2 d}+\frac{C\,\text{Tan}[c+d x]\,(a+b\,\text{Tan}[c+d x])^3}{4 b d}$$

Result (type 3, 560 leaves):

$$\frac{\left(2 a b B+a^2 C-2 b^2 C\right) \text{Cos}[c+d x]\,(a+b\,\text{Tan}[c+d x])^2\,(B+C\,\text{Tan}[c+d x])}{2 d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])}-$$
$$\frac{\left(a^2 B-b^2 B-2 a b C\right) (c+d x)\,\text{Cos}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])^2\,(B+C\,\text{Tan}[c+d x])}{d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])}+$$
$$\frac{\left(2 a b B+a^2 C-b^2 C\right) \text{Cos}[c+d x]^3\,\text{Log}[\text{Cos}[c+d x]]\,(a+b\,\text{Tan}[c+d x])^2\,(B+C\,\text{Tan}[c+d x])}{d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])}+$$
$$\frac{b^2 C\,\text{Sec}[c+d x]\,(a+b\,\text{Tan}[c+d x])^2\,(B+C\,\text{Tan}[c+d x])}{4 d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])}+$$
$$\left(\text{Cos}[c+d x]^2\,\left(3 a^2 B\,\text{Sin}[c+d x]-4 b^2 B\,\text{Sin}[c+d x]-8 a b C\,\text{Sin}[c+d x]\right)(a+b\,\text{Tan}[c+d x])^2\right.$$
$$\left.(B+C\,\text{Tan}[c+d x])\right)\Big/\left(3 d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])\right)+$$
$$\frac{\left(b^2 B\,\text{Sin}[c+d x]+2 a b C\,\text{Sin}[c+d x]\right)(a+b\,\text{Tan}[c+d x])^2\,(B+C\,\text{Tan}[c+d x])}{3 d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])}$$

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

$$\int \text{Cot}[c+d x]^6\,(a+b\,\text{Tan}[c+d x])^2\,(B\,\text{Tan}[c+d x]+C\,\text{Tan}[c+d x]^2)\,dx$$

Optimal (type 3, 151 leaves, 7 steps):

$$\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\,x-\frac{\left(b^2\,C-a\,\left(2\,b\,B+a\,C\right)\right)\,\text{Cot}[c+d\,x]}{d}+\frac{\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\text{Cot}[c+d\,x]^2}{2\,d}-\frac{a\,\left(2\,b\,B+a\,C\right)\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{a^2\,B\,\text{Cot}[c+d\,x]^4}{4\,d}+\frac{\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}$$

Result (type 3, 561 leaves):

$$\frac{\left(-2\,a\,b\,B\,\text{Cos}[c+d\,x]-a^2\,C\,\text{Cos}[c+d\,x]\right)\,\left(b+a\,\text{Cot}[c+d\,x]\right)^2\,\left(C+B\,\text{Cot}[c+d\,x]\right)}{3\,d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)}-\frac{a^2\,B\,\left(b+a\,\text{Cot}[c+d\,x]\right)^2\,\left(C+B\,\text{Cot}[c+d\,x]\right)\,\text{Csc}[c+d\,x]}{4\,d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)}+\frac{\left(2\,a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\left(b+a\,\text{Cot}[c+d\,x]\right)^2\,\left(C+B\,\text{Cot}[c+d\,x]\right)\,\text{Sin}[c+d\,x]}{2\,d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)}+\left(\left(8\,a\,b\,B\,\text{Cos}[c+d\,x]+4\,a^2\,C\,\text{Cos}[c+d\,x]-3\,b^2\,C\,\text{Cos}[c+d\,x]\right)\,\left(b+a\,\text{Cot}[c+d\,x]\right)^2\,\left(C+B\,\text{Cot}[c+d\,x]\right)\,\text{Sin}[c+d\,x]^2\right)\Big/\left(3\,d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\right)+\frac{\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\,\left(c+d\,x\right)\,\left(b+a\,\text{Cot}[c+d\,x]\right)^2\,\left(C+B\,\text{Cot}[c+d\,x]\right)\,\text{Sin}[c+d\,x]^3}{d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)}+\frac{\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\left(b+a\,\text{Cot}[c+d\,x]\right)^2\,\left(C+B\,\text{Cot}[c+d\,x]\right)\,\text{Log}[\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^3}{d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)}$$

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

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

Optimal (type 3, 165 leaves, 5 steps):

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

Result (type 3, 600 leaves):

$$\frac{b^3 C (a+b\,\mathrm{Tan}[c+d\,x])^3 (B+C\,\mathrm{Tan}[c+d\,x])}{4\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])} -$$
$$\left(b\left(-3\,a\,b\,B-3\,a^2\,C+2\,b^2\,C\right)\mathrm{Cos}[c+d\,x]^2 (a+b\,\mathrm{Tan}[c+d\,x])^3 (B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(2\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) -$$
$$\left(\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)(c+d\,x)\,\mathrm{Cos}[c+d\,x]^4 (a+b\,\mathrm{Tan}[c+d\,x])^3 (B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) +$$
$$\left(\left(-a^3\,B+3\,a\,b^2\,B+3\,a^2\,b\,C-b^3\,C\right)\mathrm{Cos}[c+d\,x]^4\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right.$$
$$\left.(B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) +$$
$$\left(\mathrm{Cos}[c+d\,x]^3 \left(9\,a^2\,b\,B\,\mathrm{Sin}[c+d\,x]-4\,b^3\,B\,\mathrm{Sin}[c+d\,x]+3\,a^3\,C\,\mathrm{Sin}[c+d\,x]-12\,a\,b^2\,C\,\mathrm{Sin}[c+d\,x]\right)\right.$$
$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^3 (B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(3\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) +$$
$$\left(\mathrm{Cos}[c+d\,x]\left(b^3\,B\,\mathrm{Sin}[c+d\,x]+3\,a\,b^2\,C\,\mathrm{Sin}[c+d\,x]\right)(a+b\,\mathrm{Tan}[c+d\,x])^3 (B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(3\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right)$$

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

$$\int \mathrm{Cot}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^3 \left(B\,\mathrm{Tan}[c+d\,x]+C\,\mathrm{Tan}[c+d\,x]^2\right) dx$$

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

$$\left(a^3\,B-3\,a\,b^2\,B-3\,a^2\,b\,C+b^3\,C\right)x-\frac{\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}+$$
$$\frac{b\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\mathrm{Tan}[c+d\,x]}{d}+\frac{(b\,B+a\,C)(a+b\,\mathrm{Tan}[c+d\,x])^2}{2\,d}+\frac{C\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{3\,d}$$

Result (type 3, 509 leaves):

$$\left(\left(a^3\,B-3\,a\,b^2\,B-3\,a^2\,b\,C+b^3\,C\right)(c+d\,x)\,(b+a\,\mathrm{Cot}[c+d\,x])^3 (C+B\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]^4\right)\Big/$$
$$\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) +$$
$$\left(\left(-3\,a^2\,b\,B+b^3\,B-a^3\,C+3\,a\,b^2\,C\right)(b+a\,\mathrm{Cot}[c+d\,x])^3 (C+B\,\mathrm{Cot}[c+d\,x])\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\right.$$
$$\left.\mathrm{Sin}[c+d\,x]^4\right)\Big/\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) +$$
$$\left((b+a\,\mathrm{Cot}[c+d\,x])^3 (C+B\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]^3\right.$$
$$\left.\left(9\,a\,b^2\,B\,\mathrm{Sin}[c+d\,x]+9\,a^2\,b\,C\,\mathrm{Sin}[c+d\,x]-4\,b^3\,C\,\mathrm{Sin}[c+d\,x]\right)\mathrm{Tan}[c+d\,x]\right)\Big/$$
$$\left(3\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) +$$
$$\left(b^2\,(b\,B+3\,a\,C)\,(b+a\,\mathrm{Cot}[c+d\,x])^3 (C+B\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]^2\,\mathrm{Tan}[c+d\,x]^2\right)\Big/$$
$$\left(2\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right) +$$
$$\left(b^3\,C\,(b+a\,\mathrm{Cot}[c+d\,x])^3 (C+B\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]^2\,\mathrm{Tan}[c+d\,x]^3\right)\Big/$$
$$\left(3\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3 (B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right)$$

Problem 19: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^2 \left(a+b \text{Tan}[c+d x]\right)^3 \left(B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2\right) dx$$

Optimal (type 3, 117 leaves, 6 steps):

$$\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) x-\frac{b \left(3 a b B+3 a^2 C-b^2 C\right) \text{Log}[\text{Cos}[c+d x]]}{d}+\frac{a^3 B \text{Log}[\text{Sin}[c+d x]]}{d}+\frac{b^2 (b B+2 a C) \text{Tan}[c+d x]}{d}+\frac{b C \left(a+b \text{Tan}[c+d x]\right)^2}{2 d}$$

Result (type 3, 490 leaves):

$$\frac{b^3 C \text{Cos}[c+d x] \left(C+B \text{Cot}[c+d x]\right) \text{Sin}[c+d x] \left(a+b \text{Tan}[c+d x]\right)^3}{2 d \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right)}+$$
$$\left(\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) (c+d x) \text{Cos}[c+d x]^3 \left(C+B \text{Cot}[c+d x]\right) \text{Sin}[c+d x] \left(a+b \text{Tan}[c+d x]\right)^3\right) \Big/ \left(d \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right)\right)+$$
$$\left(\left(-3 a b^2 B-3 a^2 b C+b^3 C\right) \text{Cos}[c+d x]^3 \left(C+B \text{Cot}[c+d x]\right) \text{Log}[\text{Cos}[c+d x]] \text{Sin}[c+d x] \left(a+b \text{Tan}[c+d x]\right)^3\right) \Big/ \left(d \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right)\right)+$$
$$\left(a^3 B \text{Cos}[c+d x]^3 \left(C+B \text{Cot}[c+d x]\right) \text{Log}[\text{Sin}[c+d x]] \text{Sin}[c+d x] \left(a+b \text{Tan}[c+d x]\right)^3\right) \Big/ \left(d \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right)\right)+$$
$$\left(\text{Cos}[c+d x]^2 \left(C+B \text{Cot}[c+d x]\right) \text{Sin}[c+d x] \left(b^3 B \text{Sin}[c+d x]+3 a b^2 C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right) \Big/ \left(d \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right)\right)$$

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

$$\int \text{Cot}[c+d x]^6 \left(a+b \text{Tan}[c+d x]\right)^3 \left(B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2\right) dx$$

Optimal (type 3, 191 leaves, 7 steps):

$$\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) x+\frac{\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) \text{Cot}[c+d x]}{d}+\frac{a \left(2 a^2 B-5 b^2 B-6 a b C\right) \text{Cot}[c+d x]^2}{4 d}-\frac{a^2 (3 b B+2 a C) \text{Cot}[c+d x]^3}{6 d}+\frac{\left(a^3 B-3 a b^2 B-3 a^2 b C+b^3 C\right) \text{Log}[\text{Sin}[c+d x]]}{d}-\frac{a B \text{Cot}[c+d x]^4 \left(a+b \text{Tan}[c+d x]\right)^2}{4 d}$$

Result (type 3, 598 leaves):

$$-\left(\left(a^3 B\,(b+a\,\text{Cot}[c+d\,x])^3\,(C+B\,\text{Cot}[c+d\,x])\right)\Big/\left(4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x])\right)\right)+$$
$$\left(\left(-3\,a^2\,b\,B\,\text{Cos}[c+d\,x]-a^3\,C\,\text{Cos}[c+d\,x]\right)\,(b+a\,\text{Cot}[c+d\,x])^3\,(C+B\,\text{Cot}[c+d\,x])\,\text{Sin}[c+d\,x]\right)\Big/$$
$$\left(3\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x])\right)+$$
$$\left(a\,\left(2\,a^2\,B-3\,b^2\,B-3\,a\,b\,C\right)\,(b+a\,\text{Cot}[c+d\,x])^3\,(C+B\,\text{Cot}[c+d\,x])\,\text{Sin}[c+d\,x]^2\right)\Big/$$
$$\left(2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\left(12\,a^2\,b\,B\,\text{Cos}[c+d\,x]-3\,b^3\,B\,\text{Cos}[c+d\,x]+4\,a^3\,C\,\text{Cos}[c+d\,x]-9\,a\,b^2\,C\,\text{Cos}[c+d\,x]\right)\right.$$
$$\left.(b+a\,\text{Cot}[c+d\,x])^3\,(C+B\,\text{Cot}[c+d\,x])\,\text{Sin}[c+d\,x]^3\right)\Big/$$
$$\left(3\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)\,(c+d\,x)\,(b+a\,\text{Cot}[c+d\,x])^3\,(C+B\,\text{Cot}[c+d\,x])\,\text{Sin}[c+d\,x]^4\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\left(a^3\,B-3\,a\,b^2\,B-3\,a^2\,b\,C+b^3\,C\right)\,(b+a\,\text{Cot}[c+d\,x])^3\,(C+B\,\text{Cot}[c+d\,x])\,\text{Log}[\text{Sin}[c+d\,x]]\right.$$
$$\left.\text{Sin}[c+d\,x]^4\right)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x])\right)$$

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

$$\int \text{Cot}[c+d\,x]^7\,(a+b\,\text{Tan}[c+d\,x])^3\,\left(B\,\text{Tan}[c+d\,x]+C\,\text{Tan}[c+d\,x]^2\right)\,dx$$

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

$$-\left(a^3\,B-3\,a\,b^2\,B-3\,a^2\,b\,C+b^3\,C\right)\,x-\frac{\left(a^3\,B-3\,a\,b^2\,B-3\,a^2\,b\,C+b^3\,C\right)\,\text{Cot}[c+d\,x]}{d}+\frac{\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)\,\text{Cot}[c+d\,x]^2}{2\,d}+$$
$$\frac{a\,\left(5\,a^2\,B-12\,b^2\,B-15\,a\,b\,C\right)\,\text{Cot}[c+d\,x]^3}{15\,d}-\frac{a^2\,(7\,b\,B+5\,a\,C)\,\text{Cot}[c+d\,x]^4}{20\,d}+$$
$$\frac{\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-\frac{a\,B\,\text{Cot}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^2}{5\,d}$$

Result (type 3, 680 leaves):

$$\left(\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right)\left(b+a \operatorname{Cot}[c+d x]\right)^3\left(C+B \operatorname{Cot}[c+d x]\right) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]^4\right) \Big/\left(d\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^3\left(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x]\right)\right)+$$
$$\left(1 \Big/\left(240 d\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^3\left(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x]\right)\right)\right)$$
$$\left(b+a \operatorname{Cot}[c+d x]\right)^3\left(C+B \operatorname{Cot}[c+d x]\right) \operatorname{Csc}[c+d x]$$
$$\left(-50 a^3 B \operatorname{Cos}[c+d x]+60 a b^2 B \operatorname{Cos}[c+d x]+60 a^2 b C \operatorname{Cos}[c+d x]-\right.$$
$$30 b^3 C \operatorname{Cos}[c+d x]+25 a^3 B \operatorname{Cos}[3(c+d x)]-120 a b^2 B \operatorname{Cos}[3(c+d x)]-$$
$$120 a^2 b C \operatorname{Cos}[3(c+d x)]+45 b^3 C \operatorname{Cos}[3(c+d x)]-23 a^3 B \operatorname{Cos}[5(c+d x)]+$$
$$60 a b^2 B \operatorname{Cos}[5(c+d x)]+60 a^2 b C \operatorname{Cos}[5(c+d x)]-15 b^3 C \operatorname{Cos}[5(c+d x)]+$$
$$360 a^2 b B \operatorname{Sin}[c+d x]-90 b^3 B \operatorname{Sin}[c+d x]+120 a^3 C \operatorname{Sin}[c+d x]-$$
$$270 a b^2 C \operatorname{Sin}[c+d x]-150 a^3 B(c+d x) \operatorname{Sin}[c+d x]+450 a b^2 B(c+d x) \operatorname{Sin}[c+d x]+$$
$$450 a^2 b C(c+d x) \operatorname{Sin}[c+d x]-150 b^3 C(c+d x) \operatorname{Sin}[c+d x]-180 a^2 b B \operatorname{Sin}[3(c+d x)]+$$
$$30 b^3 B \operatorname{Sin}[3(c+d x)]-60 a^3 C \operatorname{Sin}[3(c+d x)]+90 a b^2 C \operatorname{Sin}[3(c+d x)]+$$
$$75 a^3 B(c+d x) \operatorname{Sin}[3(c+d x)]-225 a b^2 B(c+d x) \operatorname{Sin}[3(c+d x)]-$$
$$225 a^2 b C(c+d x) \operatorname{Sin}[3(c+d x)]+75 b^3 C(c+d x) \operatorname{Sin}[3(c+d x)]-$$
$$15 a^3 B(c+d x) \operatorname{Sin}[5(c+d x)]+45 a b^2 B(c+d x) \operatorname{Sin}[5(c+d x)]+$$
$$\left.45 a^2 b C(c+d x) \operatorname{Sin}[5(c+d x)]-15 b^3 C(c+d x) \operatorname{Sin}[5(c+d x)]\right)$$

Problem 26: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

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

$$-\frac{(a B+b C) x}{a^2+b^2}-\frac{(b B-a C) \operatorname{Log}[\operatorname{Cos}[c+d x]]}{\left(a^2+b^2\right) d}+\frac{a^2(b B-a C) \operatorname{Log}[a+b \operatorname{Tan}[c+d x]]}{b^2\left(a^2+b^2\right) d}+\frac{C \operatorname{Tan}[c+d x]}{b d}$$

Result (type 3, 203 leaves):

$$\left(\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)\left(B+C \operatorname{Tan}[c+d x]\right)\left(-a b^2 B c-b^3 c C-a b^2 B d x-b^3 C d x+\right.\right.$$
$$\left(a^2+b^2\right)(-b B+a C) \operatorname{Log}[\operatorname{Cos}[c+d x]]+a^2 b B \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]-$$
$$\left.\left.a^3 C \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+b\left(a^2+b^2\right) C \operatorname{Tan}[c+d x]\right)\right) \Big/$$
$$\left((a-i b)(a+i b) b^2 d\left(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x]\right)\left(a+b \operatorname{Tan}[c+d x]\right)\right)$$

Problem 30: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Cot}[c+d x]^3\left(B \operatorname{Tan}[c+d x]+C \operatorname{Tan}[c+d x]^2\right)}{a+b \operatorname{Tan}[c+d x]} \, dx$$

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

$$-\frac{(a B+b C) x}{a^2+b^2}-\frac{B \operatorname{Cot}[c+d x]}{a d}-\frac{(b B-a C) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^2 d}+$$
$$\frac{b^2(b B-a C) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{a^2\left(a^2+b^2\right) d}$$

Result (type 3, 201 leaves):

$$-\left(\left(\left(C+B\operatorname{Cot}[c+d x]\right)\left(a^3 B c+a^2 b c C+a^3 B d x+a^2 b C d x+a\left(a^2+b^2\right) B\operatorname{Cot}[c+d x]-\left(a^2+b^2\right)\left(-b B+a C\right)\operatorname{Log}[\operatorname{Sin}[c+d x]]-b^3 B\operatorname{Log}[a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]]+a b^2 C\operatorname{Log}[a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]]\right)\right)\Big/\left(a^2\left(a-i b\right)\left(a+i b\right) d\left(b+a\operatorname{Cot}[c+d x]\right)\left(B\operatorname{Cos}[c+d x]+C\operatorname{Sin}[c+d x]\right)\right)\right)$$

Problem 32: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 208 leaves, 7 steps):

$$-\frac{\left(2 a b B-a^2 C+b^2 C\right) x}{\left(a^2+b^2\right)^2}+\frac{\left(a^2 B-b^2 B+2 a b C\right)\operatorname{Log}[\operatorname{Cos}[c+d x]]}{\left(a^2+b^2\right)^2 d}+\frac{a^2\left(a^2 b B+3 b^3 B-2 a^3 C-4 a b^2 C\right)\operatorname{Log}[a+b\operatorname{Tan}[c+d x]]}{b^3\left(a^2+b^2\right)^2 d}-\frac{\left(a b B-2 a^2 C-b^2 C\right)\operatorname{Tan}[c+d x]}{b^2\left(a^2+b^2\right) d}+\frac{a\left(b B-a C\right)\operatorname{Tan}[c+d x]^2}{b\left(a^2+b^2\right) d\left(a+b\operatorname{Tan}[c+d x]\right)}$$

Result (type 3, 869 leaves):

$$\left(\left(-2\,a\,b\,B+a^2\,C-b^2\,C\right)\,(c+d\,x)\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B+C\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(\left(a-i\,b\right)^2\,\left(a+i\,b\right)^2\,d\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\right)+$$
$$\left(\left(i\,a^7\,b^3\,B+a^6\,b^4\,B+4\,i\,a^5\,b^5\,B+4\,a^4\,b^6\,B+3\,i\,a^3\,b^7\,B+3\,a^2\,b^8\,B-2\,i\,a^8\,b^2\,C-2\,a^7\,b^3\,C-6\,i\,a^6\,b^4\,C-6\,a^5\,b^5\,C-4\,i\,a^4\,b^6\,C-4\,a^3\,b^7\,C\right)\,(c+d\,x)\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B+C\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(\left(a-i\,b\right)^4\,\left(a+i\,b\right)^3\,b^5\,d\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\right)-$$
$$\left(i\,\left(a^4\,b\,B+3\,a^2\,b^3\,B-2\,a^5\,C-4\,a^3\,b^2\,C\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B+C\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(b^3\,\left(a^2+b^2\right)^2\,d\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\right)+$$
$$\left(\left(-b\,B+2\,a\,C\right)\,\text{Log}[\text{Cos}[c+d\,x]]\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B+C\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(b^3\,d\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\right)+$$
$$\left(\left(a^4\,b\,B+3\,a^2\,b^3\,B-2\,a^5\,C-4\,a^3\,b^2\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\left(B+C\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(2\,b^3\,\left(a^2+b^2\right)^2\,d\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\right)+$$
$$\left(\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)\,\left(-a^2\,b\,B\,\text{Sin}[c+d\,x]+a^3\,C\,\text{Sin}[c+d\,x]\right)\,\left(B+C\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(\left(a-i\,b\right)\,\left(a+i\,b\right)\,b^2\,d\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\right)+$$
$$\left(C\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\,\text{Tan}[c+d\,x]\,\left(B+C\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(b^2\,d\,\left(B\,\text{Cos}[c+d\,x]+C\,\text{Sin}[c+d\,x]\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\right)$$

Problem 33: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 157 leaves, 6 steps):

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

Result (type 3, 324 leaves):

$$\frac{1}{2 b^2 \left(a^2+b^2\right)^2 d \left(a+b \operatorname{Tan}[c+d x]\right)} \Big(a \Big(2 (a+\mathrm{i} b)^2 \left(-b^2 B+\mathrm{i} a^2 C+2 a b C\right) (c+d x)-2 \left(a^2+b^2\right)^2 C \operatorname{Log}[\operatorname{Cos}[c+d x]]+ a \left(-2 b^3 B+a^3 C+3 a b^2 C\right) \operatorname{Log}\left[\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2\right]\Big)+ b \Big(2 (a+\mathrm{i} b) \left(-\mathrm{i} b^3 B (c+d x)+\mathrm{i} a^3 C (\mathrm{i}+c+d x)-a b^2 (-2 \mathrm{i} C (c+d x)+B (\mathrm{i}+c+d x))+ a^2 b (B+C (\mathrm{i}+c+d x))\right)-2 \left(a^2+b^2\right)^2 C \operatorname{Log}[\operatorname{Cos}[c+d x]]+ a \left(-2 b^3 B+a^3 C+3 a b^2 C\right) \operatorname{Log}\left[\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2\right]\Big) \operatorname{Tan}[c+d x]- 2 \mathrm{i} a \left(-2 b^3 B+a^3 C+3 a b^2 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \left(a+b \operatorname{Tan}[c+d x]\right)\Big)$$

Problem 34: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

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

$$\frac{\left(2 a b B-a^2 C+b^2 C\right) x}{\left(a^2+b^2\right)^2}-\frac{\left(a^2 B-b^2 B+2 a b C\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}+\frac{a (b B-a C)}{b \left(a^2+b^2\right) d \left(a+b \operatorname{Tan}[c+d x]\right)}$$

Result (type 3, 252 leaves):

$$\frac{1}{2 \left(a^2+b^2\right)^2 d \left(a+b \operatorname{Tan}[c+d x]\right)} \Big(a \Big(-2 \mathrm{i} (a+\mathrm{i} b)^2 (B-\mathrm{i} C) (c+d x)+ \left(-a^2 B+b^2 B-2 a b C\right) \operatorname{Log}\left[\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2\right]\Big)+\Big(-2 \mathrm{i} (a+\mathrm{i} b) \left(\mathrm{i} a^2 C+b^2 (C (c+d x)+\mathrm{i} B (\mathrm{i}+c+d x))+a b (B (-\mathrm{i}+c+d x)-\mathrm{i} C (\mathrm{i}+c+d x))\right)+ b \left(-a^2 B+b^2 B-2 a b C\right) \operatorname{Log}\left[\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2\right]\Big) \operatorname{Tan}[c+d x]+ 2 \mathrm{i} \left(a^2 B-b^2 B+2 a b C\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \left(a+b \operatorname{Tan}[c+d x]\right)\Big)$$

Problem 35: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cot}[c+d x] \left(B \operatorname{Tan}[c+d x]+C \operatorname{Tan}[c+d x]^2\right)}{\left(a+b \operatorname{Tan}[c+d x]\right)^2} \, dx$$

Optimal (type 3, 111 leaves, 4 steps):

$$\frac{\left(a^2 B-b^2 B+2 a b C\right) x}{\left(a^2+b^2\right)^2}+\frac{\left(2 a b B-a^2 C+b^2 C\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}-\frac{b B-a C}{\left(a^2+b^2\right) d \left(a+b \operatorname{Tan}[c+d x]\right)}$$

Result (type 3, 257 leaves) :

$$\frac{1}{2\,a\,\left(a^2+b^2\right)^2 d\,\left(b+a\,\text{Cot}[c+d\,x]\right)}\left(2\,\mathrm{i}\,a\,\left(-2\,a\,b\,B+a^2\,C-b^2\,C\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\left(b+a\,\text{Cot}[c+d\,x]\right)+a^2\,\text{Cot}[c+d\,x]\,\left(2\,\left(a+\mathrm{i}\,b\right)^2\,\left(B-\mathrm{i}\,C\right)\,\left(c+d\,x\right)+\left(2\,a\,b\,B-a^2\,C+b^2\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)+b\,\left(2\,\left(a+\mathrm{i}\,b\right)\,\left(-\mathrm{i}\,b^2\,B+a^2\,\left(B\,\left(c+d\,x\right)-\mathrm{i}\,C\,\left(-\mathrm{i}+c+d\,x\right)\right)+a\,b\,\left(B\,\left(1+\mathrm{i}\,c+\mathrm{i}\,d\,x\right)+C\,\left(\mathrm{i}+c+d\,x\right)\right)\right)+a\,\left(2\,a\,b\,B-a^2\,C+b^2\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)\right)$$

Problem 36: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

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

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

Result (type 3, 325 leaves) :

$$\frac{1}{2\,a^2\,\left(a^2+b^2\right)^2 d\,\left(b+a\,\text{Cot}[c+d\,x]\right)}\left(2\,\mathrm{i}\,b\,\left(3\,a^2\,b\,B+b^3\,B-2\,a^3\,C\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\left(b+a\,\text{Cot}[c+d\,x]\right)+a\,\text{Cot}[c+d\,x]\,\left(2\,\left(a+\mathrm{i}\,b\right)^2\,\left(-2\,a\,b\,B+\mathrm{i}\,b^2\,B+a^2\,C\right)\,\left(c+d\,x\right)+2\,\left(a^2+b^2\right)^2\,B\,\text{Log}[\text{Sin}[c+d\,x]]-b\,\left(3\,a^2\,b\,B+b^3\,B-2\,a^3\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)+b\,\left(2\,\left(a+\mathrm{i}\,b\right)\,\left(a^3\,C\,\left(c+d\,x\right)-b^3\,B\,\left(-\mathrm{i}+c+d\,x\right)+a^2\,b\,\left(C\,\left(1+\mathrm{i}\,c+\mathrm{i}\,d\,x\right)-2\,B\,\left(c+d\,x\right)\right)-\mathrm{i}\,a\,b^2\,\left(C+B\,\left(-\mathrm{i}+c+d\,x\right)\right)\right)+2\,\left(a^2+b^2\right)^2\,B\,\text{Log}[\text{Sin}[c+d\,x]]-b\,\left(3\,a^2\,b\,B+b^3\,B-2\,a^3\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)\right)$$

Problem 37: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 192 leaves, 6 steps) :

$$-\frac{\left(a^2 B-b^2 B+2 a b C\right) x}{\left(a^2+b^2\right)^2}-\frac{(2 b B-a C) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^3 d}+\frac{1}{a^3\left(a^2+b^2\right)^2 d} b^2\left(4 a^2 b B+2 b^3 B-3 a^3 C-a b^2 C\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]-\frac{b\left(a^2 B+2 b^2 B-a b C\right)}{a^2\left(a^2+b^2\right) d(a+b \operatorname{Tan}[c+d x])}-\frac{B \operatorname{Cot}[c+d x]}{a d(a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 873 leaves):

$$-\left(\left(\left(a^2 B-b^2 B+2 a b C\right)(c+d x)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) / \left((a-i b)^2(a+i b)^2 d(b+a \operatorname{Cot}[c+d x])^2(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)\right)+$$
$$\left(\left(4 i a^{10} b^3 B+4 a^9 b^4 B+6 i a^8 b^5 B+6 a^7 b^6 B+2 i a^6 b^7 B+2 a^5 b^8 B-3 i a^{11} b^2 C-3 a^{10} b^3 C-4 i a^9 b^4 C-4 a^8 b^5 C-i a^7 b^6 C-a^6 b^7 C\right)(c+d x)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) / \left(a^8(a-i b)^4(a+i b)^3 d(b+a \operatorname{Cot}[c+d x])^2(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)-$$
$$\left(i\left(4 a^2 b^3 B+2 b^5 B-3 a^3 b^2 C-a b^4 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]](C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) / \left(a^3\left(a^2+b^2\right)^2 d(b+a \operatorname{Cot}[c+d x])^2(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)-$$
$$\left(B \operatorname{Cot}[c+d x](C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) / \left(a^2 d(b+a \operatorname{Cot}[c+d x])^2(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\left((-2 b B+a C)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] \operatorname{Log}[\operatorname{Sin}[c+d x]](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) / \left(a^3 d(b+a \operatorname{Cot}[c+d x])^2(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\left(\left(4 a^2 b^3 B+2 b^5 B-3 a^3 b^2 C-a b^4 C\right)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) / \left(2 a^3\left(a^2+b^2\right)^2 d(b+a \operatorname{Cot}[c+d x])^2(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\left((C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])\left(b^4 B \operatorname{Sin}[c+d x]-a b^3 C \operatorname{Sin}[c+d x]\right)\right) / \left(a^3(a-i b)(a+i b) d(b+a \operatorname{Cot}[c+d x])^2(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)$$

Problem 38: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 331 leaves, 8 steps):

$$\frac{\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) x}{\left(a^2+b^2\right)^3}+\frac{\left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}+$$
$$\frac{1}{b^4 \left(a^2+b^2\right)^3 d}a^2 \left(a^4 b B+3 a^2 b^3 B+6 b^5 B-3 a^5 C-9 a^3 b^2 C-10 a b^4 C\right) \text{Log}[a+b \text{Tan}[c+d x]]-$$
$$\frac{\left(a^3 b B+3 a b^3 B-3 a^4 C-6 a^2 b^2 C-b^4 C\right) \text{Tan}[c+d x]}{b^3 \left(a^2+b^2\right)^2 d}+$$
$$\frac{a (b B-a C) \text{Tan}[c+d x]^3}{2 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}+\frac{a \left(a^2 b B+5 b^3 B-3 a^3 C-7 a b^2 C\right) \text{Tan}[c+d x]^2}{2 b^2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1146 leaves):

$$\left(a^4 (-b B+a C) \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) (B+C \text{Tan}[c+d x])\right)\Big/$$
$$\left(2 (a-i b)^2 (a+i b)^2 b^2 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\left(\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) (c+d x) \text{Sec}[c+d x]^2\right.$$
$$\left.(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (B+C \text{Tan}[c+d x])\right)\Big/$$
$$\left((a-i b)^3 (a+i b)^3 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\left(\left(i a^{11} b^4 B+a^{10} b^5 B+5 i a^9 b^6 B+5 a^8 b^7 B+13 i a^7 b^8 B+13 a^6 b^9 B+15 i a^5 b^{10} B+\right.\right.$$
$$15 a^4 b^{11} B+6 i a^3 b^{12} B+6 a^2 b^{13} B-3 i a^{12} b^3 C-3 a^{11} b^4 C-15 i a^{10} b^5 C-15 a^9 b^6 C-$$
$$\left.31 i a^8 b^7 C-31 a^7 b^8 C-29 i a^6 b^9 C-29 a^5 b^{10} C-10 i a^4 b^{11} C-10 a^3 b^{12} C\right)$$
$$\left.(c+d x) \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (B+C \text{Tan}[c+d x])\right)\Big/$$
$$\left((a-i b)^6 (a+i b)^5 b^7 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)-$$
$$\left(i \left(a^6 b B+3 a^4 b^3 B+6 a^2 b^5 B-3 a^7 C-9 a^5 b^2 C-10 a^3 b^4 C\right) \text{ArcTan}[\text{Tan}[c+d x]]\right.$$
$$\left.\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (B+C \text{Tan}[c+d x])\right)\Big/$$
$$\left(b^4 \left(a^2+b^2\right)^3 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\left((-b B+3 a C) \text{Log}[\text{Cos}[c+d x]] \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right.$$
$$\left.(B+C \text{Tan}[c+d x])\right)\Big/\left(b^4 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\left(\left(a^6 b B+3 a^4 b^3 B+6 a^2 b^5 B-3 a^7 C-9 a^5 b^2 C-10 a^3 b^4 C\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right.$$
$$\left.\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (B+C \text{Tan}[c+d x])\right)\Big/$$
$$\left(2 b^4 \left(a^2+b^2\right)^3 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\left(\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(-a^4 b B \text{Sin}[c+d x]-\right.\right.$$
$$\left.\left.4 a^2 b^3 B \text{Sin}[c+d x]+2 a^5 C \text{Sin}[c+d x]+5 a^3 b^2 C \text{Sin}[c+d x]\right) (B+C \text{Tan}[c+d x])\right)\Big/$$
$$\left((a-i b)^2 (a+i b)^2 b^3 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\left(C \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \text{Tan}[c+d x] (B+C \text{Tan}[c+d x])\right)\Big/$$
$$\left(b^3 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)$$

Problem 39: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 250 leaves, 7 steps):

$$-\frac{\left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) x}{\left(a^2+b^2\right)^3}+\frac{\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}+\frac{a \left(a^2 b^3 B-3 b^5 B+a^5 C+3 a^3 b^2 C+6 a b^4 C\right) \text{Log}[a+b\,\text{Tan}[c+d x]]}{b^3 \left(a^2+b^2\right)^3 d}+\frac{a (b B-a C) \text{Tan}[c+d x]^2}{2 b \left(a^2+b^2\right) d \left(a+b\,\text{Tan}[c+d x]\right)^2}-\frac{a^2 \left(2 b^3 B-a^3 C-3 a b^2 C\right)}{b^3 \left(a^2+b^2\right)^2 d \left(a+b\,\text{Tan}[c+d x]\right)}$$

Result (type 3, 998 leaves):

$$-\left(\left(a^3 (-b B+a C) \text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right) \left(B+C \text{Tan}[c+d x]\right)\right)\Big/\left(2 (a-i b)^2 (a+i b)^2 b d \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right)\right)+$$
$$\left(\left(-3 a^2 b B+b^3 B+a^3 C-3 a b^2 C\right) (c+d x) \text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B+C \text{Tan}[c+d x]\right)\right)\Big/$$
$$\left((a-i b)^3 (a+i b)^3 d \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right)+$$
$$\left(\left(i a^8 b^5 B+a^7 b^6 B-i a^6 b^7 B-a^5 b^8 B-5 i a^4 b^9 B-5 a^3 b^{10} B-3 i a^2 b^{11} B-3 a b^{12} B+i a^{11} b^2 C+a^{10} b^3 C+5 i a^9 b^4 C+5 a^8 b^5 C+13 i a^7 b^6 C+13 a^6 b^7 C+15 i a^5 b^8 C+15 a^4 b^9 C+6 i a^3 b^{10} C+6 a^2 b^{11} C\right) (c+d x) \text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B+C \text{Tan}[c+d x]\right)\right)\Big/$$
$$\left((a-i b)^6 (a+i b)^5 b^5 d \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right)-$$
$$\left(i \left(a^3 b^3 B-3 a b^5 B+a^6 C+3 a^4 b^2 C+6 a^2 b^4 C\right) \text{ArcTan}[\text{Tan}[c+d x]] \text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B+C \text{Tan}[c+d x]\right)\right)\Big/$$
$$\left(b^3 \left(a^2+b^2\right)^3 d \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right)-$$
$$\left(C \text{Log}[\text{Cos}[c+d x]] \text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B+C \text{Tan}[c+d x]\right)\right)\Big/$$
$$\left(b^3 d \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right)+$$
$$\left(\left(a^3 b^3 B-3 a b^5 B+a^6 C+3 a^4 b^2 C+6 a^2 b^4 C\right) \text{Log}\left[\left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^2\right] \text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^3 \left(B+C \text{Tan}[c+d x]\right)\right)\Big/$$
$$\left(2 b^3 \left(a^2+b^2\right)^3 d \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right)+$$
$$\left(\text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^2 \left(3 a b^3 B \text{Sin}[c+d x]-a^4 C \text{Sin}[c+d x]-4 a^2 b^2 C \text{Sin}[c+d x]\right) \left(B+C \text{Tan}[c+d x]\right)\right)\Big/$$
$$\left((a-i b)^2 (a+i b)^2 b^2 d \left(B \text{Cos}[c+d x]+C \text{Sin}[c+d x]\right) \left(a+b \text{Tan}[c+d x]\right)^3\right)$$

Problem 40: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

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

Optimal (type 3, 189 leaves, 5 steps):

$$-\frac{(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C)\,x}{(a^2+b^2)^3}-\frac{(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C)\,\text{Log}[a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]]}{(a^2+b^2)^3 d}-\frac{a^2\,(b B-a C)}{2 b^2\,(a^2+b^2)\,d\,(a+b\,\text{Tan}[c+d x])^2}+\frac{a\,(2 b^3 B-a^3 C-3 a b^2 C)}{b^2\,(a^2+b^2)^2\,d\,(a+b\,\text{Tan}[c+d x])}$$

Result (type 3, 845 leaves):

$$\left(a^2\,(-b B+a C)\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])\,(B+C\,\text{Tan}[c+d x])\right)\Big/\left(2\,(a-i b)^2\,(a+i b)^2 d\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)-\left((a^3 B-3 a b^2 B+3 a^2 b C-b^3 C)\,(c+d x)\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,(B+C\,\text{Tan}[c+d x])\right)\Big/\left((a-i b)^3\,(a+i b)^3 d\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)+\left((-3 i a^9 b B-3 a^8 b^2 B-5 i a^7 b^3 B-5 a^6 b^4 B-i a^5 b^5 B-a^4 b^6 B+i a^3 b^7 B+a^2 b^8 B+i a^{10} C+a^9 b C-i a^8 b^2 C-a^7 b^3 C-5 i a^6 b^4 C-5 a^5 b^5 C-3 i a^4 b^6 C-3 a^3 b^7 C)\,(c+d x)\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,(B+C\,\text{Tan}[c+d x])\right)\Big/\left(a^2\,(a-i b)^6\,(a+i b)^5 d\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)-\left(i\,(-3 a^2 b B+b^3 B+a^3 C-3 a b^2 C)\,\text{ArcTan}[\text{Tan}[c+d x]]\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,(B+C\,\text{Tan}[c+d x])\right)\Big/\left((a^2+b^2)^3 d\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)+\left((-3 a^2 b B+b^3 B+a^3 C-3 a b^2 C)\,\text{Log}\left[(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right]\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,(B+C\,\text{Tan}[c+d x])\right)\Big/\left(2\,(a^2+b^2)^3 d\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)+\left(\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(a^2 B\,\text{Sin}[c+d x]-2 b^2 B\,\text{Sin}[c+d x]+3 a b C\,\text{Sin}[c+d x])\,(B+C\,\text{Tan}[c+d x])\right)\Big/\left((a-i b)^2\,(a+i b)^2 d\,(B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)$$

Problem 41: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 179 leaves, 4 steps):

$$\frac{\left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) x}{\left(a^2+b^2\right)^3}-\frac{\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^3 d}+\frac{a (b B-a C)}{2 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}+\frac{a^2 B-b^2 B+2 a b C}{\left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 587 leaves):

$$\left(C \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \left(-\frac{8 a \left(a^2-3 b^2\right) (c+d x)}{\left(a^2+b^2\right)^3}+\frac{8 b \left(-3 a^2+b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^3}+\frac{-3 a^2 b+b^3}{(a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{6 \left(a^2-3 b^2\right) \text{Sin}[c+d x]}{\left(a^2+b^2\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}+\frac{-b \text{Cos}[2 (c+d x)]+a \text{Sin}[2 (c+d x)]}{\left(a^2+b^2\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}\right) (B+C \text{Tan}[c+d x])\right) \Big/ \left(8 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$

$$\left(B \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \left(-\frac{8 b \left(-3 a^2+b^2\right) (c+d x)}{\left(a^2+b^2\right)^3}-\frac{8 a \left(a^2-3 b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^3}-\frac{a \left(a^2-3 b^2\right)}{(a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{6 b \left(-3 a^2+b^2\right) \text{Sin}[c+d x]}{a \left(a^2+b^2\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}+\frac{2 b^2 \text{Sin}[c+d x]^2+a (a+b \text{Sin}[2 (c+d x)])}{a \left(a^2+b^2\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}\right) (B+C \text{Tan}[c+d x])\right) \Big/ \left(8 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)$$

Problem 42: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 175 leaves, 5 steps):

$$\frac{\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) x}{\left(a^2+b^2\right)^3}+\frac{\left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^3 d}-\frac{b B-a C}{2 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}-\frac{2 a b B-a^2 C+b^2 C}{\left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 854 leaves):

$$\left(b^2 (-b B+a C) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])\right) \Big/ \left(2 (a-i b)^2 (a+i b)^2 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\left(\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) (c+d x) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) \Big/ \left((a-i b)^3 (a+i b)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\left(\left(3 i a^9 b B+3 a^8 b^2 B+5 i a^7 b^3 B+5 a^6 b^4 B+i a^5 b^5 B+a^4 b^6 B-i a^3 b^7 B-a^2 b^8 B-i a^{10} C-a^9 b C+i a^8 b^2 C+a^7 b^3 C+5 i a^6 b^4 C+5 a^5 b^5 C+3 i a^4 b^6 C+3 a^3 b^7 C\right) (c+d x) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) \Big/ \left(a^2 (a-i b)^6 (a+i b)^5 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)-$$
$$\left(i \left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) \text{ArcTan}[\text{Tan}[c+d x]] (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) \Big/ \left(\left(a^2+b^2\right)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\left(\left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) \Big/ \left(2 \left(a^2+b^2\right)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\left((C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(3 a b^2 B \text{Sin}[c+d x]-2 a^2 b C \text{Sin}[c+d x]+b^3 C \text{Sin}[c+d x]\right)\right) \Big/ \left(a (a-i b)^2 (a+i b)^2 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)$$

Problem 43: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

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

Optimal (type 3, 215 leaves, 6 steps):

$$-\frac{\left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) x}{\left(a^2+b^2\right)^3}+\frac{B \operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^3 d}-\frac{1}{a^3\left(a^2+b^2\right)^3 d}$$
$$b\left(6 a^4 b B+3 a^2 b^3 B+b^5 B-3 a^5 C+a^3 b^2 C\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+$$
$$\frac{b(b B-a C)}{2 a\left(a^2+b^2\right) d(a+b \operatorname{Tan}[c+d x])^2}+\frac{b\left(3 a^2 b B+b^3 B-2 a^3 C\right)}{a^2\left(a^2+b^2\right)^2 d(a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 1004 leaves):

$$-\left(\left(b^3(-b B+a C)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])\right)\Big/\left(2 a(a-\mathrm{i} b)^2(a+\mathrm{i} b)^2 d(b+a \operatorname{Cot}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)\right)+$$
$$\left(\left(-3 a^2 b B+b^3 B+a^3 C-3 a b^2 C\right)(c+d x)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right)\Big/$$
$$\left((a-\mathrm{i} b)^3(a+\mathrm{i} b)^3 d(b+a \operatorname{Cot}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\left(\left(-6 \mathrm{i} a^{14} b^2 B-6 a^{13} b^3 B-15 \mathrm{i} a^{12} b^4 B-15 a^{11} b^5 B-13 \mathrm{i} a^{10} b^6 B-13 a^9 b^7 B-5 \mathrm{i} a^8 b^8 B-5 a^7 b^9 B-\mathrm{i} a^6 b^{10} B-a^5 b^{11} B+3 \mathrm{i} a^{15} b C+3 a^{14} b^2 C+5 \mathrm{i} a^{13} b^3 C+5 a^{12} b^4 C+\mathrm{i} a^{11} b^5 C+a^{10} b^6 C-\mathrm{i} a^9 b^7 C-a^8 b^8 C\right)\right.$$
$$\left.(c+d x)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right)\Big/$$
$$\left(a^8(a-\mathrm{i} b)^6(a+\mathrm{i} b)^5 d(b+a \operatorname{Cot}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)-$$
$$\left(\mathrm{i}\left(-6 a^4 b^2 B-3 a^2 b^4 B-b^6 B+3 a^5 b C-a^3 b^3 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]]\right.$$
$$\left.(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right)\Big/$$
$$\left(a^3\left(a^2+b^2\right)^3 d(b+a \operatorname{Cot}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\left(B(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 \operatorname{Log}[\operatorname{Sin}[c+d x]](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right)\Big/$$
$$\left(a^3 d(b+a \operatorname{Cot}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\left(\left(-6 a^4 b^2 B-3 a^2 b^4 B-b^6 B+3 a^5 b C-a^3 b^3 C\right)(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2\right.$$
$$\left.\operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right](a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right)\Big/$$
$$\left(2 a^3\left(a^2+b^2\right)^3 d(b+a \operatorname{Cot}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\left((C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right.$$
$$\left.\left(-4 a^2 b^3 B \operatorname{Sin}[c+d x]-b^5 B \operatorname{Sin}[c+d x]+3 a^3 b^2 C \operatorname{Sin}[c+d x]\right)\right)\Big/$$
$$\left(a^3(a-\mathrm{i} b)^2(a+\mathrm{i} b)^2 d(b+a \operatorname{Cot}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)$$

Problem 44: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cot}[c+d x]^3\left(B \operatorname{Tan}[c+d x]+C \operatorname{Tan}[c+d x]^2\right)}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 287 leaves, 7 steps):

$$-\frac{\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) x}{\left(a^2+b^2\right)^3}-\frac{(3 b B-a C) \text{Log}[\text{Sin}[c+d x]]}{a^4 d}+\frac{1}{a^4 \left(a^2+b^2\right)^3 d}$$
$$b^2 \left(10 a^4 b B+9 a^2 b^3 B+3 b^5 B-6 a^5 C-3 a^3 b^2 C-a b^4 C\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]-$$
$$\frac{b \left(2 a^2 B+3 b^2 B-a b C\right)}{2 a^2 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}-\frac{B \text{Cot}[c+d x]}{a d (a+b \text{Tan}[c+d x])^2}-$$
$$\frac{b \left(a^4 B+6 a^2 b^2 B+3 b^4 B-3 a^3 b C-a b^3 C\right)}{a^3 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1150 leaves) :

$$\left(b^4 (-b B+a C) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])\right) \Big/$$
$$\left(2 a^2 (a-\mathrm{i} b)^2 (a+\mathrm{i} b)^2 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)-$$
$$\Big(\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) (c+d x) (C+B \text{Cot}[c+d x])$$
$$\text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\Big) \Big/$$
$$\left((a-\mathrm{i} b)^3 (a+\mathrm{i} b)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\Big(\big(10 \mathrm{i} a^{15} b^3 B+10 a^{14} b^4 B+29 \mathrm{i} a^{13} b^5 B+29 a^{12} b^6 B+31 \mathrm{i} a^{11} b^7 B+31 a^{10} b^8 B+$$
$$15 \mathrm{i} a^9 b^9 B+15 a^8 b^{10} B+3 \mathrm{i} a^7 b^{11} B+3 a^6 b^{12} B-6 \mathrm{i} a^{16} b^2 C-6 a^{15} b^3 C-15 \mathrm{i} a^{14} b^4 C-$$
$$15 a^{13} b^5 C-13 \mathrm{i} a^{12} b^6 C-13 a^{11} b^7 C-5 \mathrm{i} a^{10} b^8 C-5 a^9 b^9 C-\mathrm{i} a^8 b^{10} C-a^7 b^{11} C\big)$$
$$(c+d x) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\Big) \Big/$$
$$\left(a^{10} (a-\mathrm{i} b)^6 (a+\mathrm{i} b)^5 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)-$$
$$\Big(\mathrm{i} \left(10 a^4 b^3 B+9 a^2 b^5 B+3 b^7 B-6 a^5 b^2 C-3 a^3 b^4 C-a b^6 C\right) \text{ArcTan}[\text{Tan}[c+d x]]$$
$$(C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\Big) \Big/$$
$$\left(a^4 \left(a^2+b^2\right)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)-$$
$$\left(B \text{Cot}[c+d x] (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) \Big/$$
$$\left(a^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\Big((-3 b B+a C) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 \text{Log}[\text{Sin}[c+d x]]$$
$$(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\Big) \Big/ \left(a^4 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\Big(\left(10 a^4 b^3 B+9 a^2 b^5 B+3 b^7 B-6 a^5 b^2 C-3 a^3 b^4 C-a b^6 C\right) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2$$
$$\text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\Big) \Big/$$
$$\left(2 a^4 \left(a^2+b^2\right)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\Big((C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2$$
$$\left(5 a^2 b^4 B \text{Sin}[c+d x]+2 b^6 B \text{Sin}[c+d x]-4 a^3 b^3 C \text{Sin}[c+d x]-a b^5 C \text{Sin}[c+d x]\right)\Big) \Big/$$
$$\left(a^4 (a-\mathrm{i} b)^2 (a+\mathrm{i} b)^2 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)$$

Problem 49: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d x]^m \left(A+B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2\right)}{\sqrt{a+b \text{Tan}[c+d x]}} \, dx$$

Optimal (type 6, 328 leaves, 13 steps):

$$-\frac{1}{b\left(a-\sqrt{-b^2}\right)d}\left(b B+\sqrt{-b^2}\,(A-C)\right)\text{AppellF1}\left[\frac{1}{2},1,-m,\frac{3}{2},\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}},1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^m\left(-\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-m}\sqrt{a+b\,\text{Tan}[c+d\,x]}-\frac{1}{b\left(a+\sqrt{-b^2}\right)d}\left(b B-\sqrt{-b^2}\,(A-C)\right)\text{AppellF1}\left[\frac{1}{2},1,-m,\frac{3}{2},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}},1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^m\left(-\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-m}\sqrt{a+b\,\text{Tan}[c+d\,x]}+\frac{1}{b d}2\,C\,\text{Hypergeometric2F1}\left[\frac{1}{2},-m,\frac{3}{2},1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^m\left(-\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-m}\sqrt{a+b\,\text{Tan}[c+d\,x]}$$

Result (type 8, 45 leaves):

$$\int\frac{\text{Tan}[c+d\,x]^m\left(A+B\,\text{Tan}[c+d\,x]+C\,\text{Tan}[c+d\,x]^2\right)}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

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

$$\int(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)dx$$

Optimal (type 3, 353 leaves, 6 steps):

$$\left(a^3\,(A c-c C-B d)-3 a b^2\,(A c-c C-B d)-3 a^2 b\,(B c+(A-C) d)+b^3\,(B c+(A-C) d)\right)x-\frac{1}{f}\left(3 a^2 b\,(A c-c C-B d)-b^3\,(A c-c C-B d)+a^3\,(B c+(A-C) d)-3 a b^2\,(B c+(A-C) d)\right)\text{Log}[\text{Cos}[e+f\,x]]+\frac{1}{f}b\left(2 a b\,(A c-c C-B d)+a^2\,(B c+(A-C) d)-b^2\,(B c+(A-C) d)\right)\text{Tan}[e+f\,x]+\frac{(A b c+a B c-b c C+a A d-b B d-a C d)\,(a+b\,\text{Tan}[e+f\,x])^2}{2 f}+\frac{(B c+(A-C) d)\,(a+b\,\text{Tan}[e+f\,x])^3}{3 f}-\frac{(a C d-5 b\,(c C+B d))\,(a+b\,\text{Tan}[e+f\,x])^4}{20 b^2 f}+\frac{C d\,\text{Tan}[e+f\,x]\,(a+b\,\text{Tan}[e+f\,x])^4}{5 b f}$$

Result (type 3, 1022 leaves):

$$\frac{\left(b^3 c C+b^3 B d+3 a b^2 C d\right) (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])}{4 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])}+$$
$$\Big(\left(A b^3 c+3 a b^2 B c+3 a^2 b c C-2 b^3 c C+3 a A b^2 d+3 a^2 b B d-2 b^3 B d+a^3 C d-6 a b^2 C d\right) \text{Cos}[e+f x]^2 (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])\Big)\Big/$$
$$\Big(2 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\Big)+$$
$$\Big(\left(a^3 A c-3 a A b^2 c-3 a^2 b B c+b^3 B c-a^3 c C+3 a b^2 c C-3 a^2 A b d+A b^3 d-a^3 B d+3 a b^2 B d+3 a^2 b C d-b^3 C d\right) (e+f x) \text{Cos}[e+f x]^4 (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])\Big)\Big/$$
$$\Big(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\Big)+$$
$$\Big(\left(-3 a^2 A b c+A b^3 c-a^3 B c+3 a b^2 B c+3 a^2 b c C-b^3 c C-a^3 A d+3 a A b^2 d+3 a^2 b B d-b^3 B d+a^3 C d-3 a b^2 C d\right) \text{Cos}[e+f x]^4 \text{Log}[\text{Cos}[e+f x]] (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])\Big)\Big/$$
$$\Big(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\Big)+$$
$$\Big(\text{Cos}[e+f x] \big(5 b^3 B c \text{Sin}[e+f x]+15 a b^2 c C \text{Sin}[e+f x]+5 A b^3 d \text{Sin}[e+f x]+15 a b^2 B d \text{Sin}[e+f x]+15 a^2 b C d \text{Sin}[e+f x]-11 b^3 C d \text{Sin}[e+f x]\big) (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])\Big)\Big/\Big(15 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\Big)+$$
$$\frac{1}{15 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])}\text{Cos}[e+f x]^3 \big(45 a A b^2 c \text{Sin}[e+f x]+45 a^2 b B c \text{Sin}[e+f x]-20 b^3 B c \text{Sin}[e+f x]+15 a^3 c C \text{Sin}[e+f x]-60 a b^2 c C \text{Sin}[e+f x]+45 a^2 A b d \text{Sin}[e+f x]-20 A b^3 d \text{Sin}[e+f x]+15 a^3 B d \text{Sin}[e+f x]-60 a b^2 B d \text{Sin}[e+f x]-60 a^2 b C d \text{Sin}[e+f x]+23 b^3 C d \text{Sin}[e+f x]\big) (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])+$$
$$\frac{b^3 C d \text{Tan}[e+f x] (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])}{5 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])}$$

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

$$\int (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x]) \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right) dx$$

Optimal (type 3, 248 leaves, 5 steps):

$$\left(a^2 (A c-c C-B d)-b^2 (A c-c C-B d)-2 a b (B c+(A-C) d)\right) x-\frac{1}{f}\left(2 a b (A c-c C-B d)+a^2 (B c+(A-C) d)-b^2 (B c+(A-C) d)\right) \text{Log}[\text{Cos}[e+f x]]+$$
$$\frac{b (A b c+a B c-b c C+a A d-b B d-a C d) \text{Tan}[e+f x]}{f}+\frac{(B c+(A-C) d) (a+b \text{Tan}[e+f x])^2}{2 f}-$$
$$\frac{(a C d-4 b (c C+B d)) (a+b \text{Tan}[e+f x])^3}{12 b^2 f}+\frac{C d \text{Tan}[e+f x] (a+b \text{Tan}[e+f x])^3}{4 b f}$$

Result (type 3, 1033 leaves):

$$\left(\left(-2 a A b c-a^2 B c+b^2 B c+2 a b c C-a^2 A d+A b^2 d+2 a b B d+a^2 C d-b^2 C d\right) \operatorname{Cos}[e+f x]^3 \operatorname{Log}[\operatorname{Cos}[e+f x]] (a+b \operatorname{Tan}[e+f x])^2 (c+d \operatorname{Tan}[e+f x])\right) / \left(f (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2 (c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])\right)+$$

$$\frac{1}{24 f (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2 (c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])}$$

$$\operatorname{Sec}[e+f x] \left(6 b^2 B c+12 a b c C+6 A b^2 d+12 a b B d+6 a^2 C d-6 b^2 C d+9 a^2 A c (e+f x)-9 A b^2 c (e+f x)-18 a b B c (e+f x)-9 a^2 c C (e+f x)+9 b^2 c C (e+f x)-18 a A b d (e+f x)-9 a^2 B d (e+f x)+9 b^2 B d (e+f x)+18 a b C d (e+f x)+6 b^2 B c \operatorname{Cos}[2 (e+f x)]+12 a b c C \operatorname{Cos}[2 (e+f x)]+6 A b^2 d \operatorname{Cos}[2 (e+f x)]+12 a b B d \operatorname{Cos}[2 (e+f x)]+6 a^2 C d \operatorname{Cos}[2 (e+f x)]-12 b^2 C d \operatorname{Cos}[2 (e+f x)]+12 a^2 A c (e+f x) \operatorname{Cos}[2 (e+f x)]-12 A b^2 c (e+f x) \operatorname{Cos}[2 (e+f x)]-24 a b B c (e+f x) \operatorname{Cos}[2 (e+f x)]-12 a^2 c C (e+f x) \operatorname{Cos}[2 (e+f x)]+12 b^2 c C (e+f x) \operatorname{Cos}[2 (e+f x)]-24 a A b d (e+f x) \operatorname{Cos}[2 (e+f x)]-12 a^2 B d (e+f x) \operatorname{Cos}[2 (e+f x)]+12 b^2 B d (e+f x) \operatorname{Cos}[2 (e+f x)]+24 a b C d (e+f x) \operatorname{Cos}[2 (e+f x)]+3 a^2 A c (e+f x) \operatorname{Cos}[4 (e+f x)]-3 A b^2 c (e+f x) \operatorname{Cos}[4 (e+f x)]-6 a b B c (e+f x) \operatorname{Cos}[4 (e+f x)]-3 a^2 c C (e+f x) \operatorname{Cos}[4 (e+f x)]+3 b^2 c C (e+f x) \operatorname{Cos}[4 (e+f x)]-6 a A b d (e+f x) \operatorname{Cos}[4 (e+f x)]-3 a^2 B d (e+f x) \operatorname{Cos}[4 (e+f x)]+3 b^2 B d (e+f x) \operatorname{Cos}[4 (e+f x)]+6 a b C d (e+f x) \operatorname{Cos}[4 (e+f x)]+6 A b^2 c \operatorname{Sin}[2 (e+f x)]+12 a b B c \operatorname{Sin}[2 (e+f x)]+6 a^2 c C \operatorname{Sin}[2 (e+f x)]-4 b^2 c C \operatorname{Sin}[2 (e+f x)]+12 a A b d \operatorname{Sin}[2 (e+f x)]+6 a^2 B d \operatorname{Sin}[2 (e+f x)]-4 b^2 B d \operatorname{Sin}[2 (e+f x)]-8 a b C d \operatorname{Sin}[2 (e+f x)]+3 A b^2 c \operatorname{Sin}[4 (e+f x)]+6 a b B c \operatorname{Sin}[4 (e+f x)]+3 a^2 c C \operatorname{Sin}[4 (e+f x)]-4 b^2 c C \operatorname{Sin}[4 (e+f x)]+6 a A b d \operatorname{Sin}[4 (e+f x)]+3 a^2 B d \operatorname{Sin}[4 (e+f x)]-4 b^2 B d \operatorname{Sin}[4 (e+f x)]-8 a b C d \operatorname{Sin}[4 (e+f x)]\right) (a+b \operatorname{Tan}[e+f x])^2 (c+d \operatorname{Tan}[e+f x])$$

Problem 54: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d \operatorname{Tan}[e+f x]) \left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right)}{a+b \operatorname{Tan}[e+f x]} \, dx$$

Optimal (type 3, 156 leaves, 5 steps):

$$\frac{(a (A c-c C-B d)+b (B c+(A-C) d)) x}{a^2+b^2}+\frac{(A b c-a B c-b c C-a A d-b B d+a C d) \operatorname{Log}[\operatorname{Cos}[e+f x]]}{\left(a^2+b^2\right) f}+\frac{\left(A b^2-a (b B-a C)\right) (b c-a d) \operatorname{Log}[a+b \operatorname{Tan}[e+f x]]}{b^2 \left(a^2+b^2\right) f}+\frac{C d \operatorname{Tan}[e+f x]}{b f}$$

Result (type 3, 384 leaves):

$$((a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c+d \operatorname{Tan}[e+f x]) \\ (a A b^2 c e+b^3 B c e-a b^2 c C e+A b^3 d e-a b^2 B d e-b^3 C d e+a A b^2 c f x+b^3 B c f x-a b^2 c C f x+ \\ A b^3 d f x-a b^2 B d f x-b^3 C d f x+(a^2+b^2)(a C d-b(c C+B d)) \operatorname{Log}[\operatorname{Cos}[e+f x]]+ \\ A b^3 c \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]-a b^2 B c \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]+ \\ a^2 b c C \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]- \\ a A b^2 d \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]+a^2 b B d \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]- \\ a^3 C d \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]+b(a^2+b^2) C d \operatorname{Tan}[e+f x])) / \\ ((a-i b)(a+i b) b^2 f(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])(a+b \operatorname{Tan}[e+f x]))$$

Problem 55: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d \operatorname{Tan}[e+f x])(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2)}{(a+b \operatorname{Tan}[e+f x])^2} dx$$

Optimal (type 3, 265 leaves, 5 steps):

$$\frac{(a^2(A c-c C-B d)-b^2(A c-c C-B d)+2 a b(B c+(A-C) d)) x}{(a^2+b^2)^2}+\frac{1}{(a^2+b^2)^2 f} \\ (2 a b(A c-c C-B d)-a^2(B c+(A-C) d)+b^2(B c+(A-C) d)) \operatorname{Log}[\operatorname{Cos}[e+f x]]+\frac{1}{b^2(a^2+b^2)^2 f} \\ (a^4 C d+b^4(B c+A d)+2 a b^3(A c-c C-B d)-a^2 b^2(B c+(A-3 C) d)) \operatorname{Log}[a+b \operatorname{Tan}[e+f x]]- \\ \frac{(A b^2-a(b B-a C))(b c-a d)}{b^2(a^2+b^2) f(a+b \operatorname{Tan}[e+f x])}$$

Result (type 3, 1437 leaves):

$$-\left(\left(i \left(-2 a^6 A b^4 c+2 i a^5 A b^5 c-2 a^4 A b^6 c+2 i a^3 A b^7 c+a^7 b^3 B c-i a^6 b^4 B c-a^3 b^7 B c+i a^2 b^8 B c+2 a^6 b^4 c C-2 i a^5 b^5 c C+2 a^4 b^6 c C-2 i a^3 b^7 c C+a^7 A b^3 d-i a^6 A b^4 d-a^3 A b^7 d+i a^2 A b^8 d+2 a^6 b^4 B d-2 i a^5 b^5 B d+2 a^4 b^6 B d-2 i a^3 b^7 B d-a^9 b C d+i a^8 b^2 C d-4 a^7 b^3 C d+4 i a^6 b^4 C d-3 a^5 b^5 C d+3 i a^4 b^6 C d\right) (e+f x) \text{Sec}[e+f x] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])\right) \Big/ \left(a^2 (a-i b)^4 (a+i b)^3 b^3 f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^2\right)\right)-$$

$$\left(i \left(2 a A b^3 c-a^2 b^2 B c+b^4 B c-2 a b^3 c C-a^2 A b^2 d+A b^4 d-2 a b^3 B d+a^4 C d+3 a^2 b^2 C d\right) \text{ArcTan}[\text{Tan}[e+f x]] \text{Sec}[e+f x] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])\right) \Big/ \left(b^2 \left(a^2+b^2\right)^2 f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^2\right)-$$

$$\left(C d \text{Log}[\text{Cos}[e+f x]] \text{Sec}[e+f x] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])\right) \Big/ \left(b^2 f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^2\right)+$$

$$\left(\left(2 a A b^3 c-a^2 b^2 B c+b^4 B c-2 a b^3 c C-a^2 A b^2 d+A b^4 d-2 a b^3 B d+a^4 C d+3 a^2 b^2 C d\right) \text{Log}\left[(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2\right] \text{Sec}[e+f x] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])\right) \Big/ \left(2 b^2 \left(a^2+b^2\right)^2 f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^2\right)+$$

$$\left(\text{Sec}[e+f x] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) \left(a^4 A b c (e+f x) \text{Cos}[e+f x]-a^2 A b^3 c (e+f x) \text{Cos}[e+f x]+2 a^3 b^2 B c (e+f x) \text{Cos}[e+f x]-a^4 b c C (e+f x) \text{Cos}[e+f x]+a^2 b^3 c C (e+f x) \text{Cos}[e+f x]+2 a^3 A b^2 d (e+f x) \text{Cos}[e+f x]-a^4 b B d (e+f x) \text{Cos}[e+f x]+a^2 b^3 B d (e+f x) \text{Cos}[e+f x]-2 a^3 b^2 C d (e+f x) \text{Cos}[e+f x]+a^2 A b^3 c \text{Sin}[e+f x]+A b^5 c \text{Sin}[e+f x]-a^3 b^2 B c \text{Sin}[e+f x]-a b^4 B c \text{Sin}[e+f x]+a^4 b c C \text{Sin}[e+f x]+a^2 b^3 c C \text{Sin}[e+f x]-a^3 A b^2 d \text{Sin}[e+f x]-a A b^4 d \text{Sin}[e+f x]+a^4 b B d \text{Sin}[e+f x]+a^2 b^3 B d \text{Sin}[e+f x]-a^5 C d \text{Sin}[e+f x]-a^3 b^2 C d \text{Sin}[e+f x]+a^3 A b^2 c (e+f x) \text{Sin}[e+f x]-a A b^4 c (e+f x) \text{Sin}[e+f x]+2 a^2 b^3 B c (e+f x) \text{Sin}[e+f x]-a^3 b^2 c C (e+f x) \text{Sin}[e+f x]+a b^4 c C (e+f x) \text{Sin}[e+f x]+2 a^2 A b^3 d (e+f x) \text{Sin}[e+f x]-a^3 b^2 B d (e+f x) \text{Sin}[e+f x]+a b^4 B d (e+f x) \text{Sin}[e+f x]-2 a^2 b^3 C d (e+f x) \text{Sin}[e+f x]\right) (c+d \text{Tan}[e+f x])\right) \Big/ \left(a (a-i b)^2 (a+i b)^2 b f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^2\right)$$

Problem 56: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d \text{Tan}[e+f x]) \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(a+b \text{Tan}[e+f x])^3} \, dx$$

Optimal (type 3, 320 leaves, 4 steps):

$$\frac{1}{\left(a^2+b^2\right)^3}\left(a^3\left(A c-c C-B d\right)-3 a b^2\left(A c-c C-B d\right)+3 a^2 b\left(B c+\left(A-C\right) d\right)-b^3\left(B c+\left(A-C\right) d\right)\right) x+\frac{1}{\left(a^2+b^2\right)^3 f}\left(3 a^2 b\left(A c-c C-B d\right)-b^3\left(A c-c C-B d\right)-a^3\left(B c+\left(A-C\right) d\right)+3 a b^2\left(B c+\left(A-C\right) d\right)\right) \text{Log}[a \text{Cos}[e+f x]+b \text{Sin}[e+f x]]-\frac{\left(A b^2-a\left(b B-a C\right)\right)\left(b c-a d\right)}{2 b^2\left(a^2+b^2\right) f\left(a+b \text{Tan}[e+f x]\right)^2}-\frac{a^4 C d+b^4\left(B c+A d\right)+2 a b^3\left(A c-c C-B d\right)-a^2 b^2\left(B c+\left(A-3 C\right) d\right)}{b^2\left(a^2+b^2\right)^2 f\left(a+b \text{Tan}[e+f x]\right)}$$

Result (type 3, 2622 leaves):

$$\Big(\Big(3 i a^9 A b c+3 a^8 A b^2 c+5 i a^7 A b^3 c+5 a^6 A b^4 c+i a^5 A b^5 c+a^4 A b^6 c-i a^3 A b^7 c-a^2 A b^8 c-i a^{10} B c-a^9 b B c+i a^8 b^2 B c+a^7 b^3 B c+5 i a^6 b^4 B c+5 a^5 b^5 B c+3 i a^4 b^6 B c+3 a^3 b^7 B c-3 i a^9 b c C-3 a^8 b^2 c C-5 i a^7 b^3 c C-5 a^6 b^4 c C-i a^5 b^5 c C-a^4 b^6 c C+i a^3 b^7 c C+a^2 b^8 c C-i a^{10} A d-a^9 A b d+i a^8 A b^2 d+a^7 A b^3 d+5 i a^6 A b^4 d+5 a^5 A b^5 d+3 i a^4 A b^6 d+3 a^3 A b^7 d-3 i a^9 b B d-3 a^8 b^2 B d-5 i a^7 b^3 B d-5 a^6 b^4 B d-i a^5 b^5 B d-a^4 b^6 B d+i a^3 b^7 B d+a^2 b^8 B d+i a^{10} C d+a^9 b C d-i a^8 b^2 C d-a^7 b^3 C d-5 i a^6 b^4 C d-5 a^5 b^5 C d-3 i a^4 b^6 C d-3 a^3 b^7 C d\Big)\left(e+f x\right) \text{Sec}[e+f x]^2\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^3\left(c+d \text{Tan}[e+f x]\right)\Big)\Big/\Big(a^2\left(a-i b\right)^6\left(a+i b\right)^5 f\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)\left(a+b \text{Tan}[e+f x]\right)^3\Big)-$$

$$\Big(i\left(3 a^2 A b c-A b^3 c-a^3 B c+3 a b^2 B c-3 a^2 b c C+b^3 c C-a^3 A d+3 a A b^2 d-3 a^2 b B d+b^3 B d+a^3 C d-3 a b^2 C d\right) \text{ArcTan}[\text{Tan}[e+f x]] \text{Sec}[e+f x]^2\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^3\left(c+d \text{Tan}[e+f x]\right)\Big)\Big/\Big(\left(a^2+b^2\right)^3 f\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)\left(a+b \text{Tan}[e+f x]\right)^3\Big)+$$

$$\Big(\left(3 a^2 A b c-A b^3 c-a^3 B c+3 a b^2 B c-3 a^2 b c C+b^3 c C-a^3 A d+3 a A b^2 d-3 a^2 b B d+b^3 B d+a^3 C d-3 a b^2 C d\right) \text{Log}\left[\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^2\right] \text{Sec}[e+f x]^2\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^3\left(c+d \text{Tan}[e+f x]\right)\Big)\Big/\Big(2\left(a^2+b^2\right)^3 f\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)\left(a+b \text{Tan}[e+f x]\right)^3\Big)+$$

$$\Big(\text{Sec}[e+f x]^2\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)\Big(2 a^3 A b^3 c+2 a A b^5 c-a^4 b^2 B c+b^6 B c-2 a^3 b^3 c C-2 a b^5 c C-a^4 A b^2 d+A b^6 d-2 a^3 b^3 B d-2 a b^5 B d+a^6 C d+4 a^4 b^2 C d+3 a^2 b^4 C d+a^6 A c\left(e+f x\right)-2 a^4 A b^2 c\left(e+f x\right)-3 a^2 A b^4 c\left(e+f x\right)+3 a^5 b B c\left(e+f x\right)+2 a^3 b^3 B c\left(e+f x\right)-a b^5 B c\left(e+f x\right)-a^6 c C\left(e+f x\right)+2 a^4 b^2 c C\left(e+f x\right)+3 a^2 b^4 c C\left(e+f x\right)+3 a^5 A b d\left(e+f x\right)+2 a^3 A b^3 d\left(e+f x\right)-a A b^5 d\left(e+f x\right)-a^6 B d\left(e+f x\right)+2 a^4 b^2 B d\left(e+f x\right)+3 a^2 b^4 B d\left(e+f x\right)-3 a^5 b C d\left(e+f x\right)-2 a^3 b^3 C d\left(e+f x\right)+a b^5 C d\left(e+f x\right)-3 a^3 A b^3 c \text{Cos}[2\left(e+f x\right)]-3 a A b^5 c \text{Cos}[2\left(e+f x\right)]+2 a^4 b^2 B c \text{Cos}[2\left(e+f x\right)]+a^2 b^4 B c \text{Cos}[2\left(e+f x\right)]-b^6 B c \text{Cos}[2\left(e+f x\right)]-a^5 b c C \text{Cos}[2\left(e+f x\right)]+a^3 b^3 c C \text{Cos}[2\left(e+f x\right)]+2 a b^5 c C \text{Cos}[2\left(e+f x\right)]+2 a^4 A b^2 d \text{Cos}[2\left(e+f x\right)]+a^2 A b^4 d \text{Cos}[2\left(e+f x\right)]-A b^6 d \text{Cos}[2\left(e+f x\right)]-a^5 b B d \text{Cos}[2\left(e+f x\right)]+a^3 b^3 B d \text{Cos}[2\left(e+f x\right)]+2 a b^5 B d \text{Cos}[2\left(e+f x\right)]-3 a^4 b^2 C d \text{Cos}[2\left(e+f x\right)]-3 a^2 b^4 C d \text{Cos}[2\left(e+f x\right)]+a^6 A c\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]-4 a^4 A b^2 c\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]+3 a^2 A b^4 c\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]+3 a^5 b B c\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]-4 a^3 b^3 B c\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]+a b^5 B c\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]-a^6 c C\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]+4 a^4 b^2 c C\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]-3 a^2 b^4 c C\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]+3 a^5 A b d\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]-4 a^3 A b^3 d\left(e+f x\right) \text{Cos}[2\left(e+f x\right)]+$$

$$a A b^5 d (e+f x) \text{Cos}[2 (e+f x)] - a^6 B d (e+f x) \text{Cos}[2 (e+f x)] + 4 a^4 b^2 B d (e+f x) \text{Cos}[2 (e+f x)] - 3 a^2 b^4 B d (e+f x) \text{Cos}[2 (e+f x)] - 3 a^5 b C d (e+f x) \text{Cos}[2 (e+f x)] + 4 a^3 b^3 C d (e+f x) \text{Cos}[2 (e+f x)] - a b^5 C d (e+f x) \text{Cos}[2 (e+f x)] + 3 a^4 A b^2 c \text{Sin}[2 (e+f x)] + 3 a^2 A b^4 c \text{Sin}[2 (e+f x)] - 2 a^5 b B c \text{Sin}[2 (e+f x)] - a^3 b^3 B c \text{Sin}[2 (e+f x)] + a b^5 B c \text{Sin}[2 (e+f x)] + a^6 c C \text{Sin}[2 (e+f x)] - a^4 b^2 c C \text{Sin}[2 (e+f x)] - 2 a^2 b^4 c C \text{Sin}[2 (e+f x)] - 2 a^5 A b d \text{Sin}[2 (e+f x)] - a^3 A b^3 d \text{Sin}[2 (e+f x)] + a A b^5 d \text{Sin}[2 (e+f x)] + a^6 B d \text{Sin}[2 (e+f x)] - a^4 b^2 B d \text{Sin}[2 (e+f x)] - 2 a^2 b^4 B d \text{Sin}[2 (e+f x)] + 3 a^5 b C d \text{Sin}[2 (e+f x)] + 3 a^3 b^3 C d \text{Sin}[2 (e+f x)] + 2 a^5 A b c (e+f x) \text{Sin}[2 (e+f x)] - 6 a^3 A b^3 c (e+f x) \text{Sin}[2 (e+f x)] + 6 a^4 b^2 B c (e+f x) \text{Sin}[2 (e+f x)] - 2 a^2 b^4 B c (e+f x) \text{Sin}[2 (e+f x)] - 2 a^5 b c C (e+f x) \text{Sin}[2 (e+f x)] + 6 a^3 b^3 c C (e+f x) \text{Sin}[2 (e+f x)] + 6 a^4 A b^2 d (e+f x) \text{Sin}[2 (e+f x)] - 2 a^2 A b^4 d (e+f x) \text{Sin}[2 (e+f x)] - 2 a^5 b B d (e+f x) \text{Sin}[2 (e+f x)] + 6 a^3 b^3 B d (e+f x) \text{Sin}[2 (e+f x)] - 6 a^4 b^2 C d (e+f x) \text{Sin}[2 (e+f x)] + 2 a^2 b^4 C d (e+f x) \text{Sin}[2 (e+f x)]) (c + d \text{Tan}[e+f x])) \Big/ \left(2 a (a - i b)^3 (a + i b)^3 f (c \text{Cos}[e+f x] + d \text{Sin}[e+f x]) (a + b \text{Tan}[e+f x])^3\right)$$

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

$$\int (a + b \text{Tan}[e+f x])^3 (c + d \text{Tan}[e+f x])^2 (A + B \text{Tan}[e+f x] + C \text{Tan}[e+f x]^2) \, dx$$

Optimal (type 3, 661 leaves, 7 steps):

$$-\left(a^3 (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) - 3 a b^2 (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) + 3 a^2 b (2 c (A - C) d + B (c^2 - d^2)) - b^3 (2 c (A - C) d + B (c^2 - d^2))\right) x + \frac{1}{f} \left(3 a^2 b (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) - b^3 (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) - a^3 (2 c (A - C) d + B (c^2 - d^2)) + 3 a b^2 (2 c (A - C) d + B (c^2 - d^2))\right) \text{Log}[\text{Cos}[e+f x]] + \frac{1}{f} d \left(3 a^2 b (A c - c C - B d) - b^3 (A c - c C - B d) + a^3 (B c + (A - C) d) - 3 a b^2 (B c + (A - C) d)\right) \text{Tan}[e+f x] + \frac{(a^3 B - 3 a b^2 B + 3 a^2 b (A - C) - b^3 (A - C)) (c + d \text{Tan}[e+f x])^2}{2 f} + \frac{1}{60 d^4 f} \left(4 a^3 C d^3 - 3 a^2 b d^2 (3 c C - 16 B d) + 3 a b^2 d (2 c^2 C - 5 B c d + 20 (A - C) d^2) - b^3 (c^3 C - 2 B c^2 d + 5 c (A - C) d^2 + 20 B d^3)\right) (c + d \text{Tan}[e+f x])^3 + \frac{1}{20 d^3 f} b \left(5 b (A b + a B - b C) d^2 + (b c - a d) (b c C - 2 b B d - a C d)\right) \text{Tan}[e+f x] (c + d \text{Tan}[e+f x])^3 - \frac{(b c C - 2 b B d - a C d) (a + b \text{Tan}[e+f x])^2 (c + d \text{Tan}[e+f x])^3}{10 d^2 f} + \frac{C (a + b \text{Tan}[e+f x])^3 (c + d \text{Tan}[e+f x])^3}{6 d f}$$

Result (type 3, 1616 leaves):

$$\Big(\big(b^3 c^2 C + 2 b^3 B c d + 6 a b^2 c C d + A b^3 d^2 + 3 a b^2 B d^2 + 3 a^2 b C d^2 - 3 b^3 C d^2\big) \text{Cos}[e+f x] \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2\Big) \Big/ \Big(4 f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\Big) +$$

$$\Big(\big(A b^3 c^2 + 3 a b^2 B c^2 + 3 a^2 b c^2 C - 2 b^3 c^2 C + 6 a A b^2 c d + 6 a^2 b B c d - 4 b^3 B c d + 2 a^3 c C d - 12 a b^2 c C d + 3 a^2 A b d^2 - 2 A b^3 d^2 + a^3 B d^2 - 6 a b^2 B d^2 - 6 a^2 b C d^2 + 3 b^3 C d^2\big) \text{Cos}[e+f x]^3 \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2\Big) \Big/ \Big(2 f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\Big) +$$

$$\Big(\big(a^3 A c^2 - 3 a A b^2 c^2 - 3 a^2 b B c^2 + b^3 B c^2 - a^3 c^2 C + 3 a b^2 c^2 C - 6 a^2 A b c d + 2 A b^3 c d - 2 a^3 B c d + 6 a b^2 B c d + 6 a^2 b c C d - 2 b^3 c C d - a^3 A d^2 + 3 a A b^2 d^2 + 3 a^2 b B d^2 - b^3 B d^2 + a^3 C d^2 - 3 a b^2 C d^2\big) (e+f x) \text{Cos}[e+f x]^5 \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2\Big) \Big/ \Big(f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\Big) +$$

$$\Big(\big(-3 a^2 A b c^2 + A b^3 c^2 - a^3 B c^2 + 3 a b^2 B c^2 + 3 a^2 b c^2 C - b^3 c^2 C - 2 a^3 A c d + 6 a A b^2 c d + 6 a^2 b B c d - 2 b^3 B c d + 2 a^3 c C d - 6 a b^2 c C d + 3 a^2 A b d^2 - A b^3 d^2 + a^3 B d^2 - 3 a b^2 B d^2 - 3 a^2 b C d^2 + b^3 C d^2\big) \text{Cos}[e+f x]^5 \text{Log}[\text{Cos}[e+f x]] \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2\Big) \Big/ \Big(f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\Big) +$$

$$\frac{b^3 C d^2 \text{Sec}[e+f x] \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2}{6 f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2} +$$

$$\Big(1 \Big/ \Big(15 f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\Big)\Big) \text{Cos}[e+f x]^2 \,\big(5 b^3 B c^2 \text{Sin}[e+f x] + 15 a b^2 c^2 C \text{Sin}[e+f x] + 10 A b^3 c d \text{Sin}[e+f x] + 30 a b^2 B c d \text{Sin}[e+f x] + 30 a^2 b c C d \text{Sin}[e+f x] - 22 b^3 c C d \text{Sin}[e+f x] + 15 a A b^2 d^2 \text{Sin}[e+f x] + 15 a^2 b B d^2 \text{Sin}[e+f x] - 11 b^3 B d^2 \text{Sin}[e+f x] + 5 a^3 C d^2 \text{Sin}[e+f x] - 33 a b^2 C d^2 \text{Sin}[e+f x]\big) \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2 +$$

$$\Big(\big(2 b^3 c C d \text{Sin}[e+f x] + b^3 B d^2 \text{Sin}[e+f x] + 3 a b^2 C d^2 \text{Sin}[e+f x]\big) \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2\Big) \Big/ \Big(5 f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\Big) +$$

$$\Big(1 \Big/ \Big(15 f \,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 \,(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\Big)\Big) \text{Cos}[e+f x]^4 \,\big(45 a A b^2 c^2 \text{Sin}[e+f x] + 45 a^2 b B c^2 \text{Sin}[e+f x] - 20 b^3 B c^2 \text{Sin}[e+f x] + 15 a^3 c^2 C \text{Sin}[e+f x] - 60 a b^2 c^2 C \text{Sin}[e+f x] + 90 a^2 A b c d \text{Sin}[e+f x] - 40 A b^3 c d \text{Sin}[e+f x] + 30 a^3 B c d \text{Sin}[e+f x] - 120 a b^2 B c d \text{Sin}[e+f x] - 120 a^2 b c C d \text{Sin}[e+f x] + 46 b^3 c C d \text{Sin}[e+f x] + 15 a^3 A d^2 \text{Sin}[e+f x] - 60 a A b^2 d^2 \text{Sin}[e+f x] - 60 a^2 b B d^2 \text{Sin}[e+f x] + 23 b^3 B d^2 \text{Sin}[e+f x] - 20 a^3 C d^2 \text{Sin}[e+f x] + 69 a b^2 C d^2 \text{Sin}[e+f x]\big) \,(a+b \text{Tan}[e+f x])^3 \,(c+d \text{Tan}[e+f x])^2$$

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

$$\int (a+b \text{Tan}[e+f x])^2 \,(c+d \text{Tan}[e+f x])^2 \,\big(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\big) \, dx$$

Optimal (type 3, 443 leaves, 6 steps):

$$-\left(a^2\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b^2\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)+2 a b\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)\right) x+\frac{1}{f}\left(2 a b\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-a^2\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)+b^2\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)\right) \operatorname{Log}[\operatorname{Cos}[e+f x]]+\frac{1}{f} d\left(2 a b(A c-c C-B d)+a^2(B c+(A-C) d)-b^2(B c+(A-C) d)\right) \operatorname{Tan}[e+f x]+\frac{\left(a^2 B-b^2 B+2 a b(A-C)\right)(c+d \operatorname{Tan}[e+f x])^2}{2 f}+\frac{1}{60 d^3 f}\left(8 a^2 C d^2-10 a b d(c C-4 B d)+b^2\left(2 c^2 C-5 B c d+20(A-C) d^2\right)\right)(c+d \operatorname{Tan}[e+f x])^3-\frac{b(2 b c C-5 b B d-2 a C d) \operatorname{Tan}[e+f x](c+d \operatorname{Tan}[e+f x])^3}{20 d^2 f}+\frac{C(a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^3}{5 d f}$$

Result (type 3, 1158 leaves):

$$\left(\left(2 b^2 c C d+b^2 B d^2+2 a b C d^2\right)(a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2\right) \Big/ \left(4 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right)+$$
$$\left(\left(b^2 B c^2+2 a b c^2 C+2 A b^2 c d+4 a b B c d+2 a^2 c C d-4 b^2 c C d+2 a A b d^2+a^2 B d^2-2 b^2 B d^2-4 a b C d^2\right) \operatorname{Cos}[e+f x]^2(a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2\right) \Big/ \left(2 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right)+$$
$$\left(\left(a^2 A c^2-A b^2 c^2-2 a b B c^2-a^2 c^2 C+b^2 c^2 C-4 a A b c d-2 a^2 B c d+2 b^2 B c d+4 a b c C d-a^2 A d^2+A b^2 d^2+2 a b B d^2+a^2 C d^2-b^2 C d^2\right)(e+f x) \operatorname{Cos}[e+f x]^4(a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2\right) \Big/ \left(f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right)+$$
$$\left(\left(-2 a A b c^2-a^2 B c^2+b^2 B c^2+2 a b c^2 C-2 a^2 A c d+2 A b^2 c d+4 a b B c d+2 a^2 c C d-2 b^2 c C d+2 a A b d^2+a^2 B d^2-b^2 B d^2-2 a b C d^2\right) \operatorname{Cos}[e+f x]^4 \operatorname{Log}[\operatorname{Cos}[e+f x]](a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2\right) \Big/ \left(f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right)+$$
$$\left(\operatorname{Cos}[e+f x]\left(5 b^2 c^2 C \operatorname{Sin}[e+f x]+10 b^2 B c d \operatorname{Sin}[e+f x]+20 a b c C d \operatorname{Sin}[e+f x]+5 A b^2 d^2 \operatorname{Sin}[e+f x]+10 a b B d^2 \operatorname{Sin}[e+f x]+5 a^2 C d^2 \operatorname{Sin}[e+f x]-11 b^2 C d^2 \operatorname{Sin}[e+f x]\right)(a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2\right) \Big/ \left(15 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right)+$$
$$\left(1 \Big/ \left(15 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right)\right) \operatorname{Cos}[e+f x]^3\left(15 A b^2 c^2 \operatorname{Sin}[e+f x]+30 a b B c^2 \operatorname{Sin}[e+f x]+15 a^2 c^2 C \operatorname{Sin}[e+f x]-20 b^2 c^2 C \operatorname{Sin}[e+f x]+60 a A b c d \operatorname{Sin}[e+f x]+30 a^2 B c d \operatorname{Sin}[e+f x]-40 b^2 B c d \operatorname{Sin}[e+f x]-80 a b c C d \operatorname{Sin}[e+f x]+15 a^2 A d^2 \operatorname{Sin}[e+f x]-20 A b^2 d^2 \operatorname{Sin}[e+f x]-40 a b B d^2 \operatorname{Sin}[e+f x]-20 a^2 C d^2 \operatorname{Sin}[e+f x]+23 b^2 C d^2 \operatorname{Sin}[e+f x]\right)(a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2+$$
$$\frac{b^2 C d^2 \operatorname{Tan}[e+f x](a+b \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2}{5 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2}$$

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

$$\int (a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^2\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 266 leaves, 5 steps):

$$-\left(a\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)+b\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) x-\frac{1}{f}\left(a\left(B c^2-2 c C d-B d^2\right)-b\left(c^2 C+2 B c d-C d^2\right)+A\left(2 a c d+b\left(c^2-d^2\right)\right)\right) \mathrm{Log}[\mathrm{Cos}[e+f x]]+\frac{d (A b c+a B c-b c C+a A d-b B d-a C d) \mathrm{Tan}[e+f x]}{f}+\frac{(A b+a B-b C)(c+d \mathrm{Tan}[e+f x])^2}{2 f}-\frac{(b c C-4 b B d-4 a C d)(c+d \mathrm{Tan}[e+f x])^3}{12 d^2 f}+\frac{b C \mathrm{Tan}[e+f x](c+d \mathrm{Tan}[e+f x])^3}{4 d f}$$

Result (type 3, 1033 leaves):

$$\left(\left(-A b c^2-a B c^2+b c^2 C-2 a A c d+2 b B c d+2 a c C d+A b d^2+a B d^2-b C d^2\right)\mathrm{Cos}[e+f x]^3 \mathrm{Log}[\mathrm{Cos}[e+f x]]\,(a+b \mathrm{Tan}[e+f x])\,(c+d \mathrm{Tan}[e+f x])^2\right)\Big/\left(f\,(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])\,(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2\right)+\frac{1}{24 f\,(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])\,(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2}\mathrm{Sec}[e+f x]\,\Big(6 b c^2 C+12 b B c d+12 a c C d+6 A b d^2+6 a B d^2-6 b C d^2+9 a A c^2 (e+f x)-9 b B c^2 (e+f x)-9 a c^2 C (e+f x)-18 A b c d (e+f x)-18 a B c d (e+f x)+18 b c C d (e+f x)-9 a A d^2 (e+f x)+9 b B d^2 (e+f x)+9 a C d^2 (e+f x)+6 b c^2 C \mathrm{Cos}[2 (e+f x)]+12 b B c d \mathrm{Cos}[2 (e+f x)]+12 a c C d \mathrm{Cos}[2 (e+f x)]+6 A b d^2 \mathrm{Cos}[2 (e+f x)]+6 a B d^2 \mathrm{Cos}[2 (e+f x)]-12 b C d^2 \mathrm{Cos}[2 (e+f x)]+12 a A c^2 (e+f x) \mathrm{Cos}[2 (e+f x)]-12 b B c^2 (e+f x) \mathrm{Cos}[2 (e+f x)]-12 a c^2 C (e+f x) \mathrm{Cos}[2 (e+f x)]-24 A b c d (e+f x) \mathrm{Cos}[2 (e+f x)]-24 a B c d (e+f x) \mathrm{Cos}[2 (e+f x)]+24 b c C d (e+f x) \mathrm{Cos}[2 (e+f x)]-12 a A d^2 (e+f x) \mathrm{Cos}[2 (e+f x)]+12 b B d^2 (e+f x) \mathrm{Cos}[2 (e+f x)]+12 a C d^2 (e+f x) \mathrm{Cos}[2 (e+f x)]+3 a A c^2 (e+f x) \mathrm{Cos}[4 (e+f x)]-3 b B c^2 (e+f x) \mathrm{Cos}[4 (e+f x)]-3 a c^2 C (e+f x) \mathrm{Cos}[4 (e+f x)]-6 A b c d (e+f x) \mathrm{Cos}[4 (e+f x)]-6 a B c d (e+f x) \mathrm{Cos}[4 (e+f x)]+6 b c C d (e+f x) \mathrm{Cos}[4 (e+f x)]-3 a A d^2 (e+f x) \mathrm{Cos}[4 (e+f x)]+3 b B d^2 (e+f x) \mathrm{Cos}[4 (e+f x)]+3 a C d^2 (e+f x) \mathrm{Cos}[4 (e+f x)]+6 b B c^2 \mathrm{Sin}[2 (e+f x)]+6 a c^2 C \mathrm{Sin}[2 (e+f x)]+12 A b c d \mathrm{Sin}[2 (e+f x)]+12 a B c d \mathrm{Sin}[2 (e+f x)]-8 b c C d \mathrm{Sin}[2 (e+f x)]+6 a A d^2 \mathrm{Sin}[2 (e+f x)]-4 b B d^2 \mathrm{Sin}[2 (e+f x)]-4 a C d^2 \mathrm{Sin}[2 (e+f x)]+3 b B c^2 \mathrm{Sin}[4 (e+f x)]+3 a c^2 C \mathrm{Sin}[4 (e+f x)]+6 A b c d \mathrm{Sin}[4 (e+f x)]+6 a B c d \mathrm{Sin}[4 (e+f x)]-8 b c C d \mathrm{Sin}[4 (e+f x)]+3 a A d^2 \mathrm{Sin}[4 (e+f x)]-4 b B d^2 \mathrm{Sin}[4 (e+f x)]-4 a C d^2 \mathrm{Sin}[4 (e+f x)]\Big)\,(a+b \mathrm{Tan}[e+f x])\,(c+d \mathrm{Tan}[e+f x])^2$$

Problem 61: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{a+b\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 254 leaves, 6 steps):

$$-\frac{1}{a^2+b^2}\left(a\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)\right) x-\frac{1}{\left(a^2+b^2\right) f}\left(a\left(B c^2-2 c C d-B d^2\right)+b\left(c^2 C+2 B c d-C d^2\right)+A\left(2 a c d-b\left(c^2-d^2\right)\right)\right) \mathrm{Log}[\mathrm{Cos}[e+f x]]+\frac{\left(A b^2-a(b B-a C)\right)(b c-a d)^2 \mathrm{Log}[a+b \mathrm{Tan}[e+f x]]}{b^3\left(a^2+b^2\right) f}+\frac{d(b c C+b B d-a C d) \mathrm{Tan}[e+f x]}{b^2 f}+\frac{C(c+d \mathrm{Tan}[e+f x])^2}{2 b f}$$

Result (type 3, 663 leaves):

$$\left(\left(a A c^2+b B c^2-a c^2 C+2 A b c d-2 a B c d-2 b c C d-a A d^2-b B d^2+a C d^2\right)(e+f x) \mathrm{Cos}[e+f x](a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])(c+d \mathrm{Tan}[e+f x])^2\right) \Big/ \left((a-i b)(a+i b) f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2(a+b \mathrm{Tan}[e+f x])\right)+\left(\left(-b^2 c^2 C-2 b^2 B c d+2 a b c C d-A b^2 d^2+a b B d^2-a^2 C d^2+b^2 C d^2\right) \mathrm{Cos}[e+f x] \mathrm{Log}[\mathrm{Cos}[e+f x]](a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])(c+d \mathrm{Tan}[e+f x])^2\right) \Big/ \left(b^3 f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2(a+b \mathrm{Tan}[e+f x])\right)+\left(\left(A b^4 c^2-a b^3 B c^2+a^2 b^2 c^2 C-2 a A b^3 c d+2 a^2 b^2 B c d-2 a^3 b c C d+a^2 A b^2 d^2-a^3 b B d^2+a^4 C d^2\right) \mathrm{Cos}[e+f x] \mathrm{Log}[a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x]](a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])(c+d \mathrm{Tan}[e+f x])^2\right) \Big/ \left(b^3\left(a^2+b^2\right) f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2(a+b \mathrm{Tan}[e+f x])\right)+\frac{C d^2 \mathrm{Sec}[e+f x](a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])(c+d \mathrm{Tan}[e+f x])^2}{2 b f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2(a+b \mathrm{Tan}[e+f x])}+\left((a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])\left(2 b c C d \mathrm{Sin}[e+f x]+b B d^2 \mathrm{Sin}[e+f x]-a C d^2 \mathrm{Sin}[e+f x]\right)(c+d \mathrm{Tan}[e+f x])^2\right) \Big/ \left(b^2 f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2(a+b \mathrm{Tan}[e+f x])\right)$$

Problem 62: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{(a+b\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 415 leaves, 6 steps):

$$-\frac{1}{\left(a^2+b^2\right)^2}\left(a^2\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b^2\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-2 a b\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) x-\frac{1}{\left(a^2+b^2\right)^2 f}\left(2 a b\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)+a^2\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)-b^2\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]-\frac{1}{b^3\left(a^2+b^2\right)^2 f}(b c-a d)\left(a^3 b B d-2 a^4 C d-b^4(B c+2 A d)-a b^3(2 A c-2 c C-3 B d)+a^2 b^2(B c-4 C d)\right) \text{Log}[a+b \text{Tan}[e+f x]]+\frac{\left(A b^2-a b B+2 a^2 C+b^2 C\right) d^2 \text{Tan}[e+f x]}{b^2\left(a^2+b^2\right) f}-\frac{\left(A b^2-a(b B-a C)\right)(c+d \text{Tan}[e+f x])^2}{b\left(a^2+b^2\right) f(a+b \text{Tan}[e+f x])}$$

Result (type 3, 2640 leaves):

$$-\Big(\Big(\mathrm{i}\,\big(-2 a^6 A b^6 c^2+2 \mathrm{i} a^5 A b^7 c^2-2 a^4 A b^8 c^2+2 \mathrm{i} a^3 A b^9 c^2+a^7 b^5 B c^2-\mathrm{i} a^6 b^6 B c^2-a^3 b^9 B c^2+\mathrm{i} a^2 b^{10} B c^2+2 a^6 b^6 c^2 C-2 \mathrm{i} a^5 b^7 c^2 C+2 a^4 b^8 c^2 C-2 \mathrm{i} a^3 b^9 c^2 C+2 a^7 A b^5 c d-2 \mathrm{i} a^6 A b^6 c d-2 a^3 A b^9 c d+2 \mathrm{i} a^2 A b^{10} c d+4 a^6 b^6 B c d-4 \mathrm{i} a^5 b^7 B c d+4 a^4 b^8 B c d-4 \mathrm{i} a^3 b^9 B c d-2 a^9 b^3 c C d+2 \mathrm{i} a^8 b^4 c C d-8 a^7 b^5 c C d+8 \mathrm{i} a^6 b^6 c C d-6 a^5 b^7 c C d+6 \mathrm{i} a^4 b^8 c C d+2 a^6 A b^6 d^2-2 \mathrm{i} a^5 A b^7 d^2+2 a^4 A b^8 d^2-2 \mathrm{i} a^3 A b^9 d^2-a^9 b^3 B d^2+\mathrm{i} a^8 b^4 B d^2-4 a^7 b^5 B d^2+4 \mathrm{i} a^6 b^6 B d^2-3 a^5 b^7 B d^2+3 \mathrm{i} a^4 b^8 B d^2+2 a^{10} b^2 C d^2-2 \mathrm{i} a^9 b^3 C d^2+6 a^8 b^4 C d^2-6 \mathrm{i} a^7 b^5 C d^2+4 a^6 b^6 C d^2-4 \mathrm{i} a^5 b^7 C d^2\big)(e+f x)(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2(c+d \text{Tan}[e+f x])^2\Big)\Big/\Big(a^2(a-\mathrm{i} b)^4(a+\mathrm{i} b)^3 b^5 f(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2(a+b \text{Tan}[e+f x])^2\Big)\Big)-$$

$$\Big(\mathrm{i}\,\big(2 a A b^4 c^2-a^2 b^3 B c^2+b^5 B c^2-2 a b^4 c^2 C-2 a^2 A b^3 c d+2 A b^5 c d-4 a b^4 B c d+2 a^4 b c C d+6 a^2 b^3 c C d-2 a A b^4 d^2+a^4 b B d^2+3 a^2 b^3 B d^2-2 a^5 C d^2-4 a^3 b^2 C d^2\big) \text{ArcTan}[\text{Tan}[e+f x]](a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2(c+d \text{Tan}[e+f x])^2\Big)\Big/\Big(b^3\left(a^2+b^2\right)^2 f(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2(a+b \text{Tan}[e+f x])^2\Big)+$$

$$\Big(\left(-2 b c C d-b B d^2+2 a C d^2\right) \text{Log}[\text{Cos}[e+f x]](a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2(c+d \text{Tan}[e+f x])^2\Big)\Big/\Big(b^3 f(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2(a+b \text{Tan}[e+f x])^2\Big)+$$

$$\Big(\big(2 a A b^4 c^2-a^2 b^3 B c^2+b^5 B c^2-2 a b^4 c^2 C-2 a^2 A b^3 c d+2 A b^5 c d-4 a b^4 B c d+2 a^4 b c C d+6 a^2 b^3 c C d-2 a A b^4 d^2+a^4 b B d^2+3 a^2 b^3 B d^2-2 a^5 C d^2-4 a^3 b^2 C d^2\big) \text{Log}\big[(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2\big](a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2(c+d \text{Tan}[e+f x])^2\Big)\Big/\Big(2 b^3\left(a^2+b^2\right)^2 f(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2(a+b \text{Tan}[e+f x])^2\Big)+$$

$$\Big(\text{Sec}[e+f x](a \text{Cos}[e+f x]+b \text{Sin}[e+f x])\big(a^5 b C d^2+2 a^3 b^3 C d^2+a b^5 C d^2+a^4 A b^2 c^2(e+f x)-a^2 A b^4 c^2(e+f x)+2 a^3 b^3 B c^2(e+f x)-a^4 b^2 c^2 C(e+f x)+a^2 b^4 c^2 C(e+f x)+4 a^3 A b^3 c d(e+f x)-2 a^4 b^2 B c d(e+f x)+2 a^2 b^4 B c d(e+f x)-4 a^3 b^3 c C d(e+f x)-a^4 A b^2 d^2(e+f x)+a^2 A b^4 d^2(e+f x)-2 a^3 b^3 B d^2(e+f x)+a^4 b^2 C d^2(e+f x)-a^2 b^4 C d^2(e+f x)-a^5 b C d^2 \text{Cos}[2(e+f x)]-2 a^3 b^3 C d^2 \text{Cos}[2(e+f x)]-a b^5 C d^2 \text{Cos}[2(e+f x)]+a^4 A b^2 c^2(e+f x) \text{Cos}[2(e+f x)]-a^2 A b^4 c^2(e+f x) \text{Cos}[2(e+f x)]+2 a^3 b^3 B c^2(e+f x) \text{Cos}[2(e+f x)]-$$

$a^4 b^2 c^2 C (e + f x) \text{Cos}[2 (e + f x)] + a^2 b^4 c^2 C (e + f x) \text{Cos}[2 (e + f x)] +$
$4 a^3 A b^3 c d (e + f x) \text{Cos}[2 (e + f x)] - 2 a^4 b^2 B c d (e + f x) \text{Cos}[2 (e + f x)] +$
$2 a^2 b^4 B c d (e + f x) \text{Cos}[2 (e + f x)] - 4 a^3 b^3 c C d (e + f x) \text{Cos}[2 (e + f x)] -$
$a^4 A b^2 d^2 (e + f x) \text{Cos}[2 (e + f x)] + a^2 A b^4 d^2 (e + f x) \text{Cos}[2 (e + f x)] -$
$2 a^3 b^3 B d^2 (e + f x) \text{Cos}[2 (e + f x)] + a^4 b^2 C d^2 (e + f x) \text{Cos}[2 (e + f x)] -$
$a^2 b^4 C d^2 (e + f x) \text{Cos}[2 (e + f x)] + a^2 A b^4 c^2 \text{Sin}[2 (e + f x)] +$
$A b^6 c^2 \text{Sin}[2 (e + f x)] - a^3 b^3 B c^2 \text{Sin}[2 (e + f x)] - a b^5 B c^2 \text{Sin}[2 (e + f x)] +$
$a^4 b^2 c^2 C \text{Sin}[2 (e + f x)] + a^2 b^4 c^2 C \text{Sin}[2 (e + f x)] - 2 a^3 A b^3 c d \text{Sin}[2 (e + f x)] -$
$2 a A b^5 c d \text{Sin}[2 (e + f x)] + 2 a^4 b^2 B c d \text{Sin}[2 (e + f x)] + 2 a^2 b^4 B c d \text{Sin}[2 (e + f x)] -$
$2 a^5 b c C d \text{Sin}[2 (e + f x)] - 2 a^3 b^3 c C d \text{Sin}[2 (e + f x)] + a^4 A b^2 d^2 \text{Sin}[2 (e + f x)] +$
$a^2 A b^4 d^2 \text{Sin}[2 (e + f x)] - a^5 b B d^2 \text{Sin}[2 (e + f x)] - a^3 b^3 B d^2 \text{Sin}[2 (e + f x)] +$
$2 a^6 C d^2 \text{Sin}[2 (e + f x)] + 3 a^4 b^2 C d^2 \text{Sin}[2 (e + f x)] + a^2 b^4 C d^2 \text{Sin}[2 (e + f x)] +$
$a^3 A b^3 c^2 (e + f x) \text{Sin}[2 (e + f x)] - a A b^5 c^2 (e + f x) \text{Sin}[2 (e + f x)] +$
$2 a^2 b^4 B c^2 (e + f x) \text{Sin}[2 (e + f x)] - a^3 b^3 c^2 C (e + f x) \text{Sin}[2 (e + f x)] +$
$a b^5 c^2 C (e + f x) \text{Sin}[2 (e + f x)] + 4 a^2 A b^4 c d (e + f x) \text{Sin}[2 (e + f x)] -$
$2 a^3 b^3 B c d (e + f x) \text{Sin}[2 (e + f x)] + 2 a b^5 B c d (e + f x) \text{Sin}[2 (e + f x)] -$
$4 a^2 b^4 c C d (e + f x) \text{Sin}[2 (e + f x)] - a^3 A b^3 d^2 (e + f x) \text{Sin}[2 (e + f x)] +$
$a A b^5 d^2 (e + f x) \text{Sin}[2 (e + f x)] - 2 a^2 b^4 B d^2 (e + f x) \text{Sin}[2 (e + f x)] +$
$a^3 b^3 C d^2 (e + f x) \text{Sin}[2 (e + f x)] - a b^5 C d^2 (e + f x) \text{Sin}[2 (e + f x)]) (c + d \text{Tan}[e + f x])^2) /$
$(2 a (a - i b)^2 (a + i b)^2 b^2 f (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])^2 (a + b \text{Tan}[e + f x])^2)$

Problem 63: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c + d \text{Tan}[e + f x])^2 (A + B \text{Tan}[e + f x] + C \text{Tan}[e + f x]^2)}{(a + b \text{Tan}[e + f x])^3} \, dx$$

Optimal (type 3, 597 leaves, 6 steps):

$$-\frac{1}{(a^2 + b^2)^3} (a^3 (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) - 3 a b^2 (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) - 3 a^2 b (2 c (A - C) d + B (c^2 - d^2)) + b^3 (2 c (A - C) d + B (c^2 - d^2))) x - \frac{1}{(a^2 + b^2)^3 f} (3 a^2 b (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) - b^3 (c^2 C + 2 B c d - C d^2 - A (c^2 - d^2)) + a^3 (2 c (A - C) d + B (c^2 - d^2)) - 3 a b^2 (2 c (A - C) d + B (c^2 - d^2))) \text{Log}[\text{Cos}[e + f x]] + \frac{1}{b^3 (a^2 + b^2)^3 f} (a^6 C d^2 + 3 a^4 b^2 C d^2 - 3 a^2 b^4 (c^2 C + 2 B c d - 2 C d^2 - A (c^2 - d^2)) + b^6 (c (c C + 2 B d) - A (c^2 - d^2)) - a^3 b^3 (2 c (A - C) d + B (c^2 - d^2)) + 3 a b^5 (2 c (A - C) d + B (c^2 - d^2))) \text{Log}[a + b \text{Tan}[e + f x]] - ((b c - a d) (a^4 C d + b^4 (B c + A d) + 2 a b^3 (A c - c C - B d) - a^2 b^2 (B c + (A - 3 C) d))) / (b^3 (a^2 + b^2)^2 f (a + b \text{Tan}[e + f x])) - \frac{(A b^2 - a (b B - a C)) (c + d \text{Tan}[e + f x])^2}{2 b (a^2 + b^2) f (a + b \text{Tan}[e + f x])^2}$$

Result (type 3, 2499 leaves):

$$\Big(\big(-A b^4 c^2 + a b^3 B c^2 - a^2 b^2 c^2 C + 2 a A b^3 c d - 2 a^2 b^2 B c d + 2 a^3 b c C d - a^2 A b^2 d^2 + a^3 b B d^2 - a^4 C d^2\big)$$

$$\operatorname{Sec}[e+f x]\,\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)\,\big(c + d \operatorname{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(2\,(a - i b)^2\,(a + i b)^2\, b f\,\big(c \operatorname{Cos}[e+f x] + d \operatorname{Sin}[e+f x]\big)^2\,\big(a + b \operatorname{Tan}[e+f x]\big)^3\Big) +$$

$$\Big(\big(a^3 A c^2 - 3 a A b^2 c^2 + 3 a^2 b B c^2 - b^3 B c^2 - a^3 c^2 C + 3 a b^2 c^2 C + 6 a^2 A b c d - 2 A b^3 c d - 2 a^3 B c d +$$

$$6 a b^2 B c d - 6 a^2 b c C d + 2 b^3 c C d - a^3 A d^2 + 3 a A b^2 d^2 - 3 a^2 b B d^2 + b^3 B d^2 + a^3 C d^2 - 3 a b^2 C d^2\big)$$

$$(e + f x)\operatorname{Sec}[e+f x]\,\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)^3\,\big(c + d \operatorname{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big((a - i b)^3\,(a + i b)^3 f\,\big(c \operatorname{Cos}[e+f x] + d \operatorname{Sin}[e+f x]\big)^2\,\big(a + b \operatorname{Tan}[e+f x]\big)^3\Big) +$$

$$\Big(\big(3 i a^9 A b^6 c^2 + 3 a^8 A b^7 c^2 + 5 i a^7 A b^8 c^2 + 5 a^6 A b^9 c^2 + i a^5 A b^{10} c^2 + a^4 A b^{11} c^2 - i a^3 A b^{12} c^2 -$$

$$a^2 A b^{13} c^2 - i a^{10} b^5 B c^2 - a^9 b^6 B c^2 + i a^8 b^7 B c^2 + a^7 b^8 B c^2 + 5 i a^6 b^9 B c^2 + 5 a^5 b^{10} B c^2 +$$

$$3 i a^4 b^{11} B c^2 + 3 a^3 b^{12} B c^2 - 3 i a^9 b^6 c^2 C - 3 a^8 b^7 c^2 C - 5 i a^7 b^8 c^2 C - 5 a^6 b^9 c^2 C -$$

$$i a^5 b^{10} c^2 C - a^4 b^{11} c^2 C + i a^3 b^{12} c^2 C + a^2 b^{13} c^2 C - 2 i a^{10} A b^5 c d - 2 a^9 A b^6 c d +$$

$$2 i a^8 A b^7 c d + 2 a^7 A b^8 c d + 10 i a^6 A b^9 c d + 10 a^5 A b^{10} c d + 6 i a^4 A b^{11} c d +$$

$$6 a^3 A b^{12} c d - 6 i a^9 b^6 B c d - 6 a^8 b^7 B c d - 10 i a^7 b^8 B c d - 10 a^6 b^9 B c d - 2 i a^5 b^{10} B c d -$$

$$2 a^4 b^{11} B c d + 2 i a^3 b^{12} B c d + 2 a^2 b^{13} B c d + 2 i a^{10} b^5 c C d + 2 a^9 b^6 c C d - 2 i a^8 b^7 c C d -$$

$$2 a^7 b^8 c C d - 10 i a^6 b^9 c C d - 10 a^5 b^{10} c C d - 6 i a^4 b^{11} c C d - 6 a^3 b^{12} c C d - 3 i a^9 A b^6 d^2 -$$

$$3 a^8 A b^7 d^2 - 5 i a^7 A b^8 d^2 - 5 a^6 A b^9 d^2 - i a^5 A b^{10} d^2 - a^4 A b^{11} d^2 + i a^3 A b^{12} d^2 +$$

$$a^2 A b^{13} d^2 + i a^{10} b^5 B d^2 + a^9 b^6 B d^2 - i a^8 b^7 B d^2 - a^7 b^8 B d^2 - 5 i a^6 b^9 B d^2 - 5 a^5 b^{10} B d^2 -$$

$$3 i a^4 b^{11} B d^2 - 3 a^3 b^{12} B d^2 + i a^{13} b^2 C d^2 + a^{12} b^3 C d^2 + 5 i a^{11} b^4 C d^2 + 5 a^{10} b^5 C d^2 +$$

$$13 i a^9 b^6 C d^2 + 13 a^8 b^7 C d^2 + 15 i a^7 b^8 C d^2 + 15 a^6 b^9 C d^2 + 6 i a^5 b^{10} C d^2 + 6 a^4 b^{11} C d^2\big)$$

$$(e + f x)\operatorname{Sec}[e+f x]\,\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)^3\,\big(c + d \operatorname{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(a^2\,(a - i b)^6\,(a + i b)^5\, b^5 f\,\big(c \operatorname{Cos}[e+f x] + d \operatorname{Sin}[e+f x]\big)^2\,\big(a + b \operatorname{Tan}[e+f x]\big)^3\Big) -$$

$$\frac{1}{b^3\,(a^2 + b^2)^3 f\,\big(c \operatorname{Cos}[e+f x] + d \operatorname{Sin}[e+f x]\big)^2\,\big(a + b \operatorname{Tan}[e+f x]\big)^3}$$

$$i\,\big(3 a^2 A b^4 c^2 - A b^6 c^2 - a^3 b^3 B c^2 + 3 a b^5 B c^2 - 3 a^2 b^4 c^2 C + b^6 c^2 C -$$

$$2 a^3 A b^3 c d + 6 a A b^5 c d - 6 a^2 b^4 B c d + 2 b^6 B c d + 2 a^3 b^3 c C d - 6 a b^5 c C d -$$

$$3 a^2 A b^4 d^2 + A b^6 d^2 + a^3 b^3 B d^2 - 3 a b^5 B d^2 + a^6 C d^2 + 3 a^4 b^2 C d^2 + 6 a^2 b^4 C d^2\big)$$

$$\operatorname{ArcTan}[\operatorname{Tan}[e+f x]]\operatorname{Sec}[e+f x]\,\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)^3\,\big(c + d \operatorname{Tan}[e+f x]\big)^2 -$$

$$\Big(C d^2 \operatorname{Log}[\operatorname{Cos}[e+f x]]\operatorname{Sec}[e+f x]\,\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)^3\,\big(c + d \operatorname{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(b^3 f\,\big(c \operatorname{Cos}[e+f x] + d \operatorname{Sin}[e+f x]\big)^2\,\big(a + b \operatorname{Tan}[e+f x]\big)^3\Big) +$$

$$\Big(1\Big/\Big(2 b^3\,(a^2 + b^2)^3 f\,\big(c \operatorname{Cos}[e+f x] + d \operatorname{Sin}[e+f x]\big)^2\,\big(a + b \operatorname{Tan}[e+f x]\big)^3\Big)\Big)$$

$$\big(3 a^2 A b^4 c^2 - A b^6 c^2 - a^3 b^3 B c^2 + 3 a b^5 B c^2 - 3 a^2 b^4 c^2 C + b^6 c^2 C - 2 a^3 A b^3 c d + 6 a A b^5 c d -$$

$$6 a^2 b^4 B c d + 2 b^6 B c d + 2 a^3 b^3 c C d - 6 a b^5 c C d - 3 a^2 A b^4 d^2 + A b^6 d^2 + a^3 b^3 B d^2 -$$

$$3 a b^5 B d^2 + a^6 C d^2 + 3 a^4 b^2 C d^2 + 6 a^2 b^4 C d^2\big)\operatorname{Log}\Big[\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)^2\Big]$$

$$\operatorname{Sec}[e+f x]\,\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)^3\,\big(c + d \operatorname{Tan}[e+f x]\big)^2 +$$

$$\Big(\operatorname{Sec}[e+f x]\,\big(a \operatorname{Cos}[e+f x] + b \operatorname{Sin}[e+f x]\big)^2\,\big(3 a A b^4 c^2 \operatorname{Sin}[e+f x] - 2 a^2 b^3 B c^2 \operatorname{Sin}[e+f x] +$$

$$b^5 B c^2 \operatorname{Sin}[e+f x] + a^3 b^2 c^2 C \operatorname{Sin}[e+f x] - 2 a b^4 c^2 C \operatorname{Sin}[e+f x] - 4 a^2 A b^3 c d \operatorname{Sin}[e+f x] +$$

$$2 A b^5 c d \operatorname{Sin}[e+f x] + 2 a^3 b^2 B c d \operatorname{Sin}[e+f x] - 4 a b^4 B c d \operatorname{Sin}[e+f x] +$$

$$6 a^2 b^3 c C d \operatorname{Sin}[e+f x] + a^3 A b^2 d^2 \operatorname{Sin}[e+f x] - 2 a A b^4 d^2 \operatorname{Sin}[e+f x] +$$

$$3 a^2 b^3 B d^2 \operatorname{Sin}[e+f x] - a^5 C d^2 \operatorname{Sin}[e+f x] - 4 a^3 b^2 C d^2 \operatorname{Sin}[e+f x]\big)\,\big(c + d \operatorname{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(a\,(a - i b)^2\,(a + i b)^2\, b^2 f\,\big(c \operatorname{Cos}[e+f x] + d \operatorname{Sin}[e+f x]\big)^2\,\big(a + b \operatorname{Tan}[e+f x]\big)^3\Big)$$

Problem 64: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 603 leaves, 7 steps):

$$\left(a^2\left(A\,c^3-c^3\,C-3\,B\,c^2\,d-3\,A\,c\,d^2+3\,c\,C\,d^2+B\,d^3\right)+b^2\left(c^3\,C+3\,B\,c^2\,d-3\,c\,C\,d^2-B\,d^3-A\left(c^3-3\,c\,d^2\right)\right)-2\,a\,b\left((A-C)\,d\left(3\,c^2-d^2\right)+B\left(c^3-3\,c\,d^2\right)\right)\right)x+\frac{1}{f}\left(2\,a\,b\left(c^3\,C+3\,B\,c^2\,d-3\,c\,C\,d^2-B\,d^3-A\left(c^3-3\,c\,d^2\right)\right)-a^2\left((A-C)\,d\left(3\,c^2-d^2\right)+B\left(c^3-3\,c\,d^2\right)\right)+b^2\left((A-C)\,d\left(3\,c^2-d^2\right)+B\left(c^3-3\,c\,d^2\right)\right)\right)\text{Log}[\text{Cos}[e+f\,x]]-\frac{1}{f}d\left(2\,a\,b\left(c^2\,C+2\,B\,c\,d-C\,d^2-A\left(c^2-d^2\right)\right)-a^2\left(2\,c\,(A-C)\,d+B\left(c^2-d^2\right)\right)+b^2\left(2\,c\,(A-C)\,d+B\left(c^2-d^2\right)\right)\right)\text{Tan}[e+f\,x]+\frac{1}{2\,f}\left(2\,a\,b\,(A\,c-c\,C-B\,d)+a^2\,(B\,c+(A-C)\,d)-b^2\,(B\,c+(A-C)\,d)\right)(c+d\,\text{Tan}[e+f\,x])^2+\frac{\left(a^2\,B-b^2\,B+2\,a\,b\,(A-C)\right)(c+d\,\text{Tan}[e+f\,x])^3}{3\,f}+\frac{1}{60\,d^3\,f}\left(5\,a^2\,C\,d^2-6\,a\,b\,d\,(c\,C-5\,B\,d)+b^2\left(c^2\,C-3\,B\,c\,d+15\,(A-C)\,d^2\right)\right)(c+d\,\text{Tan}[e+f\,x])^4-\frac{b\,(b\,c\,C-3\,b\,B\,d-a\,C\,d)\,\text{Tan}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])^4}{15\,d^2\,f}+\frac{C\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^4}{6\,d\,f}$$

Result (type 3, 1616 leaves):

$$\left(\left(3 b^2 c^2 C d + 3 b^2 B c d^2 + 6 a b c C d^2 + A b^2 d^3 + 2 a b B d^3 + a^2 C d^3 - 3 b^2 C d^3\right)\right.$$
$$\left.\text{Cos}[e+f x] \left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3\right) \Big/$$
$$\left(4 f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3\right) +$$
$$\left(\left(b^2 B c^3 + 2 a b c^3 C + 3 A b^2 c^2 d + 6 a b B c^2 d + 3 a^2 c^2 C d - 6 b^2 c^2 C d + 6 a A b c d^2 +\right.\right.$$
$$\left.3 a^2 B c d^2 - 6 b^2 B c d^2 - 12 a b c C d^2 + a^2 A d^3 - 2 A b^2 d^3 - 4 a b B d^3 - 2 a^2 C d^3 + 3 b^2 C d^3\right)$$
$$\left.\text{Cos}[e+f x]^3 \left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3\right) \Big/$$
$$\left(2 f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3\right) +$$
$$\left(\left(a^2 A c^3 - A b^2 c^3 - 2 a b B c^3 - a^2 c^3 C + b^2 c^3 C - 6 a A b c^2 d - 3 a^2 B c^2 d + 3 b^2 B c^2 d + 6 a b c^2 C d - 3 a^2 A\right.\right.$$
$$\left.c d^2 + 3 A b^2 c d^2 + 6 a b B c d^2 + 3 a^2 c C d^2 - 3 b^2 c C d^2 + 2 a A b d^3 + a^2 B d^3 - b^2 B d^3 - 2 a b C d^3\right)$$
$$\left.\left(e + f x\right) \text{Cos}[e+f x]^5 \left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3\right) \Big/$$
$$\left(f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3\right) +$$
$$\left(\left(-2 a A b c^3 - a^2 B c^3 + b^2 B c^3 + 2 a b c^3 C - 3 a^2 A c^2 d + 3 A b^2 c^2 d + 6 a b B c^2 d + 3 a^2 c^2 C d - 3 b^2 c^2 C d +\right.\right.$$
$$\left.6 a A b c d^2 + 3 a^2 B c d^2 - 3 b^2 B c d^2 - 6 a b c C d^2 + a^2 A d^3 - A b^2 d^3 - 2 a b B d^3 - a^2 C d^3 + b^2 C d^3\right)$$
$$\left.\text{Cos}[e+f x]^5 \text{Log}[\text{Cos}[e+f x]] \left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3\right) \Big/$$
$$\left(f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3\right) +$$
$$\frac{b^2 C d^3 \text{Sec}[e+f x] \left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3}{6 f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3} +$$
$$\left(1 \Big/ \left(15 f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3\right)\right)$$
$$\text{Cos}[e+f x]^2 \left(5 b^2 c^3 C \text{Sin}[e+f x] + 15 b^2 B c^2 d \text{Sin}[e+f x] + 30 a b c^2 C d \text{Sin}[e+f x] +\right.$$
$$15 A b^2 c d^2 \text{Sin}[e+f x] + 30 a b B c d^2 \text{Sin}[e+f x] + 15 a^2 c C d^2 \text{Sin}[e+f x] -$$
$$33 b^2 c C d^2 \text{Sin}[e+f x] + 10 a A b d^3 \text{Sin}[e+f x] + 5 a^2 B d^3 \text{Sin}[e+f x] -$$
$$\left.11 b^2 B d^3 \text{Sin}[e+f x] - 22 a b C d^3 \text{Sin}[e+f x]\right) \left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3 +$$
$$\left(\left(3 b^2 c C d^2 \text{Sin}[e+f x] + b^2 B d^3 \text{Sin}[e+f x] + 2 a b C d^3 \text{Sin}[e+f x]\right)\right.$$
$$\left.\left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3\right) \Big/$$
$$\left(5 f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3\right) +$$
$$\left(1 \Big/ \left(15 f \left(a \text{Cos}[e+f x] + b \text{Sin}[e+f x]\right)^2 \left(c \text{Cos}[e+f x] + d \text{Sin}[e+f x]\right)^3\right)\right)$$
$$\text{Cos}[e+f x]^4 \left(15 A b^2 c^3 \text{Sin}[e+f x] + 30 a b B c^3 \text{Sin}[e+f x] + 15 a^2 c^3 C \text{Sin}[e+f x] -\right.$$
$$20 b^2 c^3 C \text{Sin}[e+f x] + 90 a A b c^2 d \text{Sin}[e+f x] + 45 a^2 B c^2 d \text{Sin}[e+f x] -$$
$$60 b^2 B c^2 d \text{Sin}[e+f x] - 120 a b c^2 C d \text{Sin}[e+f x] + 45 a^2 A c d^2 \text{Sin}[e+f x] -$$
$$60 A b^2 c d^2 \text{Sin}[e+f x] - 120 a b B c d^2 \text{Sin}[e+f x] - 60 a^2 c C d^2 \text{Sin}[e+f x] +$$
$$69 b^2 c C d^2 \text{Sin}[e+f x] - 40 a A b d^3 \text{Sin}[e+f x] - 20 a^2 B d^3 \text{Sin}[e+f x] +$$
$$\left.23 b^2 B d^3 \text{Sin}[e+f x] + 46 a b C d^3 \text{Sin}[e+f x]\right) \left(a + b \text{Tan}[e+f x]\right)^2 \left(c + d \text{Tan}[e+f x]\right)^3$$

Problem 65: Result more than twice size of optimal antiderivative.

$$\int \left(a + b \text{Tan}[e+f x]\right) \left(c + d \text{Tan}[e+f x]\right)^3 \left(A + B \text{Tan}[e+f x] + C \text{Tan}[e+f x]^2\right) dx$$

Optimal (type 3, 389 leaves, 6 steps):

$$\left(a\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)-b\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) x-\frac{1}{f}\left(A\left(b c^3+3 a c^2 d-3 b c d^2-a d^3\right)-b\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3\right)+a\left(B c^3-3 c^2 C d-3 B c d^2+C d^3\right)\right) \operatorname{Log}[\operatorname{Cos}[e+f x]]+\frac{1}{f} d\left(a\left(B c^2-2 c C d-B d^2\right)-b\left(c^2 C+2 B c d-C d^2\right)+A\left(2 a c d+b\left(c^2-d^2\right)\right)\right) \operatorname{Tan}[e+f x]+\frac{(A b c+a B c-b c C+a A d-b B d-a C d)(c+d \operatorname{Tan}[e+f x])^2}{2 f}+\frac{(A b+a B-b C)(c+d \operatorname{Tan}[e+f x])^3}{3 f}-\frac{(b c C-5 b B d-5 a C d)(c+d \operatorname{Tan}[e+f x])^4}{20 d^2 f}+\frac{b C \operatorname{Tan}[e+f x](c+d \operatorname{Tan}[e+f x])^4}{5 d f}$$

Result (type 3, 1022 leaves):

$$\frac{\left(3 b c C d^2+b B d^3+a C d^3\right)(a+b \operatorname{Tan}[e+f x])(c+d \operatorname{Tan}[e+f x])^3}{4 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^3}+\left(\left(b c^3 C+3 b B c^2 d+3 a c^2 C d+3 A b c d^2+3 a B c d^2-6 b c C d^2+a A d^3-2 b B d^3-2 a C d^3\right) \operatorname{Cos}[e+f x]^2(a+b \operatorname{Tan}[e+f x])(c+d \operatorname{Tan}[e+f x])^3\right) \Big/ \left(2 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^3\right)+\left(\left(a A c^3-b B c^3-a c^3 C-3 A b c^2 d-3 a B c^2 d+3 b c^2 C d-3 a A c d^2+3 b B c d^2+3 a c C d^2+A b d^3+a B d^3-b C d^3\right)(e+f x) \operatorname{Cos}[e+f x]^4(a+b \operatorname{Tan}[e+f x])(c+d \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^3\right)+\left(\left(-A b c^3-a B c^3+b c^3 C-3 a A c^2 d+3 b B c^2 d+3 a c^2 C d+3 A b c d^2+3 a B c d^2-3 b c C d^2+a A d^3-b B d^3-a C d^3\right) \operatorname{Cos}[e+f x]^4 \operatorname{Log}[\operatorname{Cos}[e+f x]](a+b \operatorname{Tan}[e+f x])(c+d \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^3\right)+\left(\operatorname{Cos}[e+f x]\left(15 b c^2 C d \operatorname{Sin}[e+f x]+15 b B c d^2 \operatorname{Sin}[e+f x]+15 a c C d^2 \operatorname{Sin}[e+f x]+5 A b d^3 \operatorname{Sin}[e+f x]+5 a B d^3 \operatorname{Sin}[e+f x]-11 b C d^3 \operatorname{Sin}[e+f x]\right)(a+b \operatorname{Tan}[e+f x])(c+d \operatorname{Tan}[e+f x])^3\right) \Big/ \left(15 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^3\right)+\frac{1}{15 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^3} \operatorname{Cos}[e+f x]^3\left(15 b B c^3 \operatorname{Sin}[e+f x]+15 a c^3 C \operatorname{Sin}[e+f x]+45 A b c^2 d \operatorname{Sin}[e+f x]+45 a B c^2 d \operatorname{Sin}[e+f x]-60 b c^2 C d \operatorname{Sin}[e+f x]+45 a A c d^2 \operatorname{Sin}[e+f x]-60 b B c d^2 \operatorname{Sin}[e+f x]-60 a c C d^2 \operatorname{Sin}[e+f x]-20 A b d^3 \operatorname{Sin}[e+f x]-20 a B d^3 \operatorname{Sin}[e+f x]+23 b C d^3 \operatorname{Sin}[e+f x]\right)(a+b \operatorname{Tan}[e+f x])(c+d \operatorname{Tan}[e+f x])^3+\frac{b C d^3 \operatorname{Tan}[e+f x](a+b \operatorname{Tan}[e+f x])(c+d \operatorname{Tan}[e+f x])^3}{5 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^3}$$

Problem 67: Result more than twice size of optimal antiderivative.

$$\int \frac{(c + d \operatorname{Tan}[e + f x])^3 \left(A + B \operatorname{Tan}[e + f x] + C \operatorname{Tan}[e + f x]^2\right)}{a + b \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 3, 363 leaves, 7 steps):

$$-\frac{1}{a^2+b^2}\left(a\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3-A\left(c^3-3 c d^2\right)\right)-b\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) x-\frac{1}{\left(a^2+b^2\right) f}\left(b\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3\right)+a\left(B c^3-3 c^2 C d-3 B c d^2+C d^3\right)+A\left(a d\left(3 c^2-d^2\right)-b\left(c^3-3 c d^2\right)\right)\right) \operatorname{Log}[\operatorname{Cos}[e+f x]]+\frac{\left(A b^2-a(b B-a C)\right)(b c-a d)^3 \operatorname{Log}[a+b \operatorname{Tan}[e+f x]]}{b^4\left(a^2+b^2\right) f}+\frac{1}{b^3 f} d\left(b^2 d\left(B c+(A-C) d\right)+(b c-a d)(b c C+b B d-a C d)\right) \operatorname{Tan}[e+f x]+\frac{(b c C+b B d-a C d)(c+d \operatorname{Tan}[e+f x])^2}{2 b^2 f}+\frac{C(c+d \operatorname{Tan}[e+f x])^3}{3 b f}$$

Result (type 3, 1596 leaves):

$$\Big(\big(-b^3 c^3 C - 3 b^3 B c^2 d + 3 a b^2 c^2 C d - 3 A b^3 c d^2 + 3 a b^2 B c d^2 - 3 a^2 b c C d^2 + 3 b^3 c C d^2 + a A b^2 d^3 - a^2 b B d^3 + b^3 B d^3 + a^3 C d^3 - a b^2 C d^3\big)$$
$$\text{Cos}[e + f x]^2\, \text{Log}[\text{Cos}[e + f x]]\, (a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x])\, (c + d\, \text{Tan}[e + f x])^3\Big) \Big/$$
$$\Big(b^4 f\, (c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x])^3\, (a + b\, \text{Tan}[e + f x])\Big) +$$
$$\Big(\big(A b^5 c^3 - a b^4 B c^3 + a^2 b^3 c^3 C - 3 a A b^4 c^2 d + 3 a^2 b^3 B c^2 d - 3 a^3 b^2 c^2 C d + 3 a^2 A b^3 c d^2 - 3 a^3 b^2 B c d^2 + 3 a^4 b c C d^2 - a^3 A b^2 d^3 + a^4 b B d^3 - a^5 C d^3\big)\, \text{Cos}[e + f x]^2$$
$$\text{Log}[a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x]]\, (a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x])\, (c + d\, \text{Tan}[e + f x])^3\Big) \Big/$$
$$\Big(b^4 (a^2 + b^2) f\, (c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x])^3\, (a + b\, \text{Tan}[e + f x])\Big) +$$
$$\frac{1}{12 b^3 (a^2 + b^2) f\, (c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x])^3\, (a + b\, \text{Tan}[e + f x])}$$
$$\text{Sec}[e + f x]\, (a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x])$$
$$\big(18 a^2 b^2 c C d^2 \text{Cos}[e + f x] + 18 b^4 c C d^2 \text{Cos}[e + f x] + 6 a^2 b^2 B d^3 \text{Cos}[e + f x] +$$
$$6 b^4 B d^3 \text{Cos}[e + f x] - 6 a^3 b C d^3 \text{Cos}[e + f x] - 6 a b^3 C d^3 \text{Cos}[e + f x] + 9 a A b^3 c^3$$
$$(e + f x) \text{Cos}[e + f x] + 9 b^4 B c^3 (e + f x) \text{Cos}[e + f x] - 9 a b^3 c^3 C (e + f x) \text{Cos}[e + f x] +$$
$$27 A b^4 c^2 d (e + f x) \text{Cos}[e + f x] - 27 a b^3 B c^2 d (e + f x) \text{Cos}[e + f x] -$$
$$27 b^4 c^2 C d (e + f x) \text{Cos}[e + f x] - 27 a A b^3 c d^2 (e + f x) \text{Cos}[e + f x] -$$
$$27 b^4 B c d^2 (e + f x) \text{Cos}[e + f x] + 27 a b^3 c C d^2 (e + f x) \text{Cos}[e + f x] -$$
$$9 A b^4 d^3 (e + f x) \text{Cos}[e + f x] + 9 a b^3 B d^3 (e + f x) \text{Cos}[e + f x] + 9 b^4 C d^3 (e + f x) \text{Cos}[e + f x] +$$
$$3 a A b^3 c^3 (e + f x) \text{Cos}[3 (e + f x)] + 3 b^4 B c^3 (e + f x) \text{Cos}[3 (e + f x)] -$$
$$3 a b^3 c^3 C (e + f x) \text{Cos}[3 (e + f x)] + 9 A b^4 c^2 d (e + f x) \text{Cos}[3 (e + f x)] -$$
$$9 a b^3 B c^2 d (e + f x) \text{Cos}[3 (e + f x)] - 9 b^4 c^2 C d (e + f x) \text{Cos}[3 (e + f x)] -$$
$$9 a A b^3 c d^2 (e + f x) \text{Cos}[3 (e + f x)] - 9 b^4 B c d^2 (e + f x) \text{Cos}[3 (e + f x)] +$$
$$9 a b^3 c C d^2 (e + f x) \text{Cos}[3 (e + f x)] - 3 A b^4 d^3 (e + f x) \text{Cos}[3 (e + f x)] +$$
$$3 a b^3 B d^3 (e + f x) \text{Cos}[3 (e + f x)] + 3 b^4 C d^3 (e + f x) \text{Cos}[3 (e + f x)] + 9 a^2 b^2 c^2 C d$$
$$\text{Sin}[e + f x] + 9 b^4 c^2 C d\, \text{Sin}[e + f x] + 9 a^2 b^2 B c d^2 \text{Sin}[e + f x] + 9 b^4 B c d^2 \text{Sin}[e + f x] -$$
$$9 a^3 b c C d^2 \text{Sin}[e + f x] - 9 a b^3 c C d^2 \text{Sin}[e + f x] + 3 a^2 A b^2 d^3 \text{Sin}[e + f x] +$$
$$3 A b^4 d^3 \text{Sin}[e + f x] - 3 a^3 b B d^3 \text{Sin}[e + f x] - 3 a b^3 B d^3 \text{Sin}[e + f x] + 3 a^4 C d^3 \text{Sin}[e + f x] +$$
$$3 a^2 b^2 C d^3 \text{Sin}[e + f x] + 9 a^2 b^2 c^2 C d\, \text{Sin}[3 (e + f x)] + 9 b^4 c^2 C d\, \text{Sin}[3 (e + f x)] +$$
$$9 a^2 b^2 B c d^2 \text{Sin}[3 (e + f x)] + 9 b^4 B c d^2 \text{Sin}[3 (e + f x)] - 9 a^3 b c C d^2 \text{Sin}[3 (e + f x)] -$$
$$9 a b^3 c C d^2 \text{Sin}[3 (e + f x)] + 3 a^2 A b^2 d^3 \text{Sin}[3 (e + f x)] + 3 A b^4 d^3 \text{Sin}[3 (e + f x)] -$$
$$3 a^3 b B d^3 \text{Sin}[3 (e + f x)] - 3 a b^3 B d^3 \text{Sin}[3 (e + f x)] + 3 a^4 C d^3 \text{Sin}[3 (e + f x)] -$$
$$a^2 b^2 C d^3 \text{Sin}[3 (e + f x)] - 4 b^4 C d^3 \text{Sin}[3 (e + f x)]\big)\, (c + d\, \text{Tan}[e + f x])^3$$

Problem 68: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c + d\, \text{Tan}[e + f x])^3\, (A + B\, \text{Tan}[e + f x] + C\, \text{Tan}[e + f x]^2)}{(a + b\, \text{Tan}[e + f x])^2}\, dx$$

Optimal (type 3, 574 leaves, 7 steps):

$$-\frac{1}{\left(a^2+b^2\right)^2}\left(b^2\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)+a^2\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3-A\left(c^3-3 c d^2\right)\right)-2 a b\left(\left(A-C\right) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) x+\frac{1}{\left(a^2+b^2\right)^2 f}\left(2 a b\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)-a^2\left(\left(A-C\right) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)+b^2\left(\left(A-C\right) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]-\frac{1}{b^4\left(a^2+b^2\right)^2 f}\left(b c-a d\right)^2\left(2 a^3 b B d-3 a^4 C d-b^4\left(B c+3 A d\right)-2 a b^3\left(A c-c C-2 B d\right)+a^2 b^2\left(B c-\left(A+5 C\right) d\right)\right) \text{Log}[a+b \text{Tan}[e+f x]]-\frac{1}{b^3\left(a^2+b^2\right) f} d^2\left(3 a^3 C d-A b^2\left(b c-a d\right)-b^3\left(2 c C+B d\right)-a^2 b\left(3 c C+2 B d\right)+a b^2\left(B c+2 C d\right)\right) \text{Tan}[e+f x]+\frac{\left(2 A b^2-2 a b B+3 a^2 C+b^2 C\right) d\left(c+d \text{Tan}[e+f x]\right)^2}{2 b^2\left(a^2+b^2\right) f}-\frac{\left(A b^2-a\left(b B-a C\right)\right)\left(c+d \text{Tan}[e+f x]\right)^3}{b\left(a^2+b^2\right) f\left(a+b \text{Tan}[e+f x]\right)}$$

Result (type 3, 2467 leaves) :

$$\Big(\big(a^2 A c^3 - A b^2 c^3 + 2 a b B c^3 - a^2 c^3 C + b^2 c^3 C + 6 a A b c^2 d - 3 a^2 B c^2 d + 3 b^2 B c^2 d - 6 a b c^2 C d - 3 a^2 A c$$
$$d^2 + 3 A b^2 c d^2 - 6 a b B c d^2 + 3 a^2 c C d^2 - 3 b^2 c C d^2 - 2 a A b d^3 + a^2 B d^3 - b^2 B d^3 + 2 a b C d^3\big)$$
$$(e + f x) \text{Cos}[e + f x] \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c + d \text{Tan}[e + f x]\right)^3\Big) \Big/$$
$$\left((a - i b)^2 (a + i b)^2 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2\right) -$$
$$\Big(i \big(-2 a^6 A b^8 c^3 + 2 i a^5 A b^9 c^3 - 2 a^4 A b^{10} c^3 + 2 i a^3 A b^{11} c^3 + a^7 b^7 B c^3 - i a^6 b^8 B c^3 - a^3 b^{11} B c^3 +$$
$$i a^2 b^{12} B c^3 + 2 a^6 b^8 c^3 C - 2 i a^5 b^9 c^3 C + 2 a^4 b^{10} c^3 C - 2 i a^3 b^{11} c^3 C + 3 a^7 A b^7 c^2 d -$$
$$3 i a^6 A b^8 c^2 d - 3 a^3 A b^{11} c^2 d + 3 i a^2 A b^{12} c^2 d + 6 a^6 b^8 B c^2 d - 6 i a^5 b^9 B c^2 d + 6 a^4 b^{10} B c^2 d -$$
$$6 i a^3 b^{11} B c^2 d - 3 a^9 b^5 c^2 C d + 3 i a^8 b^6 c^2 C d - 12 a^7 b^7 c^2 C d + 12 i a^6 b^8 c^2 C d - 9 a^5 b^9 c^2 C d +$$
$$9 i a^4 b^{10} c^2 C d + 6 a^6 A b^8 c d^2 - 6 i a^5 A b^9 c d^2 + 6 a^4 A b^{10} c d^2 - 6 i a^3 A b^{11} c d^2 - 3 a^9 b^5 B c d^2 +$$
$$3 i a^8 b^6 B c d^2 - 12 a^7 b^7 B c d^2 + 12 i a^6 b^8 B c d^2 - 9 a^5 b^9 B c d^2 + 9 i a^4 b^{10} B c d^2 + 6 a^{10} b^4 c C d^2 -$$
$$6 i a^9 b^5 c C d^2 + 18 a^8 b^6 c C d^2 - 18 i a^7 b^7 c C d^2 + 12 a^6 b^8 c C d^2 - 12 i a^5 b^9 c C d^2 -$$
$$a^9 A b^5 d^3 + i a^8 A b^6 d^3 - 4 a^7 A b^7 d^3 + 4 i a^6 A b^8 d^3 - 3 a^5 A b^9 d^3 + 3 i a^4 A b^{10} d^3 +$$
$$2 a^{10} b^4 B d^3 - 2 i a^9 b^5 B d^3 + 6 a^8 b^6 B d^3 - 6 i a^7 b^7 B d^3 + 4 a^6 b^8 B d^3 - 4 i a^5 b^9 B d^3 -$$
$$3 a^{11} b^3 C d^3 + 3 i a^{10} b^4 C d^3 - 8 a^9 b^5 C d^3 + 8 i a^8 b^6 C d^3 - 5 a^7 b^7 C d^3 + 5 i a^6 b^8 C d^3\big)$$
$$(e + f x) \text{Cos}[e + f x] \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c + d \text{Tan}[e + f x]\right)^3\Big) \Big/$$
$$\left(a^2 (a - i b)^4 (a + i b)^3 b^7 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2\right) -$$
$$\frac{1}{b^4 \left(a^2 + b^2\right)^2 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2}$$
$$i \big(2 a A b^5 c^3 - a^2 b^4 B c^3 + b^6 B c^3 - 2 a b^5 c^3 C - 3 a^2 A b^4 c^2 d + 3 A b^6 c^2 d - 6 a b^5 B c^2 d +$$
$$3 a^4 b^2 c^2 C d + 9 a^2 b^4 c^2 C d - 6 a A b^5 c d^2 + 3 a^4 b^2 B c d^2 + 9 a^2 b^4 B c d^2 - 6 a^5 b c C d^2 -$$
$$12 a^3 b^3 c C d^2 + a^4 A b^2 d^3 + 3 a^2 A b^4 d^3 - 2 a^5 b B d^3 - 4 a^3 b^3 B d^3 + 3 a^6 C d^3 + 5 a^4 b^2 C d^3\big)$$
$$\text{ArcTan}[\text{Tan}[e + f x]] \text{Cos}[e + f x] \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c + d \text{Tan}[e + f x]\right)^3 +$$
$$\Big(\big(-3 b^2 c^2 C d - 3 b^2 B c d^2 + 6 a b c C d^2 - A b^2 d^3 + 2 a b B d^3 - 3 a^2 C d^3 + b^2 C d^3\big) \text{Cos}[e + f x]$$
$$\text{Log}[\text{Cos}[e + f x]] \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c + d \text{Tan}[e + f x]\right)^3\Big) \Big/$$
$$\left(b^4 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2\right) +$$
$$\left(1 \Big/ \left(2 b^4 \left(a^2 + b^2\right)^2 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2\right)\right)$$
$$\big(2 a A b^5 c^3 - a^2 b^4 B c^3 + b^6 B c^3 - 2 a b^5 c^3 C - 3 a^2 A b^4 c^2 d + 3 A b^6 c^2 d - 6 a b^5 B c^2 d + 3 a^4 b^2 c^2 C d +$$
$$9 a^2 b^4 c^2 C d - 6 a A b^5 c d^2 + 3 a^4 b^2 B c d^2 + 9 a^2 b^4 B c d^2 - 6 a^5 b c C d^2 - 12 a^3 b^3 c C d^2 +$$
$$a^4 A b^2 d^3 + 3 a^2 A b^4 d^3 - 2 a^5 b B d^3 - 4 a^3 b^3 B d^3 + 3 a^6 C d^3 + 5 a^4 b^2 C d^3\big) \text{Cos}[e + f x]$$
$$\text{Log}\left[\left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2\right] \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c + d \text{Tan}[e + f x]\right)^3 +$$
$$\left(C d^3 \text{Sec}[e + f x] \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c + d \text{Tan}[e + f x]\right)^3\right) \Big/$$
$$\left(2 b^2 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2\right) +$$
$$\Big(\left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(3 b c C d^2 \text{Sin}[e + f x] + b B d^3 \text{Sin}[e + f x] - 2 a C d^3 \text{Sin}[e + f x]\right)$$
$$\left(c + d \text{Tan}[e + f x]\right)^3\Big) \Big/ \left(b^3 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2\right) +$$
$$\Big(\text{Cos}[e + f x] \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right) \big(A b^5 c^3 \text{Sin}[e + f x] - a b^4 B c^3 \text{Sin}[e + f x] +$$
$$a^2 b^3 c^3 C \text{Sin}[e + f x] - 3 a A b^4 c^2 d \text{Sin}[e + f x] + 3 a^2 b^3 B c^2 d \text{Sin}[e + f x] - 3 a^3 b^2 c^2 C d$$
$$\text{Sin}[e + f x] + 3 a^2 A b^3 c d^2 \text{Sin}[e + f x] - 3 a^3 b^2 B c d^2 \text{Sin}[e + f x] + 3 a^4 b c C d^2 \text{Sin}[e + f x] -$$
$$a^3 A b^2 d^3 \text{Sin}[e + f x] + a^4 b B d^3 \text{Sin}[e + f x] - a^5 C d^3 \text{Sin}[e + f x]\big) \left(c + d \text{Tan}[e + f x]\right)^3\Big) \Big/$$
$$\left(a (a - i b) (a + i b) b^3 f \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 \left(a + b \text{Tan}[e + f x]\right)^2\right)$$

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

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{c+d\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 337 leaves, 7 steps):

$$\frac{1}{c^2+d^2}\left(a^3\,(A\,c-c\,C+B\,d)-3\,a\,b^2\,(A\,c-c\,C+B\,d)-3\,a^2\,b\,(B\,c-(A-C)\,d)+b^3\,(B\,c-(A-C)\,d)\right)x-\frac{1}{(c^2+d^2)\,f}\left(3\,a^2\,b\,(A\,c-c\,C+B\,d)-b^3\,(A\,c-c\,C+B\,d)+a^3\,(B\,c-(A-C)\,d)-3\,a\,b^2\,(B\,c-(A-C)\,d)\right)\mathrm{Log}[\mathrm{Cos}[e+f\,x]]-\frac{(b\,c-a\,d)^3\,(c^2\,C-B\,c\,d+A\,d^2)\,\mathrm{Log}[c+d\,\mathrm{Tan}[e+f\,x]]}{d^4\,(c^2+d^2)\,f}+\frac{b\,\left(b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(b\,c\,C-b\,B\,d-a\,C\,d)\right)\mathrm{Tan}[e+f\,x]}{d^3\,f}-\frac{(b\,c\,C-b\,B\,d-a\,C\,d)\,(a+b\,\mathrm{Tan}[e+f\,x])^2}{2\,d^2\,f}+\frac{C\,(a+b\,\mathrm{Tan}[e+f\,x])^3}{3\,d\,f}$$

Result (type 3, 1596 leaves):

$$\Big(\big(b^3 c^3 C - b^3 B c^2 d - 3 a b^2 c^2 C d + A b^3 c d^2 + 3 a b^2 B c d^2 + 3 a^2 b c C d^2 -$$
$$b^3 c C d^2 - 3 a A b^2 d^3 - 3 a^2 b B d^3 + b^3 B d^3 - a^3 C d^3 + 3 a b^2 C d^3\big) \text{Cos}[e + f x]^2$$
$$\text{Log}[\text{Cos}[e + f x]] \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right) \left(a + b \text{Tan}[e + f x]\right)^3\Big) \Big/$$
$$\left(d^4 f \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^3 \left(c + d \text{Tan}[e + f x]\right)\right) +$$
$$\Big(\big(-b^3 c^5 C + b^3 B c^4 d + 3 a b^2 c^4 C d - A b^3 c^3 d^2 - 3 a b^2 B c^3 d^2 - 3 a^2 b c^3 C d^2 + 3 a A b^2 c^2 d^3 +$$
$$3 a^2 b B c^2 d^3 + a^3 c^2 C d^3 - 3 a^2 A b c d^4 - a^3 B c d^4 + a^3 A d^5\big) \text{Cos}[e + f x]^2$$
$$\text{Log}[c \text{Cos}[e + f x] + d \text{Sin}[e + f x]] \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right) \left(a + b \text{Tan}[e + f x]\right)^3\Big) \Big/$$
$$\left(d^4 \left(c^2 + d^2\right) f \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^3 \left(c + d \text{Tan}[e + f x]\right)\right) +$$
$$\frac{1}{12 d^3 \left(c^2 + d^2\right) f \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^3 \left(c + d \text{Tan}[e + f x]\right)}$$
$$\text{Sec}[e + f x] \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right) \big(-6 b^3 c^3 C d \text{Cos}[e + f x] + 6 b^3 B c^2 d^2 \text{Cos}[e + f x] +$$
$$18 a b^2 c^2 C d^2 \text{Cos}[e + f x] - 6 b^3 c C d^3 \text{Cos}[e + f x] + 6 b^3 B d^4 \text{Cos}[e + f x] +$$
$$18 a b^2 C d^4 \text{Cos}[e + f x] + 9 a^3 A c d^3 (e + f x) \text{Cos}[e + f x] - 27 a A b^2 c d^3 (e + f x) \text{Cos}[e + f x] -$$
$$27 a^2 b B c d^3 (e + f x) \text{Cos}[e + f x] + 9 b^3 B c d^3 (e + f x) \text{Cos}[e + f x] -$$
$$9 a^3 c C d^3 (e + f x) \text{Cos}[e + f x] + 27 a b^2 c C d^3 (e + f x) \text{Cos}[e + f x] +$$
$$27 a^2 A b d^4 (e + f x) \text{Cos}[e + f x] - 9 A b^3 d^4 (e + f x) \text{Cos}[e + f x] +$$
$$9 a^3 B d^4 (e + f x) \text{Cos}[e + f x] - 27 a b^2 B d^4 (e + f x) \text{Cos}[e + f x] -$$
$$27 a^2 b C d^4 (e + f x) \text{Cos}[e + f x] + 9 b^3 C d^4 (e + f x) \text{Cos}[e + f x] +$$
$$3 a^3 A c d^3 (e + f x) \text{Cos}[3 (e + f x)] - 9 a A b^2 c d^3 (e + f x) \text{Cos}[3 (e + f x)] -$$
$$9 a^2 b B c d^3 (e + f x) \text{Cos}[3 (e + f x)] + 3 b^3 B c d^3 (e + f x) \text{Cos}[3 (e + f x)] -$$
$$3 a^3 c C d^3 (e + f x) \text{Cos}[3 (e + f x)] + 9 a b^2 c C d^3 (e + f x) \text{Cos}[3 (e + f x)] +$$
$$9 a^2 A b d^4 (e + f x) \text{Cos}[3 (e + f x)] - 3 A b^3 d^4 (e + f x) \text{Cos}[3 (e + f x)] +$$
$$3 a^3 B d^4 (e + f x) \text{Cos}[3 (e + f x)] - 9 a b^2 B d^4 (e + f x) \text{Cos}[3 (e + f x)] -$$
$$9 a^2 b C d^4 (e + f x) \text{Cos}[3 (e + f x)] + 3 b^3 C d^4 (e + f x) \text{Cos}[3 (e + f x)] + 3 b^3 c^4 C \text{Sin}[e + f x] -$$
$$3 b^3 B c^3 d \text{Sin}[e + f x] - 9 a b^2 c^3 C d \text{Sin}[e + f x] + 3 A b^3 c^2 d^2 \text{Sin}[e + f x] +$$
$$9 a b^2 B c^2 d^2 \text{Sin}[e + f x] + 9 a^2 b c^2 C d^2 \text{Sin}[e + f x] + 3 b^3 c^2 C d^2 \text{Sin}[e + f x] -$$
$$3 b^3 B c d^3 \text{Sin}[e + f x] - 9 a b^2 c C d^3 \text{Sin}[e + f x] + 3 A b^3 d^4 \text{Sin}[e + f x] + 9 a b^2 B d^4 \text{Sin}[e + f x] +$$
$$9 a^2 b C d^4 \text{Sin}[e + f x] + 3 b^3 c^4 C \text{Sin}[3 (e + f x)] - 3 b^3 B c^3 d \text{Sin}[3 (e + f x)] -$$
$$9 a b^2 c^3 C d \text{Sin}[3 (e + f x)] + 3 A b^3 c^2 d^2 \text{Sin}[3 (e + f x)] + 9 a b^2 B c^2 d^2 \text{Sin}[3 (e + f x)] +$$
$$9 a^2 b c^2 C d^2 \text{Sin}[3 (e + f x)] - b^3 c^2 C d^2 \text{Sin}[3 (e + f x)] - 3 b^3 B c d^3 \text{Sin}[3 (e + f x)] -$$
$$9 a b^2 c C d^3 \text{Sin}[3 (e + f x)] + 3 A b^3 d^4 \text{Sin}[3 (e + f x)] + 9 a b^2 B d^4 \text{Sin}[3 (e + f x)] +$$
$$9 a^2 b C d^4 \text{Sin}[3 (e + f x)] - 4 b^3 C d^4 \text{Sin}[3 (e + f x)]\big) \left(a + b \text{Tan}[e + f x]\right)^3$$

Problem 71: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a + b \text{Tan}[e + f x])^2 \left(A + B \text{Tan}[e + f x] + C \text{Tan}[e + f x]^2\right)}{c + d \text{Tan}[e + f x]} \, dx$$

Optimal (type 3, 236 leaves, 6 steps):

$$\frac{\left(a^2\left(A c-c C+B d\right)-b^2\left(A c-c C+B d\right)-2 a b\left(B c-\left(A-C\right) d\right)\right) x}{c^2+d^2}-\frac{1}{\left(c^2+d^2\right) f}$$
$$\frac{\left(2 a b\left(A c-c C+B d\right)+a^2\left(B c-\left(A-C\right) d\right)-b^2\left(B c-\left(A-C\right) d\right)\right) \text{Log}[\text{Cos}[e+f x]]+\frac{\left(b c-a d\right)^2\left(c^2 C-B c d+A d^2\right) \text{Log}[c+d \text{Tan}[e+f x]]}{d^3\left(c^2+d^2\right) f}}{}-$$
$$\frac{b\left(b c C-b B d-a C d\right) \text{Tan}[e+f x]}{d^2 f}+\frac{C\left(a+b \text{Tan}[e+f x]\right)^2}{2 d f}$$

Result (type 3, 663 leaves):

$$\Big(\left(a^2 A c-A b^2 c-2 a b B c-a^2 c C+b^2 c C+2 a A b d+a^2 B d-b^2 B d-2 a b C d\right)$$
$$\left(e+f x\right) \text{Cos}[e+f x]\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)\left(a+b \text{Tan}[e+f x]\right)^2\Big)\Big/$$
$$\left(\left(c-i d\right)\left(c+i d\right) f\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^2\left(c+d \text{Tan}[e+f x]\right)\right)+$$
$$\Big(\left(-b^2 c^2 C+b^2 B c d+2 a b c C d-A b^2 d^2-2 a b B d^2-a^2 C d^2+b^2 C d^2\right) \text{Cos}[e+f x]$$
$$\text{Log}[\text{Cos}[e+f x]]\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)\left(a+b \text{Tan}[e+f x]\right)^2\Big)\Big/$$
$$\left(d^3 f\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^2\left(c+d \text{Tan}[e+f x]\right)\right)+$$
$$\Big(\left(b^2 c^4 C-b^2 B c^3 d-2 a b c^3 C d+A b^2 c^2 d^2+2 a b B c^2 d^2+a^2 c^2 C d^2-2 a A b c d^3-a^2 B c d^3+a^2 A d^4\right)$$
$$\text{Cos}[e+f x] \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)$$
$$\left(a+b \text{Tan}[e+f x]\right)^2\Big)\Big/\left(d^3\left(c^2+d^2\right) f\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^2\left(c+d \text{Tan}[e+f x]\right)\right)+$$
$$\frac{b^2 C \text{Sec}[e+f x]\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)\left(a+b \text{Tan}[e+f x]\right)^2}{2 d f\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^2\left(c+d \text{Tan}[e+f x]\right)}+$$
$$\Big(\left(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]\right)\left(-b^2 c C \text{Sin}[e+f x]+b^2 B d \text{Sin}[e+f x]+2 a b C d \text{Sin}[e+f x]\right)$$
$$\left(a+b \text{Tan}[e+f x]\right)^2\Big)\Big/\left(d^2 f\left(a \text{Cos}[e+f x]+b \text{Sin}[e+f x]\right)^2\left(c+d \text{Tan}[e+f x]\right)\right)$$

Problem 72: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\left(a+b \text{Tan}[e+f x]\right)\left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{c+d \text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 156 leaves, 5 steps):

$$\frac{\left(a\left(A c-c C+B d\right)-b\left(B c-\left(A-C\right) d\right)\right) x}{c^2+d^2}-$$
$$\frac{\left(A b c+a B c-b c C-a A d+b B d+a C d\right) \text{Log}[\text{Cos}[e+f x]]}{\left(c^2+d^2\right) f}-$$
$$\frac{\left(b c-a d\right)\left(c^2 C-B c d+A d^2\right) \text{Log}[c+d \text{Tan}[e+f x]]}{d^2\left(c^2+d^2\right) f}+\frac{b C \text{Tan}[e+f x]}{d f}$$

Result (type 3, 384 leaves):

$$\Big(\big(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]\big)\,\big(a+b\,\text{Tan}[e+f\,x]\big)\\ \big(a\,A\,c\,d^2\,e-b\,B\,c\,d^2\,e-a\,c\,C\,d^2\,e+A\,b\,d^3\,e+a\,B\,d^3\,e-b\,C\,d^3\,e+a\,A\,c\,d^2\,f\,x-b\,B\,c\,d^2\,f\,x-a\,c\,C\,d^2\,f\,x+\\ A\,b\,d^3\,f\,x+a\,B\,d^3\,f\,x-b\,C\,d^3\,f\,x+\big(b\,c\,C-b\,B\,d-a\,C\,d\big)\,\big(c^2+d^2\big)\,\text{Log}[\text{Cos}[e+f\,x]]-\\ b\,c^3\,C\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+b\,B\,c^2\,d\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+\\ a\,c^2\,C\,d\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]-\\ A\,b\,c\,d^2\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]-a\,B\,c\,d^2\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+\\ a\,A\,d^3\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+b\,C\,d\,\big(c^2+d^2\big)\,\text{Tan}[e+f\,x]\big)\Big)\Big/\\ \Big(\big(c-i\,d\big)\,\big(c+i\,d\big)\,d^2\,f\,\big(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]\big)\,\big(c+d\,\text{Tan}[e+f\,x]\big)\Big)$$

Problem 75: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2}{\big(a+b\,\text{Tan}[e+f\,x]\big)^2\,\big(c+d\,\text{Tan}[e+f\,x]\big)}\,dx$$

Optimal (type 3, 281 leaves, 4 steps):

$$\frac{\big(a^2\,\big(A\,c-c\,C+B\,d\big)-b^2\,\big(A\,c-c\,C+B\,d\big)+2\,a\,b\,\big(B\,c-\big(A-C\big)\,d\big)\big)\,x}{\big(a^2+b^2\big)^2\,\big(c^2+d^2\big)}+\\ \Big(\big(2\,a\,b^3\,c\,\big(A-C\big)+2\,a^3\,b\,B\,d-a^4\,C\,d+b^4\,\big(B\,c-A\,d\big)-a^2\,b^2\,\big(B\,c+3\,A\,d-C\,d\big)\big)\\ \text{Log}[a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]]\Big)\Big/\Big(\big(a^2+b^2\big)^2\,\big(b\,c-a\,d\big)^2\,f\Big)+\\ \frac{d\,\big(c^2\,C-B\,c\,d+A\,d^2\big)\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]}{\big(b\,c-a\,d\big)^2\,\big(c^2+d^2\big)\,f}-\frac{A\,b^2-a\,\big(b\,B-a\,C\big)}{\big(a^2+b^2\big)\,\big(b\,c-a\,d\big)\,f\,\big(a+b\,\text{Tan}[e+f\,x]\big)}$$

Result (type 3, 2690 leaves):

$$\Big(\big(a^2 A c - A b^2 c + 2 a b B c - a^2 c C + b^2 c C - 2 a A b d + a^2 B d - b^2 B d + 2 a b C d\big)\ (e + f x)$$
$$\quad \text{Sec}[e + f x]^3\ (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2\ (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])\Big) \Big/$$
$$\Big((a - i b)^2\ (a + i b)^2\ (c - i d)\ (c + i d)\ f\ (a + b \text{Tan}[e + f x])^2\ (c + d \text{Tan}[e + f x])\Big) +$$
$$\Big(\big(-2 i a^6 A b^4 c^8 - 2 a^5 A b^5 c^8 - 2 i a^4 A b^6 c^8 - 2 a^3 A b^7 c^8 + i a^7 b^3 B c^8 + a^6 b^4 B c^8 - i a^3 b^7 B c^8 -$$
$$a^2 b^8 B c^8 + 2 i a^6 b^4 c^8 C + 2 a^5 b^5 c^8 C + 2 i a^4 b^6 c^8 C + 2 a^3 b^7 c^8 C + 5 i a^7 A b^3 c^7 d + 5 a^6 A b^4 c^7 d +$$
$$6 i a^5 A b^5 c^7 d + 6 a^4 A b^6 c^7 d + i a^3 A b^7 c^7 d + a^2 A b^8 c^7 d - 3 i a^8 b^2 B c^7 d - 3 a^7 b^3 B c^7 d -$$
$$2 i a^6 b^4 B c^7 d - 2 a^5 b^5 B c^7 d + i a^4 b^6 B c^7 d + a^3 b^7 B c^7 d + i a^9 b c^7 C d + a^8 b^2 c^7 C d -$$
$$2 i a^7 b^3 c^7 C d - 2 a^6 b^4 c^7 C d - 3 i a^5 b^5 c^7 C d - 3 a^4 b^6 c^7 C d - 3 i a^8 A b^2 c^6 d^2 - 3 a^7 A b^3 c^6 d^2 -$$
$$8 i a^6 A b^4 c^6 d^2 - 8 a^5 A b^5 c^6 d^2 - 5 i a^4 A b^6 c^6 d^2 - 5 a^3 A b^7 c^6 d^2 + 2 i a^9 b B c^6 d^2 + 2 a^8 b^2 B c^6 d^2 +$$
$$4 i a^7 b^3 B c^6 d^2 + 4 a^6 b^4 B c^6 d^2 - 2 i a^3 b^7 B c^6 d^2 - 2 a^2 b^8 B c^6 d^2 - i a^{10} c^6 C d^2 - a^9 b c^6 C d^2 +$$
$$5 i a^6 b^4 c^6 C d^2 + 5 a^5 b^5 c^6 C d^2 + 4 i a^4 b^6 c^6 C d^2 + 4 a^3 b^7 c^6 C d^2 + 10 i a^7 A b^3 c^5 d^3 +$$
$$10 a^6 A b^4 c^5 d^3 + 12 i a^5 A b^5 c^5 d^3 + 12 a^4 A b^6 c^5 d^3 + 2 i a^3 A b^7 c^5 d^3 + 2 a^2 A b^8 c^5 d^3 -$$
$$6 i a^8 b^2 B c^5 d^3 - 6 a^7 b^3 B c^5 d^3 - 4 i a^6 b^4 B c^5 d^3 - 4 a^5 b^5 B c^5 d^3 + 2 i a^4 b^6 B c^5 d^3 +$$
$$2 a^3 b^7 B c^5 d^3 + 2 i a^9 b c^5 C d^3 + 2 a^8 b^2 c^5 C d^3 - 4 i a^7 b^3 c^5 C d^3 - 4 a^6 b^4 c^5 C d^3 - 6 i a^5 b^5 c^5 C d^3 -$$
$$6 a^4 b^6 c^5 C d^3 - 6 i a^8 A b^2 c^4 d^4 - 6 a^7 A b^3 c^4 d^4 - 10 i a^6 A b^4 c^4 d^4 - 10 a^5 A b^5 c^4 d^4 -$$
$$4 i a^4 A b^6 c^4 d^4 - 4 a^3 A b^7 c^4 d^4 + 4 i a^9 b B c^4 d^4 + 4 a^8 b^2 B c^4 d^4 + 5 i a^7 b^3 B c^4 d^4 + 5 a^6 b^4 B c^4 d^4 -$$
$$i a^3 b^7 B c^4 d^4 - a^2 b^8 B c^4 d^4 - 2 i a^{10} c^4 C d^4 - 2 a^9 b c^4 C d^4 + 4 i a^6 b^4 c^4 C d^4 + 4 a^5 b^5 c^4 C d^4 +$$
$$2 i a^4 b^6 c^4 C d^4 + 2 a^3 b^7 c^4 C d^4 + 5 i a^7 A b^3 c^3 d^5 + 5 a^6 A b^4 c^3 d^5 + 6 i a^5 A b^5 c^3 d^5 +$$
$$6 a^4 A b^6 c^3 d^5 + i a^3 A b^7 c^3 d^5 + a^2 A b^8 c^3 d^5 - 3 i a^8 b^2 B c^3 d^5 - 3 a^7 b^3 B c^3 d^5 - 2 i a^6 b^4 B c^3 d^5 -$$
$$2 a^5 b^5 B c^3 d^5 + i a^4 b^6 B c^3 d^5 + a^3 b^7 B c^3 d^5 + i a^9 b c^3 C d^5 + a^8 b^2 c^3 C d^5 - 2 i a^7 b^3 c^3 C d^5 -$$
$$2 a^6 b^4 c^3 C d^5 - 3 i a^5 b^5 c^3 C d^5 - 3 a^4 b^6 c^3 C d^5 - 3 i a^8 A b^2 c^2 d^6 - 3 a^7 A b^3 c^2 d^6 -$$
$$4 i a^6 A b^4 c^2 d^6 - 4 a^5 A b^5 c^2 d^6 - i a^4 A b^6 c^2 d^6 - a^3 A b^7 c^2 d^6 + 2 i a^9 b B c^2 d^6 + 2 a^8 b^2 B c^2 d^6 +$$
$$2 i a^7 b^3 B c^2 d^6 + 2 a^6 b^4 B c^2 d^6 - i a^{10} c^2 C d^6 - a^9 b c^2 C d^6 + i a^6 b^4 c^2 C d^6 + a^5 b^5 c^2 C d^6\big)$$
$$\quad (e + f x)\ \text{Sec}[e + f x]^3\ (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2\ (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])\Big) \Big/$$
$$\Big(a^2\ (a - i b)^4\ (a + i b)^3\ c^2\ (c - i d)\ (c + i d)\ (-b c + a d)^3\ (c^2 + d^2)$$
$$\quad f\ (a + b \text{Tan}[e + f x])^2\ (c + d \text{Tan}[e + f x])\Big) -$$
$$\Big(i\ \big(2 a A b^3 c - a^2 b^2 B c + b^4 B c - 2 a b^3 c C - 3 a^2 A b^2 d - A b^4 d + 2 a^3 b B d - a^4 C d + a^2 b^2 C d\big)$$
$$\quad \text{ArcTan}[\text{Tan}[e + f x]]\ \text{Sec}[e + f x]^3$$
$$\quad (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2\ (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])\Big) \Big/$$
$$\Big((a^2 + b^2)^2\ (-b c + a d)^2\ f\ (a + b \text{Tan}[e + f x])^2\ (c + d \text{Tan}[e + f x])\Big) +$$
$$\Big(\big(2 a A b^3 c - a^2 b^2 B c + b^4 B c - 2 a b^3 c C - 3 a^2 A b^2 d - A b^4 d + 2 a^3 b B d - a^4 C d + a^2 b^2 C d\big)$$
$$\quad \text{Log}\big[(a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2\big]\ \text{Sec}[e + f x]^3$$
$$\quad (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2\ (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])\Big) \Big/$$
$$\Big(2\ (a^2 + b^2)^2\ (-b c + a d)^2\ f\ (a + b \text{Tan}[e + f x])^2\ (c + d \text{Tan}[e + f x])\Big) +$$
$$\Big(\big(c^2 C d - B c d^2 + A d^3\big)\ \text{Log}[c \text{Cos}[e + f x] + d \text{Sin}[e + f x]]\ \text{Sec}[e + f x]^3$$
$$\quad (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2\ (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])\Big) \Big/$$
$$\Big((b c - a d)^2\ (c^2 + d^2)\ f\ (a + b \text{Tan}[e + f x])^2\ (c + d \text{Tan}[e + f x])\Big) +$$
$$\Big(\text{Sec}[e + f x]^3\ (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])$$
$$\quad (-A b^3 \text{Sin}[e + f x] + a b^2 B \text{Sin}[e + f x] - a^2 b C \text{Sin}[e + f x])\ (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])\Big) \Big/$$
$$\Big(a\ (a - i b)\ (a + i b)\ (-b c + a d)\ f\ (a + b \text{Tan}[e + f x])^2\ (c + d \text{Tan}[e + f x])\Big)$$

Problem 76: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int \frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])}\,dx$$

Optimal (type 3, 477 leaves, 5 steps):

$$\Big(\big(a^3 (A c - c C + B d) - 3 a b^2 (A c - c C + B d) + 3 a^2 b (B c - (A - C) d) - b^3 (B c - (A - C) d)\big) x\Big) \Big/ \Big((a^2+b^2)^3 (c^2+d^2)\Big) +$$

$$\Big(\big(3 a b^5 B c^2 - 3 a^5 b B d^2 + a^6 C d^2 + 3 a^4 b^2 d (B c + 2 A d - C d) + b^6 (c (c C - B d) - A (c^2 - d^2)) - a^3 b^3 (8 c (A - C) d + B (c^2 - d^2)) - 3 a^2 b^4 (c (c C + 2 B d) - A (c^2 + d^2))\big)\, \text{Log}[a\,\text{Cos}[e+f x] + b\,\text{Sin}[e+f x]]\Big) \Big/ \Big((a^2+b^2)^3 (b c - a d)^3 f\Big) -$$

$$\frac{d^2 (c^2 C - B c d + A d^2)\, \text{Log}[c\,\text{Cos}[e+f x] + d\,\text{Sin}[e+f x]]}{(b c - a d)^3 (c^2+d^2) f} - \frac{A b^2 - a (b B - a C)}{2 (a^2+b^2)(b c - a d) f (a + b\,\text{Tan}[e+f x])^2} -$$

$$\big(2 a b^3 c (A - C) + 2 a^3 b B d - a^4 C d + b^4 (B c - A d) - a^2 b^2 (B c + 3 A d - C d)\big) \Big/ \Big((a^2+b^2)^2 (b c - a d)^2 f (a + b\,\text{Tan}[e+f x])\Big)$$

Result (type 3, 7731 leaves):

$$\Big(\Big(-3 a^9 A b^5 c^8 + 3 i a^8 A b^6 c^8 - 5 a^7 A b^7 c^8 + 5 i a^6 A b^8 c^8 - a^5 A b^9 c^8 + i a^4 A b^{10} c^8 + a^3 A b^{11} c^8 -$$
$$i a^2 A b^{12} c^8 + a^{10} b^4 B c^8 - i a^9 b^5 B c^8 - a^8 b^6 B c^8 + i a^7 b^7 B c^8 - 5 a^6 b^8 B c^8 + 5 i a^5 b^9 B c^8 -$$
$$3 a^4 b^{10} B c^8 + 3 i a^3 b^{11} B c^8 + 3 a^9 b^5 c^8 C - 3 i a^8 b^6 c^8 C + 5 a^7 b^7 c^8 C - 5 i a^6 b^8 c^8 C +$$
$$a^5 b^9 c^8 C - i a^4 b^{10} c^8 C - a^3 b^{11} c^8 C + i a^2 b^{12} c^8 C + 11 a^{10} A b^4 c^7 d - 8 i a^9 A b^5 c^7 d +$$
$$24 a^8 A b^6 c^7 d - 16 i a^7 A b^7 c^7 d + 14 a^6 A b^8 c^7 d - 8 i a^5 A b^9 c^7 d - a^2 A b^{12} c^7 d - 4 a^{11} b^3 B c^7 d +$$
$$3 i a^{10} b^4 B c^7 d + 16 a^7 b^7 B c^7 d - 10 i a^6 b^8 B c^7 d + 16 a^5 b^9 B c^7 d - 8 i a^4 b^{10} B c^7 d +$$
$$4 a^3 b^{11} B c^7 d - i a^2 b^{12} B c^7 d - 11 a^{10} b^4 c^7 C d + 8 i a^9 b^5 c^7 C d - 24 a^8 b^6 c^7 C d + 16 i a^7 b^7 c^7 C d -$$
$$14 a^6 b^8 c^7 C d + 8 i a^5 b^9 c^7 C d + a^2 b^{12} c^7 C d - 14 a^{11} A b^3 c^6 d^2 + 3 i a^{10} A b^4 c^6 d^2 -$$
$$45 a^9 A b^5 c^6 d^2 + 13 i a^8 A b^6 c^6 d^2 - 47 a^7 A b^7 c^6 d^2 + 17 i a^6 A b^8 c^6 d^2 - 15 a^5 A b^9 c^6 d^2 +$$
$$7 i a^4 A b^{10} c^6 d^2 + a^3 A b^{11} c^6 d^2 + 6 a^{12} b^2 B c^6 d^2 - 2 i a^{11} b^3 B c^6 d^2 + 10 a^{10} b^4 B c^6 d^2 -$$
$$7 i a^9 b^5 B c^6 d^2 - 11 a^8 b^6 B c^6 d^2 - 5 i a^7 b^7 B c^6 d^2 - 29 a^6 b^8 B c^6 d^2 + 3 i a^5 b^9 B c^6 d^2 -$$
$$15 a^4 b^{10} B c^6 d^2 + 3 i a^3 b^{11} B c^6 d^2 - a^2 b^{12} B c^6 d^2 + 14 a^{11} b^3 c^6 C d^2 - 3 i a^{10} b^4 c^6 C d^2 +$$
$$45 a^9 b^5 c^6 C d^2 - 13 i a^8 b^6 c^6 C d^2 + 47 a^7 b^7 c^6 C d^2 - 17 i a^6 b^8 c^6 C d^2 + 15 a^5 b^9 c^6 C d^2 -$$
$$7 i a^4 b^{10} c^6 C d^2 - a^3 b^{11} c^6 C d^2 + 6 a^{12} A b^2 c^5 d^3 + 8 i a^{11} A b^3 c^5 d^3 + 40 a^{10} A b^4 c^5 d^3 +$$
$$8 i a^9 A b^5 c^5 d^3 + 68 a^8 A b^6 c^5 d^3 - 8 i a^7 A b^7 c^5 d^3 + 40 a^6 A b^8 c^5 d^3 - 8 i a^5 A b^9 c^5 d^3 +$$
$$6 a^4 A b^{10} c^5 d^3 - 4 a^{13} b B c^5 d^3 - 2 i a^{12} b^2 B c^5 d^3 - 20 a^{11} b^3 B c^5 d^3 + 8 i a^{10} b^4 B c^5 d^3 -$$
$$16 a^9 b^5 B c^5 d^3 + 20 i a^8 b^6 B c^5 d^3 + 16 a^7 b^7 B c^5 d^3 + 8 i a^6 b^8 B c^5 d^3 + 20 a^5 b^9 B c^5 d^3 -$$
$$2 i a^4 b^{10} B c^5 d^3 + 4 a^3 b^{11} B c^5 d^3 - 6 a^{12} b^2 c^5 C d^3 - 8 i a^{11} b^3 c^5 C d^3 - 40 a^{10} b^4 c^5 C d^3 -$$
$$8 i a^9 b^5 c^5 C d^3 - 68 a^8 b^6 c^5 C d^3 + 8 i a^7 b^7 c^5 C d^3 - 40 a^6 b^8 c^5 C d^3 + 8 i a^5 b^9 c^5 C d^3 -$$
$$6 a^4 b^{10} c^5 C d^3 + a^{13} A b c^4 d^4 - 7 i a^{12} A b^2 c^4 d^4 - 15 a^{11} A b^3 c^4 d^4 - 17 i a^{10} A b^4 c^4 d^4 -$$
$$47 a^9 A b^5 c^4 d^4 - 13 i a^8 A b^6 c^4 d^4 - 45 a^7 A b^7 c^4 d^4 - 3 i a^6 A b^8 c^4 d^4 - 14 a^5 A b^9 c^4 d^4 + a^{14} B c^4 d^4 +$$
$$3 i a^{13} b B c^4 d^4 + 15 a^{12} b^2 B c^4 d^4 + 3 i a^{11} b^3 B c^4 d^4 + 29 a^{10} b^4 B c^4 d^4 - 5 i a^9 b^5 B c^4 d^4 +$$
$$11 a^8 b^6 B c^4 d^4 - 7 i a^7 b^7 B c^4 d^4 - 10 a^6 b^8 B c^4 d^4 - 2 i a^5 b^9 B c^4 d^4 - 6 a^4 b^{10} B c^4 d^4 - a^{13} b c^4 C d^4 +$$
$$7 i a^{12} b^2 c^4 C d^4 + 15 a^{11} b^3 c^4 C d^4 + 17 i a^{10} b^4 c^4 C d^4 + 47 a^9 b^5 c^4 C d^4 + 13 i a^8 b^6 c^4 C d^4 +$$
$$45 a^7 b^7 c^4 C d^4 + 3 i a^6 b^8 c^4 C d^4 + 14 a^5 b^9 c^4 C d^4 - a^{14} A c^3 d^5 + 8 i a^{11} A b^3 c^3 d^5 +$$
$$14 a^{10} A b^4 c^3 d^5 + 16 i a^9 A b^5 c^3 d^5 + 24 a^8 A b^6 c^3 d^5 + 8 i a^7 A b^7 c^3 d^5 + 11 a^6 A b^8 c^3 d^5 -$$
$$i a^{14} B c^3 d^5 - 4 a^{13} b B c^3 d^5 - 8 i a^{12} b^2 B c^3 d^5 - 16 a^{11} b^3 B c^3 d^5 - 10 i a^{10} b^4 B c^3 d^5 -$$

$$16 a^9 b^5 B c^3 d^5 + 3 \mathrm{i} a^6 b^8 B c^3 d^5 + 4 a^5 b^9 B c^3 d^5 + a^{14} c^3 C d^5 - 8 \mathrm{i} a^{11} b^3 c^3 C d^5 - 14 a^{10} b^4 c^3 C d^5 -$$
$$16 \mathrm{i} a^9 b^5 c^3 C d^5 - 24 a^8 b^6 c^3 C d^5 - 8 \mathrm{i} a^7 b^7 c^3 C d^5 - 11 a^6 b^8 c^3 C d^5 + \mathrm{i} a^{14} A c^2 d^6 + a^{13} A b c^2 d^6 -$$
$$\mathrm{i} a^{12} A b^2 c^2 d^6 - a^{11} A b^3 c^2 d^6 - 5 \mathrm{i} a^{10} A b^4 c^2 d^6 - 5 a^9 A b^5 c^2 d^6 - 3 \mathrm{i} a^8 A b^6 c^2 d^6 - 3 a^7 A b^7 c^2 d^6 +$$
$$3 \mathrm{i} a^{13} b B c^2 d^6 + 3 a^{12} b^2 B c^2 d^6 + 5 \mathrm{i} a^{11} b^3 B c^2 d^6 + 5 a^{10} b^4 B c^2 d^6 + \mathrm{i} a^9 b^5 B c^2 d^6 +$$
$$a^8 b^6 B c^2 d^6 - \mathrm{i} a^7 b^7 B c^2 d^6 - a^6 b^8 B c^2 d^6 - \mathrm{i} a^{14} c^2 C d^6 - a^{13} b c^2 C d^6 + \mathrm{i} a^{12} b^2 c^2 C d^6 +$$
$$a^{11} b^3 c^2 C d^6 + 5 \mathrm{i} a^{10} b^4 c^2 C d^6 + 5 a^9 b^5 c^2 C d^6 + 3 \mathrm{i} a^8 b^6 c^2 C d^6 + 3 a^7 b^7 c^2 C d^6\Big) \left(e + f x\right)$$
$$\mathrm{Sec}[e + f x]^4 \left(a \mathrm{Cos}[e + f x] + b \mathrm{Sin}[e + f x]\right)^3 \left(c \mathrm{Cos}[e + f x] + d \mathrm{Sin}[e + f x]\right)\Big) \Big/$$
$$\Big(a^2 \left(a - \mathrm{i} b\right)^6 \left(a + \mathrm{i} b\right)^5 c^2 \left(c - \mathrm{i} d\right) \left(c + \mathrm{i} d\right) \left(\mathrm{i} c + d\right) \left(-b c + a d\right)^4$$
$$f \left(a + b \mathrm{Tan}[e + f x]\right)^3 \left(c + d \mathrm{Tan}[e + f x]\right)\Big) -$$
$$\frac{1}{\left(a^2 + b^2\right)^3 \left(-b c + a d\right)^3 f \left(a + b \mathrm{Tan}[e + f x]\right)^3 \left(c + d \mathrm{Tan}[e + f x]\right)}$$
$$\mathrm{i}$$
$$\Big(-3 a^2 A b^4 c^2 + A b^6 c^2 + a^3 b^3 B c^2 - 3 a b^5 B c^2 + 3 a^2 b^4 c^2 C - b^6 c^2 C +$$
$$8 a^3 A b^3 c d - 3 a^4 b^2 B c d + 6 a^2 b^4 B c d + b^6 B c d - 8 a^3 b^3 c C d - 6 a^4 A b^2 d^2 -$$
$$3 a^2 A b^4 d^2 - A b^6 d^2 + 3 a^5 b B d^2 - a^3 b^3 B d^2 - a^6 C d^2 + 3 a^4 b^2 C d^2\Big)$$
$$\mathrm{ArcTan}[\mathrm{Tan}[e + f x]] \mathrm{Sec}[e + f x]^4 \left(a \mathrm{Cos}[e + f x] + b \mathrm{Sin}[e + f x]\right)^3$$
$$\left(c \mathrm{Cos}[e + f x] + d \mathrm{Sin}[e + f x]\right) +$$
$$\Big(\mathrm{i} \left(c^2 C d^2 - B c d^3 + A d^4\right) \mathrm{ArcTan}[\mathrm{Tan}[e + f x]] \mathrm{Sec}[e + f x]^4$$
$$\left(a \mathrm{Cos}[e + f x] + b \mathrm{Sin}[e + f x]\right)^3 \left(c \mathrm{Cos}[e + f x] + d \mathrm{Sin}[e + f x]\right)\Big) \Big/$$
$$\Big(\left(b c - a d\right)^3 \left(c^2 + d^2\right) f \left(a + b \mathrm{Tan}[e + f x]\right)^3 \left(c + d \mathrm{Tan}[e + f x]\right)\Big) +$$
$$\frac{1}{2 \left(a^2 + b^2\right)^3 \left(-b c + a d\right)^3 f \left(a + b \mathrm{Tan}[e + f x]\right)^3 \left(c + d \mathrm{Tan}[e + f x]\right)}$$
$$\Big(-3 a^2 A b^4 c^2 + A b^6 c^2 + a^3 b^3 B c^2 - 3 a b^5 B c^2 + 3 a^2 b^4 c^2 C - b^6 c^2 C +$$
$$8 a^3 A b^3 c d - 3 a^4 b^2 B c d + 6 a^2 b^4 B c d + b^6 B c d - 8 a^3 b^3 c C d - 6 a^4 A b^2 d^2 -$$
$$3 a^2 A b^4 d^2 - A b^6 d^2 + 3 a^5 b B d^2 - a^3 b^3 B d^2 - a^6 C d^2 + 3 a^4 b^2 C d^2\Big)$$
$$\mathrm{Log}\Big[\left(a \mathrm{Cos}[e + f x] + b \mathrm{Sin}[e + f x]\right)^2\Big] \mathrm{Sec}[e + f x]^4 \left(a \mathrm{Cos}[e + f x] + b \mathrm{Sin}[e + f x]\right)^3$$
$$\left(c \mathrm{Cos}[e + f x] + d \mathrm{Sin}[e + f x]\right) -$$
$$\Big(\left(c^2 C d^2 - B c d^3 + A d^4\right) \mathrm{Log}\Big[\left(c \mathrm{Cos}[e + f x] + d \mathrm{Sin}[e + f x]\right)^2\Big] \mathrm{Sec}[e + f x]^4$$
$$\left(a \mathrm{Cos}[e + f x] + b \mathrm{Sin}[e + f x]\right)^3 \left(c \mathrm{Cos}[e + f x] + d \mathrm{Sin}[e + f x]\right)\Big) \Big/$$
$$\Big(2 \left(b c - a d\right)^3 \left(c^2 + d^2\right) f \left(a + b \mathrm{Tan}[e + f x]\right)^3 \left(c + d \mathrm{Tan}[e + f x]\right)\Big) +$$
$$\Big(\mathrm{Sec}[e + f x]^4 \left(a \mathrm{Cos}[e + f x] + b \mathrm{Sin}[e + f x]\right) \left(c \mathrm{Cos}[e + f x] + d \mathrm{Sin}[e + f x]\right)$$
$$\Big(2 a^3 A b^5 c^3 + 2 a A b^7 c^3 - a^4 b^4 B c^3 + b^8 B c^3 - 2 a^3 b^5 c^3 C - 2 a b^7 c^3 C - 3 a^4 A b^4 c^2 d -$$
$$4 a^2 A b^6 c^2 d - A b^8 c^2 d + 2 a^5 b^3 B c^2 d + 2 a^3 b^5 B c^2 d - a^6 b^2 c^2 C d + a^2 b^6 c^2 C d +$$
$$2 a^3 A b^5 c d^2 + 2 a A b^7 c d^2 - a^4 b^4 B c d^2 + b^8 B c d^2 - 2 a^3 b^5 c C d^2 - 2 a b^7 c C d^2 -$$
$$3 a^4 A b^4 d^3 - 4 a^2 A b^6 d^3 - A b^8 d^3 + 2 a^5 b^3 B d^3 + 2 a^3 b^5 B d^3 - a^6 b^2 C d^3 + a^2 b^6 C d^3 +$$
$$a^6 A b^2 c^3 \left(e + f x\right) - 2 a^4 A b^4 c^3 \left(e + f x\right) - 3 a^2 A b^6 c^3 \left(e + f x\right) + 3 a^5 b^3 B c^3 \left(e + f x\right) +$$
$$2 a^3 b^5 B c^3 \left(e + f x\right) - a b^7 B c^3 \left(e + f x\right) - a^6 b^2 c^3 C \left(e + f x\right) + 2 a^4 b^4 c^3 C \left(e + f x\right) +$$
$$3 a^2 b^6 c^3 C \left(e + f x\right) - 2 a^7 A b c^2 d \left(e + f x\right) + a^5 A b^3 c^2 d \left(e + f x\right) + 4 a^3 A b^5 c^2 d \left(e + f x\right) +$$
$$a A b^7 c^2 d \left(e + f x\right) - 5 a^6 b^2 B c^2 d \left(e + f x\right) - 6 a^4 b^4 B c^2 d \left(e + f x\right) - a^2 b^6 B c^2 d \left(e + f x\right) +$$
$$2 a^7 b c^2 C d \left(e + f x\right) - a^5 b^3 c^2 C d \left(e + f x\right) - 4 a^3 b^5 c^2 C d \left(e + f x\right) - a b^7 c^2 C d \left(e + f x\right) +$$
$$a^8 A c d^2 \left(e + f x\right) + 4 a^6 A b^2 c d^2 \left(e + f x\right) + a^4 A b^4 c d^2 \left(e + f x\right) - 2 a^2 A b^6 c d^2 \left(e + f x\right) +$$
$$a^7 b B c d^2 \left(e + f x\right) + 6 a^5 b^3 B c d^2 \left(e + f x\right) + 5 a^3 b^5 B c d^2 \left(e + f x\right) - a^8 c C d^2 \left(e + f x\right) -$$
$$4 a^6 b^2 c C d^2 \left(e + f x\right) - a^4 b^4 c C d^2 \left(e + f x\right) + 2 a^2 b^6 c C d^2 \left(e + f x\right) - 3 a^7 A b d^3 \left(e + f x\right) -$$
$$2 a^5 A b^3 d^3 \left(e + f x\right) + a^3 A b^5 d^3 \left(e + f x\right) + a^8 B d^3 \left(e + f x\right) - 2 a^6 b^2 B d^3 \left(e + f x\right) -$$

$3 a^4 b^4 B d^3 (e + f x) + 3 a^7 b C d^3 (e + f x) + 2 a^5 b^3 C d^3 (e + f x) - a^3 b^5 C d^3 (e + f x) -$
$3 a^3 A b^5 c^3 \text{Cos}[2 (e + f x)] - 3 a A b^7 c^3 \text{Cos}[2 (e + f x)] + 2 a^4 b^4 B c^3 \text{Cos}[2 (e + f x)] +$
$a^2 b^6 B c^3 \text{Cos}[2 (e + f x)] - b^8 B c^3 \text{Cos}[2 (e + f x)] - a^5 b^3 c^3 C \text{Cos}[2 (e + f x)] +$
$a^3 b^5 c^3 C \text{Cos}[2 (e + f x)] + 2 a b^7 c^3 C \text{Cos}[2 (e + f x)] + 4 a^4 A b^4 c^2 d \text{Cos}[2 (e + f x)] +$
$5 a^2 A b^6 c^2 d \text{Cos}[2 (e + f x)] + A b^8 c^2 d \text{Cos}[2 (e + f x)] - 3 a^5 b^3 B c^2 d \text{Cos}[2 (e + f x)] -$
$3 a^3 b^5 B c^2 d \text{Cos}[2 (e + f x)] + 2 a^6 b^2 c^2 C d \text{Cos}[2 (e + f x)] + a^4 b^4 c^2 C d \text{Cos}[2 (e + f x)] -$
$a^2 b^6 c^2 C d \text{Cos}[2 (e + f x)] - 3 a^3 A b^5 c d^2 \text{Cos}[2 (e + f x)] - 3 a A b^7 c d^2 \text{Cos}[2 (e + f x)] +$
$2 a^4 b^4 B c d^2 \text{Cos}[2 (e + f x)] + a^2 b^6 B c d^2 \text{Cos}[2 (e + f x)] - b^8 B c d^2 \text{Cos}[2 (e + f x)] -$
$a^5 b^3 c C d^2 \text{Cos}[2 (e + f x)] + a^3 b^5 c C d^2 \text{Cos}[2 (e + f x)] + 2 a b^7 c C d^2 \text{Cos}[2 (e + f x)] +$
$4 a^4 A b^4 d^3 \text{Cos}[2 (e + f x)] + 5 a^2 A b^6 d^3 \text{Cos}[2 (e + f x)] + A b^8 d^3 \text{Cos}[2 (e + f x)] -$
$3 a^5 b^3 B d^3 \text{Cos}[2 (e + f x)] - 3 a^3 b^5 B d^3 \text{Cos}[2 (e + f x)] + 2 a^6 b^2 C d^3 \text{Cos}[2 (e + f x)] +$
$a^4 b^4 C d^3 \text{Cos}[2 (e + f x)] - a^2 b^6 C d^3 \text{Cos}[2 (e + f x)] + a^6 A b^2 c^3 (e + f x) \text{Cos}[2 (e + f x)] -$
$4 a^4 A b^4 c^3 (e + f x) \text{Cos}[2 (e + f x)] + 3 a^2 A b^6 c^3 (e + f x) \text{Cos}[2 (e + f x)] +$
$3 a^5 b^3 B c^3 (e + f x) \text{Cos}[2 (e + f x)] - 4 a^3 b^5 B c^3 (e + f x) \text{Cos}[2 (e + f x)] +$
$a b^7 B c^3 (e + f x) \text{Cos}[2 (e + f x)] - a^6 b^2 c^3 C (e + f x) \text{Cos}[2 (e + f x)] +$
$4 a^4 b^4 c^3 C (e + f x) \text{Cos}[2 (e + f x)] - 3 a^2 b^6 c^3 C (e + f x) \text{Cos}[2 (e + f x)] -$
$2 a^7 A b c^2 d (e + f x) \text{Cos}[2 (e + f x)] + 5 a^5 A b^3 c^2 d (e + f x) \text{Cos}[2 (e + f x)] -$
$2 a^3 A b^5 c^2 d (e + f x) \text{Cos}[2 (e + f x)] - a A b^7 c^2 d (e + f x) \text{Cos}[2 (e + f x)] -$
$5 a^6 b^2 B c^2 d (e + f x) \text{Cos}[2 (e + f x)] + 4 a^4 b^4 B c^2 d (e + f x) \text{Cos}[2 (e + f x)] +$
$a^2 b^6 B c^2 d (e + f x) \text{Cos}[2 (e + f x)] + 2 a^7 b c^2 C d (e + f x) \text{Cos}[2 (e + f x)] -$
$5 a^5 b^3 c^2 C d (e + f x) \text{Cos}[2 (e + f x)] + 2 a^3 b^5 c^2 C d (e + f x) \text{Cos}[2 (e + f x)] +$
$a b^7 c^2 C d (e + f x) \text{Cos}[2 (e + f x)] + a^8 A c d^2 (e + f x) \text{Cos}[2 (e + f x)] +$
$2 a^6 A b^2 c d^2 (e + f x) \text{Cos}[2 (e + f x)] - 5 a^4 A b^4 c d^2 (e + f x) \text{Cos}[2 (e + f x)] +$
$2 a^2 A b^6 c d^2 (e + f x) \text{Cos}[2 (e + f x)] + a^7 b B c d^2 (e + f x) \text{Cos}[2 (e + f x)] +$
$4 a^5 b^3 B c d^2 (e + f x) \text{Cos}[2 (e + f x)] - 5 a^3 b^5 B c d^2 (e + f x) \text{Cos}[2 (e + f x)] -$
$a^8 c C d^2 (e + f x) \text{Cos}[2 (e + f x)] - 2 a^6 b^2 c C d^2 (e + f x) \text{Cos}[2 (e + f x)] +$
$5 a^4 b^4 c C d^2 (e + f x) \text{Cos}[2 (e + f x)] - 2 a^2 b^6 c C d^2 (e + f x) \text{Cos}[2 (e + f x)] -$
$3 a^7 A b d^3 (e + f x) \text{Cos}[2 (e + f x)] + 4 a^5 A b^3 d^3 (e + f x) \text{Cos}[2 (e + f x)] -$
$a^3 A b^5 d^3 (e + f x) \text{Cos}[2 (e + f x)] + a^8 B d^3 (e + f x) \text{Cos}[2 (e + f x)] -$
$4 a^6 b^2 B d^3 (e + f x) \text{Cos}[2 (e + f x)] + 3 a^4 b^4 B d^3 (e + f x) \text{Cos}[2 (e + f x)] +$
$3 a^7 b C d^3 (e + f x) \text{Cos}[2 (e + f x)] - 4 a^5 b^3 C d^3 (e + f x) \text{Cos}[2 (e + f x)] +$
$a^3 b^5 C d^3 (e + f x) \text{Cos}[2 (e + f x)] + 3 a^4 A b^4 c^3 \text{Sin}[2 (e + f x)] + 3 a^2 A b^6 c^3 \text{Sin}[2 (e + f x)] -$
$2 a^5 b^3 B c^3 \text{Sin}[2 (e + f x)] - a^3 b^5 B c^3 \text{Sin}[2 (e + f x)] + a b^7 B c^3 \text{Sin}[2 (e + f x)] +$
$a^6 b^2 c^3 C \text{Sin}[2 (e + f x)] - a^4 b^4 c^3 C \text{Sin}[2 (e + f x)] - 2 a^2 b^6 c^3 C \text{Sin}[2 (e + f x)] -$
$4 a^5 A b^3 c^2 d \text{Sin}[2 (e + f x)] - 5 a^3 A b^5 c^2 d \text{Sin}[2 (e + f x)] - a A b^7 c^2 d \text{Sin}[2 (e + f x)] +$
$3 a^6 b^2 B c^2 d \text{Sin}[2 (e + f x)] + 3 a^4 b^4 B c^2 d \text{Sin}[2 (e + f x)] - 2 a^7 b c^2 C d \text{Sin}[2 (e + f x)] -$
$a^5 b^3 c^2 C d \text{Sin}[2 (e + f x)] + a^3 b^5 c^2 C d \text{Sin}[2 (e + f x)] + 3 a^4 A b^4 c d^2 \text{Sin}[2 (e + f x)] +$
$3 a^2 A b^6 c d^2 \text{Sin}[2 (e + f x)] - 2 a^5 b^3 B c d^2 \text{Sin}[2 (e + f x)] - a^3 b^5 B c d^2 \text{Sin}[2 (e + f x)] +$
$a b^7 B c d^2 \text{Sin}[2 (e + f x)] + a^6 b^2 c C d^2 \text{Sin}[2 (e + f x)] - a^4 b^4 c C d^2 \text{Sin}[2 (e + f x)] -$
$2 a^2 b^6 c C d^2 \text{Sin}[2 (e + f x)] - 4 a^5 A b^3 d^3 \text{Sin}[2 (e + f x)] - 5 a^3 A b^5 d^3 \text{Sin}[2 (e + f x)] -$
$a A b^7 d^3 \text{Sin}[2 (e + f x)] + 3 a^6 b^2 B d^3 \text{Sin}[2 (e + f x)] + 3 a^4 b^4 B d^3 \text{Sin}[2 (e + f x)] -$
$2 a^7 b C d^3 \text{Sin}[2 (e + f x)] - a^5 b^3 C d^3 \text{Sin}[2 (e + f x)] + a^3 b^5 C d^3 \text{Sin}[2 (e + f x)] +$
$2 a^5 A b^3 c^3 (e + f x) \text{Sin}[2 (e + f x)] - 6 a^3 A b^5 c^3 (e + f x) \text{Sin}[2 (e + f x)] +$
$6 a^4 b^4 B c^3 (e + f x) \text{Sin}[2 (e + f x)] - 2 a^2 b^6 B c^3 (e + f x) \text{Sin}[2 (e + f x)] -$
$2 a^5 b^3 c^3 C (e + f x) \text{Sin}[2 (e + f x)] + 6 a^3 b^5 c^3 C (e + f x) \text{Sin}[2 (e + f x)] -$
$4 a^6 A b^2 c^2 d (e + f x) \text{Sin}[2 (e + f x)] + 6 a^4 A b^4 c^2 d (e + f x) \text{Sin}[2 (e + f x)] +$
$2 a^2 A b^6 c^2 d (e + f x) \text{Sin}[2 (e + f x)] - 10 a^5 b^3 B c^2 d (e + f x) \text{Sin}[2 (e + f x)] -$

$2 a^3 b^5 B c^2 d (e + f x) \text{Sin}[2 (e + f x)] + 4 a^6 b^2 c^2 C d (e + f x) \text{Sin}[2 (e + f x)] -$
$6 a^4 b^4 c^2 C d (e + f x) \text{Sin}[2 (e + f x)] - 2 a^2 b^6 c^2 C d (e + f x) \text{Sin}[2 (e + f x)] +$
$2 a^7 A b c d^2 (e + f x) \text{Sin}[2 (e + f x)] + 6 a^5 A b^3 c d^2 (e + f x) \text{Sin}[2 (e + f x)] -$
$4 a^3 A b^5 c d^2 (e + f x) \text{Sin}[2 (e + f x)] + 2 a^6 b^2 B c d^2 (e + f x) \text{Sin}[2 (e + f x)] +$
$10 a^4 b^4 B c d^2 (e + f x) \text{Sin}[2 (e + f x)] - 2 a^7 b c C d^2 (e + f x) \text{Sin}[2 (e + f x)] -$
$6 a^5 b^3 c C d^2 (e + f x) \text{Sin}[2 (e + f x)] + 4 a^3 b^5 c C d^2 (e + f x) \text{Sin}[2 (e + f x)] -$
$6 a^6 A b^2 d^3 (e + f x) \text{Sin}[2 (e + f x)] + 2 a^4 A b^4 d^3 (e + f x) \text{Sin}[2 (e + f x)] +$
$2 a^7 b B d^3 (e + f x) \text{Sin}[2 (e + f x)] - 6 a^5 b^3 B d^3 (e + f x) \text{Sin}[2 (e + f x)] +$
$6 a^6 b^2 C d^3 (e + f x) \text{Sin}[2 (e + f x)] - 2 a^4 b^4 C d^3 (e + f x) \text{Sin}[2 (e + f x)]\Big)\Big) \Big/$
$\Big(2 a (a - i b)^3 (a + i b)^3 (-b c + a d)^2 (c^2 + d^2) f (a + b \text{Tan}[e + f x])^3 (c + d \text{Tan}[e + f x])\Big)$

Problem 77: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a + b \text{Tan}[e + f x])^3 (A + B \text{Tan}[e + f x] + C \text{Tan}[e + f x]^2)}{(c + d \text{Tan}[e + f x])^2} \, dx$$

Optimal (type 3, 579 leaves, 7 steps):

$$-\frac{1}{(c^2 + d^2)^2}\Big(a^3 (c^2 C - 2 B c d - C d^2 - A (c^2 - d^2)) - 3 a b^2 (c^2 C - 2 B c d - C d^2 - A (c^2 - d^2)) -$$
$$3 a^2 b (2 c (A - C) d - B (c^2 - d^2)) + b^3 (2 c (A - C) d - B (c^2 - d^2))\Big) x + \frac{1}{(c^2 + d^2)^2 f}$$
$$\Big(3 a^2 b (c^2 C - 2 B c d - C d^2 - A (c^2 - d^2)) - b^3 (c^2 C - 2 B c d - C d^2 - A (c^2 - d^2)) +$$
$$a^3 (2 c (A - C) d - B (c^2 - d^2)) - 3 a b^2 (2 c (A - C) d - B (c^2 - d^2))\Big)$$
$$\text{Log}[\text{Cos}[e + f x]] + \frac{1}{d^4 (c^2 + d^2)^2 f}(b c - a d)^2$$
$$\Big(b (3 c^4 C - 2 B c^3 d + c^2 (A + 5 C) d^2 - 4 B c d^3 + 3 A d^4) + a d^2 (2 c (A - C) d - B (c^2 - d^2))\Big)$$
$$\text{Log}[c + d \text{Tan}[e + f x]] + \frac{1}{d^3 (c^2 + d^2) f}$$
$$b^2 \Big(a d (3 c^2 C - B c d + (A + 2 C) d^2) - b (3 c^3 C - 2 B c^2 d + c (A + 2 C) d^2 - B d^3)\Big) \text{Tan}[e + f x] +$$
$$\frac{b (3 c^2 C - 2 B c d + (2 A + C) d^2) (a + b \text{Tan}[e + f x])^2}{2 d^2 (c^2 + d^2) f} -$$
$$\frac{(c^2 C - B c d + A d^2) (a + b \text{Tan}[e + f x])^3}{d (c^2 + d^2) f (c + d \text{Tan}[e + f x])}$$

Result (type 3, 2463 leaves):

$$\Big(\big(a^3 A c^2 - 3 a A b^2 c^2 - 3 a^2 b B c^2 + b^3 B c^2 - a^3 c^2 C + 3 a b^2 c^2 C + 6 a^2 A b c d - 2 A b^3 c d + 2 a^3 B c d -$$
$$6 a b^2 B c d - 6 a^2 b c C d + 2 b^3 c C d - a^3 A d^2 + 3 a A b^2 d^2 + 3 a^2 b B d^2 - b^3 B d^2 + a^3 C d^2 - 3 a b^2 C d^2\big)$$
$$(e + f x) \operatorname{Cos}[e + f x] \,(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2 \,(a + b \operatorname{Tan}[e + f x])^3\Big) \Big/$$
$$\Big((c - \mathbb{i} d)^2 (c + \mathbb{i} d)^2 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2\Big) +$$
$$\Big(\big(3 \mathbb{i} b^3 c^{11} C d^3 - 2 \mathbb{i} b^3 B c^{10} d^4 - 6 \mathbb{i} a b^2 c^{10} C d^4 + 3 b^3 c^{10} C d^4 + \mathbb{i} A b^3 c^9 d^5 + 3 \mathbb{i} a b^2 B c^9 d^5 -$$
$$2 b^3 B c^9 d^5 + 3 \mathbb{i} a^2 b c^9 C d^5 - 6 a b^2 c^9 C d^5 + 8 \mathbb{i} b^3 c^9 C d^5 + A b^3 c^8 d^6 + 3 a b^2 B c^8 d^6 -$$
$$6 \mathbb{i} b^3 B c^8 d^6 + 3 a^2 b c^8 C d^6 - 18 \mathbb{i} a b^2 c^8 C d^6 + 8 b^3 c^8 C d^6 - 3 \mathbb{i} a^2 A b c^7 d^7 + 4 \mathbb{i} A b^3 c^7 d^7 -$$
$$\mathbb{i} a^3 B c^7 d^7 + 12 \mathbb{i} a b^2 B c^7 d^7 - 6 b^3 B c^7 d^7 + 12 \mathbb{i} a^2 b c^7 C d^7 - 18 a b^2 c^7 C d^7 + 5 \mathbb{i} b^3 c^7 C d^7 +$$
$$2 \mathbb{i} a^3 A c^6 d^8 - 3 a^2 A b c^6 d^8 - 6 \mathbb{i} a A b^2 c^6 d^8 + 4 A b^3 c^6 d^8 - a^3 B c^6 d^8 - 6 \mathbb{i} a^2 b B c^6 d^8 +$$
$$12 a b^2 B c^6 d^8 - 4 \mathbb{i} b^3 B c^6 d^8 - 2 \mathbb{i} a^3 c^6 C d^8 + 12 a^2 b c^6 C d^8 - 12 \mathbb{i} a b^2 c^6 C d^8 + 5 b^3 c^6 C d^8 +$$
$$2 a^3 A c^5 d^9 - 6 a A b^2 c^5 d^9 + 3 \mathbb{i} A b^3 c^5 d^9 - 6 a^2 b B c^5 d^9 + 9 \mathbb{i} a b^2 B c^5 d^9 - 4 b^3 B c^5 d^9 -$$
$$2 a^3 c^5 C d^9 + 9 \mathbb{i} a^2 b c^5 C d^9 - 12 a b^2 c^5 C d^9 + 2 \mathbb{i} a^3 A c^4 d^{10} - 6 \mathbb{i} a A b^2 c^4 d^{10} + 3 A b^3 c^4 d^{10} -$$
$$6 \mathbb{i} a^2 b B c^4 d^{10} + 9 a b^2 B c^4 d^{10} - 2 \mathbb{i} a^3 c^4 C d^{10} + 9 a^2 b c^4 C d^{10} + 2 a^3 A c^3 d^{11} + 3 \mathbb{i} a^2 A b c^3 d^{11} -$$
$$6 a A b^2 c^3 d^{11} + \mathbb{i} a^3 B c^3 d^{11} - 6 a^2 b B c^3 d^{11} - 2 a^3 c^3 C d^{11} + 3 a^2 A b c^2 d^{12} + a^3 B c^2 d^{12}\big)$$
$$(e + f x) \operatorname{Cos}[e + f x] \,(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2 \,(a + b \operatorname{Tan}[e + f x])^3\Big) \Big/$$
$$\Big(c^2 (c - \mathbb{i} d)^4 (c + \mathbb{i} d)^3 d^7 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2\Big) -$$
$$\frac{1}{d^4 (c^2 + d^2)^2 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2}$$
$$\mathbb{i} \big(3 b^3 c^6 C - 2 b^3 B c^5 d - 6 a b^2 c^5 C d + A b^3 c^4 d^2 + 3 a b^2 B c^4 d^2 + 3 a^2 b c^4 C d^2 + 5 b^3 c^4 C d^2 -$$
$$4 b^3 B c^3 d^3 - 12 a b^2 c^3 C d^3 - 3 a^2 A b c^2 d^4 + 3 A b^3 c^2 d^4 - a^3 B c^2 d^4 + 9 a b^2 B c^2 d^4 +$$
$$9 a^2 b c^2 C d^4 + 2 a^3 A c d^5 - 6 a A b^2 c d^5 - 6 a^2 b B c d^5 - 2 a^3 c C d^5 + 3 a^2 A b d^6 + a^3 B d^6\big)$$
$$\operatorname{ArcTan}[\operatorname{Tan}[e + f x]] \operatorname{Cos}[e + f x] \,(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2 \,(a + b \operatorname{Tan}[e + f x])^3 +$$
$$\Big(\big(-3 b^3 c^2 C + 2 b^3 B c d + 6 a b^2 c C d - A b^3 d^2 - 3 a b^2 B d^2 - 3 a^2 b C d^2 + b^3 C d^2\big) \operatorname{Cos}[e + f x]$$
$$\operatorname{Log}[\operatorname{Cos}[e + f x]] \,(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2 \,(a + b \operatorname{Tan}[e + f x])^3\Big) \Big/$$
$$\Big(d^4 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2\Big) +$$
$$\Big(1 \Big/ \Big(2 d^4 (c^2 + d^2)^2 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2\Big)\Big)$$
$$\big(3 b^3 c^6 C - 2 b^3 B c^5 d - 6 a b^2 c^5 C d + A b^3 c^4 d^2 + 3 a b^2 B c^4 d^2 + 3 a^2 b c^4 C d^2 + 5 b^3 c^4 C d^2 - 4 b^3 B c^3 d^3 -$$
$$12 a b^2 c^3 C d^3 - 3 a^2 A b c^2 d^4 + 3 A b^3 c^2 d^4 - a^3 B c^2 d^4 + 9 a b^2 B c^2 d^4 + 9 a^2 b c^2 C d^4 +$$
$$2 a^3 A c d^5 - 6 a A b^2 c d^5 - 6 a^2 b B c d^5 - 2 a^3 c C d^5 + 3 a^2 A b d^6 + a^3 B d^6\big) \operatorname{Cos}[e + f x]$$
$$\operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] \,(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2 \,(a + b \operatorname{Tan}[e + f x])^3 +$$
$$\Big(b^3 C \operatorname{Sec}[e + f x] \,(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2 \,(a + b \operatorname{Tan}[e + f x])^3\Big) \Big/$$
$$\Big(2 d^2 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2\Big) +$$
$$\Big((c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2$$
$$\big(-2 b^3 c C \operatorname{Sin}[e + f x] + b^3 B d \operatorname{Sin}[e + f x] + 3 a b^2 C d \operatorname{Sin}[e + f x]\big) \,(a + b \operatorname{Tan}[e + f x])^3\Big) \Big/$$
$$\Big(d^3 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2\Big) +$$
$$\Big(\operatorname{Cos}[e + f x] \,(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])$$
$$\big(-b^3 c^5 C \operatorname{Sin}[e + f x] + b^3 B c^4 d \operatorname{Sin}[e + f x] + 3 a b^2 c^4 C d \operatorname{Sin}[e + f x] -$$
$$A b^3 c^3 d^2 \operatorname{Sin}[e + f x] - 3 a b^2 B c^3 d^2 \operatorname{Sin}[e + f x] - 3 a^2 b c^3 C d^2 \operatorname{Sin}[e + f x] +$$
$$3 a A b^2 c^2 d^3 \operatorname{Sin}[e + f x] + 3 a^2 b B c^2 d^3 \operatorname{Sin}[e + f x] + a^3 c^2 C d^3 \operatorname{Sin}[e + f x] -$$
$$3 a^2 A b c d^4 \operatorname{Sin}[e + f x] - a^3 B c d^4 \operatorname{Sin}[e + f x] + a^3 A d^5 \operatorname{Sin}[e + f x]\big) \,(a + b \operatorname{Tan}[e + f x])^3\Big) \Big/$$
$$\Big(c (c - \mathbb{i} d) (c + \mathbb{i} d) d^3 f \,(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 \,(c + d \operatorname{Tan}[e + f x])^2\Big)$$

Problem 78: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[e+f x])^2\,(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2)}{(c+d\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 417 leaves, 6 steps):

$$-\frac{1}{(c^2+d^2)^2}\Big(a^2\,(c^2 C-2 B c d-C d^2-A\,(c^2-d^2))-$$
$$b^2\,(c^2 C-2 B c d-C d^2-A\,(c^2-d^2))-2 a b\,(2 c\,(A-C)\,d-B\,(c^2-d^2))\Big)\,x+$$
$$\frac{1}{(c^2+d^2)^2 f}\Big(2 a b\,(c^2 C-2 B c d-C d^2-A\,(c^2-d^2))+a^2\,(2 c\,(A-C)\,d-B\,(c^2-d^2))-$$
$$b^2\,(2 c\,(A-C)\,d-B\,(c^2-d^2))\Big)\,\text{Log}[\text{Cos}[e+f x]]-\frac{1}{d^3\,(c^2+d^2)^2 f}$$
$$(b c-a d)\,\Big(b\,(2 c^4 C-B c^3 d+4 c^2 C d^2-3 B c d^3+2 A d^4)+a d^2\,(2 c\,(A-C)\,d-B\,(c^2-d^2))\Big)$$
$$\text{Log}[c+d\,\text{Tan}[e+f x]]+\frac{b^2\,(2 c^2 C-B c d+(A+C)\,d^2)\,\text{Tan}[e+f x]}{d^2\,(c^2+d^2)\,f}-$$
$$\frac{(c^2 C-B c d+A d^2)\,(a+b\,\text{Tan}[e+f x])^2}{d\,(c^2+d^2)\,f\,(c+d\,\text{Tan}[e+f x])}$$

Result (type 3, 2636 leaves):

$$\Big(\Big(-2\,i\,b^2 c^{10} C d^2+i\,b^2 B c^9 d^3+2\,i\,a b c^9 C d^3-2 b^2 c^9 C d^3+b^2 B c^8 d^4+2 a b c^8 C d^4-$$
$$6\,i\,b^2 c^8 C d^4-2\,i\,a A b c^7 d^5-i\,a^2 B c^7 d^5+4\,i\,b^2 B c^7 d^5+8\,i\,a b c^7 C d^5-6 b^2 c^7 C d^5+$$
$$2\,i\,a^2 A c^6 d^6-2 a A b c^6 d^6-2\,i\,A b^2 c^6 d^6-a^2 B c^6 d^6-4\,i\,a b B c^6 d^6+4 b^2 B c^6 d^6-$$
$$2\,i\,a^2 c^6 C d^6+8 a b c^6 C d^6-4\,i\,b^2 c^6 C d^6+2 a^2 A c^5 d^7-2 A b^2 c^5 d^7-4 a b B c^5 d^7+$$
$$3\,i\,b^2 B c^5 d^7-2 a^2 c^5 C d^7+6\,i\,a b c^5 C d^7-4 b^2 c^5 C d^7+2\,i\,a^2 A c^4 d^8-2\,i\,A b^2 c^4 d^8-$$
$$4\,i\,a b B c^4 d^8+3 b^2 B c^4 d^8-2\,i\,a^2 c^4 C d^8+6 a b c^4 C d^8+2 a^2 A c^3 d^9+2\,i\,a A b c^3 d^9-$$
$$2 A b^2 c^3 d^9+i\,a^2 B c^3 d^9-4 a b B c^3 d^9-2 a^2 c^3 C d^9+2 a A b c^2 d^{10}+a^2 B c^2 d^{10}\Big)$$
$$(e+f x)\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/$$
$$\Big(c^2\,(c-i\,d)^4\,(c+i\,d)^3\,d^5 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\Big)-$$
$$\Big(i\,\big(-2 b^2 c^5 C+b^2 B c^4 d+2 a b c^4 C d-4 b^2 c^3 C d^2-2 a A b c^2 d^3-a^2 B c^2 d^3+3 b^2 B c^2 d^3+$$
$$6 a b c^2 C d^3+2 a^2 A c d^4-2 A b^2 c d^4-4 a b B c d^4-2 a^2 c C d^4+2 a A b d^5+a^2 B d^5\big)$$
$$\text{ArcTan}[\text{Tan}[e+f x]]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/$$
$$\Big(d^3\,(c^2+d^2)^2 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\Big)+$$
$$\Big((2 b^2 c C-b^2 B d-2 a b C d)\,\text{Log}[\text{Cos}[e+f x]]$$
$$(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/$$
$$\Big(d^3 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\Big)+$$
$$\Big(\big(-2 b^2 c^5 C+b^2 B c^4 d+2 a b c^4 C d-4 b^2 c^3 C d^2-2 a A b c^2 d^3-a^2 B c^2 d^3+3 b^2 B c^2 d^3+$$
$$6 a b c^2 C d^3+2 a^2 A c d^4-2 A b^2 c d^4-4 a b B c d^4-2 a^2 c C d^4+2 a A b d^5+a^2 B d^5\big)$$
$$\text{Log}\big[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\big]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/$$

$$\left(2 d^3 \left(c^2+d^2\right)^2 f \left(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]\right)^2 \left(c+d \operatorname{Tan}[e+f x]\right)^2\right)+$$

$$\Big(\operatorname{Sec}[e+f x] \left(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]\right)$$
$$\big(b^2 c^5 C d+2 b^2 c^3 C d^3+b^2 c C d^5+a^2 A c^4 d^2 (e+f x)-A b^2 c^4 d^2 (e+f x)-2 a b B c^4 d^2 (e+f x)-$$
$$a^2 c^4 C d^2 (e+f x)+b^2 c^4 C d^2 (e+f x)+4 a A b c^3 d^3 (e+f x)+2 a^2 B c^3 d^3 (e+f x)-$$
$$2 b^2 B c^3 d^3 (e+f x)-4 a b c^3 C d^3 (e+f x)-a^2 A c^2 d^4 (e+f x)+A b^2 c^2 d^4 (e+f x)+$$
$$2 a b B c^2 d^4 (e+f x)+a^2 c^2 C d^4 (e+f x)-b^2 c^2 C d^4 (e+f x)-b^2 c^5 C d \operatorname{Cos}[2 (e+f x)]-$$
$$2 b^2 c^3 C d^3 \operatorname{Cos}[2 (e+f x)]-b^2 c C d^5 \operatorname{Cos}[2 (e+f x)]+a^2 A c^4 d^2 (e+f x) \operatorname{Cos}[2 (e+f x)]-$$
$$A b^2 c^4 d^2 (e+f x) \operatorname{Cos}[2 (e+f x)]-2 a b B c^4 d^2 (e+f x) \operatorname{Cos}[2 (e+f x)]-$$
$$a^2 c^4 C d^2 (e+f x) \operatorname{Cos}[2 (e+f x)]+b^2 c^4 C d^2 (e+f x) \operatorname{Cos}[2 (e+f x)]+$$
$$4 a A b c^3 d^3 (e+f x) \operatorname{Cos}[2 (e+f x)]+2 a^2 B c^3 d^3 (e+f x) \operatorname{Cos}[2 (e+f x)]-$$
$$2 b^2 B c^3 d^3 (e+f x) \operatorname{Cos}[2 (e+f x)]-4 a b c^3 C d^3 (e+f x) \operatorname{Cos}[2 (e+f x)]-$$
$$a^2 A c^2 d^4 (e+f x) \operatorname{Cos}[2 (e+f x)]+A b^2 c^2 d^4 (e+f x) \operatorname{Cos}[2 (e+f x)]+$$
$$2 a b B c^2 d^4 (e+f x) \operatorname{Cos}[2 (e+f x)]+a^2 c^2 C d^4 (e+f x) \operatorname{Cos}[2 (e+f x)]-$$
$$b^2 c^2 C d^4 (e+f x) \operatorname{Cos}[2 (e+f x)]+2 b^2 c^6 C \operatorname{Sin}[2 (e+f x)]-b^2 B c^5 d \operatorname{Sin}[2 (e+f x)]-$$
$$2 a b c^5 C d \operatorname{Sin}[2 (e+f x)]+A b^2 c^4 d^2 \operatorname{Sin}[2 (e+f x)]+2 a b B c^4 d^2 \operatorname{Sin}[2 (e+f x)]+$$
$$a^2 c^4 C d^2 \operatorname{Sin}[2 (e+f x)]+3 b^2 c^4 C d^2 \operatorname{Sin}[2 (e+f x)]-2 a A b c^3 d^3 \operatorname{Sin}[2 (e+f x)]-$$
$$a^2 B c^3 d^3 \operatorname{Sin}[2 (e+f x)]-b^2 B c^3 d^3 \operatorname{Sin}[2 (e+f x)]-2 a b c^3 C d^3 \operatorname{Sin}[2 (e+f x)]+$$
$$a^2 A c^2 d^4 \operatorname{Sin}[2 (e+f x)]+A b^2 c^2 d^4 \operatorname{Sin}[2 (e+f x)]+2 a b B c^2 d^4 \operatorname{Sin}[2 (e+f x)]+$$
$$a^2 c^2 C d^4 \operatorname{Sin}[2 (e+f x)]+b^2 c^2 C d^4 \operatorname{Sin}[2 (e+f x)]-2 a A b c d^5 \operatorname{Sin}[2 (e+f x)]-$$
$$a^2 B c d^5 \operatorname{Sin}[2 (e+f x)]+a^2 A d^6 \operatorname{Sin}[2 (e+f x)]+a^2 A c^3 d^3 (e+f x) \operatorname{Sin}[2 (e+f x)]-$$
$$A b^2 c^3 d^3 (e+f x) \operatorname{Sin}[2 (e+f x)]-2 a b B c^3 d^3 (e+f x) \operatorname{Sin}[2 (e+f x)]-$$
$$a^2 c^3 C d^3 (e+f x) \operatorname{Sin}[2 (e+f x)]+b^2 c^3 C d^3 (e+f x) \operatorname{Sin}[2 (e+f x)]+$$
$$4 a A b c^2 d^4 (e+f x) \operatorname{Sin}[2 (e+f x)]+2 a^2 B c^2 d^4 (e+f x) \operatorname{Sin}[2 (e+f x)]-$$
$$2 b^2 B c^2 d^4 (e+f x) \operatorname{Sin}[2 (e+f x)]-4 a b c^2 C d^4 (e+f x) \operatorname{Sin}[2 (e+f x)]-a^2 A c d^5 (e+f x)$$
$$\operatorname{Sin}[2 (e+f x)]+A b^2 c d^5 (e+f x) \operatorname{Sin}[2 (e+f x)]+2 a b B c d^5 (e+f x) \operatorname{Sin}[2 (e+f x)]+$$
$$a^2 c C d^5 (e+f x) \operatorname{Sin}[2 (e+f x)]-b^2 c C d^5 (e+f x) \operatorname{Sin}[2 (e+f x)]\big) \left(a+b \operatorname{Tan}[e+f x]\right)^2\Big)\Big/$$
$$\left(2 c (c-i d)^2 (c+i d)^2 d^2 f \left(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]\right)^2 \left(c+d \operatorname{Tan}[e+f x]\right)^2\right)$$

Problem 79: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\left(a+b \operatorname{Tan}[e+f x]\right) \left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right)}{\left(c+d \operatorname{Tan}[e+f x]\right)^2} \, dx$$

Optimal (type 3, 292 leaves, 5 steps):

$$-\frac{1}{\left(c^2+d^2\right)^2}\left(a \left(c^2 C-2 B c d-C d^2-A \left(c^2-d^2\right)\right)-b \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right) x-\frac{1}{\left(c^2+d^2\right)^2 f}$$
$$\left(a \left(B c^2+2 c C d-B d^2\right)-b \left(c^2 C-2 B c d-C d^2\right)-A \left(2 a c d-b \left(c^2-d^2\right)\right)\right) \operatorname{Log}[\operatorname{Cos}[e+f x]]+$$
$$\frac{1}{d^2 \left(c^2+d^2\right)^2 f}\left(b \left(c^4 C-c^2 (A-3 C) d^2-2 B c d^3+A d^4\right)+a d^2 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right)$$
$$\operatorname{Log}[c+d \operatorname{Tan}[e+f x]]+\frac{(b c-a d) \left(c^2 C-B c d+A d^2\right)}{d^2 \left(c^2+d^2\right) f \left(c+d \operatorname{Tan}[e+f x]\right)}$$

Result (type 3, 1433 leaves):

$$\Big(\big(\mathrm{i}\, b\, c^9\, C\, d + b\, c^8\, C\, d^2 - \mathrm{i}\, A\, b\, c^7\, d^3 - \mathrm{i}\, a\, B\, c^7\, d^3 + 4\,\mathrm{i}\, b\, c^7\, C\, d^3 + 2\,\mathrm{i}\, a\, A\, c^6\, d^4 -$$
$$A\, b\, c^6\, d^4 - a\, B\, c^6\, d^4 - 2\,\mathrm{i}\, b\, B\, c^6\, d^4 - 2\,\mathrm{i}\, a\, c^6\, C\, d^4 + 4\, b\, c^6\, C\, d^4 + 2\, a\, A\, c^5\, d^5 - 2\, b\, B\, c^5\, d^5 -$$
$$2\, a\, c^5\, C\, d^5 + 3\,\mathrm{i}\, b\, c^5\, C\, d^5 + 2\,\mathrm{i}\, a\, A\, c^4\, d^6 - 2\,\mathrm{i}\, b\, B\, c^4\, d^6 - 2\,\mathrm{i}\, a\, c^4\, C\, d^6 + 3\, b\, c^4\, C\, d^6 +$$
$$2\, a\, A\, c^3\, d^7 + \mathrm{i}\, A\, b\, c^3\, d^7 + \mathrm{i}\, a\, B\, c^3\, d^7 - 2\, b\, B\, c^3\, d^7 - 2\, a\, c^3\, C\, d^7 + A\, b\, c^2\, d^8 + a\, B\, c^2\, d^8\big)$$
$$(e + f x)\, \text{Sec}[e + f x]\, \left(c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x]\right)^2\, \left(a + b\, \text{Tan}[e + f x]\right)\Big) \Big/$$
$$\left(c^2\, (c - \mathrm{i}\, d)^4\, (c + \mathrm{i}\, d)^3\, d^3\, f\, \left(a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x]\right)\, \left(c + d\, \text{Tan}[e + f x]\right)^2\right) -$$
$$\Big(\mathrm{i}\, \left(b\, c^4\, C - A\, b\, c^2\, d^2 - a\, B\, c^2\, d^2 + 3\, b\, c^2\, C\, d^2 + 2\, a\, A\, c\, d^3 - 2\, b\, B\, c\, d^3 - 2\, a\, c\, C\, d^3 + A\, b\, d^4 + a\, B\, d^4\right)$$
$$\text{ArcTan}[\text{Tan}[e + f x]]\, \text{Sec}[e + f x]\, \left(c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x]\right)^2\, \left(a + b\, \text{Tan}[e + f x]\right)\Big) \Big/$$
$$\left(d^2\, \left(c^2 + d^2\right)^2\, f\, \left(a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x]\right)\, \left(c + d\, \text{Tan}[e + f x]\right)^2\right) -$$
$$\left(b\, C\, \text{Log}[\text{Cos}[e + f x]]\, \text{Sec}[e + f x]\, \left(c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x]\right)^2\, \left(a + b\, \text{Tan}[e + f x]\right)\right) \Big/$$
$$\left(d^2\, f\, \left(a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x]\right)\, \left(c + d\, \text{Tan}[e + f x]\right)^2\right) +$$
$$\Big(\left(b\, c^4\, C - A\, b\, c^2\, d^2 - a\, B\, c^2\, d^2 + 3\, b\, c^2\, C\, d^2 + 2\, a\, A\, c\, d^3 - 2\, b\, B\, c\, d^3 - 2\, a\, c\, C\, d^3 + A\, b\, d^4 + a\, B\, d^4\right)$$
$$\text{Log}\left[\left(c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x]\right)^2\right]\, \text{Sec}[e + f x]$$
$$\left(c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x]\right)^2\, \left(a + b\, \text{Tan}[e + f x]\right)\Big) \Big/$$
$$\left(2\, d^2\, \left(c^2 + d^2\right)^2\, f\, \left(a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x]\right)\, \left(c + d\, \text{Tan}[e + f x]\right)^2\right) +$$
$$\Big(\text{Sec}[e + f x]\, \left(c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x]\right)\, \big(a\, A\, c^4\, d\, (e + f x)\, \text{Cos}[e + f x] -$$
$$b\, B\, c^4\, d\, (e + f x)\, \text{Cos}[e + f x] - a\, c^4\, C\, d\, (e + f x)\, \text{Cos}[e + f x] + 2\, A\, b\, c^3\, d^2\, (e + f x)\, \text{Cos}[e + f x] +$$
$$2\, a\, B\, c^3\, d^2\, (e + f x)\, \text{Cos}[e + f x] - 2\, b\, c^3\, C\, d^2\, (e + f x)\, \text{Cos}[e + f x] -$$
$$a\, A\, c^2\, d^3\, (e + f x)\, \text{Cos}[e + f x] + b\, B\, c^2\, d^3\, (e + f x)\, \text{Cos}[e + f x] + a\, c^2\, C\, d^3\, (e + f x)\, \text{Cos}[e + f x] -$$
$$b\, c^5\, C\, \text{Sin}[e + f x] + b\, B\, c^4\, d\, \text{Sin}[e + f x] + a\, c^4\, C\, d\, \text{Sin}[e + f x] - A\, b\, c^3\, d^2\, \text{Sin}[e + f x] -$$
$$a\, B\, c^3\, d^2\, \text{Sin}[e + f x] - b\, c^3\, C\, d^2\, \text{Sin}[e + f x] + a\, A\, c^2\, d^3\, \text{Sin}[e + f x] + b\, B\, c^2\, d^3\, \text{Sin}[e + f x] +$$
$$a\, c^2\, C\, d^3\, \text{Sin}[e + f x] - A\, b\, c\, d^4\, \text{Sin}[e + f x] - a\, B\, c\, d^4\, \text{Sin}[e + f x] + a\, A\, d^5\, \text{Sin}[e + f x] +$$
$$a\, A\, c^3\, d^2\, (e + f x)\, \text{Sin}[e + f x] - b\, B\, c^3\, d^2\, (e + f x)\, \text{Sin}[e + f x] - a\, c^3\, C\, d^2\, (e + f x)\, \text{Sin}[e + f x] +$$
$$2\, A\, b\, c^2\, d^3\, (e + f x)\, \text{Sin}[e + f x] + 2\, a\, B\, c^2\, d^3\, (e + f x)\, \text{Sin}[e + f x] -$$
$$2\, b\, c^2\, C\, d^3\, (e + f x)\, \text{Sin}[e + f x] - a\, A\, c\, d^4\, (e + f x)\, \text{Sin}[e + f x] +$$
$$b\, B\, c\, d^4\, (e + f x)\, \text{Sin}[e + f x] + a\, c\, C\, d^4\, (e + f x)\, \text{Sin}[e + f x]\big)\, \left(a + b\, \text{Tan}[e + f x]\right)\Big) \Big/$$
$$\left(c\, (c - \mathrm{i}\, d)^2\, (c + \mathrm{i}\, d)^2\, d\, f\, \left(a\, \text{Cos}[e + f x] + b\, \text{Sin}[e + f x]\right)\, \left(c + d\, \text{Tan}[e + f x]\right)^2\right)$$

Problem 80: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A + B\, \text{Tan}[e + f x] + C\, \text{Tan}[e + f x]^2}{\left(c + d\, \text{Tan}[e + f x]\right)^2}\, dx$$

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

$$-\frac{\left(c^2\, C - 2\, B\, c\, d - C\, d^2 - A\, \left(c^2 - d^2\right)\right)\, x}{\left(c^2 + d^2\right)^2} +$$
$$\frac{\left(2\, c\, (A - C)\, d - B\, \left(c^2 - d^2\right)\right)\, \text{Log}[c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x]]}{\left(c^2 + d^2\right)^2\, f} - \frac{c^2\, C - B\, c\, d + A\, d^2}{d\, \left(c^2 + d^2\right)\, f\, \left(c + d\, \text{Tan}[e + f x]\right)}$$

Result (type 3, 305 leaves):

$$\frac{1}{2 c \left(c^2+d^2\right)^2 f \left(c+d \operatorname{Tan}[e+f x]\right)} \Big(c^2 \left(2 \left(A-\mathrm{i} B-C\right) \left(c+\mathrm{i} d\right)^2 \left(e+f x\right)+\left(2 c \left(A-C\right) d+B \left(-c^2+d^2\right)\right) \operatorname{Log}\left[\left(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]\right)^2\right]\right)+\left(2 \left(c+\mathrm{i} d\right) \left(c^3 C-\mathrm{i} A d^3+c d^2 \left(A \left(1+\mathrm{i} e+\mathrm{i} f x\right)-\mathrm{i} C \left(e+f x\right)+B \left(\mathrm{i}+e+f x\right)\right)-c^2 d \left(B \left(1+\mathrm{i} e+\mathrm{i} f x\right)-A \left(e+f x\right)+C \left(\mathrm{i}+e+f x\right)\right)\right)-c d \left(2 c \left(-A+C\right) d+B \left(c^2-d^2\right)\right) \operatorname{Log}\left[\left(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]\right)^2\right]\right) \operatorname{Tan}[e+f x]+2 \mathrm{i} c \left(2 c \left(-A+C\right) d+B \left(c^2-d^2\right)\right) \operatorname{ArcTan}[\operatorname{Tan}[e+f x]] \left(c+d \operatorname{Tan}[e+f x]\right)\Big)$$

Problem 81: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2}{\left(a+b \operatorname{Tan}[e+f x]\right) \left(c+d \operatorname{Tan}[e+f x]\right)^2} \, dx$$

Optimal (type 3, 293 leaves, 4 steps):

$$-\left(\left(\left(a \left(c^2 C-2 B c d-C d^2-A \left(c^2-d^2\right)\right)+b \left(2 c \left(A-C\right) d-B \left(c^2-d^2\right)\right)\right) x\right) \Big/ \left(\left(a^2+b^2\right) \left(c^2+d^2\right)^2\right)\right)+\frac{b \left(A b^2-a \left(b B-a C\right)\right) \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]}{\left(a^2+b^2\right) \left(b c-a d\right)^2 f}-\left(\left(b \left(c^4 C-2 B c^3 d+c^2 \left(3 A-C\right) d^2+A d^4\right)-a d^2 \left(2 c \left(A-C\right) d-B \left(c^2-d^2\right)\right)\right) \operatorname{Log}[c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]]\right) \Big/ \left(\left(b c-a d\right)^2 \left(c^2+d^2\right)^2 f\right)+\frac{c^2 C-B c d+A d^2}{\left(b c-a d\right) \left(c^2+d^2\right) f \left(c+d \operatorname{Tan}[e+f x]\right)}$$

Result (type 3, 2693 leaves):

$$\Big(\big(a A c^2+b B c^2-a c^2 C-2 A b c d+2 a B c d+2 b c C d-a A d^2-b B d^2+a C d^2\big)\,(e+f x)$$
$$\quad \operatorname{Sec}[e+f x]^3\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])\,(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\Big)\Big/$$
$$\Big((a-i b)\,(a+i b)\,(c-i d)^2\,(c+i d)^2 f\,(a+b \operatorname{Tan}[e+f x])\,(c+d \operatorname{Tan}[e+f x])^2\Big)+$$
$$\Big(\big(i a^6 b^2 c^{10} C+2 i a^4 b^4 c^{10} C+i a^2 b^6 c^{10} C-2 i a^6 b^2 B c^9 d-4 i a^4 b^4 B c^9 d-2 i a^2 b^6 B c^9 d-$$
$$i a^7 b c^9 C d+a^6 b^2 c^9 C d-2 i a^5 b^3 c^9 C d+2 a^4 b^4 c^9 C d-i a^3 b^5 c^9 C d+a^2 b^6 c^9 C d+$$
$$3 i a^6 A b^2 c^8 d^2+6 i a^4 A b^4 c^8 d^2+3 i a^2 A b^6 c^8 d^2+3 i a^7 b B c^8 d^2-2 a^6 b^2 B c^8 d^2+$$
$$6 i a^5 b^3 B c^8 d^2-4 a^4 b^4 B c^8 d^2+3 i a^3 b^5 B c^8 d^2-2 a^2 b^6 B c^8 d^2-a^7 b c^8 C d^2-2 a^5 b^3 c^8 C d^2-$$
$$a^3 b^5 c^8 C d^2-5 i a^7 A b c^7 d^3+3 a^6 A b^2 c^7 d^3-10 i a^5 A b^3 c^7 d^3+6 a^4 A b^4 c^7 d^3-5 i a^3 A b^5 c^7 d^3+$$
$$3 a^2 A b^6 c^7 d^3-i a^8 B c^7 d^3+3 a^7 b B c^7 d^3-4 i a^6 b^2 B c^7 d^3+6 a^5 b^3 B c^7 d^3-5 i a^4 b^4 B c^7 d^3+$$
$$3 a^3 b^5 B c^7 d^3-2 i a^2 b^6 B c^7 d^3+2 i a^7 b c^7 C d^3+4 i a^5 b^3 c^7 C d^3+2 i a^3 b^5 c^7 C d^3+$$
$$2 i a^8 A c^6 d^4-5 a^7 A b c^6 d^4+8 i a^6 A b^2 c^6 d^4-10 a^5 A b^3 c^6 d^4+10 i a^4 A b^4 c^6 d^4-$$
$$5 a^3 A b^5 c^6 d^4+4 i a^2 A b^6 c^6 d^4-a^8 B c^6 d^4+2 i a^7 b B c^6 d^4-4 a^6 b^2 B c^6 d^4+4 i a^5 b^3 B c^6 d^4-$$
$$5 a^4 b^4 B c^6 d^4+2 i a^3 b^5 B c^6 d^4-2 a^2 b^6 B c^6 d^4-2 i a^8 c^6 C d^4+2 a^7 b c^6 C d^4-5 i a^6 b^2 c^6 C d^4+$$
$$4 a^5 b^3 c^6 C d^4-4 i a^4 b^4 c^6 C d^4+2 a^3 b^5 c^6 C d^4-i a^2 b^6 c^6 C d^4+2 a^8 A c^5 d^5-6 i a^7 A b c^5 d^5+$$
$$8 a^6 A b^2 c^5 d^5-12 i a^5 A b^3 c^5 d^5+10 a^4 A b^4 c^5 d^5-6 i a^3 A b^5 c^5 d^5+4 a^2 A b^6 c^5 d^5+$$
$$2 a^7 b B c^5 d^5+4 a^5 b^3 B c^5 d^5+2 a^3 b^5 B c^5 d^5-2 a^8 c^5 C d^5+3 i a^7 b c^5 C d^5-5 a^6 b^2 c^5 C d^5+$$
$$6 i a^5 b^3 c^5 C d^5-4 a^4 b^4 c^5 C d^5+3 i a^3 b^5 c^5 C d^5-a^2 b^6 c^5 C d^5+2 i a^8 A c^4 d^6-6 a^7 A b c^4 d^6+$$
$$5 i a^6 A b^2 c^4 d^6-12 a^5 A b^3 c^4 d^6+4 i a^4 A b^4 c^4 d^6-6 a^3 A b^5 c^4 d^6+i a^2 A b^6 c^4 d^6-i a^7 b B c^4 d^6-$$
$$2 i a^5 b^3 B c^4 d^6-i a^3 b^5 B c^4 d^6-2 i a^8 c^4 C d^6+3 a^7 b c^4 C d^6-4 i a^6 b^2 c^4 C d^6+6 a^5 b^3 c^4 C d^6-$$
$$2 i a^4 b^4 c^4 C d^6+3 a^3 b^5 c^4 C d^6+2 a^8 A c^3 d^7-i a^7 A b c^3 d^7+5 a^6 A b^2 c^3 d^7-2 i a^5 A b^3 c^3 d^7+$$
$$4 a^4 A b^4 c^3 d^7-i a^3 A b^5 c^3 d^7+a^2 A b^6 c^3 d^7+i a^8 B c^3 d^7-a^7 b B c^3 d^7+2 i a^6 b^2 B c^3 d^7-$$
$$2 a^5 b^3 B c^3 d^7+i a^4 b^4 B c^3 d^7-a^3 b^5 B c^3 d^7-2 a^8 c^3 C d^7-4 a^6 b^2 c^3 C d^7-2 a^4 b^4 c^3 C d^7-$$
$$a^7 A b c^2 d^8-2 a^5 A b^3 c^2 d^8-a^3 A b^5 c^2 d^8+a^8 B c^2 d^8+2 a^6 b^2 B c^2 d^8+a^4 b^4 B c^2 d^8\big)\,(e+f x)$$
$$\quad \operatorname{Sec}[e+f x]^3\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])\,(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\Big)\Big/$$
$$\Big(a^2\,(a-i b)\,(a+i b)\,(a^2+b^2)\,c^2\,(c-i d)^4\,(c+i d)^3\,(-b c+a d)^3$$
$$\quad f\,(a+b \operatorname{Tan}[e+f x])\,(c+d \operatorname{Tan}[e+f x])^2\Big)-$$
$$\Big(i\,\big(-b c^4 C+2 b B c^3 d-3 A b c^2 d^2-a B c^2 d^2+b c^2 C d^2+2 a A c d^3-2 a c C d^3-A b d^4+a B d^4\big)$$
$$\quad \operatorname{ArcTan}[\operatorname{Tan}[e+f x]]\operatorname{Sec}[e+f x]^3\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])$$
$$\quad (c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\Big)\Big/$$
$$\Big((b c-a d)^2\,(c^2+d^2)^2 f\,(a+b \operatorname{Tan}[e+f x])\,(c+d \operatorname{Tan}[e+f x])^2\Big)+$$
$$\Big(\big(A b^3-a b^2 B+a^2 b C\big) \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]\operatorname{Sec}[e+f x]^3$$
$$\quad (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])\,(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\Big)\Big/$$
$$\Big((a^2+b^2)\,(-b c+a d)^2 f\,(a+b \operatorname{Tan}[e+f x])\,(c+d \operatorname{Tan}[e+f x])^2\Big)+$$
$$\Big(\big(-b c^4 C+2 b B c^3 d-3 A b c^2 d^2-a B c^2 d^2+b c^2 C d^2+2 a A c d^3-2 a c C d^3-A b d^4+a B d^4\big)$$
$$\quad \operatorname{Log}\big[(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\big]\operatorname{Sec}[e+f x]^3$$
$$\quad (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])\,(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\Big)\Big/$$
$$\Big(2\,(b c-a d)^2\,(c^2+d^2)^2 f\,(a+b \operatorname{Tan}[e+f x])\,(c+d \operatorname{Tan}[e+f x])^2\Big)+$$
$$\Big(\operatorname{Sec}[e+f x]^3\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])\,(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])$$
$$\quad \big(-c^2 C d \operatorname{Sin}[e+f x]+B c d^2 \operatorname{Sin}[e+f x]-A d^3 \operatorname{Sin}[e+f x]\big)\Big)\Big/$$
$$\Big(c\,(c-i d)\,(c+i d)\,(b c-a d) f\,(a+b \operatorname{Tan}[e+f x])\,(c+d \operatorname{Tan}[e+f x])^2\Big)$$

Problem 82: Result unnecessarily involves complex numbers and more than

twice size of optimal antiderivative.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 509 leaves, 5 steps):

$$-\Big(\Big(\big(a^2\,(c^2 C-2 B c d-C d^2-A\,(c^2-d^2))-b^2\,(c^2 C-2 B c d-C d^2-A\,(c^2-d^2))+$$
$$2 a b\,(2 c\,(A-C)\,d-B\,(c^2-d^2))\big)\,x\Big)\Big/\Big((a^2+b^2)^2\,(c^2+d^2)^2\Big)\Big)+$$
$$\big(b\,(3 a^3 b B d-2 a^4 C d+b^4\,(B c-2 A d)-a^2 b^2\,(B c+4 A d)+a b^3\,(2 A c-2 c C+B d))$$
$$\mathrm{Log}[a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]]\big)\Big/\Big((a^2+b^2)^2\,(b c-a d)^3\,f\Big)+$$
$$\big(d\,(b\,(2 c^4 C-3 B c^3 d+4 A c^2 d^2-B c d^3+2 A d^4)-a d^2\,(2 c\,(A-C)\,d-B\,(c^2-d^2)))$$
$$\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]\big)\Big/\Big((b c-a d)^3\,(c^2+d^2)^2\,f\Big)-$$
$$\big(d\,(b^2 c\,(c C-B d)-a b B\,(c^2+d^2)+a^2\,(2 c^2 C-B c d+C d^2)+A\,(a^2 d^2+b^2\,(c^2+2 d^2)))\big)\Big/$$
$$\Big((a^2+b^2)\,(b c-a d)^2\,(c^2+d^2)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])\Big)-$$
$$\frac{A b^2-a\,(b B-a C)}{(a^2+b^2)\,(b c-a d)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 8527 leaves):

$$-\Big(\Big(i\,\big(-2 a^6 A b^5 c^{11}+2 i a^5 A b^6 c^{11}-2 a^4 A b^7 c^{11}+2 i a^3 A b^8 c^{11}+a^7 b^4 B c^{11}-i a^6 b^5 B c^{11}-a^3 b^8 B c^{11}+$$
$$i a^2 b^9 B c^{11}+2 a^6 b^5 c^{11} C-2 i a^5 b^6 c^{11} C+2 a^4 b^7 c^{11} C-2 i a^3 b^8 c^{11} C+6 a^7 A b^4 c^{10} d-$$
$$4 i a^6 A b^5 c^{10} d+10 a^5 A b^6 c^{10} d-6 i a^4 A b^7 c^{10} d+4 a^3 A b^8 c^{10} d-2 i a^2 A b^9 c^{10} d-$$
$$4 a^8 b^3 B c^{10} d+3 i a^7 b^4 B c^{10} d-5 a^6 b^5 B c^{10} d+4 i a^5 b^6 B c^{10} d+i a^3 b^8 B c^{10} d+$$
$$a^2 b^9 B c^{10} d-6 a^7 b^4 c^{10} C d+4 i a^6 b^5 c^{10} C d-10 a^5 b^6 c^{10} C d+6 i a^4 b^7 c^{10} C d-$$
$$4 a^3 b^8 c^{10} C d+2 i a^2 b^9 c^{10} C d-4 a^8 A b^3 c^9 d^2-2 i a^7 A b^4 c^9 d^2-18 a^6 A b^5 c^9 d^2+$$
$$4 i a^5 A b^6 c^9 d^2-16 a^4 A b^7 c^9 d^2+6 i a^3 A b^8 c^9 d^2-2 a^2 A b^9 c^9 d^2+6 a^9 b^2 B c^9 d^2-$$
$$2 i a^8 b^3 B c^9 d^2+20 a^7 b^4 B c^9 d^2-12 i a^6 b^5 B c^9 d^2+14 a^5 b^6 B c^9 d^2-10 i a^4 b^7 B c^9 d^2+$$
$$4 a^8 b^3 c^9 C d^2+2 i a^7 b^4 c^9 C d^2+18 a^6 b^5 c^9 C d^2-4 i a^5 b^6 c^9 C d^2+16 a^4 b^7 c^9 C d^2-$$
$$6 i a^3 b^8 c^9 C d^2+2 a^2 b^9 c^9 C d^2-4 a^9 A b^2 c^8 d^3+8 i a^8 A b^3 c^8 d^3+10 a^7 A b^4 c^8 d^3+$$
$$6 i a^6 A b^5 c^8 d^3+24 a^5 A b^6 c^8 d^3-4 i a^4 A b^7 c^8 d^3+10 a^3 A b^8 c^8 d^3-2 i a^2 A b^9 c^8 d^3-$$
$$4 a^{10} b B c^8 d^3-2 i a^9 b^2 B c^8 d^3-30 a^8 b^3 B c^8 d^3+8 i a^7 b^4 B c^8 d^3-40 a^6 b^5 B c^8 d^3+$$
$$14 i a^5 b^6 B c^8 d^3-14 a^4 b^7 B c^8 d^3+4 i a^3 b^8 B c^8 d^3+4 a^9 b^2 c^8 C d^3-8 i a^8 b^3 c^8 C d^3-$$
$$10 a^7 b^4 c^8 C d^3-6 i a^6 b^5 c^8 C d^3-24 a^5 b^6 c^8 C d^3+4 i a^4 b^7 c^8 C d^3-10 a^3 b^8 c^8 C d^3+$$
$$2 i a^2 b^9 c^8 C d^3+6 a^{10} A b c^7 d^4-2 i a^9 A b^2 c^7 d^4+10 a^8 A b^3 c^7 d^4-12 i a^7 A b^4 c^7 d^4-$$
$$12 a^6 A b^5 c^7 d^4-6 i a^5 A b^6 c^7 d^4-18 a^4 A b^7 c^7 d^4+4 i a^3 A b^8 c^7 d^4-2 a^2 A b^9 c^7 d^4+$$
$$a^{11} B c^7 d^4+3 i a^{10} b B c^7 d^4+20 a^9 b^2 B c^7 d^4+8 i a^8 b^3 B c^7 d^4+54 a^7 b^4 B c^7 d^4-$$
$$6 i a^6 b^5 B c^7 d^4+40 a^5 b^6 B c^7 d^4-12 i a^4 b^7 B c^7 d^4+5 a^3 b^8 B c^7 d^4-i a^2 b^9 B c^7 d^4-$$
$$6 a^{10} b c^7 C d^4+2 i a^9 b^2 c^7 C d^4-10 a^8 b^3 c^7 C d^4+12 i a^7 b^4 c^7 C d^4+12 a^6 b^5 c^7 C d^4+$$
$$6 i a^5 b^6 c^7 C d^4+18 a^4 b^7 c^7 C d^4-4 i a^3 b^8 c^7 C d^4+2 a^2 b^9 c^7 C d^4-2 a^{11} A c^6 d^5-$$
$$4 i a^{10} A b c^6 d^5-18 a^9 A b^2 c^6 d^5+6 i a^8 A b^3 c^6 d^5-12 a^7 A b^4 c^6 d^5+12 i a^6 A b^5 c^6 d^5+$$
$$10 a^5 A b^6 c^6 d^5+2 i a^4 A b^7 c^6 d^5+6 a^3 A b^8 c^6 d^5-i a^{11} B c^6 d^5-5 a^{10} b B c^6 d^5-$$
$$12 i a^9 b^2 B c^6 d^5-40 a^8 b^3 B c^6 d^5-6 i a^7 b^4 B c^6 d^5-54 a^6 b^5 B c^6 d^5+8 i a^5 b^6 B c^6 d^5-$$
$$20 a^4 b^7 B c^6 d^5+3 i a^3 b^8 B c^6 d^5-a^2 b^9 B c^6 d^5+2 a^{11} c^6 C d^5+4 i a^{10} b c^6 C d^5+$$
$$18 a^9 b^2 c^6 C d^5-6 i a^8 b^3 c^6 C d^5+12 a^7 b^4 c^6 C d^5-12 i a^6 b^5 c^6 C d^5-10 a^5 b^6 c^6 C d^5-$$
$$2 i a^4 b^7 c^6 C d^5-6 a^3 b^8 c^6 C d^5+2 i a^{11} A c^5 d^6+10 a^{10} A b c^5 d^6+4 i a^9 A b^2 c^5 d^6+$$
$$24 a^8 A b^3 c^5 d^6-6 i a^7 A b^4 c^5 d^6+10 a^6 A b^5 c^5 d^6-8 i a^5 A b^6 c^5 d^6-4 a^4 A b^7 c^5 d^6+$$
$$4 i a^{10} b B c^5 d^6+14 a^9 b^2 B c^5 d^6+14 i a^8 b^3 B c^5 d^6+40 a^7 b^4 B c^5 d^6+8 i a^6 b^5 B c^5 d^6+$$
$$30 a^5 b^6 B c^5 d^6-2 i a^4 b^7 B c^5 d^6+4 a^3 b^8 B c^5 d^6-2 i a^{11} c^5 C d^6-10 a^{10} b c^5 C d^6-$$

$$4\,i\,a^9 b^2 c^5 C d^6 - 24 a^8 b^3 c^5 C d^6 + 6\,i\,a^7 b^4 c^5 C d^6 - 10 a^6 b^5 c^5 C d^6 + 8\,i\,a^5 b^6 c^5 C d^6 +$$
$$4 a^4 b^7 c^5 C d^6 - 2 a^{11} A c^4 d^7 - 6\,i\,a^{10} A b c^4 d^7 - 16 a^9 A b^2 c^4 d^7 - 4\,i\,a^8 A b^3 c^4 d^7 -$$
$$18 a^7 A b^4 c^4 d^7 + 2\,i\,a^6 A b^5 c^4 d^7 - 4 a^5 A b^6 c^4 d^7 - 10\,i\,a^9 b^2 B c^4 d^7 - 14 a^8 b^3 B c^4 d^7 -$$
$$12\,i\,a^7 b^4 B c^4 d^7 - 20 a^6 b^5 B c^4 d^7 - 2\,i\,a^5 b^6 B c^4 d^7 - 6 a^4 b^7 B c^4 d^7 + 2 a^{11} c^4 C d^7 +$$
$$6\,i\,a^{10} b c^4 C d^7 + 16 a^9 b^2 c^4 C d^7 + 4\,i\,a^8 b^3 c^4 C d^7 + 18 a^7 b^4 c^4 C d^7 - 2\,i\,a^6 b^5 c^4 C d^7 +$$
$$4 a^5 b^6 c^4 C d^7 + 2\,i\,a^{11} A c^3 d^8 + 4 a^{10} A b c^3 d^8 + 6\,i\,a^9 A b^2 c^3 d^8 + 10 a^8 A b^3 c^3 d^8 +$$
$$4\,i\,a^7 A b^4 c^3 d^8 + 6 a^6 A b^5 c^3 d^8 - a^{11} B c^3 d^8 + i\,a^{10} b B c^3 d^8 + 4\,i\,a^8 b^3 B c^3 d^8 +$$
$$5 a^7 b^4 B c^3 d^8 + 3\,i\,a^6 b^5 B c^3 d^8 + 4 a^5 b^6 B c^3 d^8 - 2\,i\,a^{11} c^3 C d^8 - 4 a^{10} b c^3 C d^8 -$$
$$6\,i\,a^9 b^2 c^3 C d^8 - 10 a^8 b^3 c^3 C d^8 - 4\,i\,a^7 b^4 c^3 C d^8 - 6 a^6 b^5 c^3 C d^8 - 2\,i\,a^{10} A b c^2 d^9 -$$
$$2 a^9 A b^2 c^2 d^9 - 2\,i\,a^8 A b^3 c^2 d^9 - 2 a^7 A b^4 c^2 d^9 + i\,a^{11} B c^2 d^9 + a^{10} b B c^2 d^9 - i\,a^7 b^4 B c^2 d^9 -$$
$$a^6 b^5 B c^2 d^9 + 2\,i\,a^{10} b c^2 C d^9 + 2 a^9 b^2 c^2 C d^9 + 2\,i\,a^8 b^3 c^2 C d^9 + 2 a^7 b^4 c^2 C d^9\Big)\ (e + f x)$$
$$\mathrm{Sec}[e + f x]^4\ (a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])^2\ (c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^2\Big) \Big/$$
$$\Big(a^2\ (a - i\,b)^4\ (a + i\,b)^3\ c^2\ (c - i\,d)^4\ (c + i\,d)^3\ (-b c + a d)^4\ f$$
$$(a + b\,\mathrm{Tan}[e + f x])^2\ (c + d\,\mathrm{Tan}[e + f x])^2\Big)\Big) -$$
$$\Big(i\ (-2 a A b^4 c + a^2 b^3 B c - b^5 B c + 2 a b^4 c C + 4 a^2 A b^3 d + 2 A b^5 d - 3 a^3 b^2 B d - a b^4 B d + 2 a^4 b C d)$$
$$\mathrm{ArcTan}[\mathrm{Tan}[e + f x]]$$
$$\mathrm{Sec}[e + f x]^4$$
$$(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])^2$$
$$(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^2\Big) \Big/$$
$$\Big((a^2 + b^2)^2\ (-b c + a d)^3\ f\ (a + b\,\mathrm{Tan}[e + f x])^2$$
$$(c + d\,\mathrm{Tan}[e + f x])^2\Big) +$$
$$\Big(i\ (-2 b c^4 C d + 3 b B c^3 d^2 - 4 A b c^2 d^3 - a B c^2 d^3 + 2 a A c d^4 + b B c d^4 - 2 a c C d^4 - 2 A b d^5 + a B d^5)$$
$$\mathrm{ArcTan}[\mathrm{Tan}[e + f x]]$$
$$\mathrm{Sec}[e + f x]^4$$
$$(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])^2$$
$$(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^2\Big) \Big/$$
$$\Big((b c - a d)^3\ (c^2 + d^2)^2\ f\ (a + b\,\mathrm{Tan}[e + f x])^2$$
$$(c + d\,\mathrm{Tan}[e + f x])^2\Big) +$$
$$\Big((-2 a A b^4 c + a^2 b^3 B c - b^5 B c + 2 a b^4 c C + 4 a^2 A b^3 d + 2 A b^5 d - 3 a^3 b^2 B d - a b^4 B d + 2 a^4 b C d)$$
$$\mathrm{Log}\big[(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])^2\big]$$
$$\mathrm{Sec}[e + f x]^4$$
$$(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])^2$$
$$(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^2\Big) \Big/$$
$$\Big(2\ (a^2 + b^2)^2\ (-b c + a d)^3\ f\ (a + b\,\mathrm{Tan}[e + f x])^2\ (c + d\,\mathrm{Tan}[e + f x])^2\Big) -$$
$$\Big((-2 b c^4 C d + 3 b B c^3 d^2 - 4 A b c^2 d^3 - a B c^2 d^3 + 2 a A c d^4 + b B c d^4 - 2 a c C d^4 - 2 A b d^5 + a B d^5)$$
$$\mathrm{Log}\big[(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^2\big]$$
$$\mathrm{Sec}[e + f x]^4\ (a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])^2$$
$$(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^2\Big) \Big/$$
$$\Big(2\ (b c - a d)^3\ (c^2 + d^2)^2\ f\ (a + b\,\mathrm{Tan}[e + f x])^2\ (c + d\,\mathrm{Tan}[e + f x])^2\Big) +$$
$$\Big(\mathrm{Sec}[e + f x]^4\ (a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])$$
$$(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])$$
$$\Big(a^2 A b^4 c^5 d + A b^6 c^5 d - a^3 b^3 B c^5 d - a b^5 B c^5 d + a^4 b^2 c^5 C d + a^2 b^4 c^5 C d + a^5 b c^4 C d^2 +$$
$$2 a^3 b^3 c^4 C d^2 + a b^5 c^4 C d^2 + 2 a^2 A b^4 c^3 d^3 + 2 A b^6 c^3 d^3 - a^5 b B c^3 d^3 - 4 a^3 b^3 B c^3 d^3 -$$

$$3 a b^5 B c^3 d^3 + 2 a^4 b^2 c^3 C d^3 + 2 a^2 b^4 c^3 C d^3 + a^5 A b c^2 d^4 + 2 a^3 A b^3 c^2 d^4 + a A b^5 c^2 d^4 +$$
$$a^5 b c^2 C d^4 + 2 a^3 b^3 c^2 C d^4 + a b^5 c^2 C d^4 + a^2 A b^4 c d^5 + A b^6 c d^5 - a^5 b B c d^5 -$$
$$3 a^3 b^3 B c d^5 - 2 a b^5 B c d^5 + a^4 b^2 c C d^5 + a^2 b^4 c C d^5 + a^5 A b d^6 + 2 a^3 A b^3 d^6 + a A b^5 d^6 +$$
$$a^4 A b^2 c^6 \left(e + f x\right) - a^2 A b^4 c^6 \left(e + f x\right) + 2 a^3 b^3 B c^6 \left(e + f x\right) - a^4 b^2 c^6 C \left(e + f x\right) +$$
$$a^2 b^4 c^6 C \left(e + f x\right) - 2 a^5 A b c^5 d \left(e + f x\right) - a^3 A b^3 c^5 d \left(e + f x\right) - a A b^5 c^5 d \left(e + f x\right) -$$
$$2 a^4 b^2 B c^5 d \left(e + f x\right) + 2 a^5 b c^5 C d \left(e + f x\right) + a^3 b^3 c^5 C d \left(e + f x\right) + a b^5 c^5 C d \left(e + f x\right) +$$
$$a^6 A c^4 d^2 \left(e + f x\right) + 4 a^4 A b^2 c^4 d^2 \left(e + f x\right) - a^2 A b^4 c^4 d^2 \left(e + f x\right) - 2 a^5 b B c^4 d^2 \left(e + f x\right) -$$
$$2 a b^5 B c^4 d^2 \left(e + f x\right) - a^6 c^4 C d^2 \left(e + f x\right) - 4 a^4 b^2 c^4 C d^2 \left(e + f x\right) + a^2 b^4 c^4 C d^2 \left(e + f x\right) -$$
$$a^5 A b c^3 d^3 \left(e + f x\right) + 4 a^3 A b^3 c^3 d^3 \left(e + f x\right) + a A b^5 c^3 d^3 \left(e + f x\right) + 2 a^6 B c^3 d^3 \left(e + f x\right) +$$
$$2 a^2 b^4 B c^3 d^3 \left(e + f x\right) + a^5 b c^3 C d^3 \left(e + f x\right) - 4 a^3 b^3 c^3 C d^3 \left(e + f x\right) - a b^5 c^3 C d^3 \left(e + f x\right) -$$
$$a^6 A c^2 d^4 \left(e + f x\right) - a^4 A b^2 c^2 d^4 \left(e + f x\right) - 2 a^2 A b^4 c^2 d^4 \left(e + f x\right) + 2 a^3 b^3 B c^2 d^4 \left(e + f x\right) +$$
$$a^6 c^2 C d^4 \left(e + f x\right) + a^4 b^2 c^2 C d^4 \left(e + f x\right) + 2 a^2 b^4 c^2 C d^4 \left(e + f x\right) - a^5 A b c d^5 \left(e + f x\right) +$$
$$a^3 A b^3 c d^5 \left(e + f x\right) - 2 a^4 b^2 B c d^5 \left(e + f x\right) + a^5 b c C d^5 \left(e + f x\right) - a^3 b^3 c C d^5 \left(e + f x\right) -$$
$$a^2 A b^4 c^5 d \operatorname{Cos}\left[2 \left(e + f x\right)\right] - A b^6 c^5 d \operatorname{Cos}\left[2 \left(e + f x\right)\right] + a^3 b^3 B c^5 d \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$a b^5 B c^5 d \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^4 b^2 c^5 C d \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^2 b^4 c^5 C d \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a^5 b c^4 C d^2 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 a^3 b^3 c^4 C d^2 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a b^5 c^4 C d^2 \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$2 a^2 A b^4 c^3 d^3 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 A b^6 c^3 d^3 \operatorname{Cos}\left[2 \left(e + f x\right)\right] + a^5 b B c^3 d^3 \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$4 a^3 b^3 B c^3 d^3 \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 3 a b^5 B c^3 d^3 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 a^4 b^2 c^3 C d^3 \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$2 a^2 b^4 c^3 C d^3 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^5 A b c^2 d^4 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 a^3 A b^3 c^2 d^4 \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a A b^5 c^2 d^4 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^5 b c^2 C d^4 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 a^3 b^3 c^2 C d^4 \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a b^5 c^2 C d^4 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^2 A b^4 c d^5 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - A b^6 c d^5 \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$a^5 b B c d^5 \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 3 a^3 b^3 B c d^5 \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 2 a b^5 B c d^5 \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a^4 b^2 c C d^5 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^2 b^4 c C d^5 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^5 A b d^6 \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$2 a^3 A b^3 d^6 \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a A b^5 d^6 \operatorname{Cos}\left[2 \left(e + f x\right)\right] + a^4 A b^2 c^6 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a^2 A b^4 c^6 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 2 a^3 b^3 B c^6 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a^4 b^2 c^6 C \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + a^2 b^4 c^6 C \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$2 a^5 A b c^5 d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 3 a^3 A b^3 c^5 d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$a A b^5 c^5 d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 a^4 b^2 B c^5 d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$4 a^2 b^4 B c^5 d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 2 a^5 b c^5 C d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$3 a^3 b^3 c^5 C d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a b^5 c^5 C d \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$a^6 A c^4 d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 8 a^4 A b^2 c^4 d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$3 a^2 A b^4 c^4 d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 a^5 b B c^4 d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$4 a^3 b^3 B c^4 d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 2 a b^5 B c^4 d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a^6 c^4 C d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 8 a^4 b^2 c^4 C d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$3 a^2 b^4 c^4 C d^2 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 3 a^5 A b c^3 d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$8 a^3 A b^3 c^3 d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a A b^5 c^3 d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$2 a^6 B c^3 d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 4 a^4 b^2 B c^3 d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$2 a^2 b^4 B c^3 d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 3 a^5 b c^3 C d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$8 a^3 b^3 c^3 C d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + a b^5 c^3 C d^3 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$a^6 A c^2 d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + 3 a^4 A b^2 c^2 d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$2 a^2 A b^4 c^2 d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 4 a^5 b B c^2 d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$2 a^3 b^3 B c^2 d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + a^6 c^2 C d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] -$$
$$3 a^4 b^2 c^2 C d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - 2 a^2 b^4 c^2 C d^4 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$a^5 A b c d^5 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^3 A b^3 c d^5 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$2 a^4 b^2 B c d^5 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] - a^5 b c C d^5 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] +$$
$$a^3 b^3 c C d^5 \left(e + f x\right) \operatorname{Cos}\left[2 \left(e + f x\right)\right] + a^2 A b^4 c^6 \operatorname{Sin}\left[2 \left(e + f x\right)\right] +$$
$$A b^6 c^6 \operatorname{Sin}\left[2 \left(e + f x\right)\right] - a^3 b^3 B c^6 \operatorname{Sin}\left[2 \left(e + f x\right)\right] - a b^5 B c^6 \operatorname{Sin}\left[2 \left(e + f x\right)\right] +$$

$$
\begin{aligned}
& a^4 b^2 c^6 C \,\text{Sin}[2 (e+f x)] + a^2 b^4 c^6 C \,\text{Sin}[2 (e+f x)] + 2 a^2 A b^4 c^4 d^2 \,\text{Sin}[2 (e+f x)] + \\
& 2 A b^6 c^4 d^2 \,\text{Sin}[2 (e+f x)] - 2 a^3 b^3 B c^4 d^2 \,\text{Sin}[2 (e+f x)] - 2 a b^5 B c^4 d^2 \,\text{Sin}[2 (e+f x)] + \\
& a^6 c^4 C d^2 \,\text{Sin}[2 (e+f x)] + 4 a^4 b^2 c^4 C d^2 \,\text{Sin}[2 (e+f x)] + 3 a^2 b^4 c^4 C d^2 \,\text{Sin}[2 (e+f x)] - \\
& a^6 B c^3 d^3 \,\text{Sin}[2 (e+f x)] - 2 a^4 b^2 B c^3 d^3 \,\text{Sin}[2 (e+f x)] - a^2 b^4 B c^3 d^3 \,\text{Sin}[2 (e+f x)] + \\
& a^6 A c^2 d^4 \,\text{Sin}[2 (e+f x)] + 2 a^4 A b^2 c^2 d^4 \,\text{Sin}[2 (e+f x)] + 2 a^2 A b^4 c^2 d^4 \,\text{Sin}[2 (e+f x)] + \\
& A b^6 c^2 d^4 \,\text{Sin}[2 (e+f x)] - a^3 b^3 B c^2 d^4 \,\text{Sin}[2 (e+f x)] - a b^5 B c^2 d^4 \,\text{Sin}[2 (e+f x)] + \\
& a^6 c^2 C d^4 \,\text{Sin}[2 (e+f x)] + 3 a^4 b^2 c^2 C d^4 \,\text{Sin}[2 (e+f x)] + 2 a^2 b^4 c^2 C d^4 \,\text{Sin}[2 (e+f x)] - \\
& a^6 B c d^5 \,\text{Sin}[2 (e+f x)] - 2 a^4 b^2 B c d^5 \,\text{Sin}[2 (e+f x)] - a^2 b^4 B c d^5 \,\text{Sin}[2 (e+f x)] + \\
& a^6 A d^6 \,\text{Sin}[2 (e+f x)] + 2 a^4 A b^2 d^6 \,\text{Sin}[2 (e+f x)] + a^2 A b^4 d^6 \,\text{Sin}[2 (e+f x)] + \\
& a^3 A b^3 c^6 (e+f x) \,\text{Sin}[2 (e+f x)] - a A b^5 c^6 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& 2 a^2 b^4 B c^6 (e+f x) \,\text{Sin}[2 (e+f x)] - a^3 b^3 c^6 C (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& a b^5 c^6 C (e+f x) \,\text{Sin}[2 (e+f x)] - a^4 A b^2 c^5 d (e+f x) \,\text{Sin}[2 (e+f x)] - \\
& 3 a^2 A b^4 c^5 d (e+f x) \,\text{Sin}[2 (e+f x)] - 2 a b^5 B c^5 d (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& a^4 b^2 c^5 C d (e+f x) \,\text{Sin}[2 (e+f x)] + 3 a^2 b^4 c^5 C d (e+f x) \,\text{Sin}[2 (e+f x)] - \\
& a^5 A b c^4 d^2 (e+f x) \,\text{Sin}[2 (e+f x)] + 4 a^3 A b^3 c^4 d^2 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& a A b^5 c^4 d^2 (e+f x) \,\text{Sin}[2 (e+f x)] - 4 a^4 b^2 B c^4 d^2 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& a^5 b c^4 C d^2 (e+f x) \,\text{Sin}[2 (e+f x)] - 4 a^3 b^3 c^4 C d^2 (e+f x) \,\text{Sin}[2 (e+f x)] - \\
& a b^5 c^4 C d^2 (e+f x) \,\text{Sin}[2 (e+f x)] + a^6 A c^3 d^3 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& 4 a^4 A b^2 c^3 d^3 (e+f x) \,\text{Sin}[2 (e+f x)] - a^2 A b^4 c^3 d^3 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& 4 a^3 b^3 B c^3 d^3 (e+f x) \,\text{Sin}[2 (e+f x)] - a^6 c^3 C d^3 (e+f x) \,\text{Sin}[2 (e+f x)] - \\
& 4 a^4 b^2 c^3 C d^3 (e+f x) \,\text{Sin}[2 (e+f x)] + a^2 b^4 c^3 C d^3 (e+f x) \,\text{Sin}[2 (e+f x)] - \\
& 3 a^5 A b c^2 d^4 (e+f x) \,\text{Sin}[2 (e+f x)] - a^3 A b^3 c^2 d^4 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& 2 a^6 B c^2 d^4 (e+f x) \,\text{Sin}[2 (e+f x)] + 3 a^5 b c^2 C d^4 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& a^3 b^3 c^2 C d^4 (e+f x) \,\text{Sin}[2 (e+f x)] - a^6 A c d^5 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& a^4 A b^2 c d^5 (e+f x) \,\text{Sin}[2 (e+f x)] - 2 a^5 b B c d^5 (e+f x) \,\text{Sin}[2 (e+f x)] + \\
& a^6 c C d^5 (e+f x) \,\text{Sin}[2 (e+f x)] - a^4 b^2 c C d^5 (e+f x) \,\text{Sin}[2 (e+f x)])) \Big/ \\
& \Big(2 a (a - i b)^2 (a + i b)^2 c (c - i d)^2 (c + i d)^2 (-b c + a d)^2 f \\
& \quad (a + b \,\text{Tan}[e+f x])^2 (c + d \,\text{Tan}[e+f x])^2\Big)
\end{aligned}
$$

Problem 83: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$
\int \frac{A + B \,\text{Tan}[e+f x] + C \,\text{Tan}[e+f x]^2}{(a + b \,\text{Tan}[e+f x])^3 (c + d \,\text{Tan}[e+f x])^2} \, dx
$$

Optimal (type 3, 841 leaves, 6 steps):

$$-\left(\left(\left(a^3\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)-3 a b^2\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)+3 a^2 b\right.\right.\right.$$
$$\left.\left.\left.\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)-b^3\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)\right) x\right) \Big/ \left(\left(a^2+b^2\right)^3\left(c^2+d^2\right)^2\right)\right)-$$
$$\left(b\left(6 a^5 b B d^2-3 a^6 C d^2-a^4 b^2 d\left(4 B c+(10 A-C) d\right)-b^6\left(c(c C-2 B d)-A\left(c^2-3 d^2\right)\right)+\right.\right.$$
$$a b^5\left(2 c(A-C) d-B\left(3 c^2-d^2\right)\right)+3 a^2 b^4\left(c(c C+2 B d)-A\left(c^2+3 d^2\right)\right)+$$
$$\left.a^3 b^3\left(10 c(A-C) d+B\left(c^2+3 d^2\right)\right)\right)$$
$$\left.\mathrm{Log}[a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x]]\right) \Big/ \left(\left(a^2+b^2\right)^3(b c-a d)^4 f\right)-$$
$$\left(d^2\left(b\left(3 c^4 C-4 B c^3 d+c^2(5 A+C) d^2-2 B c d^3+3 A d^4\right)-a d^2\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)\right)\right.$$
$$\left.\mathrm{Log}[c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x]]\right) \Big/ \left((b c-a d)^4\left(c^2+d^2\right)^2 f\right)-$$
$$\left(d\left(3 a^3 b B d\left(c^2+d^2\right)+a b^3(2 A c-2 c C+B d)\left(c^2+d^2\right)-a^4 d\left(3 c^2 C-B c d+(A+2 C) d^2\right)-\right.\right.$$
$$\left.\left.a^2 b^2\left(B c^3+4 A c^2 d+2 c^2 C d-B c d^2+6 A d^3\right)-b^4\left(d\left(2 A c^2+c^2 C+3 A d^2\right)-B\left(c^3+2 c d^2\right)\right)\right)\right) \Big/$$
$$\left(\left(a^2+b^2\right)^2(b c-a d)^3\left(c^2+d^2\right) f(c+d \mathrm{Tan}[e+f x])\right)-$$
$$\frac{A b^2-a(b B-a C)}{2\left(a^2+b^2\right)(b c-a d) f(a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])}-$$
$$\left(5 a^3 b B d-3 a^4 C d+b^4(2 B c-3 A d)+a b^3(4 A c-4 c C+B d)-a^2 b^2\left(2 B c+(7 A-C) d\right)\right) \Big/$$
$$\left(2\left(a^2+b^2\right)^2(b c-a d)^2 f(a+b \mathrm{Tan}[e+f x])(c+d \mathrm{Tan}[e+f x])\right)$$

Result (type 3, 7873 leaves):

$$\left(\left(-A b^5+a b^4 B-a^2 b^3 C\right) \mathrm{Sec}[e+f x]^5\right.$$
$$\left.(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2\right) \Big/$$
$$\left(2(a-i b)^2(a+i b)^2(-b c+a d)^2 f(a+b \mathrm{Tan}[e+f x])^3(c+d \mathrm{Tan}[e+f x])^2\right)+$$
$$\left(\left(a^3 A c^2-3 a A b^2 c^2+3 a^2 b B c^2-b^3 B c^2-a^3 c^2 C+3 a b^2 c^2 C-6 a^2 A b c d+2 A b^3 c d+2 a^3 B c d-\right.\right.$$
$$\left.6 a b^2 B c d+6 a^2 b c C d-2 b^3 c C d-a^3 A d^2+3 a A b^2 d^2-3 a^2 b B d^2+b^3 B d^2+a^3 C d^2-3 a b^2 C d^2\right)$$
$$\left.(e+f x) \mathrm{Sec}[e+f x]^5(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^3(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^2\right) \Big/$$
$$\left((a-i b)^3(a+i b)^3(c-i d)^2(c+i d)^2 f(a+b \mathrm{Tan}[e+f x])^3(c+d \mathrm{Tan}[e+f x])^2\right)+$$
$$\left(\left(3 a^9 A b^7 c^{13}-3 i a^8 A b^8 c^{13}+5 a^7 A b^9 c^{13}-5 i a^6 A b^{10} c^{13}+a^5 A b^{11} c^{13}-i a^4 A b^{12} c^{13}-a^3 A b^{13} c^{13}+\right.\right.$$
$$i a^2 A b^{14} c^{13}-a^{10} b^6 B c^{13}+i a^9 b^7 B c^{13}+a^8 b^8 B c^{13}-i a^7 b^9 B c^{13}+5 a^6 b^{10} B c^{13}-$$
$$5 i a^5 b^{11} B c^{13}+3 a^4 b^{12} B c^{13}-3 i a^3 b^{13} B c^{13}-3 a^9 b^7 c^{13} C+3 i a^8 b^8 c^{13} C-5 a^7 b^9 c^{13} C+$$
$$5 i a^6 b^{10} c^{13} C-a^5 b^{11} c^{13} C+i a^4 b^{12} c^{13} C+a^3 b^{13} c^{13} C-i a^2 b^{14} c^{13} C-16 a^{10} A b^6 c^{12} d+$$
$$13 i a^9 A b^7 c^{12} d-35 a^8 A b^8 c^{12} d+27 i a^7 A b^9 c^{12} d-21 a^6 A b^{10} c^{12} d+15 i a^5 A b^{11} c^{12} d-$$
$$a^4 A b^{12} c^{12} d+i a^3 A b^{13} c^{12} d+a^2 A b^{14} c^{12} d+6 a^{11} b^5 B c^{12} d-5 i a^{10} b^6 B c^{12} d+a^9 b^7 B c^{12} d-$$
$$i a^8 b^8 B c^{12} d-21 a^7 b^9 B c^{12} d+15 i a^6 b^{10} B c^{12} d-21 a^5 b^{11} B c^{12} d+13 i a^4 b^{12} B c^{12} d-$$
$$5 a^3 b^{13} B c^{12} d+2 i a^2 b^{14} B c^{12} d+16 a^{10} b^6 c^{12} C d-13 i a^9 b^7 c^{12} C d+35 a^8 b^8 c^{12} C d-$$
$$27 i a^7 b^9 c^{12} C d+21 a^6 b^{10} c^{12} C d-15 i a^5 b^{11} c^{12} C d+a^4 b^{12} c^{12} C d-i a^3 b^{13} c^{12} C d-$$
$$a^2 b^{14} c^{12} C d+33 a^{11} A b^5 c^{11} d^2-17 i a^{10} A b^6 c^{11} d^2+103 a^9 A b^7 c^{11} d^2-55 i a^8 A b^8 c^{11} d^2+$$
$$107 a^7 A b^9 c^{11} d^2-59 i a^6 A b^{10} c^{11} d^2+37 a^5 A b^{11} c^{11} d^2-21 i a^4 A b^{12} c^{11} d^2-15 a^{12} b^4 B c^{11} d^2+$$
$$9 i a^{11} b^5 B c^{11} d^2-27 a^{10} b^6 B c^{11} d^2+21 i a^9 b^7 B c^{11} d^2+15 a^8 b^8 B c^{11} d^2+5 i a^7 b^9 B c^{11} d^2+$$
$$53 a^6 b^{10} B c^{11} d^2-17 i a^5 b^{11} B c^{11} d^2+28 a^4 b^{12} B c^{11} d^2-10 i a^3 b^{13} B c^{11} d^2+2 a^2 b^{14} B c^{11} d^2-$$
$$33 a^{11} b^5 c^{11} C d^2+17 i a^{10} b^6 c^{11} C d^2-103 a^9 b^7 c^{11} C d^2+55 i a^8 b^8 c^{11} C d^2-107 a^7 b^9 c^{11} C d^2+$$
$$59 i a^6 b^{10} c^{11} C d^2-37 a^5 b^{11} c^{11} C d^2+21 i a^4 b^{12} c^{11} C d^2-30 a^{12} A b^4 c^{10} d^3-3 i a^{11} A b^5 c^{10} d^3-$$
$$161 a^{10} A b^6 c^{10} d^3+41 i a^9 A b^7 c^{10} d^3-259 a^8 A b^8 c^{10} d^3+97 i a^7 A b^9 c^{10} d^3-155 a^6 A b^{10} c^{10} d^3+$$
$$59 i a^5 A b^{11} c^{10} d^3-27 a^4 A b^{12} c^{10} d^3+6 i a^3 A b^{13} c^{10} d^3+20 a^{13} b^3 B c^{10} d^3-5 i a^{12} b^4 B c^{10} d^3+$$
$$85 a^{11} b^5 B c^{10} d^3-49 i a^{10} b^6 B c^{10} d^3+77 a^9 b^7 B c^{10} d^3-71 i a^8 b^8 B c^{10} d^3-35 a^7 b^9 B c^{10} d^3-$$
$$13 i a^6 b^{10} B c^{10} d^3-61 a^5 b^{11} B c^{10} d^3+16 i a^4 b^{12} B c^{10} d^3-14 a^3 b^{13} B c^{10} d^3+2 i a^2 b^{14} B c^{10} d^3+$$

$30 a^{12} b^4 c^{10} C d^3 + 3 i a^{11} b^5 c^{10} C d^3 + 161 a^{10} b^6 c^{10} C d^3 - 41 i a^9 b^7 c^{10} C d^3 + 259 a^8 b^8 c^{10} C d^3 -$
$97 i a^7 b^9 c^{10} C d^3 + 155 a^6 b^{10} c^{10} C d^3 - 59 i a^5 b^{11} c^{10} C d^3 + 27 a^4 b^{12} c^{10} C d^3 - 6 i a^3 b^{13} c^{10} C d^3 +$
$5 a^{13} A b^3 c^9 d^4 + 25 i a^{12} A b^4 c^9 d^4 + 133 a^{11} A b^5 c^9 d^4 + 25 i a^{10} A b^6 c^9 d^4 + 352 a^9 A b^7 c^9 d^4 -$
$52 i a^8 A b^8 c^9 d^4 + 332 a^7 A b^9 c^9 d^4 - 80 i a^6 A b^{10} c^9 d^4 + 115 a^5 A b^{11} c^9 d^4 - 29 i a^4 A b^{12} c^9 d^4 +$
$7 a^3 A b^{13} c^9 d^4 - i a^2 A b^{14} c^9 d^4 - 15 a^{14} b^2 B c^9 d^4 - 5 i a^{13} b^3 B c^9 d^4 - 125 a^{12} b^4 B c^9 d^4 +$
$35 i a^{11} b^5 B c^9 d^4 - 230 a^{10} b^6 B c^9 d^4 + 104 i a^9 b^7 B c^9 d^4 - 112 a^8 b^8 B c^9 d^4 + 76 i a^7 b^9 B c^9 d^4 +$
$43 a^6 b^{10} B c^9 d^4 + 5 i a^5 b^{11} B c^9 d^4 + 37 a^4 b^{12} B c^9 d^4 - 7 i a^3 b^{13} B c^9 d^4 + 2 a^2 b^{14} B c^9 d^4 -$
$5 a^{13} b^3 c^9 C d^4 - 25 i a^{12} b^4 c^9 C d^4 - 133 a^{11} b^5 c^9 C d^4 - 25 i a^{10} b^6 c^9 C d^4 - 352 a^9 b^7 c^9 C d^4 +$
$52 i a^8 b^8 c^9 C d^4 - 332 a^7 b^9 c^9 C d^4 + 80 i a^6 b^{10} c^9 C d^4 - 115 a^5 b^{11} c^9 C d^4 + 29 i a^4 b^{12} c^9 C d^4 -$
$7 a^3 b^{13} c^9 C d^4 + i a^2 b^{14} c^9 C d^4 + 12 a^{14} A b^2 c^8 d^5 - 17 i a^{13} A b^3 c^8 d^5 - 35 a^{12} A b^4 c^8 d^5 -$
$73 i a^{11} A b^5 c^8 d^5 - 271 a^{10} A b^6 c^8 d^5 - 56 i a^9 A b^7 c^8 d^5 - 428 a^8 A b^8 c^8 d^5 + 44 i a^7 A b^9 c^8 d^5 -$
$244 a^6 A b^{10} c^8 d^5 + 49 i a^5 A b^{11} c^8 d^5 - 41 a^4 A b^{12} c^8 d^5 + 5 i a^3 A b^{13} c^8 d^5 - a^2 A b^{14} c^8 d^5 +$
$6 a^{15} b B c^8 d^5 + 9 i a^{14} b^2 B c^8 d^5 + 99 a^{13} b^3 B c^8 d^5 + 21 i a^{12} b^4 B c^8 d^5 + 309 a^{11} b^5 B c^8 d^5 -$
$44 i a^{10} b^6 B c^8 d^5 + 328 a^9 b^7 B c^8 d^5 - 112 i a^8 b^8 B c^8 d^5 + 86 a^7 b^9 B c^8 d^5 - 53 i a^6 b^{10} B c^8 d^5 -$
$35 a^5 b^{11} B c^8 d^5 + 3 i a^4 b^{12} B c^8 d^5 - 9 a^3 b^{13} B c^8 d^5 - 12 a^{14} b^2 c^8 C d^5 + 17 i a^{13} b^3 c^8 C d^5 +$
$35 a^{12} b^4 c^8 C d^5 + 73 i a^{11} b^5 c^8 C d^5 + 271 a^{10} b^6 c^8 C d^5 + 56 i a^9 b^7 c^8 C d^5 + 428 a^8 b^8 c^8 C d^5 -$
$44 i a^7 b^9 c^8 C d^5 + 244 a^6 b^{10} c^8 C d^5 - 49 i a^5 b^{11} c^8 C d^5 + 41 a^4 b^{12} c^8 C d^5 - 5 i a^3 b^{13} c^8 C d^5 +$
$a^2 b^{14} c^8 C d^5 - 9 a^{15} A b c^7 d^6 - 3 i a^{14} A b^2 c^7 d^6 - 35 a^{13} A b^3 c^7 d^6 + 53 i a^{12} A b^4 c^7 d^6 +$
$86 a^{11} A b^5 c^7 d^6 + 112 i a^{10} A b^6 c^7 d^6 + 328 a^9 A b^7 c^7 d^6 + 44 i a^8 A b^8 c^7 d^6 + 309 a^7 A b^9 c^7 d^6 -$
$21 i a^6 A b^{10} c^7 d^6 + 99 a^5 A b^{11} c^7 d^6 - 9 i a^4 A b^{12} c^7 d^6 + 6 a^3 A b^{13} c^7 d^6 - a^{16} B c^7 d^6 -$
$5 i a^{15} b B c^7 d^6 - 41 a^{14} b^2 B c^7 d^6 - 49 i a^{13} b^3 B c^7 d^6 - 244 a^{12} b^4 B c^7 d^6 - 44 i a^{11} b^5 B c^7 d^6 -$
$428 a^{10} b^6 B c^7 d^6 + 56 i a^9 b^7 B c^7 d^6 - 271 a^8 b^8 B c^7 d^6 + 73 i a^7 b^9 B c^7 d^6 - 35 a^6 b^{10} B c^7 d^6 +$
$17 i a^5 b^{11} B c^7 d^6 + 12 a^4 b^{12} B c^7 d^6 + 9 a^{15} b c^7 C d^6 + 3 i a^{14} b^2 c^7 C d^6 + 35 a^{13} b^3 c^7 C d^6 -$
$53 i a^{12} b^4 c^7 C d^6 - 86 a^{11} b^5 c^7 C d^6 - 112 i a^{10} b^6 c^7 C d^6 - 328 a^9 b^7 c^7 C d^6 - 44 i a^8 b^8 c^7 C d^6 -$
$309 a^7 b^9 c^7 C d^6 + 21 i a^6 b^{10} c^7 C d^6 - 99 a^5 b^{11} c^7 C d^6 + 9 i a^4 b^{12} c^7 C d^6 - 6 a^3 b^{13} c^7 C d^6 +$
$2 a^{16} A c^6 d^7 + 7 i a^{15} A b c^6 d^7 + 37 a^{14} A b^2 c^6 d^7 - 5 i a^{13} A b^3 c^6 d^7 + 43 a^{12} A b^4 c^6 d^7 -$
$76 i a^{11} A b^5 c^6 d^7 - 112 a^{10} A b^6 c^6 d^7 - 104 i a^9 A b^7 c^6 d^7 - 230 a^8 A b^8 c^6 d^7 - 35 i a^7 A b^9 c^6 d^7 -$
$125 a^6 A b^{10} c^6 d^7 + 5 i a^5 A b^{11} c^6 d^7 - 15 a^4 A b^{12} c^6 d^7 + i a^{16} B c^6 d^7 + 7 a^{15} b B c^6 d^7 +$
$29 i a^{14} b^2 B c^6 d^7 + 115 a^{13} b^3 B c^6 d^7 + 80 i a^{12} b^4 B c^6 d^7 + 332 a^{11} b^5 B c^6 d^7 + 52 i a^{10} b^6 B c^6 d^7 +$
$352 a^9 b^7 B c^6 d^7 - 25 i a^8 b^8 B c^6 d^7 + 133 a^7 b^9 B c^6 d^7 - 25 i a^6 b^{10} B c^6 d^7 + 5 a^5 b^{11} B c^6 d^7 -$
$2 a^{16} c^6 C d^7 - 7 i a^{15} b c^6 C d^7 - 37 a^{14} b^2 c^6 C d^7 + 5 i a^{13} b^3 c^6 C d^7 - 43 a^{12} b^4 c^6 C d^7 +$
$76 i a^{11} b^5 c^6 C d^7 + 112 a^{10} b^6 c^6 C d^7 + 104 i a^9 b^7 c^6 C d^7 + 230 a^8 b^8 c^6 C d^7 + 35 i a^7 b^9 c^6 C d^7 +$
$125 a^6 b^{10} c^6 C d^7 - 5 i a^5 b^{11} c^6 C d^7 + 15 a^4 b^{12} c^6 C d^7 - 2 i a^{16} A c^5 d^8 - 14 a^{15} A b c^5 d^8 -$
$16 i a^{14} A b^2 c^5 d^8 - 61 a^{13} A b^3 c^5 d^8 + 13 i a^{12} A b^4 c^5 d^8 - 35 a^{11} A b^5 c^5 d^8 + 71 i a^{10} A b^6 c^5 d^8 +$
$77 a^9 A b^7 c^5 d^8 + 49 i a^8 A b^8 c^5 d^8 + 85 a^7 A b^9 c^5 d^8 + 5 i a^6 A b^{10} c^5 d^8 + 20 a^5 A b^{11} c^5 d^8 -$
$6 i a^{15} b B c^5 d^8 - 27 a^{14} b^2 B c^5 d^8 - 59 i a^{13} b^3 B c^5 d^8 - 155 a^{12} b^4 B c^5 d^8 - 97 i a^{11} b^5 B c^5 d^8 -$
$259 a^{10} b^6 B c^5 d^8 - 41 i a^9 b^7 B c^5 d^8 - 161 a^8 b^8 B c^5 d^8 + 3 i a^7 b^9 B c^5 d^8 - 30 a^6 b^{10} B c^5 d^8 +$
$2 i a^{16} c^5 C d^8 + 14 a^{15} b c^5 C d^8 + 16 i a^{14} b^2 c^5 C d^8 + 61 a^{13} b^3 c^5 C d^8 - 13 i a^{12} b^4 c^5 C d^8 +$
$35 a^{11} b^5 c^5 C d^8 - 71 i a^{10} b^6 c^5 C d^8 - 77 a^9 b^7 c^5 C d^8 - 49 i a^8 b^8 c^5 C d^8 - 85 a^7 b^9 c^5 C d^8 -$
$5 i a^6 b^{10} c^5 C d^8 - 20 a^5 b^{11} c^5 C d^8 + 2 a^{16} A c^4 d^9 + 10 i a^{15} A b c^4 d^9 + 28 a^{14} A b^2 c^4 d^9 +$
$17 i a^{13} A b^3 c^4 d^9 + 53 a^{12} A b^4 c^4 d^9 - 5 i a^{11} A b^5 c^4 d^9 + 15 a^{10} A b^6 c^4 d^9 - 21 i a^9 A b^7 c^4 d^9 -$
$27 a^8 A b^8 c^4 d^9 - 9 i a^7 A b^9 c^4 d^9 - 15 a^6 A b^{10} c^4 d^9 + 21 i a^{14} b^2 B c^4 d^9 + 37 a^{13} b^3 B c^4 d^9 +$
$59 i a^{12} b^4 B c^4 d^9 + 107 a^{11} b^5 B c^4 d^9 + 55 i a^{10} b^6 B c^4 d^9 + 103 a^9 b^7 B c^4 d^9 + 17 i a^8 b^8 B c^4 d^9 +$
$33 a^7 b^9 B c^4 d^9 - 2 a^{16} c^4 C d^9 - 10 i a^{15} b c^4 C d^9 - 28 a^{14} b^2 c^4 C d^9 - 17 i a^{13} b^3 c^4 C d^9 -$
$53 a^{12} b^4 c^4 C d^9 + 5 i a^{11} b^5 c^4 C d^9 - 15 a^{10} b^6 c^4 C d^9 + 21 i a^9 b^7 c^4 C d^9 + 27 a^8 b^8 c^4 C d^9 +$
$9 i a^7 b^9 c^4 C d^9 + 15 a^6 b^{10} c^4 C d^9 - 2 i a^{16} A c^3 d^{10} - 5 a^{15} A b c^3 d^{10} - 13 i a^{14} A b^2 c^3 d^{10} -$
$21 a^{13} A b^3 c^3 d^{10} - 15 i a^{12} A b^4 c^3 d^{10} - 21 a^{11} A b^5 c^3 d^{10} + i a^{10} A b^6 c^3 d^{10} + a^9 A b^7 c^3 d^{10} +$
$5 i a^8 A b^8 c^3 d^{10} + 6 a^7 A b^9 c^3 d^{10} + a^{16} B c^3 d^{10} - i a^{15} b B c^3 d^{10} - a^{14} b^2 B c^3 d^{10} -$
$15 i a^{13} b^3 B c^3 d^{10} - 21 a^{12} b^4 B c^3 d^{10} - 27 i a^{11} b^5 B c^3 d^{10} - 35 a^{10} b^6 B c^3 d^{10} - 13 i a^9 b^7 B c^3 d^{10} -$
$16 a^8 b^8 B c^3 d^{10} + 2 i a^{16} c^3 C d^{10} + 5 a^{15} b c^3 C d^{10} + 13 i a^{14} b^2 c^3 C d^{10} + 21 a^{13} b^3 c^3 C d^{10} +$
$15 i a^{12} b^4 c^3 C d^{10} + 21 a^{11} b^5 c^3 C d^{10} - i a^{10} b^6 c^3 C d^{10} - a^9 b^7 c^3 C d^{10} - 5 i a^8 b^8 c^3 C d^{10} -$

$$6 a^7 b^9 c^3 C d^{10} + 3 i a^{15} A b c^2 d^{11} + 3 a^{14} A b^2 c^2 d^{11} + 5 i a^{13} A b^3 c^2 d^{11} + 5 a^{12} A b^4 c^2 d^{11} + i a^{11} A b^5 c^2 d^{11} + a^{10} A b^6 c^2 d^{11} - i a^9 A b^7 c^2 d^{11} - a^8 A b^8 c^2 d^{11} - i a^{16} B c^2 d^{11} - a^{15} b B c^2 d^{11} + i a^{14} b^2 B c^2 d^{11} + a^{13} b^3 B c^2 d^{11} + 5 i a^{12} b^4 B c^2 d^{11} + 5 a^{11} b^5 B c^2 d^{11} + 3 i a^{10} b^6 B c^2 d^{11} + 3 a^9 b^7 B c^2 d^{11} - 3 i a^{15} b c^2 C d^{11} - 3 a^{14} b^2 c^2 C d^{11} - 5 i a^{13} b^3 c^2 C d^{11} - 5 a^{12} b^4 c^2 C d^{11} - i a^{11} b^5 c^2 C d^{11} - a^{10} b^6 c^2 C d^{11} + i a^9 b^7 c^2 C d^{11} + a^8 b^8 c^2 C d^{11}\Big) (e + f x)$$

$$\text{Sec}[e+fx]^5 (a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^3 (c \text{Cos}[e+fx] + d \text{Sin}[e+fx])^2\Big) \Big/ \Big(a^2 (i a - b)^3 (a - i b)^6 (a + i b)^2 c^2 (c - i d)^4 (c + i d)^3 (-b c + a d)^6 f (a + b \text{Tan}[e+fx])^3 (c + d \text{Tan}[e+fx])^2\Big) -$$

$$\frac{1}{(a^2+b^2)^3 (-b c + a d)^4 f (a + b \text{Tan}[e+fx])^3 (c + d \text{Tan}[e+fx])^2} i \big(3 a^2 A b^5 c^2 - A b^7 c^2 - a^3 b^4 B c^2 + 3 a b^6 B c^2 - 3 a^2 b^5 c^2 C + b^7 c^2 C - 10 a^3 A b^4 c d - 2 a A b^6 c d + 4 a^4 b^3 B c d - 6 a^2 b^5 B c d - 2 b^7 B c d + 10 a^3 b^4 c C d + 2 a b^6 c C d + 10 a^4 A b^3 d^2 + 9 a^2 A b^5 d^2 + 3 A b^7 d^2 - 6 a^5 b^2 B d^2 - 3 a^3 b^4 B d^2 - a b^6 B d^2 + 3 a^6 b C d^2 - a^4 b^3 C d^2\big) \text{ArcTan}[\text{Tan}[e+fx]] \text{Sec}[e+fx]^5 (a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^3 (c \text{Cos}[e+fx] + d \text{Sin}[e+fx])^2 -$$

$$\Big(i \big(-3 b c^4 C d^2 + 4 b B c^3 d^3 - 5 A b c^2 d^4 - a B c^2 d^4 - b c^2 C d^4 + 2 a A c d^5 + 2 b B c d^5 - 2 a c C d^5 - 3 A b d^6 + a B d^6\big) \text{ArcTan}[\text{Tan}[e+fx]] \text{Sec}[e+fx]^5 (a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^3 (c \text{Cos}[e+fx] + d \text{Sin}[e+fx])^2\Big) \Big/ \Big((b c - a d)^4 (c^2+d^2)^2 f (a + b \text{Tan}[e+fx])^3 (c + d \text{Tan}[e+fx])^2\Big) +$$

$$\frac{1}{2 (a^2+b^2)^3 (-b c + a d)^4 f (a + b \text{Tan}[e+fx])^3 (c + d \text{Tan}[e+fx])^2} \big(3 a^2 A b^5 c^2 - A b^7 c^2 - a^3 b^4 B c^2 + 3 a b^6 B c^2 - 3 a^2 b^5 c^2 C + b^7 c^2 C - 10 a^3 A b^4 c d - 2 a A b^6 c d + 4 a^4 b^3 B c d - 6 a^2 b^5 B c d - 2 b^7 B c d + 10 a^3 b^4 c C d + 2 a b^6 c C d + 10 a^4 A b^3 d^2 + 9 a^2 A b^5 d^2 + 3 A b^7 d^2 - 6 a^5 b^2 B d^2 - 3 a^3 b^4 B d^2 - a b^6 B d^2 + 3 a^6 b C d^2 - a^4 b^3 C d^2\big) \text{Log}\big[(a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^2\big] \text{Sec}[e+fx]^5 (a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^3 (c \text{Cos}[e+fx] + d \text{Sin}[e+fx])^2 +$$

$$\Big(\big(-3 b c^4 C d^2 + 4 b B c^3 d^3 - 5 A b c^2 d^4 - a B c^2 d^4 - b c^2 C d^4 + 2 a A c d^5 + 2 b B c d^5 - 2 a c C d^5 - 3 A b d^6 + a B d^6\big) \text{Log}\big[(c \text{Cos}[e+fx] + d \text{Sin}[e+fx])^2\big] \text{Sec}[e+fx]^5 (a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^3 (c \text{Cos}[e+fx] + d \text{Sin}[e+fx])^2\Big) \Big/ \Big(2 (b c - a d)^4 (c^2+d^2)^2 f (a + b \text{Tan}[e+fx])^3 (c + d \text{Tan}[e+fx])^2\Big) +$$

$$\Big(\text{Sec}[e+fx]^5 (a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^2 (c \text{Cos}[e+fx] + d \text{Sin}[e+fx])^2 \big(-3 a A b^5 c \text{Sin}[e+fx] + 2 a^2 b^4 B c \text{Sin}[e+fx] - b^6 B c \text{Sin}[e+fx] - a^3 b^3 c C \text{Sin}[e+fx] + 2 a b^5 c C \text{Sin}[e+fx] + 5 a^2 A b^4 d \text{Sin}[e+fx] + 2 A b^6 d \text{Sin}[e+fx] - 4 a^3 b^3 B d \text{Sin}[e+fx] - a b^5 B d \text{Sin}[e+fx] + 3 a^4 b^2 C d \text{Sin}[e+fx]\big)\Big) \Big/ \Big(a (a - i b)^2 (a + i b)^2 (-b c + a d)^3 f (a + b \text{Tan}[e+fx])^3 (c + d \text{Tan}[e+fx])^2\Big) +$$

$$\Big(\text{Sec}[e+fx]^5 (a \text{Cos}[e+fx] + b \text{Sin}[e+fx])^3 (c \text{Cos}[e+fx] + d \text{Sin}[e+fx]) \big(-c^2 C d^3 \text{Sin}[e+fx] + B c d^4 \text{Sin}[e+fx] - A d^5 \text{Sin}[e+fx]\big)\Big) \Big/ \Big(c (c - i d) (c + i d) (b c - a d)^3 f (a + b \text{Tan}[e+fx])^3 (c + d \text{Tan}[e+fx])^2\Big)$$

Problem 85: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^2\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(c+d\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 597 leaves, 6 steps):

$$-\frac{1}{(c^2+d^2)^3}\Big(b^2\,(A\,c^3-c^3\,C+3\,B\,c^2\,d-3\,A\,c\,d^2+3\,c\,C\,d^2-B\,d^3)+a^2\,(c^3\,C-3\,B\,c^2\,d-3\,c\,C\,d^2+B\,d^3-A\,(c^3-3\,c\,d^2))-2\,a\,b\,((A-C)\,d\,(3\,c^2-d^2)-B\,(c^3-3\,c\,d^2))\Big)\,x-\frac{1}{(c^2+d^2)^3\,f}\Big(2\,a\,b\,(A\,c^3-c^3\,C+3\,B\,c^2\,d-3\,A\,c\,d^2+3\,c\,C\,d^2-B\,d^3)-a^2\,((A-C)\,d\,(3\,c^2-d^2)-B\,(c^3-3\,c\,d^2))+b^2\,((A-C)\,d\,(3\,c^2-d^2)-B\,(c^3-3\,c\,d^2))\Big)\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]-\frac{1}{d^3\,(c^2+d^2)^3\,f}\Big(2\,a\,b\,d^3\,(A\,c^3-c^3\,C+3\,B\,c^2\,d-3\,A\,c\,d^2+3\,c\,C\,d^2-B\,d^3)-b^2\,(c^6\,C+3\,c^4\,C\,d^2+B\,c^3\,d^3-3\,c^2\,(A-2\,C)\,d^4-3\,B\,c\,d^5+A\,d^6)-a^2\,d^3\,((A-C)\,d\,(3\,c^2-d^2)-B\,(c^3-3\,c\,d^2))\Big)\,\mathrm{Log}[c+d\,\mathrm{Tan}[e+f\,x]]-\frac{(c^2\,C-B\,c\,d+A\,d^2)\,(a+b\,\mathrm{Tan}[e+f\,x])^2}{2\,d\,(c^2+d^2)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^2}+\Big((b\,c-a\,d)\,\big(b\,(c^4\,C-c^2\,(A-3\,C)\,d^2-2\,B\,c\,d^3+A\,d^4)+a\,d^2\,(2\,c\,(A-C)\,d-B\,(c^2-d^2))\big)\Big)\Big/\Big(d^3\,(c^2+d^2)^2\,f\,(c+d\,\mathrm{Tan}[e+f\,x])\Big)$$

Result (type 3, 2499 leaves):

$$\Big(\big(-b^2 c^4 C+b^2 B c^3 d+2 a b c^3 C d-A b^2 c^2 d^2-2 a b B c^2 d^2-a^2 c^2 C d^2+2 a A b c d^3+a^2 B c d^3-a^2 A d^4\big)$$

$$\text{Sec}[e+f x]\,\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)\,\big(a+b\,\text{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(2\,(c-i d)^2\,(c+i d)^2\,d\,f\,\big(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\big)^2\,\big(c+d\,\text{Tan}[e+f x]\big)^3\Big)+$$

$$\Big(\big(a^2 A c^3-A b^2 c^3-2 a b B c^3-a^2 c^3 C+b^2 c^3 C+6 a A b c^2 d+3 a^2 B c^2 d-3 b^2 B c^2 d-6 a b c^2 C d-3 a^2 A$$

$$c d^2+3 A b^2 c d^2+6 a b B c d^2+3 a^2 c C d^2-3 b^2 c C d^2-2 a A b d^3-a^2 B d^3+b^2 B d^3+2 a b C d^3\big)$$

$$(e+f x)\,\text{Sec}[e+f x]\,\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)^3\,\big(a+b\,\text{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big((c-i d)^3\,(c+i d)^3\,f\,\big(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\big)^2\,\big(c+d\,\text{Tan}[e+f x]\big)^3\Big)+$$

$$\Big(\big(i b^2 c^{13} C d^2+b^2 c^{12} C d^3+5 i b^2 c^{11} C d^4-2 i a A b c^{10} d^5-i a^2 B c^{10} d^5+i b^2 B c^{10} d^5+2 i a b c^{10} C d^5+$$

$$5 b^2 c^{10} C d^5+3 i a^2 A c^9 d^6-2 a A b c^9 d^6-3 i A b^2 c^9 d^6-a^2 B c^9 d^6-6 i a b B c^9 d^6+$$

$$b^2 B c^9 d^6-3 i a^2 c^9 C d^6+2 a b c^9 C d^6+13 i b^2 c^9 C d^6+3 a^2 A c^8 d^7+2 i a A b c^8 d^7-$$

$$3 A b^2 c^8 d^7+i a^2 B c^8 d^7-6 a b B c^8 d^7-i b^2 B c^8 d^7-3 a^2 c^8 C d^7-2 i a b c^8 C d^7+$$

$$13 b^2 c^8 C d^7+5 i a^2 A c^7 d^8+2 a A b c^7 d^8-5 i A b^2 c^7 d^8+a^2 B c^7 d^8-10 i a b B c^7 d^8-$$

$$b^2 B c^7 d^8-5 i a^2 c^7 C d^8-2 a b c^7 C d^8+15 i b^2 c^7 C d^8+5 a^2 A c^6 d^9+10 i a A b c^6 d^9-$$

$$5 A b^2 c^6 d^9+5 i a^2 B c^6 d^9-10 a b B c^6 d^9-5 i b^2 B c^6 d^9-5 a^2 c^6 C d^9-10 i a b c^6 C d^9+$$

$$15 b^2 c^6 C d^9+i a^2 A c^5 d^{10}+10 a A b c^5 d^{10}-i A b^2 c^5 d^{10}+5 a^2 B c^5 d^{10}-2 i a b B c^5 d^{10}-$$

$$5 b^2 B c^5 d^{10}-i a^2 c^5 C d^{10}-10 a b c^5 C d^{10}+6 i b^2 c^5 C d^{10}+a^2 A c^4 d^{11}+6 i a A b c^4 d^{11}-$$

$$A b^2 c^4 d^{11}+3 i a^2 B c^4 d^{11}-2 a b B c^4 d^{11}-3 i b^2 B c^4 d^{11}-a^2 c^4 C d^{11}-6 i a b c^4 C d^{11}+$$

$$6 b^2 c^4 C d^{11}-i a^2 A c^3 d^{12}+6 a A b c^3 d^{12}+i A b^2 c^3 d^{12}+3 a^2 B c^3 d^{12}+2 i a b B c^3 d^{12}-$$

$$3 b^2 B c^3 d^{12}+i a^2 c^3 C d^{12}-6 a b c^3 C d^{12}-a^2 A c^2 d^{13}+A b^2 c^2 d^{13}+2 a b B c^2 d^{13}+a^2 c^2 C d^{13}\big)$$

$$(e+f x)\,\text{Sec}[e+f x]\,\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)^3\,\big(a+b\,\text{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(c^2\,(c-i d)^6\,(c+i d)^5\,d^5\,f\,\big(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\big)^2\,\big(c+d\,\text{Tan}[e+f x]\big)^3\Big)-$$

$$\frac{1}{d^3\,(c^2+d^2)^3\,f\,\big(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\big)^2\,\big(c+d\,\text{Tan}[e+f x]\big)^3}$$

$$i\,\big(b^2 c^6 C+3 b^2 c^4 C d^2-2 a A b c^3 d^3-a^2 B c^3 d^3+b^2 B c^3 d^3+2 a b c^3 C d^3+$$

$$3 a^2 A c^2 d^4-3 A b^2 c^2 d^4-6 a b B c^2 d^4-3 a^2 c^2 C d^4+6 b^2 c^2 C d^4+6 a A b c d^5+$$

$$3 a^2 B c d^5-3 b^2 B c d^5-6 a b c C d^5-a^2 A d^6+A b^2 d^6+2 a b B d^6+a^2 C d^6\big)$$

$$\text{ArcTan}\big[\text{Tan}[e+f x]\big]\,\text{Sec}[e+f x]\,\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)^3\,\big(a+b\,\text{Tan}[e+f x]\big)^2-$$

$$\Big(b^2 C\,\text{Log}\big[\text{Cos}[e+f x]\big]\,\text{Sec}[e+f x]\,\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)^3\,\big(a+b\,\text{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(d^3 f\,\big(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\big)^2\,\big(c+d\,\text{Tan}[e+f x]\big)^3\Big)+$$

$$\Big(1\Big/\Big(2 d^3\,(c^2+d^2)^3\,f\,\big(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\big)^2\,\big(c+d\,\text{Tan}[e+f x]\big)^3\Big)\Big)$$

$$\big(b^2 c^6 C+3 b^2 c^4 C d^2-2 a A b c^3 d^3-a^2 B c^3 d^3+b^2 B c^3 d^3+2 a b c^3 C d^3+3 a^2 A c^2 d^4-$$

$$3 A b^2 c^2 d^4-6 a b B c^2 d^4-3 a^2 c^2 C d^4+6 b^2 c^2 C d^4+6 a A b c d^5+3 a^2 B c d^5-3 b^2 B c d^5-$$

$$6 a b c C d^5-a^2 A d^6+A b^2 d^6+2 a b B d^6+a^2 C d^6\big)\,\text{Log}\Big[\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)^2\Big]$$

$$\text{Sec}[e+f x]\,\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)^3\,\big(a+b\,\text{Tan}[e+f x]\big)^2+$$

$$\Big(\text{Sec}[e+f x]\,\big(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\big)^2$$

$$\big(-b^2 c^5 C\,\text{Sin}[e+f x]+A b^2 c^3 d^2\,\text{Sin}[e+f x]+2 a b B c^3 d^2\,\text{Sin}[e+f x]+a^2 c^3 C d^2\,\text{Sin}[e+f x]-$$

$$4 b^2 c^3 C d^2\,\text{Sin}[e+f x]-4 a A b c^2 d^3\,\text{Sin}[e+f x]-2 a^2 B c^2 d^3\,\text{Sin}[e+f x]+$$

$$3 b^2 B c^2 d^3\,\text{Sin}[e+f x]+6 a b c^2 C d^3\,\text{Sin}[e+f x]+3 a^2 A c d^4\,\text{Sin}[e+f x]-$$

$$2 A b^2 c d^4\,\text{Sin}[e+f x]-4 a b B c d^4\,\text{Sin}[e+f x]-2 a^2 c C d^4\,\text{Sin}[e+f x]+$$

$$2 a A b d^5\,\text{Sin}[e+f x]+a^2 B d^5\,\text{Sin}[e+f x]\big)\,\big(a+b\,\text{Tan}[e+f x]\big)^2\Big)\Big/$$

$$\Big(c\,(c-i d)^2\,(c+i d)^2\,d^2\,f\,\big(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\big)^2\,\big(c+d\,\text{Tan}[e+f x]\big)^3\Big)$$

Problem 86: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 352 leaves, 4 steps):

$$-\frac{1}{\left(c^2+d^2\right)^3}\left(a\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3-A\left(c^3-3 c d^2\right)\right)-b\left((A-C)\,d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)\right) x+\frac{1}{\left(c^2+d^2\right)^3 f}\left(b\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3\right)-a\left(B c^3+3 c^2 C d-3 B c d^2-C d^3\right)+A\left(a d\left(3 c^2-d^2\right)-b\left(c^3-3 c d^2\right)\right)\right) \text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+\frac{(b c-a d)\left(c^2 C-B c d+A d^2\right)}{2 d^2\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f\,x])^2}-\left(b\left(c^4 C-c^2 (A-3 C)\,d^2-2 B c d^3+A d^4\right)+a d^2\left(2 c\,(A-C)\,d-B\left(c^2-d^2\right)\right)\right)\Big/\left(d^2\left(c^2+d^2\right)^2 f\,(c+d\,\text{Tan}[e+f\,x])\right)$$

Result (type 3, 2622 leaves):

$$\Big(\big(-i A b c^{10}-i a B c^{10}+i b c^{10} C+3 i a A c^9 d-A b c^9 d-a B c^9 d-3 i b B c^9 d-3 i a c^9 C d+b c^9 C d+3 a A c^8 d^2+i A b c^8 d^2+i a B c^8 d^2-3 b B c^8 d^2-3 a c^8 C d^2-i b c^8 C d^2+5 i a A c^7 d^3+A b c^7 d^3+a B c^7 d^3-5 i b B c^7 d^3-5 i a c^7 C d^3-b c^7 C d^3+5 a A c^6 d^4+5 i A b c^6 d^4+5 i a B c^6 d^4-5 b B c^6 d^4-5 a c^6 C d^4-5 i b c^6 C d^4+i a A c^5 d^5+5 A b c^5 d^5+5 a B c^5 d^5-i b B c^5 d^5-i a c^5 C d^5-5 b c^5 C d^5+a A c^4 d^6+3 i A b c^4 d^6+3 i a B c^4 d^6-b B c^4 d^6-a c^4 C d^6-3 i b c^4 C d^6-i a A c^3 d^7+3 A b c^3 d^7+3 a B c^3 d^7+i b B c^3 d^7+i a c^3 C d^7-3 b c^3 C d^7-a A c^2 d^8+b B c^2 d^8+a c^2 C d^8\big)(e+f x)\,\text{Sec}[e+f x]^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])\Big)\Big/\left(c^2\,(c-i d)^6\,(c+i d)^5 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^3\right)-$$

$$\Big(i\left(-A b c^3-a B c^3+b c^3 C+3 a A c^2 d-3 b B c^2 d-3 a c^2 C d+3 A b c d^2+3 a B c d^2-3 b c C d^2-a A d^3+b B d^3+a C d^3\right) \text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])\Big)\Big/\left(\left(c^2+d^2\right)^3 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^3\right)+$$

$$\Big(\left(-A b c^3-a B c^3+b c^3 C+3 a A c^2 d-3 b B c^2 d-3 a c^2 C d+3 A b c d^2+3 a B c d^2-3 b c C d^2-a A d^3+b B d^3+a C d^3\right) \text{Log}\left[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])\Big)\Big/\left(2\left(c^2+d^2\right)^3 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^3\right)+$$

$$\Big(\text{Sec}[e+f x]^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,\big(b c^6 C-A b c^4 d^2-a B c^4 d^2+4 b c^4 C d^2+2 a A c^3 d^3-2 b B c^3 d^3-2 a c^3 C d^3+3 b c^2 C d^4+2 a A c d^5-2 b B c d^5-2 a c C d^5+A b d^6+a B d^6+a A c^6 (e+f x)-b B c^6 (e+f x)-a c^6 C (e+f x)+3 A b c^5 d (e+f x)+3 a B c^5 d (e+f x)-3 b c^5 C d (e+f x)-2 a A c^4 d^2 (e+f x)+2 b B c^4 d^2 (e+f x)+2 a c^4 C d^2 (e+f x)+2 A b c^3 d^3 (e+f x)+2 a B c^3 d^3 (e+f x)-2 b c^3 C d^3 (e+f x)-3 a A c^2 d^4 (e+f x)+3 b B c^2 d^4 (e+f x)+$$

$$3 a c^2 C d^4 (e+f x)-A b c d^5 (e+f x)-a B c d^5 (e+f x)+b c C d^5 (e+f x)-$$
$$b B c^5 d \text{Cos}[2 (e+f x)]-a c^5 C d \text{Cos}[2 (e+f x)]+2 A b c^4 d^2 \text{Cos}[2 (e+f x)]+$$
$$2 a B c^4 d^2 \text{Cos}[2 (e+f x)]-3 b c^4 C d^2 \text{Cos}[2 (e+f x)]-3 a A c^3 d^3 \text{Cos}[2 (e+f x)]+$$
$$b B c^3 d^3 \text{Cos}[2 (e+f x)]+a c^3 C d^3 \text{Cos}[2 (e+f x)]+A b c^2 d^4 \text{Cos}[2 (e+f x)]+$$
$$a B c^2 d^4 \text{Cos}[2 (e+f x)]-3 b c^2 C d^4 \text{Cos}[2 (e+f x)]-3 a A c d^5 \text{Cos}[2 (e+f x)]+$$
$$2 b B c d^5 \text{Cos}[2 (e+f x)]+2 a c C d^5 \text{Cos}[2 (e+f x)]-A b d^6 \text{Cos}[2 (e+f x)]-$$
$$a B d^6 \text{Cos}[2 (e+f x)]+a A c^6 (e+f x) \text{Cos}[2 (e+f x)]-b B c^6 (e+f x) \text{Cos}[2 (e+f x)]-$$
$$a c^6 C (e+f x) \text{Cos}[2 (e+f x)]+3 A b c^5 d (e+f x) \text{Cos}[2 (e+f x)]+$$
$$3 a B c^5 d (e+f x) \text{Cos}[2 (e+f x)]-3 b c^5 C d (e+f x) \text{Cos}[2 (e+f x)]-$$
$$4 a A c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]+4 b B c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$4 a c^4 C d^2 (e+f x) \text{Cos}[2 (e+f x)]-4 A b c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]-$$
$$4 a B c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]+4 b c^3 C d^3 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$3 a A c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]-3 b B c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]-$$
$$3 a c^2 C d^4 (e+f x) \text{Cos}[2 (e+f x)]+A b c d^5 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$a B c d^5 (e+f x) \text{Cos}[2 (e+f x)]-b c C d^5 (e+f x) \text{Cos}[2 (e+f x)]+b B c^6 \text{Sin}[2 (e+f x)]+$$
$$a c^6 C \text{Sin}[2 (e+f x)]-2 A b c^5 d \text{Sin}[2 (e+f x)]-2 a B c^5 d \text{Sin}[2 (e+f x)]+$$
$$3 b c^5 C d \text{Sin}[2 (e+f x)]+3 a A c^4 d^2 \text{Sin}[2 (e+f x)]-b B c^4 d^2 \text{Sin}[2 (e+f x)]-$$
$$a c^4 C d^2 \text{Sin}[2 (e+f x)]-A b c^3 d^3 \text{Sin}[2 (e+f x)]-a B c^3 d^3 \text{Sin}[2 (e+f x)]+$$
$$3 b c^3 C d^3 \text{Sin}[2 (e+f x)]+3 a A c^2 d^4 \text{Sin}[2 (e+f x)]-2 b B c^2 d^4 \text{Sin}[2 (e+f x)]-$$
$$2 a c^2 C d^4 \text{Sin}[2 (e+f x)]+A b c d^5 \text{Sin}[2 (e+f x)]+a B c d^5 \text{Sin}[2 (e+f x)]+$$
$$2 a A c^5 d (e+f x) \text{Sin}[2 (e+f x)]-2 b B c^5 d (e+f x) \text{Sin}[2 (e+f x)]-$$
$$2 a c^5 C d (e+f x) \text{Sin}[2 (e+f x)]+6 A b c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]+$$
$$6 a B c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]-6 b c^4 C d^2 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$6 a A c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]+6 b B c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]+$$
$$6 a c^3 C d^3 (e+f x) \text{Sin}[2 (e+f x)]-2 A b c^2 d^4 (e+f x) \text{Sin}[2 (e+f x)]-2 a B c^2 d^4$$
$$(e+f x) \text{Sin}[2 (e+f x)]+2 b c^2 C d^4 (e+f x) \text{Sin}[2 (e+f x)]\Big)\Big) (a+b \text{Tan}[e+f x])\Big)\Big/$$
$$\left(2 c (c-i d)^3 (c+i d)^3 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c+d \text{Tan}[e+f x])^3\right)$$

Problem 87: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2}{(c+d \text{Tan}[e+f x])^3}\, dx$$

Optimal (type 3, 209 leaves, 4 steps):

$$-\frac{\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3-A \left(c^3-3 c d^2\right)\right) x}{\left(c^2+d^2\right)^3}+\frac{1}{\left(c^2+d^2\right)^3 f}$$
$$\left(\left((A-C) d \left(3 c^2-d^2\right)-B \left(c^3-3 c d^2\right)\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]\right)-$$
$$\frac{c^2 C-B c d+A d^2}{2 d \left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^2}-\frac{2 c (A-C) d-B \left(c^2-d^2\right)}{\left(c^2+d^2\right)^2 f (c+d \text{Tan}[e+f x])}$$

Result (type 3, 396 leaves):

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

$$\mathrm{Sec}[e+f\,x]^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,\Bigg(-d\left(c^2+d^2\right)\left(c^2\,C-B\,c\,d+A\,d^2\right)+\frac{1}{c}$$
$$2\left(c^2+d^2\right)\left(c^3\,C-2\,B\,c^2\,d+c\,(3\,A-2\,C)\,d^2+B\,d^3\right)\mathrm{Sin}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])+$$
$$2\left(-c^3\,C+3\,B\,c^2\,d+3\,c\,C\,d^2-B\,d^3+A\left(c^3-3\,c\,d^2\right)\right)(e+f\,x)\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2-$$
$$2\,i\left((A-C)\,d\left(-3\,c^2+d^2\right)+B\left(c^3-3\,c\,d^2\right)\right)(e+f\,x)\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2+$$
$$2\,i\left((A-C)\,d\left(-3\,c^2+d^2\right)+B\left(c^3-3\,c\,d^2\right)\right)\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]]$$
$$(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2-\left((A-C)\,d\left(-3\,c^2+d^2\right)+B\left(c^3-3\,c\,d^2\right)\right)$$
$$\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right](c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\Bigg)$$

Problem 88: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 487 leaves, 5 steps):

$$-\left(\left(\left(a\left(c^3\,C-3\,B\,c^2\,d-3\,c\,C\,d^2+B\,d^3-A\left(c^3-3\,c\,d^2\right)\right)+b\left((A-C)\,d\left(3\,c^2-d^2\right)-B\left(c^3-3\,c\,d^2\right)\right)\right)x\right)\Big/\right.$$
$$\left.\left(\left(a^2+b^2\right)\left(c^2+d^2\right)^3\right)\right)+\frac{b^2\left(A\,b^2-a\,(b\,B-a\,C)\right)\mathrm{Log}[a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]]}{\left(a^2+b^2\right)(b\,c-a\,d)^3 f}-$$
$$\left(\left(b^2\left(c^6\,C-3\,B\,c^5\,d+3\,c^4\,(2\,A-C)\,d^2+B\,c^3\,d^3+3\,A\,c^2\,d^4+A\,d^6\right)+\right.\right.$$
$$a^2\,d^3\left((A-C)\,d\left(3\,c^2-d^2\right)-B\left(c^3-3\,c\,d^2\right)\right)-a\,b\,d^2\left(8\,c^3\,(A-C)\,d-B\left(3\,c^4-6\,c^2\,d^2-d^4\right)\right)\Big)$$
$$\left.\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]\right)\Big/\left((b\,c-a\,d)^3\left(c^2+d^2\right)^3 f\right)+$$
$$\frac{c^2\,C-B\,c\,d+A\,d^2}{2\,(b\,c-a\,d)\left(c^2+d^2\right)f\,(c+d\,\mathrm{Tan}[e+f\,x])^2}+$$
$$\left(b\left(c^4\,C-2\,B\,c^3\,d+c^2\,(3\,A-C)\,d^2+A\,d^4\right)-a\,d^2\left(2\,c\,(A-C)\,d-B\left(c^2-d^2\right)\right)\right)\Big/$$
$$\left((b\,c-a\,d)^2\left(c^2+d^2\right)^2 f\,(c+d\,\mathrm{Tan}[e+f\,x])\right)$$

Result (type 3, 7733 leaves):

$$\Big(\Big(-a^3\,A\,b^5\,c^{14}+i\,a^2\,A\,b^6\,c^{14}+a^4\,b^4\,B\,c^{14}-i\,a^3\,b^5\,B\,c^{14}+a^3\,b^5\,c^{14}\,C-i\,a^2\,b^6\,c^{14}\,C+a^4\,A\,b^4\,c^{13}\,d+$$
$$a^2\,A\,b^6\,c^{13}\,d-4\,a^5\,b^3\,B\,c^{13}\,d+3\,i\,a^4\,b^4\,B\,c^{13}\,d-4\,a^3\,b^5\,B\,c^{13}\,d+3\,i\,a^2\,b^6\,B\,c^{13}\,d-a^4\,b^4\,c^{13}\,C\,d-$$
$$a^2\,b^6\,c^{13}\,C\,d+6\,a^5\,A\,b^3\,c^{12}\,d^2-7\,i\,a^4\,A\,b^4\,c^{12}\,d^2-i\,a^2\,A\,b^6\,c^{12}\,d^2+6\,a^6\,b^2\,B\,c^{12}\,d^2-$$
$$2\,i\,a^5\,b^3\,B\,c^{12}\,d^2+15\,a^4\,b^4\,B\,c^{12}\,d^2-8\,i\,a^3\,b^5\,B\,c^{12}\,d^2+3\,a^2\,b^6\,B\,c^{12}\,d^2-6\,a^5\,b^3\,c^{12}\,C\,d^2+$$
$$7\,i\,a^4\,b^4\,c^{12}\,C\,d^2+i\,a^2\,b^6\,c^{12}\,C\,d^2-14\,a^6\,A\,b^2\,c^{11}\,d^3+8\,i\,a^5\,A\,b^3\,c^{11}\,d^3-15\,a^4\,A\,b^4\,c^{11}\,d^3+$$
$$8\,i\,a^3\,A\,b^5\,c^{11}\,d^3-a^2\,A\,b^6\,c^{11}\,d^3-4\,a^7\,b\,B\,c^{11}\,d^3-2\,i\,a^6\,b^2\,B\,c^{11}\,d^3-20\,a^5\,b^3\,B\,c^{11}\,d^3+$$
$$3\,i\,a^4\,b^4\,B\,c^{11}\,d^3-16\,a^3\,b^5\,B\,c^{11}\,d^3+5\,i\,a^2\,b^6\,B\,c^{11}\,d^3+14\,a^6\,b^2\,c^{11}\,C\,d^3-8\,i\,a^5\,b^3\,c^{11}\,C\,d^3+$$
$$15\,a^4\,b^4\,c^{11}\,C\,d^3-8\,i\,a^3\,b^5\,c^{11}\,C\,d^3+a^2\,b^6\,c^{11}\,C\,d^3+11\,a^7\,A\,b\,c^{10}\,d^4+3\,i\,a^6\,A\,b^2\,c^{10}\,d^4+$$
$$40\,a^5\,A\,b^3\,c^{10}\,d^4-17\,i\,a^4\,A\,b^4\,c^{10}\,d^4+14\,a^3\,A\,b^5\,c^{10}\,d^4-5\,i\,a^2\,A\,b^6\,c^{10}\,d^4+a^8\,B\,c^{10}\,d^4+$$
$$3\,i\,a^7\,b\,B\,c^{10}\,d^4+10\,a^6\,b^2\,B\,c^{10}\,d^4+8\,i\,a^5\,b^3\,B\,c^{10}\,d^4+29\,a^4\,b^4\,B\,c^{10}\,d^4-10\,i\,a^3\,b^5\,B\,c^{10}\,d^4+$$
$$5\,a^2\,b^6\,B\,c^{10}\,d^4-11\,a^7\,b\,c^{10}\,C\,d^4-3\,i\,a^6\,b^2\,c^{10}\,C\,d^4-40\,a^5\,b^3\,c^{10}\,C\,d^4+17\,i\,a^4\,b^4\,c^{10}\,C\,d^4-$$
$$14\,a^3\,b^5\,c^{10}\,C\,d^4+5\,i\,a^2\,b^6\,c^{10}\,C\,d^4-3\,a^8\,A\,c^9\,d^5-8\,i\,a^7\,A\,b\,c^9\,d^5-45\,a^6\,A\,b^2\,c^9\,d^5+$$
$$8\,i\,a^5\,A\,b^3\,c^9\,d^5-47\,a^4\,A\,b^4\,c^9\,d^5+16\,i\,a^3\,A\,b^5\,c^9\,d^5-5\,a^2\,A\,b^6\,c^9\,d^5-i\,a^8\,B\,c^9\,d^5-7\,i\,a^6\,b^2\,B\,c^9\,d^5-$$

$$16 a^5 b^3 B c^9 d^5 - 5 i a^4 b^4 B c^9 d^5 - 16 a^3 b^5 B c^9 d^5 + i a^2 b^6 B c^9 d^5 + 3 a^8 c^9 C d^5 + 8 i a^7 b c^9 C d^5 +$$
$$45 a^6 b^2 c^9 C d^5 - 8 i a^5 b^3 c^9 C d^5 + 47 a^4 b^4 c^9 C d^5 - 16 i a^3 b^5 c^9 C d^5 + 5 a^2 b^6 c^9 C d^5 +$$
$$3 i a^8 A c^8 d^6 + 24 a^7 A b c^8 d^6 + 13 i a^6 A b^2 c^8 d^6 + 68 a^5 A b^3 c^8 d^6 - 13 i a^4 A b^4 c^8 d^6 +$$
$$24 a^3 A b^5 c^8 d^6 - 3 i a^2 A b^6 c^8 d^6 - a^8 B c^8 d^6 - 11 a^6 b^2 B c^8 d^6 + 20 i a^5 b^3 B c^8 d^6 +$$
$$11 a^4 b^4 B c^8 d^6 + a^2 b^6 B c^8 d^6 - 3 i a^8 c^8 C d^6 - 24 a^7 b c^8 C d^6 - 13 i a^6 b^2 c^8 C d^6 - 68 a^5 b^3 c^8 C d^6 +$$
$$13 i a^4 b^4 c^8 C d^6 - 24 a^3 b^5 c^8 C d^6 + 3 i a^2 b^6 c^8 C d^6 - 5 a^8 A c^7 d^7 - 16 i a^7 A b c^7 d^7 -$$
$$47 a^6 A b^2 c^7 d^7 - 8 i a^5 A b^3 c^7 d^7 - 45 a^4 A b^4 c^7 d^7 + 8 i a^3 A b^5 c^7 d^7 - 3 a^2 A b^6 c^7 d^7 + i a^8 B c^7 d^7 +$$
$$16 a^7 b B c^7 d^7 - 5 i a^6 b^2 B c^7 d^7 + 16 a^5 b^3 B c^7 d^7 - 7 i a^4 b^4 B c^7 d^7 - i a^2 b^6 B c^7 d^7 + 5 a^8 c^7 C d^7 +$$
$$16 i a^7 b c^7 C d^7 + 47 a^6 b^2 c^7 C d^7 + 8 i a^5 b^3 c^7 C d^7 + 45 a^4 b^4 c^7 C d^7 - 8 i a^3 b^5 c^7 C d^7 +$$
$$3 a^2 b^6 c^7 C d^7 + 5 i a^8 A c^6 d^8 + 14 a^7 A b c^6 d^8 + 17 i a^6 A b^2 c^6 d^8 + 40 a^5 A b^3 c^6 d^8 -$$
$$3 i a^4 A b^4 c^6 d^8 + 11 a^3 A b^5 c^6 d^8 - 5 a^8 B c^6 d^8 - 10 i a^7 b B c^6 d^8 - 29 a^6 b^2 B c^6 d^8 +$$
$$8 i a^5 b^3 B c^6 d^8 - 10 a^4 b^4 B c^6 d^8 + 3 i a^3 b^5 B c^6 d^8 - a^2 b^6 B c^6 d^8 - 5 i a^8 c^6 C d^8 - 14 a^7 b c^6 C d^8 -$$
$$17 i a^6 b^2 c^6 C d^8 - 40 a^5 b^3 c^6 C d^8 + 3 i a^4 b^4 c^6 C d^8 - 11 a^3 b^5 c^6 C d^8 - a^8 A c^5 d^9 - 8 i a^7 A b c^5 d^9 -$$
$$15 a^6 A b^2 c^5 d^9 - 8 i a^5 A b^3 c^5 d^9 - 14 a^4 A b^4 c^5 d^9 + 5 i a^8 B c^5 d^9 + 16 a^7 b B c^5 d^9 +$$
$$3 i a^6 b^2 B c^5 d^9 + 20 a^5 b^3 B c^5 d^9 - 2 i a^4 b^4 B c^5 d^9 + 4 a^3 b^5 B c^5 d^9 + a^8 c^5 C d^9 + 8 i a^7 b c^5 C d^9 +$$
$$15 a^6 b^2 c^5 C d^9 + 8 i a^5 b^3 c^5 C d^9 + 14 a^4 b^4 c^5 C d^9 + i a^8 A c^4 d^{10} + 7 i a^6 A b^2 c^4 d^{10} +$$
$$6 a^5 A b^3 c^4 d^{10} - 3 a^8 B c^4 d^{10} - 8 i a^7 b B c^4 d^{10} - 15 a^6 b^2 B c^4 d^{10} - 2 i a^5 b^3 B c^4 d^{10} -$$
$$6 a^4 b^4 B c^4 d^{10} - i a^8 c^4 C d^{10} - 7 i a^6 b^2 c^4 C d^{10} - 6 a^5 b^3 c^4 C d^{10} + a^8 A c^3 d^{11} + a^6 A b^2 c^3 d^{11} +$$
$$3 i a^8 B c^3 d^{11} + 4 a^7 b B c^3 d^{11} + 3 i a^6 b^2 B c^3 d^{11} + 4 a^5 b^3 B c^3 d^{11} - a^8 c^3 C d^{11} - a^6 b^2 c^3 C d^{11} -$$
$$i a^8 A c^2 d^{12} - a^7 A b c^2 d^{12} - i a^7 b B c^2 d^{12} - a^6 b^2 B c^2 d^{12} + i a^8 c^2 C d^{12} + a^7 b c^2 C d^{12}\Big) \left(e + f x\right)$$
$$\operatorname{Sec}[e + f x]^4 \left(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]\right) \left(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]\right)^3\Big) \Big/$$
$$\Big(a^2 \left(a - i b\right)^2 \left(a + i b\right) c^2 \left(-i c - d\right)^3 \left(c - i d\right)^3 \left(c + i d\right)^5 \left(-b c + a d\right)^4$$
$$f \left(a + b \operatorname{Tan}[e + f x]\right) \left(c + d \operatorname{Tan}[e + f x]\right)^3\Big) -$$
$$\Big(i \left(-A b^4 + a b^3 B - a^2 b^2 C\right) \operatorname{ArcTan}[\operatorname{Tan}[e + f x]] \operatorname{Sec}[e + f x]^4$$
$$\left(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]\right) \left(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]\right)^3\Big) \Big/$$
$$\Big(\left(a^2 + b^2\right) \left(-b c + a d\right)^3 f \left(a + b \operatorname{Tan}[e + f x]\right) \left(c + d \operatorname{Tan}[e + f x]\right)^3\Big) +$$
$$\frac{1}{\left(b c - a d\right)^3 \left(c^2 + d^2\right)^3 f \left(a + b \operatorname{Tan}[e + f x]\right) \left(c + d \operatorname{Tan}[e + f x]\right)^3}$$
$$i \Big(b^2 c^6 C - 3 b^2 B c^5 d + 6 A b^2 c^4 d^2 + 3 a b B c^4 d^2 - 3 b^2 c^4 C d^2 -$$
$$8 a A b c^3 d^3 - a^2 B c^3 d^3 + b^2 B c^3 d^3 + 8 a b c^3 C d^3 + 3 a^2 A c^2 d^4 + 3 A b^2 c^2 d^4 -$$
$$6 a b B c^2 d^4 - 3 a^2 c^2 C d^4 + 3 a^2 B c d^5 - a^2 A d^6 + A b^2 d^6 - a b B d^6 + a^2 C d^6\Big)$$
$$\operatorname{ArcTan}[\operatorname{Tan}[e + f x]] \operatorname{Sec}[e + f x]^4 \left(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]\right)$$
$$\left(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]\right)^3 +$$
$$\Big(\left(-A b^4 + a b^3 B - a^2 b^2 C\right) \operatorname{Log}\Big[\left(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]\right)^2\Big] \operatorname{Sec}[e + f x]^4$$
$$\left(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]\right) \left(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]\right)^3\Big) \Big/$$
$$\Big(2 \left(a^2 + b^2\right) \left(-b c + a d\right)^3 f \left(a + b \operatorname{Tan}[e + f x]\right) \left(c + d \operatorname{Tan}[e + f x]\right)^3\Big) -$$
$$\frac{1}{2 \left(b c - a d\right)^3 \left(c^2 + d^2\right)^3 f \left(a + b \operatorname{Tan}[e + f x]\right) \left(c + d \operatorname{Tan}[e + f x]\right)^3}$$
$$\Big(b^2 c^6 C - 3 b^2 B c^5 d + 6 A b^2 c^4 d^2 + 3 a b B c^4 d^2 - 3 b^2 c^4 C d^2 -$$
$$8 a A b c^3 d^3 - a^2 B c^3 d^3 + b^2 B c^3 d^3 + 8 a b c^3 C d^3 + 3 a^2 A c^2 d^4 + 3 A b^2 c^2 d^4 -$$
$$6 a b B c^2 d^4 - 3 a^2 c^2 C d^4 + 3 a^2 B c d^5 - a^2 A d^6 + A b^2 d^6 - a b B d^6 + a^2 C d^6\Big)$$
$$\operatorname{Log}\Big[\left(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]\right)^2\Big] \operatorname{Sec}[e + f x]^4 \left(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]\right)$$
$$\left(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]\right)^3 +$$
$$\Big(\operatorname{Sec}[e + f x]^4 \left(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]\right) \left(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]\right)$$
$$\Big(-a^2 b c^6 C d^2 - b^3 c^6 C d^2 + 2 a^2 b B c^5 d^3 + 2 b^3 B c^5 d^3 - 3 a^2 A b c^4 d^4 - 3 A b^3 c^4 d^4 -$$

$a^3 B c^4 d^4 - a b^2 B c^4 d^4 + 2 a^3 A c^3 d^5 + 2 a A b^2 c^3 d^5 + 2 a^2 b B c^3 d^5 + 2 b^3 B c^3 d^5 -$
$2 a^3 c^3 C d^5 - 2 a b^2 c^3 C d^5 - 4 a^2 A b c^2 d^6 - 4 A b^3 c^2 d^6 + a^2 b c^2 C d^6 + b^3 c^2 C d^6 +$
$2 a^3 A c d^7 + 2 a A b^2 c d^7 - 2 a^3 c C d^7 - 2 a b^2 c C d^7 - a^2 A b d^8 - A b^3 d^8 + a^3 B d^8 + a b^2 B d^8 +$
$a A b^2 c^8 (e + f x) + b^3 B c^8 (e + f x) - a b^2 c^8 C (e + f x) - 2 a^2 A b c^7 d (e + f x) -$
$3 A b^3 c^7 d (e + f x) + a b^2 B c^7 d (e + f x) + 2 a^2 b c^7 C d (e + f x) + 3 b^3 c^7 C d (e + f x) +$
$a^3 A c^6 d^2 (e + f x) + 4 a A b^2 c^6 d^2 (e + f x) - 5 a^2 b B c^6 d^2 (e + f x) - 2 b^3 B c^6 d^2 (e + f x) -$
$a^3 c^6 C d^2 (e + f x) - 4 a b^2 c^6 C d^2 (e + f x) + a^2 A b c^5 d^3 (e + f x) - 2 A b^3 c^5 d^3 (e + f x) +$
$3 a^3 B c^5 d^3 (e + f x) + 6 a b^2 B c^5 d^3 (e + f x) - a^2 b c^5 C d^3 (e + f x) + 2 b^3 c^5 C d^3 (e + f x) -$
$2 a^3 A c^4 d^4 (e + f x) + a A b^2 c^4 d^4 (e + f x) - 6 a^2 b B c^4 d^4 (e + f x) - 3 b^3 B c^4 d^4 (e + f x) +$
$2 a^3 c^4 C d^4 (e + f x) - a b^2 c^4 C d^4 (e + f x) + 4 a^2 A b c^3 d^5 (e + f x) + A b^3 c^3 d^5 (e + f x) +$
$2 a^3 B c^3 d^5 (e + f x) + 5 a b^2 B c^3 d^5 (e + f x) - 4 a^2 b c^3 C d^5 (e + f x) - b^3 c^3 C d^5 (e + f x) -$
$3 a^3 A c^2 d^6 (e + f x) - 2 a A b^2 c^2 d^6 (e + f x) - a^2 b B c^2 d^6 (e + f x) + 3 a^3 c^2 C d^6 (e + f x) +$
$2 a b^2 c^2 C d^6 (e + f x) + a^2 A b c d^7 (e + f x) - a^3 B c d^7 (e + f x) - a^2 b c C d^7 (e + f x) +$
$2 a^2 b c^6 C d^2 \text{Cos}[2 (e + f x)] + 2 b^3 c^6 C d^2 \text{Cos}[2 (e + f x)] - 3 a^2 b B c^5 d^3 \text{Cos}[2 (e + f x)] -$
$3 b^3 B c^5 d^3 \text{Cos}[2 (e + f x)] - a^3 c^5 C d^3 \text{Cos}[2 (e + f x)] - a b^2 c^5 C d^3 \text{Cos}[2 (e + f x)] +$
$4 a^2 A b c^4 d^4 \text{Cos}[2 (e + f x)] + 4 A b^3 c^4 d^4 \text{Cos}[2 (e + f x)] + 2 a^3 B c^4 d^4 \text{Cos}[2 (e + f x)] +$
$2 a b^2 B c^4 d^4 \text{Cos}[2 (e + f x)] + a^2 b c^4 C d^4 \text{Cos}[2 (e + f x)] + b^3 c^4 C d^4 \text{Cos}[2 (e + f x)] -$
$3 a^3 A c^3 d^5 \text{Cos}[2 (e + f x)] - 3 a A b^2 c^3 d^5 \text{Cos}[2 (e + f x)] - 3 a^2 b B c^3 d^5 \text{Cos}[2 (e + f x)] -$
$3 b^3 B c^3 d^5 \text{Cos}[2 (e + f x)] + a^3 c^3 C d^5 \text{Cos}[2 (e + f x)] + a b^2 c^3 C d^5 \text{Cos}[2 (e + f x)] +$
$5 a^2 A b c^2 d^6 \text{Cos}[2 (e + f x)] + 5 A b^3 c^2 d^6 \text{Cos}[2 (e + f x)] + a^3 B c^2 d^6 \text{Cos}[2 (e + f x)] +$
$a b^2 B c^2 d^6 \text{Cos}[2 (e + f x)] - a^2 b c^2 C d^6 \text{Cos}[2 (e + f x)] - b^3 c^2 C d^6 \text{Cos}[2 (e + f x)] -$
$3 a^3 A c d^7 \text{Cos}[2 (e + f x)] - 3 a A b^2 c d^7 \text{Cos}[2 (e + f x)] + 2 a^3 c C d^7 \text{Cos}[2 (e + f x)] +$
$2 a b^2 c C d^7 \text{Cos}[2 (e + f x)] + a^2 A b d^8 \text{Cos}[2 (e + f x)] + A b^3 d^8 \text{Cos}[2 (e + f x)] -$
$a^3 B d^8 \text{Cos}[2 (e + f x)] - a b^2 B d^8 \text{Cos}[2 (e + f x)] + a A b^2 c^8 (e + f x) \text{Cos}[2 (e + f x)] +$
$b^3 B c^8 (e + f x) \text{Cos}[2 (e + f x)] - a b^2 c^8 C (e + f x) \text{Cos}[2 (e + f x)] -$
$2 a^2 A b c^7 d (e + f x) \text{Cos}[2 (e + f x)] - 3 A b^3 c^7 d (e + f x) \text{Cos}[2 (e + f x)] +$
$a b^2 B c^7 d (e + f x) \text{Cos}[2 (e + f x)] + 2 a^2 b c^7 C d (e + f x) \text{Cos}[2 (e + f x)] +$
$3 b^3 c^7 C d (e + f x) \text{Cos}[2 (e + f x)] + a^3 A c^6 d^2 (e + f x) \text{Cos}[2 (e + f x)] +$
$2 a A b^2 c^6 d^2 (e + f x) \text{Cos}[2 (e + f x)] - 5 a^2 b B c^6 d^2 (e + f x) \text{Cos}[2 (e + f x)] -$
$4 b^3 B c^6 d^2 (e + f x) \text{Cos}[2 (e + f x)] - a^3 c^6 C d^2 (e + f x) \text{Cos}[2 (e + f x)] -$
$2 a b^2 c^6 C d^2 (e + f x) \text{Cos}[2 (e + f x)] + 5 a^2 A b c^5 d^3 (e + f x) \text{Cos}[2 (e + f x)] +$
$4 A b^3 c^5 d^3 (e + f x) \text{Cos}[2 (e + f x)] + 3 a^3 B c^5 d^3 (e + f x) \text{Cos}[2 (e + f x)] +$
$4 a b^2 B c^5 d^3 (e + f x) \text{Cos}[2 (e + f x)] - 5 a^2 b c^5 C d^3 (e + f x) \text{Cos}[2 (e + f x)] -$
$4 b^3 c^5 C d^3 (e + f x) \text{Cos}[2 (e + f x)] - 4 a^3 A c^4 d^4 (e + f x) \text{Cos}[2 (e + f x)] -$
$5 a A b^2 c^4 d^4 (e + f x) \text{Cos}[2 (e + f x)] + 4 a^2 b B c^4 d^4 (e + f x) \text{Cos}[2 (e + f x)] +$
$3 b^3 B c^4 d^4 (e + f x) \text{Cos}[2 (e + f x)] + 4 a^3 c^4 C d^4 (e + f x) \text{Cos}[2 (e + f x)] +$
$5 a b^2 c^4 C d^4 (e + f x) \text{Cos}[2 (e + f x)] - 2 a^2 A b c^3 d^5 (e + f x) \text{Cos}[2 (e + f x)] -$
$A b^3 c^3 d^5 (e + f x) \text{Cos}[2 (e + f x)] - 4 a^3 B c^3 d^5 (e + f x) \text{Cos}[2 (e + f x)] -$
$5 a b^2 B c^3 d^5 (e + f x) \text{Cos}[2 (e + f x)] + 2 a^2 b c^3 C d^5 (e + f x) \text{Cos}[2 (e + f x)] +$
$b^3 c^3 C d^5 (e + f x) \text{Cos}[2 (e + f x)] + 3 a^3 A c^2 d^6 (e + f x) \text{Cos}[2 (e + f x)] +$
$2 a A b^2 c^2 d^6 (e + f x) \text{Cos}[2 (e + f x)] + a^2 b B c^2 d^6 (e + f x) \text{Cos}[2 (e + f x)] -$
$3 a^3 c^2 C d^6 (e + f x) \text{Cos}[2 (e + f x)] - 2 a b^2 c^2 C d^6 (e + f x) \text{Cos}[2 (e + f x)] -$
$a^2 A b c d^7 (e + f x) \text{Cos}[2 (e + f x)] + a^3 B c d^7 (e + f x) \text{Cos}[2 (e + f x)] +$
$a^2 b c C d^7 (e + f x) \text{Cos}[2 (e + f x)] - 2 a^2 b c^7 C d \text{Sin}[2 (e + f x)] - 2 b^3 c^7 C d \text{Sin}[2 (e + f x)] +$
$3 a^2 b B c^6 d^2 \text{Sin}[2 (e + f x)] + 3 b^3 B c^6 d^2 \text{Sin}[2 (e + f x)] + a^3 c^6 C d^2 \text{Sin}[2 (e + f x)] +$
$a b^2 c^6 C d^2 \text{Sin}[2 (e + f x)] - 4 a^2 A b c^5 d^3 \text{Sin}[2 (e + f x)] - 4 A b^3 c^5 d^3 \text{Sin}[2 (e + f x)] -$
$2 a^3 B c^5 d^3 \text{Sin}[2 (e + f x)] - 2 a b^2 B c^5 d^3 \text{Sin}[2 (e + f x)] - a^2 b c^5 C d^3 \text{Sin}[2 (e + f x)] -$

$b^3 c^5 C d^3 \text{Sin}[2 (e+f x)] + 3 a^3 A c^4 d^4 \text{Sin}[2 (e+f x)] + 3 a A b^2 c^4 d^4 \text{Sin}[2 (e+f x)] +$
$3 a^2 b B c^4 d^4 \text{Sin}[2 (e+f x)] + 3 b^3 B c^4 d^4 \text{Sin}[2 (e+f x)] - a^3 c^4 C d^4 \text{Sin}[2 (e+f x)] -$
$a b^2 c^4 C d^4 \text{Sin}[2 (e+f x)] - 5 a^2 A b c^3 d^5 \text{Sin}[2 (e+f x)] - 5 A b^3 c^3 d^5 \text{Sin}[2 (e+f x)] -$
$a^3 B c^3 d^5 \text{Sin}[2 (e+f x)] - a b^2 B c^3 d^5 \text{Sin}[2 (e+f x)] + a^2 b c^3 C d^5 \text{Sin}[2 (e+f x)] +$
$b^3 c^3 C d^5 \text{Sin}[2 (e+f x)] + 3 a^3 A c^2 d^6 \text{Sin}[2 (e+f x)] + 3 a A b^2 c^2 d^6 \text{Sin}[2 (e+f x)] -$
$2 a^3 c^2 C d^6 \text{Sin}[2 (e+f x)] - 2 a b^2 c^2 C d^6 \text{Sin}[2 (e+f x)] - a^2 A b c d^7 \text{Sin}[2 (e+f x)] -$
$A b^3 c d^7 \text{Sin}[2 (e+f x)] + a^3 B c d^7 \text{Sin}[2 (e+f x)] + a b^2 B c d^7 \text{Sin}[2 (e+f x)] +$
$2 a A b^2 c^7 d (e+f x) \text{Sin}[2 (e+f x)] + 2 b^3 B c^7 d (e+f x) \text{Sin}[2 (e+f x)] -$
$2 a b^2 c^7 C d (e+f x) \text{Sin}[2 (e+f x)] - 4 a^2 A b c^6 d^2 (e+f x) \text{Sin}[2 (e+f x)] -$
$6 A b^3 c^6 d^2 (e+f x) \text{Sin}[2 (e+f x)] + 2 a b^2 B c^6 d^2 (e+f x) \text{Sin}[2 (e+f x)] +$
$4 a^2 b c^6 C d^2 (e+f x) \text{Sin}[2 (e+f x)] + 6 b^3 c^6 C d^2 (e+f x) \text{Sin}[2 (e+f x)] +$
$2 a^3 A c^5 d^3 (e+f x) \text{Sin}[2 (e+f x)] + 6 a A b^2 c^5 d^3 (e+f x) \text{Sin}[2 (e+f x)] -$
$10 a^2 b B c^5 d^3 (e+f x) \text{Sin}[2 (e+f x)] - 6 b^3 B c^5 d^3 (e+f x) \text{Sin}[2 (e+f x)] -$
$2 a^3 c^5 C d^3 (e+f x) \text{Sin}[2 (e+f x)] - 6 a b^2 c^5 C d^3 (e+f x) \text{Sin}[2 (e+f x)] +$
$6 a^2 A b c^4 d^4 (e+f x) \text{Sin}[2 (e+f x)] + 2 A b^3 c^4 d^4 (e+f x) \text{Sin}[2 (e+f x)] +$
$6 a^3 B c^4 d^4 (e+f x) \text{Sin}[2 (e+f x)] + 10 a b^2 B c^4 d^4 (e+f x) \text{Sin}[2 (e+f x)] -$
$6 a^2 b c^4 C d^4 (e+f x) \text{Sin}[2 (e+f x)] - 2 b^3 c^4 C d^4 (e+f x) \text{Sin}[2 (e+f x)] -$
$6 a^3 A c^3 d^5 (e+f x) \text{Sin}[2 (e+f x)] - 4 a A b^2 c^3 d^5 (e+f x) \text{Sin}[2 (e+f x)] -$
$2 a^2 b B c^3 d^5 (e+f x) \text{Sin}[2 (e+f x)] + 6 a^3 c^3 C d^5 (e+f x) \text{Sin}[2 (e+f x)] +$
$4 a b^2 c^3 C d^5 (e+f x) \text{Sin}[2 (e+f x)] + 2 a^2 A b c^2 d^6 (e+f x) \text{Sin}[2 (e+f x)] -$
$2 a^3 B c^2 d^6 (e+f x) \text{Sin}[2 (e+f x)] - 2 a^2 b c^2 C d^6 (e+f x) \text{Sin}[2 (e+f x)]))\Big/$
$\left(2 (a^2+b^2) c (c - i d)^3 (c + i d)^3 (-b c + a d)^2 f (a + b \text{Tan}[e+f x]) (c + d \text{Tan}[e+f x])^3\right)$

Problem 89: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A + B \text{Tan}[e+f x] + C \text{Tan}[e+f x]^2}{(a + b \text{Tan}[e+f x])^2 (c + d \text{Tan}[e+f x])^3} \, dx$$

Optimal (type 3, 861 leaves, 6 steps):

$$-\left(\left(\left(b^2\left(A c^3-c^3 C+3 B c^2 d-3 A c d^2+3 c C d^2-B d^3\right)+a^2\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3-A\left(c^3-3 c d^2\right)\right)+2 a b\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)\right) x\right)\Big/\left(\left(a^2+b^2\right)^2\left(c^2+d^2\right)^3\right)\right)+$$

$$\left(b^2\left(4 a^3 b B d-3 a^4 C d+b^4(B c-3 A d)+2 a b^3(A c-c C+B d)-a^2 b^2(B c+(5 A+C) d)\right)\text{Log}[a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]]\right)\Big/\left(\left(a^2+b^2\right)^2(b c-a d)^4 f\right)+$$

$$\left(d\left(b^2\left(3 c^6 C-6 B c^5 d+c^4(10 A-C) d^2-3 B c^3 d^3+9 A c^2 d^4-B c d^5+3 A d^6\right)+a^2 d^3\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)-2 a b d^2\left(c(A-C) d\left(5 c^2+d^2\right)-B\left(2 c^4-3 c^2 d^2-d^4\right)\right)\right)\text{Log}[c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]]\right)\Big/\left((b c-a d)^4\left(c^2+d^2\right)^3 f\right)-$$

$$\left(d\left(b^2 c(c C-B d)-2 a b B\left(c^2+d^2\right)+a^2\left(3 c^2 C-B c d+2 C d^2\right)+A\left(a^2 d^2+b^2\left(2 c^2+3 d^2\right)\right)\right)\right)\Big/\left(2\left(a^2+b^2\right)(b c-a d)^2\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])^2\right)-$$

$$\frac{A b^2-a(b B-a C)}{\left(a^2+b^2\right)(b c-a d) f\,(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2}-$$

$$\left(d\left(b^3 c\left(2 c^3 C-3 B c^2 d-B d^3\right)+a^2 b\left(3 c^4 C-3 B c^3 d+2 c^2 C d^2-B c d^3+C d^4\right)+a^3 d^2\left(2 c C d+B\left(c^2-d^2\right)\right)+a b^2\left(2 c C d^3-B\left(c^4+c^2 d^2+2 d^4\right)\right)-A\left(2 a^3 c d^3+2 a b^2 c d^3-2 a^2 b d^2\left(2 c^2+d^2\right)-b^3\left(c^4+6 c^2 d^2+3 d^4\right)\right)\right)\right)\Big/\left(\left(a^2+b^2\right)(b c-a d)^3\left(c^2+d^2\right)^2 f\,(c+d\,\text{Tan}[e+f x])\right)$$

Result (type 3, 7871 leaves):

$$\left(\left(-c^2 C d^3+B c d^4-A d^5\right)\text{Sec}[e+f x]^5\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right)\Big/\left(2(c-\mathrm{i} d)^2(c+\mathrm{i} d)^2(b c-a d)^2 f\,(a+b\,\text{Tan}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\right)+$$

$$\Big(\left(a^2 A c^3-A b^2 c^3+2 a b B c^3-a^2 c^3 C+b^2 c^3 C-6 a A b c^2 d+3 a^2 B c^2 d-3 b^2 B c^2 d+6 a b c^2 C d-3 a^2 A c d^2+3 A b^2 c d^2-6 a b B c d^2+3 a^2 c C d^2-3 b^2 c C d^2+2 a A b d^3-a^2 B d^3+b^2 B d^3-2 a b C d^3\right)(e+f x)\,\text{Sec}[e+f x]^5\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\Big)\Big/\left((a-\mathrm{i} b)^2(a+\mathrm{i} b)^2(c-\mathrm{i} d)^3(c+\mathrm{i} d)^3 f\,(a+b\,\text{Tan}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\right)+$$

$$\Big(\Big(2 a^6 A b^7 c^{16}-2\mathrm{i} a^5 A b^8 c^{16}+2 a^4 A b^9 c^{16}-2\mathrm{i} a^3 A b^{10} c^{16}-a^7 b^6 B c^{16}+\mathrm{i} a^6 b^7 B c^{16}+a^3 b^{10} B c^{16}-$$
$$\mathrm{i} a^2 b^{11} B c^{16}-2 a^6 b^7 c^{16} C+2\mathrm{i} a^5 b^8 c^{16} C-2 a^4 b^9 c^{16} C+2\mathrm{i} a^3 b^{10} c^{16} C-9 a^7 A b^6 c^{15} d+$$
$$7\mathrm{i} a^6 A b^7 c^{15} d-14 a^5 A b^8 c^{15} d+10\mathrm{i} a^4 A b^9 c^{15} d-5 a^3 A b^{10} c^{15} d+3\mathrm{i} a^2 A b^{11} c^{15} d+$$
$$6 a^8 b^5 B c^{15} d-5\mathrm{i} a^7 b^6 B c^{15} d+7 a^6 b^7 B c^{15} d-6\mathrm{i} a^5 b^8 B c^{15} d-\mathrm{i} a^3 b^{10} B c^{15} d-a^2 b^{11} B c^{15} d+$$
$$9 a^7 b^6 c^{15} C d-7\mathrm{i} a^6 b^7 c^{15} C d+14 a^5 b^8 c^{15} C d-10\mathrm{i} a^4 b^9 c^{15} C d+5 a^3 b^{10} c^{15} C d-$$
$$3\mathrm{i} a^2 b^{11} c^{15} C d+12 a^8 A b^5 c^{14} d^2-3\mathrm{i} a^7 A b^6 c^{14} d^2+37 a^6 A b^7 c^{14} d^2-16\mathrm{i} a^5 A b^8 c^{14} d^2+$$
$$28 a^4 A b^9 c^{14} d^2-13\mathrm{i} a^3 A b^{10} c^{14} d^2+3 a^2 A b^{11} c^{14} d^2-15 a^9 b^4 B c^{14} d^2+9\mathrm{i} a^8 b^5 B c^{14} d^2-$$
$$41 a^7 b^6 B c^{14} d^2+29\mathrm{i} a^6 b^7 B c^{14} d^2-27 a^5 b^8 B c^{14} d^2+21\mathrm{i} a^4 b^9 B c^{14} d^2-a^3 b^{10} B c^{14} d^2+$$
$$\mathrm{i} a^2 b^{11} B c^{14} d^2-12 a^8 b^5 c^{14} C d^2+3\mathrm{i} a^7 b^6 c^{14} C d^2-37 a^6 b^7 c^{14} C d^2+16\mathrm{i} a^5 b^8 c^{14} C d^2-$$
$$28 a^4 b^9 c^{14} C d^2+13\mathrm{i} a^3 b^{10} c^{14} C d^2-3 a^2 b^{11} c^{14} C d^2+5 a^9 A b^4 c^{13} d^3-17\mathrm{i} a^8 A b^5 c^{13} d^3-$$
$$35 a^7 A b^6 c^{13} d^3-5\mathrm{i} a^6 A b^7 c^{13} d^3-61 a^5 A b^8 c^{13} d^3+17\mathrm{i} a^4 A b^9 c^{13} d^3-21 a^3 A b^{10} c^{13} d^3+$$
$$5\mathrm{i} a^2 A b^{11} c^{13} d^3+20 a^{10} b^3 B c^{13} d^3-5\mathrm{i} a^9 b^4 B c^{13} d^3+99 a^8 b^5 B c^{13} d^3-49\mathrm{i} a^7 b^6 B c^{13} d^3+$$
$$115 a^6 b^7 B c^{13} d^3-59\mathrm{i} a^5 b^8 B c^{13} d^3+37 a^4 b^9 B c^{13} d^3-15\mathrm{i} a^3 b^{10} B c^{13} d^3+a^2 b^{11} B c^{13} d^3-$$
$$5 a^9 b^4 c^{13} C d^3+17\mathrm{i} a^8 b^5 c^{13} C d^3+35 a^7 b^6 c^{13} C d^3+5\mathrm{i} a^6 b^7 c^{13} C d^3+61 a^5 b^8 c^{13} C d^3-$$
$$17\mathrm{i} a^4 b^9 c^{13} C d^3+21 a^3 b^{10} c^{13} C d^3-5\mathrm{i} a^2 b^{11} c^{13} C d^3-30 a^{10} A b^3 c^{12} d^4+25\mathrm{i} a^9 A b^4 c^{12} d^4-$$
$$35 a^8 A b^5 c^{12} d^4+53\mathrm{i} a^7 A b^6 c^{12} d^4+43 a^6 A b^7 c^{12} d^4+13\mathrm{i} a^5 A b^8 c^{12} d^4+53 a^4 A b^9 c^{12} d^4-$$
$$15\mathrm{i} a^3 A b^{10} c^{12} d^4+5 a^2 A b^{11} c^{12} d^4-15 a^{11} b^2 B c^{12} d^4-5\mathrm{i} a^{10} b^3 B c^{12} d^4-125 a^9 b^4 B c^{12} d^4+$$

$21 i a^8 b^5 B c^{12} d^4 - 244 a^7 b^6 B c^{12} d^4 + 80 i a^6 b^7 B c^{12} d^4 - 155 a^5 b^8 B c^{12} d^4 + 59 i a^4 b^9 B c^{12} d^4 -$
$21 a^3 b^{10} B c^{12} d^4 + 5 i a^2 b^{11} B c^{12} d^4 + 30 a^{10} b^3 c^{12} C d^4 - 25 i a^9 b^4 c^{12} C d^4 + 35 a^8 b^5 c^{12} C d^4 -$
$53 i a^7 b^6 c^{12} C d^4 - 43 a^6 b^7 c^{12} C d^4 - 13 i a^5 b^8 c^{12} C d^4 - 53 a^4 b^9 c^{12} C d^4 + 15 i a^3 b^{10} c^{12} C d^4 -$
$5 a^2 b^{11} c^{12} C d^4 + 33 a^{11} A b^2 c^{11} d^5 - 3 i a^{10} A b^3 c^{11} d^5 + 133 a^9 A b^4 c^{11} d^5 - 73 i a^8 A b^5 c^{11} d^5 +$
$86 a^7 A b^6 c^{11} d^5 - 76 i a^6 A b^7 c^{11} d^5 - 35 a^5 A b^8 c^{11} d^5 - 5 i a^4 A b^9 c^{11} d^5 - 21 a^3 A b^{10} c^{11} d^5 +$
$i a^2 A b^{11} c^{11} d^5 + 6 a^{12} b B c^{11} d^5 + 9 i a^{11} b^2 B c^{11} d^5 + 85 a^{10} b^3 B c^{11} d^5 + 35 i a^9 b^4 B c^{11} d^5 +$
$309 a^8 b^5 B c^{11} d^5 - 44 i a^7 b^6 B c^{11} d^5 + 332 a^6 b^7 B c^{11} d^5 - 97 i a^5 b^8 B c^{11} d^5 + 107 a^4 b^9 B c^{11} d^5 -$
$27 i a^3 b^{10} B c^{11} d^5 + 5 a^2 b^{11} B c^{11} d^5 - 33 a^{11} b^2 c^{11} C d^5 + 3 i a^{10} b^3 c^{11} C d^5 - 133 a^9 b^4 c^{11} C d^5 +$
$73 i a^8 b^5 c^{11} C d^5 - 86 a^7 b^6 c^{11} C d^5 + 76 i a^6 b^7 c^{11} C d^5 + 35 a^5 b^8 c^{11} C d^5 + 5 i a^4 b^9 c^{11} C d^5 +$
$21 a^3 b^{10} c^{11} C d^5 - i a^2 b^{11} c^{11} C d^5 - 16 a^{12} A b c^{10} d^6 - 17 i a^{11} A b^2 c^{10} d^6 - 161 a^{10} A b^3 c^{10} d^6 +$
$25 i a^9 A b^4 c^{10} d^6 - 271 a^8 A b^5 c^{10} d^6 + 112 i a^7 A b^6 c^{10} d^6 - 112 a^6 A b^7 c^{10} d^6 + 71 i a^5 A b^8 c^{10} d^6 +$
$15 a^4 A b^9 c^{10} d^6 + i a^3 A b^{10} c^{10} d^6 + a^2 A b^{11} c^{10} d^6 - a^{13} B c^{10} d^6 - 5 i a^{12} b B c^{10} d^6 -$
$27 a^{11} b^2 B c^{10} d^6 - 49 i a^{10} b^3 B c^{10} d^6 - 230 a^9 b^4 B c^{10} d^6 - 44 i a^8 b^5 B c^{10} d^6 - 428 a^7 b^6 B c^{10} d^6 +$
$52 i a^6 b^7 B c^{10} d^6 - 259 a^5 b^8 B c^{10} d^6 + 55 i a^4 b^9 B c^{10} d^6 - 35 a^3 b^{10} B c^{10} d^6 + 3 i a^2 b^{11} B c^{10} d^6 +$
$16 a^{12} b c^{10} C d^6 + 17 i a^{11} b^2 c^{10} C d^6 + 161 a^{10} b^3 c^{10} C d^6 - 25 i a^9 b^4 c^{10} C d^6 + 271 a^8 b^5 c^{10} C d^6 -$
$112 i a^7 b^6 c^{10} C d^6 + 112 a^6 b^7 c^{10} C d^6 - 71 i a^5 b^8 c^{10} C d^6 - 15 a^4 b^9 c^{10} C d^6 - i a^3 b^{10} c^{10} C d^6 -$
$a^2 b^{11} c^{10} C d^6 + 3 a^{13} A c^9 d^7 + 13 i a^{12} A b c^9 d^7 + 103 a^{11} A b^2 c^9 d^7 + 41 i a^{10} A b^3 c^9 d^7 +$
$352 a^9 A b^4 c^9 d^7 - 56 i a^8 A b^5 c^9 d^7 + 328 a^7 A b^6 c^9 d^7 - 104 i a^6 A b^7 c^9 d^7 + 77 a^5 A b^8 c^9 d^7 -$
$21 i a^4 A b^9 c^9 d^7 + a^3 A b^{10} c^9 d^7 - i a^2 A b^{11} c^9 d^7 + i a^{13} B c^9 d^7 + a^{12} b B c^9 d^7 + 21 i a^{11} b^2 B c^9 d^7 +$
$77 a^{10} b^3 B c^9 d^7 + 104 i a^9 b^4 B c^9 d^7 + 328 a^8 b^5 B c^9 d^7 + 56 i a^7 b^6 B c^9 d^7 + 352 a^6 b^7 B c^9 d^7 -$
$41 i a^5 b^8 B c^9 d^7 + 103 a^4 b^9 B c^9 d^7 - 13 i a^3 b^{10} B c^9 d^7 + 3 a^2 b^{11} B c^9 d^7 - 3 a^{13} c^9 C d^7 -$
$13 i a^{12} b c^9 C d^7 - 103 a^{11} b^2 c^9 C d^7 - 41 i a^{10} b^3 c^9 C d^7 - 352 a^9 b^4 c^9 C d^7 + 56 i a^8 b^5 c^9 C d^7 -$
$328 a^7 b^6 c^9 C d^7 + 104 i a^6 b^7 c^9 C d^7 - 77 a^5 b^8 c^9 C d^7 + 21 i a^4 b^9 c^9 C d^7 - a^3 b^{10} c^9 C d^7 +$
$i a^2 b^{11} c^9 C d^7 - 3 i a^{13} A c^8 d^8 - 35 a^{12} A b c^8 d^8 - 55 i a^{11} A b^2 c^8 d^8 - 259 a^{10} A b^3 c^8 d^8 -$
$52 i a^9 A b^4 c^8 d^8 - 428 a^8 A b^5 c^8 d^8 + 44 i a^7 A b^6 c^8 d^8 - 230 a^6 A b^7 c^8 d^8 + 49 i a^5 A b^8 c^8 d^8 -$
$27 a^4 A b^9 c^8 d^8 + 5 i a^3 A b^{10} c^8 d^8 - a^2 A b^{11} c^8 d^8 + a^{13} B c^8 d^8 - i a^{12} b B c^8 d^8 + 15 a^{11} b^2 B c^8 d^8 -$
$71 i a^{10} b^3 B c^8 d^8 - 112 a^9 b^4 B c^8 d^8 - 112 i a^8 b^5 B c^8 d^8 - 271 a^7 b^6 B c^8 d^8 - 25 i a^6 b^7 B c^8 d^8 -$
$161 a^5 b^8 B c^8 d^8 + 17 i a^4 b^9 B c^8 d^8 - 16 a^3 b^{10} B c^8 d^8 + 3 i a^{13} c^8 C d^8 + 35 a^{12} b c^8 C d^8 +$
$55 i a^{11} b^2 c^8 C d^8 + 259 a^{10} b^3 c^8 C d^8 + 52 i a^9 b^4 c^8 C d^8 + 428 a^8 b^5 c^8 C d^8 - 44 i a^7 b^6 c^8 C d^8 +$
$230 a^6 b^7 c^8 C d^8 - 49 i a^5 b^8 c^8 C d^8 + 27 a^4 b^9 c^8 C d^8 - 5 i a^3 b^{10} c^8 C d^8 + a^2 b^{11} c^8 C d^8 +$
$5 a^{13} A c^7 d^9 + 27 i a^{12} A b c^7 d^9 + 107 a^{11} A b^2 c^7 d^9 + 97 i a^{10} A b^3 c^7 d^9 + 332 a^9 A b^4 c^7 d^9 +$
$44 i a^8 A b^5 c^7 d^9 + 309 a^7 A b^6 c^7 d^9 - 35 i a^6 A b^7 c^7 d^9 + 85 a^5 A b^8 c^7 d^9 - 9 i a^4 A b^9 c^7 d^9 +$
$6 a^3 A b^{10} c^7 d^9 - i a^{13} B c^7 d^9 - 21 a^{12} b B c^7 d^9 + 5 i a^{11} b^2 B c^7 d^9 - 35 a^{10} b^3 B c^7 d^9 +$
$76 i a^9 b^4 B c^7 d^9 + 86 a^8 b^5 B c^7 d^9 + 73 i a^7 b^6 B c^7 d^9 + 133 a^6 b^7 B c^7 d^9 + 3 i a^5 b^8 B c^7 d^9 +$
$33 a^4 b^9 B c^7 d^9 - 5 a^{13} c^7 C d^9 - 27 i a^{12} b c^7 C d^9 - 107 a^{11} b^2 c^7 C d^9 - 97 i a^{10} b^3 c^7 C d^9 -$
$332 a^9 b^4 c^7 C d^9 - 44 i a^8 b^5 c^7 C d^9 - 309 a^7 b^6 c^7 C d^9 + 35 i a^6 b^7 c^7 C d^9 - 85 a^5 b^8 c^7 C d^9 +$
$9 i a^4 b^9 c^7 C d^9 - 6 a^3 b^{10} c^7 C d^9 - 5 i a^{13} A c^6 d^{10} - 21 a^{12} A b c^6 d^{10} - 59 i a^{11} A b^2 c^6 d^{10} -$
$155 a^{10} A b^3 c^6 d^{10} - 80 i a^9 A b^4 c^6 d^{10} - 244 a^8 A b^5 c^6 d^{10} - 21 i a^7 A b^6 c^6 d^{10} - 125 a^6 A b^7 c^6 d^{10} +$
$5 i a^5 A b^8 c^6 d^{10} - 15 a^4 A b^9 c^6 d^{10} + 5 a^{13} B c^6 d^{10} + 15 i a^{12} b B c^6 d^{10} + 53 a^{11} b^2 B c^6 d^{10} -$
$13 i a^{10} b^3 B c^6 d^{10} + 43 a^9 b^4 B c^6 d^{10} - 53 i a^8 b^5 B c^6 d^{10} - 35 a^7 b^6 B c^6 d^{10} - 25 i a^6 b^7 B c^6 d^{10} -$
$30 a^5 b^8 B c^6 d^{10} + 5 i a^{13} c^6 C d^{10} + 21 a^{12} b c^6 C d^{10} + 59 i a^{11} b^2 c^6 C d^{10} + 155 a^{10} b^3 c^6 C d^{10} +$
$80 i a^9 b^4 c^6 C d^{10} + 244 a^8 b^5 c^6 C d^{10} + 21 i a^7 b^6 c^6 C d^{10} + 125 a^6 b^7 c^6 C d^{10} - 5 i a^5 b^8 c^6 C d^{10} +$
$15 a^4 b^9 c^6 C d^{10} + a^{13} A c^5 d^{11} + 15 i a^{12} A b c^5 d^{11} + 37 a^{11} A b^2 c^5 d^{11} + 59 i a^{10} A b^3 c^5 d^{11} +$
$115 a^9 A b^4 c^5 d^{11} + 49 i a^8 A b^5 c^5 d^{11} + 99 a^7 A b^6 c^5 d^{11} + 5 i a^6 A b^7 c^5 d^{11} + 20 a^5 A b^8 c^5 d^{11} -$
$5 i a^{13} B c^5 d^{11} - 21 a^{12} b B c^5 d^{11} - 17 i a^{11} b^2 B c^5 d^{11} - 61 a^{10} b^3 B c^5 d^{11} + 5 i a^9 b^4 B c^5 d^{11} -$
$35 a^8 b^5 B c^5 d^{11} + 17 i a^7 b^6 B c^5 d^{11} + 5 a^6 b^7 B c^5 d^{11} - a^{13} c^5 C d^{11} - 15 i a^{12} b c^5 C d^{11} -$
$37 a^{11} b^2 c^5 C d^{11} - 59 i a^{10} b^3 c^5 C d^{11} - 115 a^9 b^4 c^5 C d^{11} - 49 i a^8 b^5 c^5 C d^{11} - 99 a^7 b^6 c^5 C d^{11} -$
$5 i a^6 b^7 c^5 C d^{11} - 20 a^5 b^8 c^5 C d^{11} - i a^{13} A c^4 d^{12} - a^{12} A b c^4 d^{12} - 21 i a^{11} A b^2 c^4 d^{12} -$
$27 a^{10} A b^3 c^4 d^{12} - 29 i a^9 A b^4 c^4 d^{12} - 41 a^8 A b^5 c^4 d^{12} - 9 i a^7 A b^6 c^4 d^{12} - 15 a^6 A b^7 c^4 d^{12} +$
$3 a^{13} B c^4 d^{12} + 13 i a^{12} b B c^4 d^{12} + 28 a^{11} b^2 B c^4 d^{12} + 16 i a^{10} b^3 B c^4 d^{12} + 37 a^9 b^4 B c^4 d^{12} +$
$3 i a^8 b^5 B c^4 d^{12} + 12 a^7 b^6 B c^4 d^{12} + i a^{13} c^4 C d^{12} + a^{12} b c^4 C d^{12} + 21 i a^{11} b^2 c^4 C d^{12} +$

$$27 a^{10} b^3 c^4 C d^{12} + 29 i a^9 b^4 c^4 C d^{12} + 41 a^8 b^5 c^4 C d^{12} + 9 i a^7 b^6 c^4 C d^{12} + 15 a^6 b^7 c^4 C d^{12} - a^{13} A c^3 d^{13} + i a^{12} A b c^3 d^{13} + 6 i a^{10} A b^3 c^3 d^{13} + 7 a^9 A b^4 c^3 d^{13} + 5 i a^8 A b^5 c^3 d^{13} + 6 a^7 A b^6 c^3 d^{13} - 3 i a^{13} B c^3 d^{13} - 5 a^{12} b B c^3 d^{13} - 10 i a^{11} b^2 B c^3 d^{13} - 14 a^{10} b^3 B c^3 d^{13} - 7 i a^9 b^4 B c^3 d^{13} - 9 a^8 b^5 B c^3 d^{13} + a^{13} c^3 C d^{13} - i a^{12} b c^3 C d^{13} - 6 i a^{10} b^3 c^3 C d^{13} - 7 a^9 b^4 c^3 C d^{13} - 5 i a^8 b^5 c^3 C d^{13} - 6 a^7 b^6 c^3 C d^{13} + i a^{13} A c^2 d^{14} + a^{12} A b c^2 d^{14} - i a^9 A b^4 c^2 d^{14} - a^8 A b^5 c^2 d^{14} + 2 i a^{12} b B c^2 d^{14} + 2 a^{11} b^2 B c^2 d^{14} + 2 i a^{10} b^3 B c^2 d^{14} + 2 a^9 b^4 B c^2 d^{14} - i a^{13} c^2 C d^{14} - a^{12} b c^2 C d^{14} + i a^9 b^4 c^2 C d^{14} + a^8 b^5 c^2 C d^{14}\Big) (e + f x)$$

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

$$\Big(a^2 (a - i b)^4 (a + i b)^2 (-i a + b) c^2 (c - i d)^6 (c + i d)^5 (-b c + a d)^6 f (a + b \text{Tan}[e + f x])^2 (c + d \text{Tan}[e + f x])^3\Big) -$$

$$\Big(i \left(2 a A b^5 c - a^2 b^4 B c + b^6 B c - 2 a b^5 c C - 5 a^2 A b^4 d - 3 A b^6 d + 4 a^3 b^3 B d + 2 a b^5 B d - 3 a^4 b^2 C d - a^2 b^4 C d\right) \text{ArcTan}[\text{Tan}[e + f x]] \text{Sec}[e + f x]^5 \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3\Big) \Big/$$

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

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

$$i \left(3 b^2 c^6 C d - 6 b^2 B c^5 d^2 + 10 A b^2 c^4 d^3 + 4 a b B c^4 d^3 - b^2 c^4 C d^3 - 10 a A b c^3 d^4 - a^2 B c^3 d^4 - 3 b^2 B c^3 d^4 + 10 a b c^3 C d^4 + 3 a^2 A c^2 d^5 + 9 A b^2 c^2 d^5 - 6 a b B c^2 d^5 - 3 a^2 c^2 C d^5 - 2 a A b c d^6 + 3 a^2 B c d^6 - b^2 B c d^6 + 2 a b c C d^6 - a^2 A d^7 + 3 A b^2 d^7 - 2 a b B d^7 + a^2 C d^7\right)$$

$$\text{ArcTan}[\text{Tan}[e + f x]] \text{Sec}[e + f x]^5 \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 +$$

$$\Big(\left(2 a A b^5 c - a^2 b^4 B c + b^6 B c - 2 a b^5 c C - 5 a^2 A b^4 d - 3 A b^6 d + 4 a^3 b^3 B d + 2 a b^5 B d - 3 a^4 b^2 C d - a^2 b^4 C d\right) \text{Log}\left[\left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2\right]$$

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

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

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

$$\left(3 b^2 c^6 C d - 6 b^2 B c^5 d^2 + 10 A b^2 c^4 d^3 + 4 a b B c^4 d^3 - b^2 c^4 C d^3 - 10 a A b c^3 d^4 - a^2 B c^3 d^4 - 3 b^2 B c^3 d^4 + 10 a b c^3 C d^4 + 3 a^2 A c^2 d^5 + 9 A b^2 c^2 d^5 - 6 a b B c^2 d^5 - 3 a^2 c^2 C d^5 - 2 a A b c d^6 + 3 a^2 B c d^6 - b^2 B c d^6 + 2 a b c C d^6 - a^2 A d^7 + 3 A b^2 d^7 - 2 a b B d^7 + a^2 C d^7\right)$$

$$\text{Log}\left[\left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^2\right] \text{Sec}[e + f x]^5 \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3 +$$

$$\Big(\text{Sec}[e + f x]^5 \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right) \left(-A b^5 \text{Sin}[e + f x] + a b^4 B \text{Sin}[e + f x] - a^2 b^3 C \text{Sin}[e + f x]\right) \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^3\Big) \Big/$$

$$\Big(a (a - i b) (a + i b) (-b c + a d)^3 f (a + b \text{Tan}[e + f x])^2 (c + d \text{Tan}[e + f x])^3\Big) +$$

$$\Big(\text{Sec}[e + f x]^5 \left(a \text{Cos}[e + f x] + b \text{Sin}[e + f x]\right)^2 \left(c \text{Cos}[e + f x] + d \text{Sin}[e + f x]\right)^2$$

$$\left(3 b c^4 C d^2 \text{Sin}[e + f x] - 4 b B c^3 d^3 \text{Sin}[e + f x] - a c^3 C d^3 \text{Sin}[e + f x] + 5 A b c^2 d^4 \text{Sin}[e + f x] + 2 a B c^2 d^4 \text{Sin}[e + f x] - 3 a A c d^5 \text{Sin}[e + f x] - b B c d^5 \text{Sin}[e + f x] + 2 a c C d^5 \text{Sin}[e + f x] + 2 A b d^6 \text{Sin}[e + f x] - a B d^6 \text{Sin}[e + f x]\right)\Big) \Big/$$

$$\left(c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,(b\,c-a\,d)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)$$

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

$$\int (a+b\,\mathrm{Tan}[e+f\,x])^3\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 464 leaves, 12 steps):

$$-\frac{(a-\mathrm{i}\,b)^3\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\sqrt{c-\mathrm{i}\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{f}+\frac{(a+\mathrm{i}\,b)^3\,(\mathrm{i}\,A-B-\mathrm{i}\,C)\,\sqrt{c+\mathrm{i}\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{f}+\frac{2\,\left(a^3\,B-3\,a\,b^2\,B+3\,a^2\,b\,(A-C)-b^3\,(A-C)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+\frac{1}{315\,d^4\,f}2\,\left(40\,a^3\,C\,d^3-6\,a^2\,b\,d^2\,(16\,c\,C-45\,B\,d)+9\,a\,b^2\,d\,\left(8\,c^2\,C-14\,B\,c\,d+35\,(A-C)\,d^2\right)-b^3\,\left(16\,c^3\,C-24\,B\,c^2\,d+42\,c\,(A-C)\,d^2+105\,B\,d^3\right)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}+\frac{1}{105\,d^3\,f}2\,b\,\left(21\,b\,(A\,b+a\,B-b\,C)\,d^2+4\,(b\,c-a\,d)\,(2\,b\,c\,C-3\,b\,B\,d-2\,a\,C\,d)\right)\,\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}-\frac{1}{21\,d^2\,f}2\,(2\,b\,c\,C-3\,b\,B\,d-2\,a\,C\,d)\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}+\frac{2\,C\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{9\,d\,f}$$

Result (type 3, 1092 leaves):

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3}\mathrm{Cos}[e+f\,x]^3\left(-\frac{1}{315\,d^4}2\,\left(16\,b^3\,c^4\,C-24\,b^3\,B\,c^3\,d-72\,a\,b^2\,c^3\,C\,d+42\,A\,b^3\,c^2\,d^2+126\,a\,b^2\,B\,c^2\,d^2+126\,a^2\,b\,c^2\,C\,d^2-48\,b^3\,c^2\,C\,d^2-315\,a\,A\,b^2\,c\,d^3-315\,a^2\,b\,B\,c\,d^3+114\,b^3\,B\,c\,d^3-105\,a^3\,c\,C\,d^3+342\,a\,b^2\,c\,C\,d^3-945\,a^2\,A\,b\,d^4+378\,A\,b^3\,d^4-315\,a^3\,B\,d^4+1134\,a\,b^2\,B\,d^4+1134\,a^2\,b\,C\,d^4-413\,b^3\,C\,d^4\right)+\frac{1}{315\,d^2}2\,b\,\left(-6\,b^2\,c^2\,C+9\,b^2\,B\,c\,d+27\,a\,b\,c\,C\,d+63\,A\,b^2\,d^2+189\,a\,b\,B\,d^2+189\,a^2\,C\,d^2-133\,b^2\,C\,d^2\right)\,\mathrm{Sec}[e+f\,x]^2+\frac{2}{9}\,b^3\,C\,\mathrm{Sec}[e+f\,x]^4+\frac{1}{63\,d}2\,\mathrm{Sec}[e+f\,x]^3\,\left(b^3\,c\,C\,\mathrm{Sin}[e+f\,x]+9\,b^3\,B\,d\,\mathrm{Sin}[e+f\,x]+27\,a\,b^2\,C\,d\,\mathrm{Sin}[e+f\,x]\right)-\frac{1}{315\,d^3}2\,\mathrm{Sec}[e+f\,x]\,\left(-8\,b^3\,c^3\,C\,\mathrm{Sin}[e+f\,x]+12\,b^3\,B\,c^2\,d\,\mathrm{Sin}[e+f\,x]+36\,a\,b^2\,c^2\,C\,d\,\mathrm{Sin}[e+f\,x]-21\,A\,b^3\,c\,d^2\,\mathrm{Sin}[e+f\,x]-63\,a\,b^2\,B\,c\,d^2\,\mathrm{Sin}[e+f\,x]-63\,a^2\,b\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]+26\,b^3\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]-315\,a\,A\,b^2\,d^3\,\mathrm{Sin}[e+f\,x]-315\,a^2\,b\,B\,d^3\,\mathrm{Sin}[e+f\,x]+150\,b^3\,B\,d^3\,\mathrm{Sin}[e+f\,x]-105\,a^3\,C\,d^3\,\mathrm{Sin}[e+f\,x]+450\,a\,b^2\,C\,d^3\,\mathrm{Sin}[e+f\,x]\right)\right)$$

$$(a+b\,\text{Tan}[e+f\,x])^3\sqrt{c+d\,\text{Tan}[e+f\,x]}-\left(\text{i}\left(a^3\,A\,c-3\,a\,A\,b^2\,c-3\,a^2\,b\,B\,c+b^3\,B\,c-a^3\,c\,C+3\,a\,b^2\,c\,C-3\,a^2\,A\,b\,d+A\,b^3\,d-a^3\,B\,d+3\,a\,b^2\,B\,d+3\,a^2\,b\,C\,d-b^3\,C\,d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\text{i}\,d}}\right]}{\sqrt{c-\text{i}\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\text{i}\,d}}\right]}{\sqrt{c+\text{i}\,d}}\right)\text{Cos}[e+f\,x]^4\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)-\left(\left(3\,a^2\,A\,b\,c-A\,b^3\,c+a^3\,B\,c-3\,a\,b^2\,B\,c-3\,a^2\,b\,c\,C+b^3\,c\,C+a^3\,A\,d-3\,a\,A\,b^2\,d-3\,a^2\,b\,B\,d+b^3\,B\,d-a^3\,C\,d+3\,a\,b^2\,C\,d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\text{i}\,d}}\right]}{\sqrt{c-\text{i}\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\text{i}\,d}}\right]}{\sqrt{c+\text{i}\,d}}\right)\text{Cos}[e+f\,x]^4\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)$$

Problem 91: Result more than twice size of optimal antiderivative.

$$\int(a+b\,\text{Tan}[e+f\,x])^2\sqrt{c+d\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 325 leaves, 11 steps):

$$-\frac{(a-\mathrm{i}\,b)^2\,(B+\mathrm{i}\,(A-C))\,\sqrt{c-\mathrm{i}\,d}\;\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{f}-\frac{(a+\mathrm{i}\,b)^2\,(B-\mathrm{i}\,(A-C))\,\sqrt{c+\mathrm{i}\,d}\;\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{f}+\frac{2\,(a^2\,B-b^2\,B+2\,a\,b\,(A-C))\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+\frac{1}{105\,d^3\,f}2\,(20\,a^2\,C\,d^2-14\,a\,b\,d\,(2\,c\,C-5\,B\,d)+b^2\,(8\,c^2\,C-14\,B\,c\,d+35\,(A-C)\,d^2))\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}-\frac{2\,b\,(4\,b\,c\,C-7\,b\,B\,d-4\,a\,C\,d)\,\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{35\,d^2\,f}+\frac{2\,C\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{7\,d\,f}$$

Result (type 3, 759 leaves) :

$$-\left(\left(\left(\mathrm{i}\left(a^2 A c-A b^2 c-2 a b B c-a^2 c C+b^2 c C-2 a A b d-a^2 B d+b^2 B d+2 a b C d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\text{Cos}[e+f x]^3\left(a+b\,\text{Tan}[e+f x]\right)^2\left(c+d\,\text{Tan}[e+f x]\right)\right)\Big/\left(f\left(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\right)^2\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)\right)\right)-$$

$$\left(\left(2 a A b c+a^2 B c-b^2 B c-2 a b c C+a^2 A d-A b^2 d-2 a b B d-a^2 C d+b^2 C d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\text{Cos}[e+f x]^3\left(a+b\,\text{Tan}[e+f x]\right)^2\left(c+d\,\text{Tan}[e+f x]\right)\right)\Big/$$

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

$$\text{Cos}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]\right)^2\sqrt{c+d\,\text{Tan}[e+f x]}\left(\frac{1}{105 d^3}2\left(8 b^2 c^3 C-14 b^2 B c^2 d-28 a b c^2 C d+35 A b^2 c d^2+70 a b B c d^2+35 a^2 c C d^2-38 b^2 c C d^2+210 a A b d^3+105 a^2 B d^3-126 b^2 B d^3-252 a b C d^3\right)+\frac{2 b\left(b c C+7 b B d+14 a C d\right)\text{Sec}[e+f x]^2}{35 d}+\frac{1}{105 d^2}2\,\text{Sec}[e+f x]\left(-4 b^2 c^2 C\,\text{Sin}[e+f x]+7 b^2 B c d\,\text{Sin}[e+f x]+14 a b c C d\,\text{Sin}[e+f x]+35 A b^2 d^2\,\text{Sin}[e+f x]+70 a b B d^2\,\text{Sin}[e+f x]+35 a^2 C d^2\,\text{Sin}[e+f x]-50 b^2 C d^2\,\text{Sin}[e+f x]\right)+\frac{2}{7} b^2 C\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)$$

Problem 94: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{a+b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 234 leaves, 12 steps):

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

Result (type ?, 525 533 leaves): Display of huge result suppressed!

Problem 95: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 317 leaves, 12 steps):

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

Result (type ?, 842 888 leaves): Display of huge result suppressed!

Problem 96: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(a+b\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 543 leaves, 13 steps):

$$-\frac{(A-\mathrm{i}B-C)\sqrt{c-\mathrm{i}d}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-\mathrm{i}d}}\right]}{(\mathrm{i}a+b)^3 f}+\frac{(A+\mathrm{i}B-C)\sqrt{c+\mathrm{i}d}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+\mathrm{i}d}}\right]}{(\mathrm{i}a-b)^3 f}+$$

$$\Big(\big(3a^5 bBd^2+a^6Cd^2-3a^4b^2d\,(4Bc+5Ad-6Cd)-3a^2b^4\,(8Ac^2-8c^2C-16Bcd-6Ad^2+5Cd^2)+2a^3b^3\,(20c\,(A-C)\,d+B\,(4c^2-13d^2))-3ab^5\,(8c\,(A-C)\,d+B\,(8c^2-d^2))-b^6\,(4c\,(2cC+Bd)-A\,(8c^2+d^2))\big)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{bc-ad}}\right]\Big)\Big/\left(4b^{3/2}(a^2+b^2)^3(bc-ad)^{3/2}f\right)-\frac{(Ab^2-a\,(bB-aC))\sqrt{c+d\,\text{Tan}[e+fx]}}{2b\,(a^2+b^2)\,f\,(a+b\,\text{Tan}[e+fx])^2}-$$

$$\Big((3a^3bBd+a^4Cd+b^4\,(4Bc+Ad)+ab^3\,(8Ac-8cC-5Bd)-a^2b^2\,(4Bc+7Ad-9Cd))\sqrt{c+d\,\text{Tan}[e+fx]}\Big)\Big/\left(4b\,(a^2+b^2)^2\,(bc-ad)\,f\,(a+b\,\text{Tan}[e+fx])\right)$$

Result (type ?, 1 853 832 leaves) : Display of huge result suppressed!

Problem 97: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[e+fx])^3\,(c+d\,\text{Tan}[e+fx])^{3/2}\,(A+B\,\text{Tan}[e+fx]+C\,\text{Tan}[e+fx]^2)\,dx$$

Optimal (type 3, 550 leaves, 13 steps) :

$$\frac{(\mathrm{i}a+b)^3(A-\mathrm{i}B-C)\,(c-\mathrm{i}d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-\mathrm{i}d}}\right]}{f}+\frac{(a+\mathrm{i}b)^3(\mathrm{i}A-B-\mathrm{i}C)\,(c+\mathrm{i}d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+\mathrm{i}d}}\right]}{f}+\frac{1}{f}$$

$$2\,(3a^2b\,(Ac-cC-Bd)-b^3\,(Ac-cC-Bd)+a^3\,(Bc+(A-C)\,d)-3ab^2\,(Bc+(A-C)\,d))\sqrt{c+d\,\text{Tan}[e+fx]}+\frac{2\,(a^3B-3ab^2B+3a^2b\,(A-C)-b^3\,(A-C))\,(c+d\,\text{Tan}[e+fx])^{3/2}}{3f}+$$

$$\frac{1}{3465\,d^4 f}2\,(168a^3Cd^3-2a^2bd^2\,(192cC-847Bd)+33ab^2d\,(8c^2C-18Bcd+63\,(A-C)\,d^2)-b^3\,(48c^3C-88Bc^2d+198c\,(A-C)\,d^2+693Bd^3))\,(c+d\,\text{Tan}[e+fx])^{5/2}+$$

$$\frac{1}{693\,d^3 f}2b\,(99b\,(Ab+aB-bC)\,d^2+4\,(bc-ad)\,(6bcC-11bBd-6aCd))\,\text{Tan}[e+fx]\,(c+d\,\text{Tan}[e+fx])^{5/2}-\frac{1}{99\,d^2 f}$$

$$2\,(6bcC-11bBd-6aCd)\,(a+b\,\text{Tan}[e+fx])^2\,(c+d\,\text{Tan}[e+fx])^{5/2}+\frac{2C\,(a+b\,\text{Tan}[e+fx])^3\,(c+d\,\text{Tan}[e+fx])^{5/2}}{11\,d\,f}$$

Result (type 3, 1610 leaves) :

$$-\frac{1}{f\left(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\right)^3\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)^2}\,\mathbb{i}\left(a^3 A c^2-3 a A b^2 c^2-3 a^2 b B c^2+b^3 B c^2-a^3 c^2 C+3 a b^2 c^2 C-6 a^2 A b c d+2 A b^3 c d-2 a^3 B c d+6 a b^2 B c d+6 a^2 b c C d-2 b^3 c C d-a^3 A d^2+3 a A b^2 d^2+3 a^2 b B d^2-b^3 B d^2+a^3 C d^2-3 a b^2 C d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathbb{i} d}}\right]}{\sqrt{c-\mathbb{i} d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathbb{i} d}}\right]}{\sqrt{c+\mathbb{i} d}}\right)\text{Cos}[e+f x]^5\left(a+b\,\text{Tan}[e+f x]\right)^3\left(c+d\,\text{Tan}[e+f x]\right)^2-$$

$$\frac{1}{f\left(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\right)^3\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)^2}\left(3 a^2 A b c^2-A b^3 c^2+a^3 B c^2-3 a b^2 B c^2-3 a^2 b c^2 C+b^3 c^2 C+2 a^3 A c d-6 a A b^2 c d-6 a^2 b B c d+2 b^3 B c d-2 a^3 c C d+6 a b^2 c C d-3 a^2 A b d^2+A b^3 d^2-a^3 B d^2+3 a b^2 B d^2+3 a^2 b C d^2-b^3 C d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathbb{i} d}}\right]}{\sqrt{c-\mathbb{i} d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathbb{i} d}}\right]}{\sqrt{c+\mathbb{i} d}}\right)\text{Cos}[e+f x]^5\left(a+b\,\text{Tan}[e+f x]\right)^3\left(c+d\,\text{Tan}[e+f x]\right)^2+$$

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

$$\left(\frac{1}{3465 d^4}2\left(-48 b^3 c^5 C+88 b^3 B c^4 d+264 a b^2 c^4 C d-198 A b^3 c^3 d^2-594 a b^2 B c^3 d^2-594 a^2 b c^3 C d^2+216 b^3 c^3 C d^2+2079 a A b^2 c^2 d^3+2079 a^2 b B c^2 d^3-726 b^3 B c^2 d^3+693 a^3 c^2 C d^3-2178 a b^2 c^2 C d^3+13860 a^2 A b c d^4-5412 A b^3 c d^4+4620 a^3 B c d^4-16236 a b^2 B c d^4-16236 a^2 b c C d^4+5832 b^3 c C d^4+3465 a^3 A d^5-12474 a A b^2 d^5-12474 a^2 b B d^5+4543 b^3 B d^5-4158 a^3 C d^5+13629 a b^2 C d^5\right)+\frac{1}{3465 d^2}\right.$$

$$2\left(-18 b^3 c^3 C+33 b^3 B c^2 d+99 a b^2 c^2 C d+792 A b^3 c d^2+2376 a b^2 B c d^2+2376 a^2 b c C d^2-1632 b^3 c C d^2+2079 a A b^2 d^3+2079 a^2 b B d^3-1463 b^3 B d^3+693 a^3 C d^3-4389 a b^2 C d^3\right)$$

$$\text{Sec}[e+f x]^2+\frac{2}{99} b^2\left(12 b c C+11 b B d+33 a C d\right)\text{Sec}[e+f x]^4+\frac{1}{693 d}2\,\text{Sec}[e+f x]^3$$

$$\left(3 b^3 c^2 C\,\text{Sin}[e+f x]+110 b^3 B c d\,\text{Sin}[e+f x]+330 a b^2 c C d\,\text{Sin}[e+f x]+99 A b^3 d^2\,\text{Sin}[e+f x]+297 a b^2 B d^2\,\text{Sin}[e+f x]+297 a^2 b C d^2\,\text{Sin}[e+f x]-225 b^3 C d^2\,\text{Sin}[e+f x]\right)-$$

$$\frac{1}{3465 d^3}2\,\text{Sec}[e+f x]\left(-24 b^3 c^4 C\,\text{Sin}[e+f x]+44 b^3 B c^3 d\,\text{Sin}[e+f x]+132 a b^2 c^3 C d\,\text{Sin}[e+f x]-99 A b^3 c^2 d^2\,\text{Sin}[e+f x]-297 a b^2 B c^2 d^2\,\text{Sin}[e+f x]-297 a^2 b c^2 C d^2\,\text{Sin}[e+f x]+114 b^3 c^2 C d^2\,\text{Sin}[e+f x]-4158 a A b^2 c d^3\,\text{Sin}[e+f x]-4158 a^2 b B c d^3\,\text{Sin}[e+f x]+1936 b^3 B c d^3\,\text{Sin}[e+f x]-1386 a^3 c C d^3\,\text{Sin}[e+f x]+5808 a b^2 c C d^3\,\text{Sin}[e+f x]-3465 a^2 A b d^4\,\text{Sin}[e+f x]+1650 A b^3 d^4\,\text{Sin}[e+f x]-1155 a^3 B d^4\,\text{Sin}[e+f x]+4950 a b^2 B d^4\,\text{Sin}[e+f x]+4950 a^2 b C d^4\,\text{Sin}[e+f x]-1965 b^3 C d^4\,\text{Sin}[e+f x]\right)+\left.\frac{2}{11} b^3 C d\,\text{Sec}[e+f x]^4\,\text{Tan}[e+f x]\right)$$

Problem 98: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 396 leaves, 12 steps):

$$-\frac{(a-i\,b)^2\,(B+i\,(A-C))\,(c-i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{f}+\frac{(a+i\,b)^2\,(i\,A-B-i\,C)\,(c+i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{f}+\frac{1}{f}2\left(2\,a\,b\,(A\,c-c\,C-B\,d)+a^2\,(B\,c+(A-C)\,d)-b^2\,(B\,c+(A-C)\,d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+\frac{2\left(a^2\,B-b^2\,B+2\,a\,b\,(A-C)\right)(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{1}{315\,d^3\,f}2\left(28\,a^2\,C\,d^2-18\,a\,b\,d\,(2\,c\,C-7\,B\,d)+b^2\left(8\,c^2\,C-18\,B\,c\,d+63\,(A-C)\,d^2\right)\right)(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}-\frac{2\,b\,(4\,b\,c\,C-9\,b\,B\,d-4\,a\,C\,d)\,\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{63\,d^2\,f}+\frac{2\,C\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{9\,d\,f}$$

Result (type 3, 1099 leaves):

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}$$
$$\mathrm{Cos}[e+f\,x]^3\left(\frac{1}{315\,d^3}2\left(8\,b^2\,c^4\,C-18\,b^2\,B\,c^3\,d-36\,a\,b\,c^3\,C\,d+63\,A\,b^2\,c^2\,d^2+126\,a\,b\,B\,c^2\,d^2+63\,a^2\,c^2\,C\,d^2-66\,b^2\,c^2\,C\,d^2+840\,a\,A\,b\,c\,d^3+420\,a^2\,B\,c\,d^3-492\,b^2\,B\,c\,d^3-984\,a\,b\,c\,C\,d^3+315\,a^2\,A\,d^4-378\,A\,b^2\,d^4-756\,a\,b\,B\,d^4-378\,a^2\,C\,d^4+413\,b^2\,C\,d^4\right)+\frac{1}{315\,d}2\left(3\,b^2\,c^2\,C+72\,b^2\,B\,c\,d+144\,a\,b\,c\,C\,d+63\,A\,b^2\,d^2+126\,a\,b\,B\,d^2+63\,a^2\,C\,d^2-133\,b^2\,C\,d^2\right)\mathrm{Sec}[e+f\,x]^2+\frac{2}{9}\,b^2\,C\,d\,\mathrm{Sec}[e+f\,x]^4+\frac{2}{63}\,\mathrm{Sec}[e+f\,x]^3\left(10\,b^2\,c\,C\,\mathrm{Sin}[e+f\,x]+9\,b^2\,B\,d\,\mathrm{Sin}[e+f\,x]+18\,a\,b\,C\,d\,\mathrm{Sin}[e+f\,x]\right)-\frac{1}{315\,d^2}2\,\mathrm{Sec}[e+f\,x]\left(4\,b^2\,c^3\,C\,\mathrm{Sin}[e+f\,x]-9\,b^2\,B\,c^2\,d\,\mathrm{Sin}[e+f\,x]-18\,a\,b\,c^2\,C\,d\,\mathrm{Sin}[e+f\,x]-126\,A\,b^2\,c\,d^2\,\mathrm{Sin}[e+f\,x]-252\,a\,b\,B\,c\,d^2\,\mathrm{Sin}[e+f\,x]-126\,a^2\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]+176\,b^2\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]-210\,a\,A\,b\,d^3\,\mathrm{Sin}[e+f\,x]-105\,a^2\,B\,d^3\,\mathrm{Sin}[e+f\,x]+150\,b^2\,B\,d^3\,\mathrm{Sin}[e+f\,x]+300\,a\,b\,C\,d^3\,\mathrm{Sin}[e+f\,x]\right)\right)$$
$$(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}-$$
$$\Bigg(i\left(a^2\,A\,c^2-A\,b^2\,c^2-2\,a\,b\,B\,c^2-a^2\,c^2\,C+b^2\,c^2\,C-4\,a\,A\,b\,c\,d-2\,a^2\,B\,c\,d+\right.$$

$$2 b^2 B c d + 4 a b c C d - a^2 A d^2 + A b^2 d^2 + 2 a b B d^2 + a^2 C d^2 - b^2 C d^2\Big) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}} - \frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \text{Cos}[e+f x]^4$$

$$\left.(a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right) \Big/$$

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

$$\Big(\big(2 a A b c^2 + a^2 B c^2 - b^2 B c^2 - 2 a b c^2 C + 2 a^2 A c d - 2 A b^2 c d -$$

$$4 a b B c d - 2 a^2 c C d + 2 b^2 c C d - 2 a A b d^2 - a^2 B d^2 + b^2 B d^2 + 2 a b C d^2\big) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}} + \frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \text{Cos}[e+f x]^4$$

$$\left.(a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right) \Big/$$

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

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

$$\int (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^{3/2} \left(A + B \text{Tan}[e+f x] + C \text{Tan}[e+f x]^2\right) dx$$

Optimal (type 3, 273 leaves, 11 steps):

$$-\frac{(i a+b) (A-i B-C) (c-i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f} + \frac{(i a-b) (A+i B-C) (c+i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{f} + \frac{2 (A b c + a B c - b c C + a A d - b B d - a C d) \sqrt{c+d \text{Tan}[e+f x]}}{f} + \frac{2 (A b + a B - b C) (c+d \text{Tan}[e+f x])^{3/2}}{3 f} - \frac{2 (2 b c C - 7 b B d - 7 a C d) (c+d \text{Tan}[e+f x])^{5/2}}{35 d^2 f} + \frac{2 b C \text{Tan}[e+f x] (c+d \text{Tan}[e+f x])^{5/2}}{7 d f}$$

Result (type 3, 714 leaves) :

$$-\left(\left(\left(i\left(a A c^2-b B c^2-a c^2 C-2 A b c d-2 a B c d+2 b c C d-a A d^2+b B d^2+a C d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \text{Cos}[e+f x]^3 (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^2\right)\Big/\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)\right)-\left(\left(A b c^2+a B c^2-b c^2 C+2 a A c d-2 b B c d-2 a c C d-A b d^2-a B d^2+b C d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \text{Cos}[e+f x]^3 (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^2\right)\Big/\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\frac{1}{f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])} \text{Cos}[e+f x]^2 (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^{3/2}\left(-\frac{1}{105 d^2}2\left(6 b c^3 C-21 b B c^2 d-21 a c^2 C d-140 A b c d^2-140 a B c d^2+164 b c C d^2-105 a A d^3+126 b B d^3+126 a C d^3\right)+\frac{2}{35}(8 b c C+7 b B d+7 a C d) \text{Sec}[e+f x]^2+\frac{1}{105 d}2 \text{Sec}[e+f x]\left(3 b c^2 C \text{Sin}[e+f x]+42 b B c d \text{Sin}[e+f x]+42 a c C d \text{Sin}[e+f x]+35 A b d^2 \text{Sin}[e+f x]+35 a B d^2 \text{Sin}[e+f x]-50 b C d^2 \text{Sin}[e+f x]\right)+\frac{2}{7} b C d \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)$$

Problem 100: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 187 leaves, 10 steps):

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

Result (type 3, 420 leaves):

$$\left(\text{Cos}[e+f\,x]\left(\frac{2\,(3\,c^2\,C+20\,B\,c\,d+15\,A\,d^2-18\,C\,d^2)}{15\,d}+\frac{2}{5}\,C\,d\,\text{Sec}[e+f\,x]^2+\frac{2}{15}\,\text{Sec}[e+f\,x]\,(6\,c\,C\,\text{Sin}[e+f\,x]+5\,B\,d\,\text{Sin}[e+f\,x])\right)(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)\Big/\left(f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)-$$
$$\left(i\,(A\,c^2-c^2\,C-2\,B\,c\,d-A\,d^2+C\,d^2)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\text{Cos}[e+f\,x]^2\,(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/\left(f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)-$$
$$\left((B\,c^2+2\,A\,c\,d-2\,c\,C\,d-B\,d^2)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\text{Cos}[e+f\,x]^2\,(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/\left(f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)$$

Problem 101: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^{3/2}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{a+b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 271 leaves, 13 steps):

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

Result (type ?, 796 117 leaves): Display of huge result suppressed!

Problem 102: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\text{Tan}[e+f x])^{3/2}\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(a+b\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 372 leaves, 13 steps):

$$-\frac{(i A+B-i C)\,(c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(a-i b)^2\,f}-\frac{(B-i\,(A-C))\,(c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a+i b)^2\,f}+\frac{1}{b^{5/2}\,\left(a^2+b^2\right)^2\,f}\sqrt{b c-a d}\,\left(a^3 b B d-3 a^4 C d-b^4\,(2 B c+3 A d)-a b^3\,(4 A c-4 c C-5 B d)+a^2 b^2\,(2 B c+(A-7 C)\,d)\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]+\frac{\left(A b^2-a b B+3 a^2 C+2 b^2 C\right)\,d\,\sqrt{c+d\,\text{Tan}[e+f x]}}{b^2\,\left(a^2+b^2\right)\,f}-\frac{\left(A b^2-a\,(b B-a C)\right)\,(c+d\,\text{Tan}[e+f x])^{3/2}}{b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f x])}$$

Result (type ?, 1 313 997 leaves): Display of huge result suppressed!

Problem 103: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\text{Tan}[e+f x])^{3/2}\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(a+b\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 532 leaves, 13 steps):

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

$$\left(\left(a^5 b B d^2+3 a^6 C d^2+a^4 b^2 d\,(4 B c+3 (A+2 C) d)-b^6 (8 A c^2-8 c^2 C-12 B c d-3 A d^2)+a^2 b^4 (24 A c^2-24 c^2 C-48 B c d-26 A d^2+35 C d^2)-2 a^3 b^3 (12 c (A-C) d+B (4 c^2-9 d^2))+a b^5 (40 c (A-C) d+3 B (8 c^2-5 d^2))\right)\text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]\right)\Big/\left(4 b^{5/2} (a^2+b^2)^3 \sqrt{b c-a d}\, f\right)-$$

$$\left(\left(a^3 b B d+3 a^4 C d+b^4 (4 B c+3 A d)+a b^3 (8 A c-8 c C-7 B d)-a^2 b^2 (4 B c+5 A d-11 C d)\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/\left(4 b^2 (a^2+b^2)^2 f\,(a+b\,\text{Tan}[e+f x])\right)-\frac{(A b^2-a (b B-a C))\,(c+d\,\text{Tan}[e+f x])^{3/2}}{2 b (a^2+b^2) f\,(a+b\,\text{Tan}[e+f x])^2}$$

Result (type ?, 1 783 377 leaves): Display of huge result suppressed!

Problem 104: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^{5/2}\,(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2)\,dx$$

Optimal (type 3, 503 leaves, 13 steps):

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

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

$$2\left(2 a b (A c-c C-B d)+a^2 (B c+(A-C) d)-b^2 (B c+(A-C) d)\right)(c+d\,\text{Tan}[e+f x])^{3/2}+\frac{2 (a^2 B-b^2 B+2 a b (A-C))\,(c+d\,\text{Tan}[e+f x])^{5/2}}{5 f}+\frac{1}{693 d^3 f}$$

$$2\left(36 a^2 C d^2-22 a b d (2 c C-9 B d)+b^2 (8 c^2 C-22 B c d+99 (A-C) d^2)\right)(c+d\,\text{Tan}[e+f x])^{7/2}-\frac{2 b (4 b c C-11 b B d-4 a C d)\,\text{Tan}[e+f x]\,(c+d\,\text{Tan}[e+f x])^{7/2}}{99 d^2 f}+\frac{2 C (a+b\,\text{Tan}[e+f x])^2 (c+d\,\text{Tan}[e+f x])^{7/2}}{11 d f}$$

Result (type 3, 1480 leaves):

$$-\frac{1}{f\left(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\right)^2\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)^3}\,\mathbb{i}\left(a^2 A c^3-A b^2 c^3-2 a b B c^3-a^2 c^3 C+b^2 c^3 C-6 a A b c^2 d-3 a^2 B c^2 d+3 b^2 B c^2 d+6 a b c^2 C d-3 a^2 A c d^2+3 A b^2 c d^2+6 a b B c d^2+3 a^2 c C d^2-3 b^2 c C d^2+2 a A b d^3+a^2 B d^3-b^2 B d^3-2 a b C d^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathbb{i} d}}\right]}{\sqrt{c-\mathbb{i} d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathbb{i} d}}\right]}{\sqrt{c+\mathbb{i} d}}\right)\text{Cos}[e+f x]^5\left(a+b\,\text{Tan}[e+f x]\right)^2\left(c+d\,\text{Tan}[e+f x]\right)^3-$$

$$\frac{1}{f\left(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\right)^2\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)^3}\left(2 a A b c^3+a^2 B c^3-b^2 B c^3-2 a b c^3 C+3 a^2 A c^2 d-3 A b^2 c^2 d-6 a b B c^2 d-3 a^2 c^2 C d+3 b^2 c^2 C d-6 a A b c d^2-3 a^2 B c d^2+3 b^2 B c d^2+6 a b c C d^2-a^2 A d^3+A b^2 d^3+2 a b B d^3+a^2 C d^3-b^2 C d^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathbb{i} d}}\right]}{\sqrt{c-\mathbb{i} d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathbb{i} d}}\right]}{\sqrt{c+\mathbb{i} d}}\right)\text{Cos}[e+f x]^5\left(a+b\,\text{Tan}[e+f x]\right)^2\left(c+d\,\text{Tan}[e+f x]\right)^3+$$

$$\frac{1}{f\left(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\right)^2\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)^2}\text{Cos}[e+f x]^4\left(a+b\,\text{Tan}[e+f x]\right)^2\left(c+d\,\text{Tan}[e+f x]\right)^{5/2}\left(\frac{1}{3465 d^3}2\left(40 b^2 c^5 C-110 b^2 B c^4 d-220 a b c^4 C d+495 A b^2 c^3 d^2+990 a b B c^3 d^2+495 a^2 c^3 C d^2-510 b^2 c^3 C d^2+10626 a A b c^2 d^3+5313 a^2 B c^2 d^3-6138 b^2 B c^2 d^3-12276 a b c^2 C d^3+8085 a^2 A c d^4-9570 A b^2 c d^4-19140 a b B c d^4-9570 a^2 c C d^4+10375 b^2 c C d^4-8316 a A b d^5-4158 a^2 B d^5+4543 b^2 B d^5+9086 a b C d^5\right)+\frac{1}{3465 d}2\left(15 b^2 c^3 C+825 b^2 B c^2 d+1650 a b c^2 C d+1485 A b^2 c d^2+2970 a b B c d^2+1485 a^2 c C d^2-3095 b^2 c C d^2+1386 a A b d^3+693 a^2 B d^3-1463 b^2 B d^3-2926 a b C d^3\right)\text{Sec}[e+f x]^2+\frac{2}{99}b d\left(23 b c C+11 b B d+22 a C d\right)\text{Sec}[e+f x]^4+\frac{2}{693}\text{Sec}[e+f x]^3\left(113 b^2 c^2 C\,\text{Sin}[e+f x]+209 b^2 B c d\,\text{Sin}[e+f x]+418 a b c C d\,\text{Sin}[e+f x]+99 A b^2 d^2\,\text{Sin}[e+f x]+198 a b B d^2\,\text{Sin}[e+f x]+99 a^2 C d^2\,\text{Sin}[e+f x]-225 b^2 C d^2\,\text{Sin}[e+f x]\right)-\frac{1}{3465 d^2}2\,\text{Sec}[e+f x]\left(20 b^2 c^4 C\,\text{Sin}[e+f x]-55 b^2 B c^3 d\,\text{Sin}[e+f x]-110 a b c^3 C d\,\text{Sin}[e+f x]-1485 A b^2 c^2 d^2\,\text{Sin}[e+f x]-2970 a b B c^2 d^2\,\text{Sin}[e+f x]-1485 a^2 c^2 C d^2\,\text{Sin}[e+f x]+2050 b^2 c^2 C d^2\,\text{Sin}[e+f x]-5082 a A b c d^3\,\text{Sin}[e+f x]-2541 a^2 B c d^3\,\text{Sin}[e+f x]+3586 b^2 B c d^3\,\text{Sin}[e+f x]+7172 a b c C d^3\,\text{Sin}[e+f x]-1155 a^2 A d^4\,\text{Sin}[e+f x]+1650 A b^2 d^4\,\text{Sin}[e+f x]+3300 a b B d^4\,\text{Sin}[e+f x]+1650 a^2 C d^4\,\text{Sin}[e+f x]-1965 b^2 C d^4\,\text{Sin}[e+f x]\right)+\frac{2}{11}b^2 C d^2\,\text{Sec}[e+f x]^4\,\text{Tan}[e+f x]\right)$$

Problem 105: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 353 leaves, 12 steps):

$$-\frac{(i\,a+b)\,(A-i\,B-C)\,(c-i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{f}+\frac{(i\,a-b)\,(A+i\,B-C)\,(c+i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{f}+\frac{1}{f}$$
$$2\left(a\left(B\,c^2-2\,c\,C\,d-B\,d^2\right)-b\left(c^2\,C+2\,B\,c\,d-C\,d^2\right)+A\left(2\,a\,c\,d+b\left(c^2-d^2\right)\right)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+$$
$$\frac{2\,(A\,b\,c+a\,B\,c-b\,c\,C+a\,A\,d-b\,B\,d-a\,C\,d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+$$
$$\frac{2\,(A\,b+a\,B-b\,C)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,f}-$$
$$\frac{2\,(2\,b\,c\,C-9\,b\,B\,d-9\,a\,C\,d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{7/2}}{63\,d^2\,f}+\frac{2\,b\,C\,\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^{7/2}}{9\,d\,f}$$

Result (type 3, 921 leaves):

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}$$

$$\mathrm{Cos}[e+f\,x]^3\left(\frac{1}{315\,d^2}2\,\left(-10\,b\,c^4\,C+45\,b\,B\,c^3\,d+45\,a\,c^3\,C\,d+483\,A\,b\,c^2\,d^2+483\,a\,B\,c^2\,d^2-\right.\right.$$

$$\left.558\,b\,c^2\,C\,d^2+735\,a\,A\,c\,d^3-870\,b\,B\,c\,d^3-870\,a\,c\,C\,d^3-378\,A\,b\,d^4-378\,a\,B\,d^4+413\,b\,C\,d^4\right)+$$

$$\frac{2}{315}\left(75\,b\,c^2\,C+135\,b\,B\,c\,d+135\,a\,c\,C\,d+63\,A\,b\,d^2+63\,a\,B\,d^2-133\,b\,C\,d^2\right)\mathrm{Sec}[e+f\,x]^2+$$

$$\frac{2}{9}\,b\,C\,d^2\,\mathrm{Sec}[e+f\,x]^4+$$

$$\frac{2}{63}\,\mathrm{Sec}[e+f\,x]^3\left(19\,b\,c\,C\,d\,\mathrm{Sin}[e+f\,x]+9\,b\,B\,d^2\,\mathrm{Sin}[e+f\,x]+9\,a\,C\,d^2\,\mathrm{Sin}[e+f\,x]\right)-\frac{1}{315\,d}$$

$$2\,\mathrm{Sec}[e+f\,x]\left(-5\,b\,c^3\,C\,\mathrm{Sin}[e+f\,x]-135\,b\,B\,c^2\,d\,\mathrm{Sin}[e+f\,x]-135\,a\,c^2\,C\,d\,\mathrm{Sin}[e+f\,x]-\right.$$

$$231\,A\,b\,c\,d^2\,\mathrm{Sin}[e+f\,x]-231\,a\,B\,c\,d^2\,\mathrm{Sin}[e+f\,x]+326\,b\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]-$$

$$\left.\left.105\,a\,A\,d^3\,\mathrm{Sin}[e+f\,x]+150\,b\,B\,d^3\,\mathrm{Sin}[e+f\,x]+150\,a\,C\,d^3\,\mathrm{Sin}[e+f\,x]\right)\right)$$

$$(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}-\left(\mathrm{i}\,\left(a\,A\,c^3-b\,B\,c^3-a\,c^3\,C-3\,A\,b\,c^2\,d-\right.\right.$$

$$\left.3\,a\,B\,c^2\,d+3\,b\,c^2\,C\,d-3\,a\,A\,c\,d^2+3\,b\,B\,c\,d^2+3\,a\,c\,C\,d^2+A\,b\,d^3+a\,B\,d^3-b\,C\,d^3\right)$$

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

$$\left.(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/$$

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

$$\left(\left(A\,b\,c^3+a\,B\,c^3-b\,c^3\,C+3\,a\,A\,c^2\,d-3\,b\,B\,c^2\,d-3\,a\,c^2\,C\,d-3\,A\,b\,c\,d^2-3\,a\,B\,c\,d^2+3\,b\,c\,C\,d^2-\right.\right.$$

$$\left.a\,A\,d^3+b\,B\,d^3+a\,C\,d^3\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)$$

$$\left.\mathrm{Cos}[e+f\,x]^4\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/$$

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

Problem 106: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 229 leaves, 11 steps):

$$-\frac{(i A+B-i C)\,(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i d}}\right]}{f}-\frac{(B-i (A-C))\,(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i d}}\right]}{f}+\frac{2\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}}{f}+\frac{2\,(B c+(A-C) d)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{3 f}+\frac{2 B\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{5 f}+\frac{2 C\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{7 d f}$$

Result (type 3, 515 leaves):

$$-\left(\left(i\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\text{Cos}[e+f\,x]^3\,(c+d\,\text{Tan}[e+f\,x])^3\right)\Big/\left(f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\right)\right)-\left(\left(B c^3+3 A c^2 d-3 c^2 C d-3 B c d^2-A d^3+C d^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\text{Cos}[e+f\,x]^3\,(c+d\,\text{Tan}[e+f\,x])^3\right)\Big/\left(f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\right)+\left(\text{Cos}[e+f\,x]^2\,(c+d\,\text{Tan}[e+f\,x])^{5/2}\left(\frac{2\left(15 c^3 C+161 B c^2 d+245 A c d^2-290 c C d^2-126 B d^3\right)}{105 d}+\frac{2}{35} d\,(15 c C+7 B d)\,\text{Sec}[e+f\,x]^2+\frac{2}{105}\text{Sec}[e+f\,x]\left(45 c^2 C\,\text{Sin}[e+f\,x]+77 B c d\,\text{Sin}[e+f\,x]+35 A d^2\,\text{Sin}[e+f\,x]-50 C d^2\,\text{Sin}[e+f\,x]\right)+\frac{2}{7} C d^2\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/\left(f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)$$

Problem 107: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{a+b\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 336 leaves, 14 steps):

$$-\frac{(i\,A+B-i\,C)\,(c-i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)\,f}+\frac{(i\,A-B-i\,C)\,(c+i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)\,f}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(b\,c-a\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{b^{7/2}\,(a^2+b^2)\,f}+\frac{1}{b^3\,f}2\,\left(b^2\,d\,(B\,c+(A-C)\,d)+(b\,c-a\,d)\,(b\,c\,C+b\,B\,d-a\,C\,d)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+\frac{2\,(b\,c\,C+b\,B\,d-a\,C\,d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,b^2\,f}+\frac{2\,C\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,b\,f}$$

Result (type ?, 1 076 868 leaves): Display of huge result suppressed!

Problem 108: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 473 leaves, 14 steps):

$$-\frac{(i\,A+B-i\,C)\,(c-i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\,f}-\frac{(B-i\,(A-C))\,(c+i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\,f}+\frac{1}{b^{7/2}\,(a^2+b^2)^2\,f}(b\,c-a\,d)^{3/2}\left(3\,a^3\,b\,B\,d-5\,a^4\,C\,d-b^4\,(2\,B\,c+5\,A\,d)-a\,b^3\,(4\,A\,c-4\,c\,C-7\,B\,d)+a^2\,b^2\,(2\,B\,c-(A+9\,C)\,d)\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]-\frac{1}{b^3\,(a^2+b^2)\,f}d\,\left(5\,a^3\,C\,d-A\,b^2\,(b\,c-a\,d)-2\,b^3\,(2\,c\,C+B\,d)-a^2\,b\,(5\,c\,C+3\,B\,d)+a\,b^2\,(B\,c+4\,C\,d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+\frac{(3\,A\,b^2-3\,a\,b\,B+5\,a^2\,C+2\,b^2\,C)\,d\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,b^2\,(a^2+b^2)\,f}-\frac{\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{b\,(a^2+b^2)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])}$$

Result (type ?, 1 794 028 leaves) : Display of huge result suppressed!

Problem 109: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2)}{(a+b\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 643 leaves, 14 steps) :

$$-\frac{(A-iB-C)\,(c-id)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-id}}\right]}{(ia+b)^3\,f}+\frac{(A+iB-C)\,(c+id)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+id}}\right]}{(ia-b)^3\,f}+\frac{1}{4\,b^{7/2}\,(a^2+b^2)^3\,f}$$
$$\sqrt{b\,c-a\,d}\,\left(3\,a^5\,b\,B\,d^2-15\,a^6\,C\,d^2+a^4\,b^2\,d\,(4\,B\,c+(A-46\,C)\,d)-3\,a^2\,b^4\,(8\,A\,c^2-8\,c^2\,C-16\,B\,c\,d-6\,A\,d^2+21\,C\,d^2)-a\,b^5\,(56\,c\,(A-C)\,d+B\,(24\,c^2-35\,d^2))-b^6\,(4\,c\,(2\,c\,C+5\,B\,d)-A\,(8\,c^2-15\,d^2))+2\,a^3\,b^3\,(4\,c\,(A-C)\,d+B\,(4\,c^2+3\,d^2))\right)$$
$$\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]-\frac{1}{4\,b^3\,(a^2+b^2)^2\,f}$$
$$d\,\left(3\,a^3\,b\,B\,d-15\,a^4\,C\,d-a\,b^3\,(8\,A\,c-8\,c\,C-11\,B\,d)+a^2\,b^2\,(4\,B\,c+(A-31\,C)\,d)-b^4\,(4\,B\,c+7\,A\,d+8\,C\,d)\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}+$$
$$\left(\left(a^3\,b\,B\,d-5\,a^4\,C\,d-b^4\,(4\,B\,c+5\,A\,d)-a\,b^3\,(8\,A\,c-8\,c\,C-9\,B\,d)+a^2\,b^2\,(4\,B\,c+3\,A\,d-13\,C\,d)\right)(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)\Big/\left(4\,b^2\,(a^2+b^2)^2\,f\,(a+b\,\text{Tan}[e+f\,x])\right)-$$
$$\frac{(A\,b^2-a\,(b\,B-a\,C))\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{2\,b\,(a^2+b^2)\,f\,(a+b\,\text{Tan}[e+f\,x])^2}$$

Result (type ?, 2 422 718 leaves) : Display of huge result suppressed!

Problem 114: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2}{(a+b\,\text{Tan}[e+f\,x])\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 210 leaves, 11 steps) :

$$-\frac{(iA+B-iC)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-id}}\right]}{(a-ib)\,\sqrt{c-id}\,f}-\frac{(A+iB-C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+id}}\right]}{(ia-b)\,\sqrt{c+id}\,f}-\frac{2\,(A\,b^2-a\,(b\,B-a\,C))\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{\sqrt{b}\,(a^2+b^2)\,\sqrt{b\,c-a\,d}\,f}$$

Result (type ?, 262 487 leaves) : Display of huge result suppressed!

Problem 115: Humongous result has more than 200000 leaves.

$$\int \frac{A + B \operatorname{Tan}[e + f x] + C \operatorname{Tan}[e + f x]^2}{(a + b \operatorname{Tan}[e + f x])^2 \sqrt{c + d \operatorname{Tan}[e + f x]}} \, dx$$

Optimal (type 3, 327 leaves, 12 steps):

$$-\frac{(\mathrm{i} A + B - \mathrm{i} C) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{(a - \mathrm{i} b)^2 \sqrt{c - \mathrm{i} d}\, f} - \frac{(B - \mathrm{i} (A - C)) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{(a + \mathrm{i} b)^2 \sqrt{c + \mathrm{i} d}\, f} - \left((3 a^3 b B d - a^4 C d + b^4 (2 B c - A d) + a b^3 (4 A c - 4 c C - B d) - a^2 b^2 (2 B c + 5 A d - 3 C d)) \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{c + d \operatorname{Tan}[e + f x]}}{\sqrt{b c - a d}}\right]\right) \Big/ \left(\sqrt{b} (a^2 + b^2)^2 (b c - a d)^{3/2} f\right) - \frac{(A b^2 - a (b B - a C)) \sqrt{c + d \operatorname{Tan}[e + f x]}}{(a^2 + b^2) (b c - a d) f (a + b \operatorname{Tan}[e + f x])}$$

Result (type ?, 847 080 leaves): Display of huge result suppressed!

Problem 116: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b \operatorname{Tan}[e + f x])^3 (A + B \operatorname{Tan}[e + f x] + C \operatorname{Tan}[e + f x]^2)}{(c + d \operatorname{Tan}[e + f x])^{3/2}} \, dx$$

Optimal (type 3, 511 leaves, 11 steps):

$$-\frac{(a - \mathrm{i} b)^3 (\mathrm{i} A + B - \mathrm{i} C) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{(c - \mathrm{i} d)^{3/2} f} - \frac{(\mathrm{i} a - b)^3 (A + \mathrm{i} B - C) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{(c + \mathrm{i} d)^{3/2} f} - \frac{2 (c^2 C - B c d + A d^2) (a + b \operatorname{Tan}[e + f x])^3}{d (c^2 + d^2) f \sqrt{c + d \operatorname{Tan}[e + f x]}} + \frac{1}{15 d^4 (c^2 + d^2) f} 2 b (6 a^2 d^2 (12 c^2 C - 5 B c d + (5 A + 7 C) d^2) - 15 a b d (8 c^3 C - 6 B c^2 d + c (3 A + 5 C) d^2 - 3 B d^3) + b^2 (48 c^4 C - 40 B c^3 d + 6 c^2 (5 A + 3 C) d^2 - 25 B c d^3 + 15 (A - C) d^4)) \sqrt{c + d \operatorname{Tan}[e + f x]} - \frac{1}{15 d^3 (c^2 + d^2) f} 2 b^2 (4 (b c - a d) (6 c^2 C - 5 B c d + (5 A + C) d^2) - 5 d^2 ((A - C) (b c - a d) + B (a c + b d))) \operatorname{Tan}[e + f x] \sqrt{c + d \operatorname{Tan}[e + f x]} + \frac{1}{5 d^2 (c^2 + d^2) f} 2 b (6 c^2 C - 5 B c d + (5 A + C) d^2) (a + b \operatorname{Tan}[e + f x])^2 \sqrt{c + d \operatorname{Tan}[e + f x]}$$

Result (type 3, 1173 leaves):

$$\frac{1}{f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])^{3/2}}$$

$$\operatorname{Cos}[e + f x] (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2$$

$$\left(\left(2\left(48 b^3 c^5 C-40 b^3 B c^4 d-120 a b^2 c^4 C d+30 A b^3 c^3 d^2+90 a b^2 B c^3 d^2+90 a^2 b c^3 C d^2+15 b^3 c^3 C d^2-45 a A b^2 c^2 d^3-45 a^2 b B c^2 d^3-25 b^3 B c^2 d^3-15 a^3 c^2 C d^3-75 a b^2 c^2 C d^3+45 a^2 A b c d^4+15 A b^3 c d^4+15 a^3 B c d^4+45 a b^2 B c d^4+45 a^2 b c C d^4-18 b^3 c C d^4-15 a^3 A d^5\right)\right) \Big/ \left(15 c (c-\mathbb{i} d)(c+\mathbb{i} d) d^4\right)+\frac{2 b^3 C \operatorname{Sec}[e+f x]^2}{5 d^2}+\frac{1}{15 d^3} 2 \operatorname{Sec}[e+f x]\left(-9 b^3 c C \operatorname{Sin}[e+f x]+5 b^3 B d \operatorname{Sin}[e+f x]+15 a b^2 C d \operatorname{Sin}[e+f x]\right)-\frac{1}{c (c-\mathbb{i} d)(c+\mathbb{i} d) d^3 (c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])} 2\left(b^3 c^5 C \operatorname{Sin}[e+f x]-b^3 B c^4 d \operatorname{Sin}[e+f x]-3 a b^2 c^4 C d \operatorname{Sin}[e+f x]+A b^3 c^3 d^2 \operatorname{Sin}[e+f x]+3 a b^2 B c^3 d^2 \operatorname{Sin}[e+f x]+3 a^2 b c^3 C d^2 \operatorname{Sin}[e+f x]-3 a A b^2 c^2 d^3 \operatorname{Sin}[e+f x]-3 a^2 b B c^2 d^3 \operatorname{Sin}[e+f x]-a^3 c^2 C d^3 \operatorname{Sin}[e+f x]+3 a^2 A b c d^4 \operatorname{Sin}[e+f x]+a^3 B c d^4 \operatorname{Sin}[e+f x]-a^3 A d^5 \operatorname{Sin}[e+f x]\right)\right)$$

$$(a+b \operatorname{Tan}[e+f x])^3+\left((c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^{3/2}(a+b \operatorname{Tan}[e+f x])^3\right.$$

$$\left(-\left(\left(\mathbb{i}\left(a^3 A c-3 a A b^2 c-3 a^2 b B c+b^3 B c-a^3 c C+3 a b^2 c C+3 a^2 A b d-A b^3 d+a^3 B d-3 a b^2 B d-3 a^2 b C d+b^3 C d\right)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-\mathbb{i} d}}\right]}{\sqrt{c-\mathbb{i} d}}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+\mathbb{i} d}}\right]}{\sqrt{c+\mathbb{i} d}}\right)\sqrt{c+d \operatorname{Tan}[e+f x]}\right) \Big/ \left(\sqrt{\operatorname{Sec}[e+f x]} \sqrt{c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]}\right)\right)-\right.$$

$$\left(\left(3 a^2 A b c-A b^3 c+a^3 B c-3 a b^2 B c-3 a^2 b c C+b^3 c C-a^3 A d+3 a A b^2 d+3 a^2 b B d-b^3 B d+a^3 C d-3 a b^2 C d\right)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-\mathbb{i} d}}\right]}{\sqrt{c-\mathbb{i} d}}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+\mathbb{i} d}}\right]}{\sqrt{c+\mathbb{i} d}}\right)\sqrt{c+d \operatorname{Tan}[e+f x]}\right) \Big/ \left.\left.\left(\sqrt{\operatorname{Sec}[e+f x]} \sqrt{c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]}\right)\right)\right) \Big/$$

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

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

Problem 117: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^2\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 343 leaves, 10 steps):

$$-\frac{(a-i\,b)^2\,(i\,A+B-i\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(c-i\,d)^{3/2}\,f}-\frac{(a+i\,b)^2\,(B-i\,(A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(c+i\,d)^{3/2}\,f}-\frac{2\,\left(c^2\,C-B\,c\,d+A\,d^2\right)\,(a+b\,\text{Tan}[e+f\,x])^2}{d\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}+\frac{1}{3\,d^3\,\left(c^2+d^2\right)\,f}2\,b\,\left(6\,a\,d\,\left(2\,c^2\,C-B\,c\,d+(A+C)\,d^2\right)-b\,\left(8\,c^3\,C-6\,B\,c^2\,d+c\,(3\,A+5\,C)\,d^2-3\,B\,d^3\right)\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}+\frac{2\,b^2\,\left(4\,c^2\,C-3\,B\,c\,d+(3\,A+C)\,d^2\right)\,\text{Tan}[e+f\,x]\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{3\,d^2\,\left(c^2+d^2\right)\,f}$$

Result (type 3, 895 leaves):

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

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

$$\Big(-\Big(\Big(2\,\big(8\,b^2\,c^4\,C-6\,b^2\,B\,c^3\,d-12\,a\,b\,c^3\,C\,d+3\,A\,b^2\,c^2\,d^2+6\,a\,b\,B\,c^2\,d^2+3\,a^2\,c^2\,C\,d^2+5\,b^2\,c^2\,C\,d^2-6\,a\,A\,b\,c\,d^3-3\,a^2\,B\,c\,d^3-3\,b^2\,B\,c\,d^3-6\,a\,b\,c\,C\,d^3+3\,a^2\,A\,d^4\big)\Big)\Big/\Big(3\,c\,(c-i\,d)\,(c+i\,d)\,d^3\Big)\Big)+$$

$$\Big(2\,\big(b^2\,c^4\,C\,\text{Sin}[e+f\,x]-b^2\,B\,c^3\,d\,\text{Sin}[e+f\,x]-2\,a\,b\,c^3\,C\,d\,\text{Sin}[e+f\,x]+A\,b^2\,c^2\,d^2\,\text{Sin}[e+f\,x]+2\,a\,b\,B\,c^2\,d^2\,\text{Sin}[e+f\,x]+a^2\,c^2\,C\,d^2\,\text{Sin}[e+f\,x]-2\,a\,A\,b\,c\,d^3\,\text{Sin}[e+f\,x]-a^2\,B\,c\,d^3\,\text{Sin}[e+f\,x]+a^2\,A\,d^4\,\text{Sin}[e+f\,x]\big)\Big)\Big/$$

$$\Big(c\,(c-i\,d)\,(c+i\,d)\,d^2\,\big(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]\big)\Big)+\frac{2\,b^2\,C\,\text{Tan}[e+f\,x]}{3\,d^2}\Big)+$$

$$\Bigg(\left(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]\right)^{3/2}\,\left(a+b\,\text{Tan}[e+f\,x]\right)^2$$

$$\Bigg(-\Bigg(\Bigg(i\,\left(a^2\,A\,c-A\,b^2\,c-2\,a\,b\,B\,c-a^2\,c\,C+b^2\,c\,C+2\,a\,A\,b\,d+a^2\,B\,d-b^2\,B\,d-2\,a\,b\,C\,d\right)$$

$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg)\Bigg/$$

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

$$\Bigg(\left(2\,a\,A\,b\,c+a^2\,B\,c-b^2\,B\,c-2\,a\,b\,c\,C-a^2\,A\,d+A\,b^2\,d+2\,a\,b\,B\,d+a^2\,C\,d-b^2\,C\,d\right)$$

$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)\Bigg)\Bigg)\Bigg/$$

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

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

Problem 118: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 201 leaves, 9 steps):

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

Result (type 3, 684 leaves):

$$\left(\text{Sec}[e+f x]\,\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)^2\left(\frac{2\left(2 b c^3 C-b B c^2 d-a c^2 C d+A b c d^2+a B c d^2+b c C d^2-a A d^3\right)}{c\,(c-i d)\,(c+i d)\,d^2}-\left(2\left(b c^3 C\,\text{Sin}[e+f x]-b B c^2 d\,\text{Sin}[e+f x]-a c^2 C d\,\text{Sin}[e+f x]+A b c d^2\,\text{Sin}[e+f x]+a B c d^2\,\text{Sin}[e+f x]-a A d^3\,\text{Sin}[e+f x]\right)\right)\Big/\left(c\,(c-i d)\,(c+i d)\,d\,\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)\right)\right)\left(a+b\,\text{Tan}[e+f x]\right)\right)\Big/$$

$$\left(f\left(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]\right)\left(c+d\,\text{Tan}[e+f x]\right)^{3/2}\right)+$$

$$\left(\sqrt{\text{Sec}[e+f x]}\,\left(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]\right)^{3/2}\left(a+b\,\text{Tan}[e+f x]\right)\left(-\left(\left(i\left(a A c-b B c-a c C+A b d+a B d-b C d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f x]}\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}\right)\right)-\left(\left(A b c+a B c-b c C-a A d+b B d+a C d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f x]}\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}\right)\right)\right)\Big/$$

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

Problem 119: Result more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{\left(c+d\,\text{Tan}[e+f x]\right)^{3/2}}\,dx$$

Optimal (type 3, 157 leaves, 8 steps):

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

Result (type 3, 510 leaves):

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

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

$$\left(-\left(\left(i\,(A c-c C+B d)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\right.\right.\right.$$

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

$$\left((B c-A d+C d)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/$$

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

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

Problem 120: Humongous result has more than 200000 leaves.

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

Optimal (type 3, 262 leaves, 12 steps):

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

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

Result (type ?, 659 327 leaves) : Display of huge result suppressed!

Problem 121: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 447 leaves, 13 steps) :

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

$$\left(\sqrt{b}\,\left(5\,a^3\,b\,B\,d-3\,a^4\,C\,d+b^4\,(2\,B\,c-3\,A\,d)+a\,b^3\,(4\,A\,c-4\,c\,C+B\,d)-a^2\,b^2\,(2\,B\,c+(7\,A-C)\,d)\right)\right.$$
$$\left.\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]\right)\Big/\left((a^2+b^2)^2\,(b\,c-a\,d)^{5/2}\,f\right)-$$
$$\left(d\,\left(2\,b^2\,c\,(c\,C-B\,d)-a\,b\,B\,(c^2+d^2)+a^2\,(3\,c^2\,C-2\,B\,c\,d+C\,d^2)+A\,(2\,a^2\,d^2+b^2\,(c^2+3\,d^2))\right)\right)\Big/$$
$$\left((a^2+b^2)\,(b\,c-a\,d)^2\,(c^2+d^2)\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)-$$
$$\frac{A\,b^2-a\,(b\,B-a\,C)}{(a^2+b^2)\,(b\,c-a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 1 833 889 leaves) : Display of huge result suppressed!

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

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 585 leaves, 11 steps) :

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

$$\left(2\left(b\left(2\,c^4 C-B\,c^3 d+4\,c^2 C\,d^2-3\,B\,c\,d^3+2\,A\,d^4\right)+a\,d^2\left(2\,c\,(A-C)\,d-B\,(c^2-d^2)\right)\right)(a+b\,\text{Tan}[e+f\,x])^2\right)\Big/\left(d^2\,(c^2+d^2)^2\, f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)+$$

$$\frac{1}{3\,d^4\,(c^2+d^2)^2\, f}2\,b\,\Big(3\,a\,b\,d\,\left(8\,c^4 C-2\,B\,c^3 d-c^2\,(A-17\,C)\,d^2-8\,B\,c\,d^3+(5\,A+3\,C)\,d^4\right)-$$
$$b^2\left(16\,c^5 C-8\,B\,c^4 d+2\,c^3\,(A+15\,C)\,d^2-17\,B\,c^2 d^3+8\,c\,(A+C)\,d^4-3\,B\,d^5\right)+$$
$$6\,a^2 d^3\left(2\,c\,(A-C)\,d-B\,(c^2-d^2)\right)\Big)\sqrt{c+d\,\text{Tan}[e+f\,x]}+\frac{1}{3\,d^3\,(c^2+d^2)^2\, f}$$
$$2\,b^2\left(b\left(8\,c^4 C-4\,B\,c^3 d+c^2\,(A+15\,C)\,d^2-10\,B\,c\,d^3+(7\,A+C)\,d^4\right)+3\,a\,d^2\left(2\,c\,(A-C)\,d-B\,(c^2-d^2)\right)\right)$$
$$\text{Tan}[e+f\,x]\,\sqrt{c+d\,\text{Tan}[e+f\,x]}$$

Result (type 3, 1617 leaves):

$$\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}$$
$$(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^3$$
$$\Bigg(-\frac{1}{3\,c\,(c-\mathrm{i}\, d)^2\,(c+\mathrm{i}\, d)^2\, d^4}2\,\Big(16\,b^3 c^6 C-8\,b^3 B\,c^5 d-24\,a\,b^2 c^5 C\,d+2\,A\,b^3 c^4 d^2+$$
$$6\,a\,b^2 B\,c^4 d^2+6\,a^2 b\,c^4 C\,d^2+31\,b^3 c^4 C\,d^2+3\,a\,A\,b^2 c^3 d^3+3\,a^2 b\,B\,c^3 d^3-$$
$$18\,b^3 B\,c^3 d^3+a^3 c^3 C\,d^3-54\,a\,b^2 c^3 C\,d^3-12\,a^2 A\,b\,c^2 d^4+9\,A\,b^3 c^2 d^4-4\,a^3 B\,c^2 d^4+$$
$$27\,a\,b^2 B\,c^2 d^4+27\,a^2 b\,c^2 C\,d^4+8\,b^3 c^2 C\,d^4+7\,a^3 A\,c\,d^5-18\,a\,A\,b^2 c\,d^5-$$
$$18\,a^2 b\,B\,c\,d^5-3\,b^3 B\,c\,d^5-6\,a^3 c\,C\,d^5-9\,a\,b^2 c\,C\,d^5+9\,a^2 A\,b\,d^6+3\,a^3 B\,d^6\Big)+$$
$$\frac{2\,(b\,c-a\,d)^3\,(c^2 C-B\,c\,d+A\,d^2)}{3\,(c-\mathrm{i}\, d)^2\,(c+\mathrm{i}\, d)^2\, d^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2}+$$
$$\frac{1}{3\,c\,(c-\mathrm{i}\, d)^2\,(c+\mathrm{i}\, d)^2\, d^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$
$$2\,\Big(7\,b^3 c^6 C\,\text{Sin}[e+f\,x]-4\,b^3 B\,c^5 d\,\text{Sin}[e+f\,x]-12\,a\,b^2 c^5 C\,d\,\text{Sin}[e+f\,x]+$$
$$A\,b^3 c^4 d^2\,\text{Sin}[e+f\,x]+3\,a\,b^2 B\,c^4 d^2\,\text{Sin}[e+f\,x]+3\,a^2 b\,c^4 C\,d^2\,\text{Sin}[e+f\,x]+$$
$$15\,b^3 c^4 C\,d^2\,\text{Sin}[e+f\,x]+6\,a\,A\,b^2 c^3 d^3\,\text{Sin}[e+f\,x]+6\,a^2 b\,B\,c^3 d^3\,\text{Sin}[e+f\,x]-$$
$$12\,b^3 B\,c^3 d^3\,\text{Sin}[e+f\,x]+2\,a^3 c^3 C\,d^3\,\text{Sin}[e+f\,x]-36\,a\,b^2 c^3 C\,d^3\,\text{Sin}[e+f\,x]-$$
$$15\,a^2 A\,b\,c^2 d^4\,\text{Sin}[e+f\,x]+9\,A\,b^3 c^2 d^4\,\text{Sin}[e+f\,x]-5\,a^3 B\,c^2 d^4\,\text{Sin}[e+f\,x]+$$
$$27\,a\,b^2 B\,c^2 d^4\,\text{Sin}[e+f\,x]+27\,a^2 b\,c^2 C\,d^4\,\text{Sin}[e+f\,x]+8\,a^3 A\,c\,d^5\,\text{Sin}[e+f\,x]-$$
$$18\,a\,A\,b^2 c\,d^5\,\text{Sin}[e+f\,x]-18\,a^2 b\,B\,c\,d^5\,\text{Sin}[e+f\,x]-6\,a^3 c\,C\,d^5\,\text{Sin}[e+f\,x]+$$
$$9\,a^2 A\,b\,d^6\,\text{Sin}[e+f\,x]+3\,a^3 B\,d^6\,\text{Sin}[e+f\,x]\Big)+\frac{2\,b^3 C\,\text{Tan}[e+f\,x]}{3\,d^3}\Bigg)+$$

$$\Bigg((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^{5/2}\,(a+b\,\text{Tan}[e+f\,x])^3$$

$$\Bigg(-\Bigg(\Bigg(\mathrm{i}\,\big(a^3\,A\,c^2-3\,a\,A\,b^2\,c^2-3\,a^2\,b\,B\,c^2+b^3\,B\,c^2-a^3\,c^2\,C+3\,a\,b^2\,c^2\,C+6\,a^2\,A\,b\,c\,d-2\,A\,b^3\,c\,d+$$

$$2\,a^3\,B\,c\,d-6\,a\,b^2\,B\,c\,d-6\,a^2\,b\,c\,C\,d+2\,b^3\,c\,C\,d-a^3\,A\,d^2+3\,a\,A\,b^2\,d^2+3\,a^2\,b\,B\,d^2-$$

$$b^3\,B\,d^2+a^3\,C\,d^2-3\,a\,b^2\,C\,d^2\big)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)$$

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

$$\Bigg(\big(3\,a^2\,A\,b\,c^2-A\,b^3\,c^2+a^3\,B\,c^2-3\,a\,b^2\,B\,c^2-3\,a^2\,b\,c^2\,C+b^3\,c^2\,C-2\,a^3\,A\,c\,d+6\,a\,A\,b^2\,c\,d+$$

$$6\,a^2\,b\,B\,c\,d-2\,b^3\,B\,c\,d+2\,a^3\,c\,C\,d-6\,a\,b^2\,c\,C\,d-3\,a^2\,A\,b\,d^2+A\,b^3\,d^2-a^3\,B\,d^2+3\,a\,b^2\,B\,d^2+$$

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

$$\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg)\Big/\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)\Bigg)\Bigg)\Big/$$

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

$$(c+d\,\text{Tan}[e+f\,x])^{5/2}\Big)$$

Problem 123: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^2\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 358 leaves, 10 steps):

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

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

$$\frac{2\,(c^2\,C-B\,c\,d+A\,d^2)\,(a+b\,\mathrm{Tan}[e+f\,x])^2}{3\,d\,(c^2+d^2)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+\Big(2\,(b\,c-a\,d)$$

$$\left(b\,(4\,c^4\,C-B\,c^3\,d-2\,c^2\,(A-5\,C)\,d^2-7\,B\,c\,d^3+4\,A\,d^4)+3\,a\,d^2\,(2\,c\,(A-C)\,d-B\,(c^2-d^2))\right)\Big)\Big/$$

$$\left(3\,d^3\,(c^2+d^2)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)+\frac{2\,b^2\,(4\,c^2\,C-B\,c\,d+(A+3\,C)\,d^2)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{3\,d^3\,(c^2+d^2)\,f}$$

Result (type 3, 1262 leaves):

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}$$

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

$$\Bigg(-\Big(\Big(2\,\big(-8\,b^2\,c^5\,C+2\,b^2\,B\,c^4\,d+4\,a\,b\,c^4\,C\,d+A\,b^2\,c^3\,d^2+2\,a\,b\,B\,c^3\,d^2+a^2\,c^3\,C\,d^2-18\,b^2\,c^3\,C\,d^2-8\,a\,A\,b$$

$$c^2\,d^3-4\,a^2\,B\,c^2\,d^3+9\,b^2\,B\,c^2\,d^3+18\,a\,b\,c^2\,C\,d^3+7\,a^2\,A\,c\,d^4-6\,A\,b^2\,c\,d^4-12\,a\,b\,B\,c\,d^4-$$

$$6\,a^2\,c\,C\,d^4-3\,b^2\,c\,C\,d^4+6\,a\,A\,b\,d^5+3\,a^2\,B\,d^5\big)\Big)\Big/\left(3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^3\right)\Big)-$$

$$\frac{2\,(b\,c-a\,d)^2\,(c^2\,C-B\,c\,d+A\,d^2)}{3\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}-$$

$$\frac{1}{3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}$$

$$2\,\big(4\,b^2\,c^5\,C\,\mathrm{Sin}[e+f\,x]-b^2\,B\,c^4\,d\,\mathrm{Sin}[e+f\,x]-2\,a\,b\,c^4\,C\,d\,\mathrm{Sin}[e+f\,x]-$$

$$2\,A\,b^2\,c^3\,d^2\,\mathrm{Sin}[e+f\,x]-4\,a\,b\,B\,c^3\,d^2\,\mathrm{Sin}[e+f\,x]-2\,a^2\,c^3\,C\,d^2\,\mathrm{Sin}[e+f\,x]+$$

$$12\,b^2\,c^3\,C\,d^2\,\mathrm{Sin}[e+f\,x]+10\,a\,A\,b\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]+5\,a^2\,B\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-$$

$$9\,b^2\,B\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-18\,a\,b\,c^2\,C\,d^3\,\mathrm{Sin}[e+f\,x]-8\,a^2\,A\,c\,d^4\,\mathrm{Sin}[e+f\,x]+$$

$$6\,A\,b^2\,c\,d^4\,\mathrm{Sin}[e+f\,x]+12\,a\,b\,B\,c\,d^4\,\mathrm{Sin}[e+f\,x]+6\,a^2\,c\,C\,d^4\,\mathrm{Sin}[e+f\,x]-$$

$$6\,a\,A\,b\,d^5\,\mathrm{Sin}[e+f\,x]-3\,a^2\,B\,d^5\,\mathrm{Sin}[e+f\,x]\big)\Bigg)\,(a+b\,\mathrm{Tan}[e+f\,x])^2+$$

$$\Bigg(\sqrt{\mathrm{Sec}[e+f\,x]}\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{5/2}\,(a+b\,\mathrm{Tan}[e+f\,x])^2$$

$$\Bigg(-\Bigg(\Bigg(\mathrm{i}\,\big(a^2\,A\,c^2-A\,b^2\,c^2-2\,a\,b\,B\,c^2-a^2\,c^2\,C+b^2\,c^2\,C+4\,a\,A\,b\,c\,d+2\,a^2\,B\,c\,d-$$

$$2\,b^2\,B\,c\,d-4\,a\,b\,c\,C\,d-a^2\,A\,d^2+A\,b^2\,d^2+2\,a\,b\,B\,d^2+a^2\,C\,d^2-b^2\,C\,d^2\big)$$

$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg/$$
$$\left(\sqrt{\text{Sec}[e+f\,x]}\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)\Bigg)-$$
$$\Bigg(\left(2\,a\,A\,b\,c^2+a^2\,B\,c^2-b^2\,B\,c^2-2\,a\,b\,c^2\,C-2\,a^2\,A\,c\,d+2\,A\,b^2\,c\,d+4\,a\,b\,B\,c\,d+\right.$$
$$\left.2\,a^2\,c\,C\,d-2\,b^2\,c\,C\,d-2\,a\,A\,b\,d^2-a^2\,B\,d^2+b^2\,B\,d^2+2\,a\,b\,C\,d^2\right)$$
$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg/$$
$$\left(\sqrt{\text{Sec}[e+f\,x]}\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)\Bigg)\Bigg)\Bigg/$$
$$\left((c-i\,d)^2\,(c+i\,d)^2\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right.$$
$$\left.(c+d\,\text{Tan}[e+f\,x])^{5/2}\right)$$

Problem 124: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 273 leaves, 9 steps):

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

Result (type 3, 931 leaves):

$$\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}$$

$$\mathrm{Sec}[e+f x]^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3\,\Bigg(-\Big(\big(2\,(2\,b\,c^4\,C+b\,B\,c^3\,d+a\,c^3\,C\,d-4\,A\,b\,c^2\,d^2-4\,a\,B\,c^2\,d^2+9\,b\,c^2\,C\,d^2+7\,a\,A\,c\,d^3-6\,b\,B\,c\,d^3-6\,a\,c\,C\,d^3+3\,A\,b\,d^4+3\,a\,B\,d^4)\big)\Big/\big(3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^2\big)\Big)+\frac{2\,(b\,c-a\,d)\,(c^2\,C-B\,c\,d+A\,d^2)}{3\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^2}+\big(2\,(b\,c^4\,C\,\mathrm{Sin}[e+f x]+2\,b\,B\,c^3\,d\,\mathrm{Sin}[e+f x]+2\,a\,c^3\,C\,d\,\mathrm{Sin}[e+f x]-5\,A\,b\,c^2\,d^2\,\mathrm{Sin}[e+f x]-5\,a\,B\,c^2\,d^2\,\mathrm{Sin}[e+f x]+9\,b\,c^2\,C\,d^2\,\mathrm{Sin}[e+f x]+8\,a\,A\,c\,d^3\,\mathrm{Sin}[e+f x]-6\,b\,B\,c\,d^3\,\mathrm{Sin}[e+f x]-6\,a\,c\,C\,d^3\,\mathrm{Sin}[e+f x]+3\,A\,b\,d^4\,\mathrm{Sin}[e+f x]+3\,a\,B\,d^4\,\mathrm{Sin}[e+f x])\big)\Big/\big(3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\big)\Bigg)\,(a+b\,\mathrm{Tan}[e+f x])+$$

$$\Bigg(\mathrm{Sec}[e+f x]^{3/2}\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^{5/2}\,(a+b\,\mathrm{Tan}[e+f x])\Bigg(-\Bigg(\Bigg(\Bigg(\mathrm{i}\,(a\,A\,c^2-b\,B\,c^2-a\,c^2\,C+2\,A\,b\,c\,d+2\,a\,B\,c\,d-2\,b\,c\,C\,d-a\,A\,d^2+b\,B\,d^2+a\,C\,d^2)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f x]}\Bigg)\Big/\left(\sqrt{\mathrm{Sec}[e+f x]}\,\sqrt{c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x]}\right)\Bigg)-\Bigg((A\,b\,c^2+a\,B\,c^2-b\,c^2\,C-2\,a\,A\,c\,d+2\,b\,B\,c\,d+2\,a\,c\,C\,d-A\,b\,d^2-a\,B\,d^2+b\,C\,d^2)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f x]}\Bigg)\Big/\left(\sqrt{\mathrm{Sec}[e+f x]}\,\sqrt{c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x]}\right)\Bigg)\Bigg)\Bigg)\Big/$$

$$\left((c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,f\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])\,(c+d\,\mathrm{Tan}[e+f x])^{5/2}\right)$$

Problem 125: Result more than twice size of optimal antiderivative.

$$\int \frac{A + B \operatorname{Tan}[e + f x] + C \operatorname{Tan}[e + f x]^2}{(c + d \operatorname{Tan}[e + f x])^{5/2}} \, dx$$

Optimal (type 3, 209 leaves, 9 steps):

$$-\frac{(i A + B - i C) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c - i d)^{5/2} f} - \frac{(B - i (A - C)) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c + i d)^{5/2} f} - \frac{2 (c^2 C - B c d + A d^2)}{3 d (c^2 + d^2) f (c + d \operatorname{Tan}[e + f x])^{3/2}} - \frac{2 (2 c (A - C) d - B (c^2 - d^2))}{(c^2 + d^2)^2 f \sqrt{c + d \operatorname{Tan}[e + f x]}}$$

Result (type 3, 647 leaves):

$$\left(\operatorname{Sec}[e + f x]^3 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^3 \left(-\frac{2 (c^3 C - 4 B c^2 d + 7 A c d^2 - 6 c C d^2 + 3 B d^3)}{3 c (c - i d)^2 (c + i d)^2 d} - \frac{2 d (c^2 C - B c d + A d^2)}{3 (c - i d)^2 (c + i d)^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2} + \left(2 \left(2 c^3 C \operatorname{Sin}[e + f x] - 5 B c^2 d \operatorname{Sin}[e + f x] + 8 A c d^2 \operatorname{Sin}[e + f x] - 6 c C d^2 \operatorname{Sin}[e + f x] + 3 B d^3 \operatorname{Sin}[e + f x]\right)\right) \Big/ \left(3 c (c - i d)^2 (c + i d)^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])\right)\right)\right) \Big/ \left(f (c + d \operatorname{Tan}[e + f x])^{5/2}\right) + \left(\operatorname{Sec}[e + f x]^{5/2} (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^{5/2} \left(-\left(\left(i (A c^2 - c^2 C + 2 B c d - A d^2 + C d^2) \left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c - i d}} - \frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c + i d}}\right) \sqrt{c + d \operatorname{Tan}[e + f x]}\right) \Big/ \left(\sqrt{\operatorname{Sec}[e + f x]} \sqrt{c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]}\right)\right) - \left((B c^2 - 2 A c d + 2 c C d - B d^2) \left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c - i d}} + \frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c + i d}}\right) \sqrt{c + d \operatorname{Tan}[e + f x]}\right) \Big/ \left(\sqrt{\operatorname{Sec}[e + f x]} \sqrt{c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]}\right)\right)\right) \Big/ \left((c - i d)^2 (c + i d)^2 f (c + d \operatorname{Tan}[e + f x])^{5/2}\right)$$

Problem 126: Humongous result has more than 200000 leaves.

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

Optimal (type 3, 365 leaves, 13 steps):

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

Result (type ?, 1 191 748 leaves): Display of huge result suppressed!

Problem 127: Humongous result has more than 200000 leaves.

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

Optimal (type 3, 679 leaves, 14 steps):

$$-\frac{(i\,A+B-i\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\,(c-i\,d)^{5/2}\,f}-\frac{(B-i\,(A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\,(c+i\,d)^{5/2}\,f}-\left(b^{3/2}\,\left(7\,a^3\,b\,B\,d-5\,a^4\,C\,d+b^4\,(2\,B\,c-5\,A\,d)+a\,b^3\,(4\,A\,c-4\,c\,C+3\,B\,d)-a^2\,b^2\,(2\,B\,c+(9\,A+C)\,d)\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]\right)\Big/\left((a^2+b^2)^2\,(b\,c-a\,d)^{7/2}\,f\right)-\left(d\,\left(2\,b^2\,c\,(c\,C-B\,d)-3\,a\,b\,B\,(c^2+d^2)+a^2\,(5\,c^2\,C-2\,B\,c\,d+3\,C\,d^2)+A\,(2\,a^2\,d^2+b^2\,(3\,c^2+5\,d^2))\right)\right)\Big/\left(3\,(a^2+b^2)\,(b\,c-a\,d)^2\,(c^2+d^2)\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)-\frac{A\,b^2-a\,(b\,B-a\,C)}{(a^2+b^2)\,(b\,c-a\,d)\,f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}-\left(d\,\left(2\,a^3\,d^2\,(B\,c^2+2\,c\,C\,d-B\,d^2)+2\,b^3\,c\,(2\,c^3\,C-3\,B\,c^2\,d-B\,d^3)-a\,b^2\,(B\,c^4-4\,c\,C\,d^3+3\,B\,d^4)+a^2\,b\,(5\,c^4\,C-6\,B\,c^3\,d+2\,c^2\,C\,d^2-2\,B\,c\,d^3+C\,d^4)-A\,(4\,a^3\,c\,d^3+4\,a\,b^2\,c\,d^3-4\,a^2\,b\,d^2\,(2\,c^2+d^2)-b^3\,(c^4+10\,c^2\,d^2+5\,d^4))\right)\right)\Big/\left((a^2+b^2)\,(b\,c-a\,d)^3\,(c^2+d^2)^2\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)$$

Result (type ?, 1 369 492 leaves): Display of huge result suppressed!

Problem 128: Humongous result has more than 200000 leaves.

$$\int (a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 679 leaves, 16 steps):

$$-\frac{(a-i\,b)^{5/2}\,(i\,A+B-i\,C)\,\sqrt{c-i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}-\frac{(a+i\,b)^{5/2}\,(B-i\,(A-C))\,\sqrt{c+i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}-$$
$$\frac{1}{64\,b^{3/2}\,d^{7/2}\,f}\Big(5\,a^4\,C\,d^4-20\,a^3\,b\,d^3\,(c\,C+2\,B\,d)+30\,a^2\,b^2\,d^2\,\left(c^2\,C-4\,B\,c\,d-8\,(A-C)\,d^2\right)-20\,a\,b^3\,d\,\left(c^3\,C-2\,B\,c^2\,d+8\,c\,(A-C)\,d^2-16\,B\,d^3\right)+b^4\,\left(5\,c^4\,C-8\,B\,c^3\,d+16\,c^2\,(A-C)\,d^2+64\,B\,c\,d^3+128\,(A-C)\,d^4\right)\Big)$$
$$\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]+\frac{1}{64\,b\,d^3\,f}\Big(64\,b\,\left(a^2\,B-b^2\,B+2\,a\,b\,(A-C)\right)\,d^3-(b\,c-a\,d)\,\left(16\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(5\,b\,c\,C-8\,b\,B\,d-5\,a\,C\,d)\right)\Big)\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}$$
$$\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+\frac{1}{32\,d^3\,f}\Big(16\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(5\,b\,c\,C-8\,b\,B\,d-5\,a\,C\,d)\Big)$$
$$\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}-\frac{1}{24\,d^2\,f}$$
$$(5\,b\,c\,C-8\,b\,B\,d-5\,a\,C\,d)\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}+\frac{C\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{4\,d\,f}$$

Result (type ?, 1 631 220 leaves): Display of huge result suppressed!

Problem 129: Humongous result has more than 200000 leaves.

$$\int (a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 505 leaves, 15 steps):

$$-\frac{(a-i b)^{3/2} (i A+B-i C) \sqrt{c-i d} \operatorname{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{f}+$$
$$\frac{(a+i b)^{3/2} (i A-B-i C) \sqrt{c+i d} \operatorname{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{f}-\frac{1}{8 b^{3/2} d^{5/2} f}$$
$$\left(a^3 C d^3-3 a^2 b d^2 (c C+2 B d)+3 a b^2 d \left(c^2 C-4 B c d-8 (A-C) d^2\right)-\right.$$
$$\left.b^3 \left(c^3 C-2 B c^2 d+8 c (A-C) d^2-16 B d^3\right)\right) \operatorname{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]+\frac{1}{8 b d^2 f}$$
$$\left(8 b (A b+a B-b C) d^2+(b c-a d) (b c C-2 b B d-a C d)\right) \sqrt{a+b \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]}-$$
$$\frac{(b c C-2 b B d-a C d) \sqrt{a+b \operatorname{Tan}[e+f x]} (c+d \operatorname{Tan}[e+f x])^{3/2}}{4 d^2 f}+$$
$$\frac{C (a+b \operatorname{Tan}[e+f x])^{3/2} (c+d \operatorname{Tan}[e+f x])^{3/2}}{3 d f}$$

Result (type ?, 1 131 613 leaves) : Display of huge result suppressed!

Problem 130: Humongous result has more than 200000 leaves.

$$\int \sqrt{a+b \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]} \left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right) dx$$

Optimal (type 3, 381 leaves, 14 steps) :

$$-\frac{\sqrt{a-i b} (i A+B-i C) \sqrt{c-i d} \operatorname{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{f}-$$
$$\frac{\sqrt{a+i b} (B-i (A-C)) \sqrt{c+i d} \operatorname{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{f}-\frac{1}{4 b^{3/2} d^{3/2} f}$$
$$\left(a^2 C d^2-2 a b d (c C+2 B d)+b^2 \left(c^2 C-4 B c d-8 (A-C) d^2\right)\right) \operatorname{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]-$$
$$\frac{(b c C-4 b B d-a C d) \sqrt{a+b \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]}}{4 b d f}+$$
$$\frac{C \sqrt{a+b \operatorname{Tan}[e+f x]} (c+d \operatorname{Tan}[e+f x])^{3/2}}{2 d f}$$

Result (type ?, 697 653 leaves) : Display of huge result suppressed!

Problem 131: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d \operatorname{Tan}[e+f x]} \left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right)}{\sqrt{a+b \operatorname{Tan}[e+f x]}} dx$$

Optimal (type 3, 287 leaves, 13 steps):

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

Result (type ?, 332 624 leaves): Display of huge result suppressed!

Problem 132: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d \text{Tan}[e+f x]}\left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(a+b \text{Tan}[e+f x])^{3/2}}\, dx$$

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

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

Result (type ?, 621 058 leaves): Display of huge result suppressed!

Problem 133: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d \text{Tan}[e+f x]}\left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(a+b \text{Tan}[e+f x])^{5/2}}\, dx$$

Optimal (type 3, 370 leaves, 9 steps):

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

$$\frac{2\left(A b^2-a (b B-a C)\right)\sqrt{c+d \text{Tan}[e+f x]}}{3 b \left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])^{3/2}}-$$

$$\left(2\left(2 a^3 b B d+a^4 C d+b^4 (3 B c+A d)+2 a b^3 (3 A c-3 c C-2 B d)-a^2 b^2 (3 B c+5 A d-7 C d)\right)\sqrt{c+d \text{Tan}[e+f x]}\right)\Big/\left(3 b \left(a^2+b^2\right)^2 (b c-a d) f \sqrt{a+b \text{Tan}[e+f x]}\right)$$

Result (type ?, 815 411 leaves): Display of huge result suppressed!

Problem 134: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d \text{Tan}[e+f x]}\,\left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(a+b \text{Tan}[e+f x])^{7/2}}\,dx$$

Optimal (type 3, 597 leaves, 10 steps):

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

$$\frac{2\left(A b^2-a (b B-a C)\right)\sqrt{c+d \text{Tan}[e+f x]}}{5 b \left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])^{5/2}}-$$

$$\left(2\left(4 a^3 b B d+a^4 C d+b^4 (5 B c+A d)+2 a b^3 (5 A c-5 c C-3 B d)-a^2 b^2 (5 B c+9 A d-11 C d)\right)\sqrt{c+d \text{Tan}[e+f x]}\right)\Big/\left(15 b \left(a^2+b^2\right)^2 (b c-a d) f (a+b \text{Tan}[e+f x])^{3/2}\right)+$$

$$\Big(2\Big(8 a^5 b B d^2+2 a^6 C d^2-a^4 b^2 d (25 B c+33 A d-39 C d)-a^2 b^4 \left(45 A c^2-45 c^2 C-90 B c d-29 A d^2+23 C d^2\right)+a^3 b^3 \left(80 c (A-C) d+B \left(15 c^2-49 d^2\right)\right)-a b^5 \left(40 c (A-C) d+B \left(45 c^2-3 d^2\right)\right)-b^6 \left(5 c (3 c C+B d)-A \left(15 c^2+2 d^2\right)\right)\Big)\sqrt{c+d \text{Tan}[e+f x]}\Big)\Big/\left(15 b \left(a^2+b^2\right)^3 (b c-a d)^2 f \sqrt{a+b \text{Tan}[e+f x]}\right)$$

Result (type ?, 1 087 154 leaves): Display of huge result suppressed!

Problem 135: Humongous result has more than 200000 leaves.

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

Optimal (type 3, 682 leaves, 16 steps) :

$$-\frac{(a-i b)^{3/2} (B+i (A-C)) (c-i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{f}-\frac{(a+i b)^{3/2} (B-i (A-C)) (c+i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{f}+\frac{1}{64 b^{5/2} d^{5/2} f}\left(3 a^4 C d^4-4 a^3 b d^3 (3 c C+2 B d)+6 a^2 b^2 d^2 \left(3 c^2 C+12 B c d+8 (A-C) d^2\right)-12 a b^3 d \left(c^3 C-6 B c^2 d-24 c (A-C) d^2+16 B d^3\right)+b^4 \left(3 c^4 C-8 B c^3 d+48 c^2 (A-C) d^2-192 B c d^3-128 (A-C) d^4\right)\right) \text{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}\right]+\frac{1}{64 b^2 d^2 f}\left(64 b \left(a^2 B-b^2 B+2 a b (A-C)\right) d^3+(b c-a d) \left(48 b (A b+a B-b C) d^2+(b c-a d) (3 b c C-8 b B d-3 a C d)\right)\right) \sqrt{a+b \text{Tan}[e+f x]} \sqrt{c+d \text{Tan}[e+f x]}+\frac{1}{96 b d^2 f}\left(48 b (A b+a B-b C) d^2+(b c-a d) (3 b c C-8 b B d-3 a C d)\right) \sqrt{a+b \text{Tan}[e+f x]} (c+d \text{Tan}[e+f x])^{3/2}-\frac{(3 b c C-8 b B d-3 a C d) \sqrt{a+b \text{Tan}[e+f x]} (c+d \text{Tan}[e+f x])^{5/2}}{24 d^2 f}+\frac{C (a+b \text{Tan}[e+f x])^{3/2} (c+d \text{Tan}[e+f x])^{5/2}}{4 d f}$$

Result (type ?, 1 731 183 leaves) : Display of huge result suppressed!

Problem 136: Humongous result has more than 200000 leaves.

$$\int \sqrt{a+b \text{Tan}[e+f x]} (c+d \text{Tan}[e+f x])^{3/2} \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right) dx$$

Optimal (type 3, 508 leaves, 15 steps) :

$$-\frac{\sqrt{a-i b}\,(i A+B-i C)\,(c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]}{f}-\frac{\sqrt{a+i b}\,(B-i (A-C))\,(c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]}{f}+\frac{1}{8 b^{5/2} d^{3/2} f}\left(a^3 C d^3-a^2 b d^2 (3 c C+2 B d)+a b^2 d \left(3 c^2 C+12 B c d+8 (A-C) d^2\right)-b^3 \left(c^3 C-6 B c^2 d-24 c (A-C) d^2+16 B d^3\right)\right) \text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]+\frac{1}{8 b^2 d f}\left(8 b (A b+a B-b C) d^2-(b c-a d) (b c C-6 b B d-a C d)\right) \sqrt{a+b \text{Tan}[e+f x]}\,\sqrt{c+d \text{Tan}[e+f x]}-\frac{(b c C-6 b B d-a C d) \sqrt{a+b \text{Tan}[e+f x]}\,(c+d \text{Tan}[e+f x])^{3/2}}{12 b d f}+\frac{C \sqrt{a+b \text{Tan}[e+f x]}\,(c+d \text{Tan}[e+f x])^{5/2}}{3 d f}$$

Result (type ?, 1 131 925 leaves) : Display of huge result suppressed!

Problem 137: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d \text{Tan}[e+f x])^{3/2} \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{\sqrt{a+b \text{Tan}[e+f x]}}\, dx$$

Optimal (type 3, 384 leaves, 14 steps) :

$$-\frac{(i A+B-i C)\,(c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]}{\sqrt{a-i b}\,f}+\frac{(i A-B-i C)\,(c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]}{\sqrt{a+i b}\,f}+\frac{1}{4 b^{5/2} \sqrt{d}\, f}\left(3 a^2 C d^2-2 a b d (3 c C+2 B d)+b^2 \left(3 c^2 C+12 B c d+8 (A-C) d^2\right)\right) \text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]+\frac{(3 b c C+4 b B d-3 a C d) \sqrt{a+b \text{Tan}[e+f x]}\,\sqrt{c+d \text{Tan}[e+f x]}}{4 b^2 f}+\frac{C \sqrt{a+b \text{Tan}[e+f x]}\,(c+d \text{Tan}[e+f x])^{3/2}}{2 b f}$$

Result (type ?, 599 000 leaves) : Display of huge result suppressed!

Problem 138: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 382 leaves, 14 steps):

$$-\frac{(i\,A+B-i\,C)\,(c-i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{3/2}\,f}-\frac{(B-i\,(A-C))\,(c+i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{3/2}\,f}+\frac{\sqrt{d}\,(3\,b\,c\,C+2\,b\,B\,d-3\,a\,C\,d)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{b^{5/2}\,f}+\frac{1}{b^2\,(a^2+b^2)\,f}\left(2\,A\,b^2-2\,a\,b\,B+3\,a^2\,C+b^2\,C\right)\,d\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{b\,(a^2+b^2)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 1 073 629 leaves): Display of huge result suppressed!

Problem 139: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 402 leaves, 14 steps):

$$-\frac{(i\,A+B-i\,C)\,(c-i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{5/2}\,f}-\frac{(B-i\,(A-C))\,(c+i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{5/2}\,f}+\frac{2\,C\,d^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{b^{5/2}\,f}-\left(2\,\left(a^4\,C\,d+b^4\,(B\,c+A\,d)+2\,a\,b^3\,(A\,c-c\,C-B\,d)-a^2\,b^2\,(B\,c+(A-3\,C)\,d)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\Big/\left(b^2\,(a^2+b^2)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\right)-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,b\,(a^2+b^2)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}$$

Result (type ?, 1 347 065 leaves): Display of huge result suppressed!

Problem 140: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{(a+b\,\mathrm{Tan}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 586 leaves, 10 steps):

$$-\frac{(i\,A+B-i\,C)\,(c-i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{7/2}\,f}-\frac{(B-i\,(A-C))\,(c+i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{7/2}\,f}-$$
$$\left(2\,\left(2\,a^3\,b\,B\,d+3\,a^4\,C\,d+b^4\,(5\,B\,c+3\,A\,d)+2\,a\,b^3\,(5\,A\,c-5\,c\,C-4\,B\,d)-a^2\,b^2\,(5\,B\,c+7\,A\,d-13\,C\,d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\Big/\left(15\,b^2\,(a^2+b^2)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\right)-$$
$$\Big(2\,\big(2\,a^5\,b\,B\,d^2+3\,a^6\,C\,d^2+a^4\,b^2\,d\,(10\,B\,c+(8\,A+C)\,d)+a^2\,b^4\,(45\,A\,c^2-45\,c^2\,C-90\,B\,c\,d-49\,A\,d^2+58\,C\,d^2)-a^3\,b^3\,(50\,c\,(A-C)\,d+B\,(15\,c^2-39\,d^2))+a\,b^5\,(70\,c\,(A-C)\,d+B\,(45\,c^2-23\,d^2))+b^6\,(5\,c\,(3\,c\,C+4\,B\,d)-3\,A\,(5\,c^2-d^2))\big)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Big)\Big/\left(15\,b^2\,(a^2+b^2)^3\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\right)-\frac{2\,(A\,b^2-a\,(b\,B-a\,C))\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{5\,b\,(a^2+b^2)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}}$$

Result (type ?, 1 631 085 leaves): Display of huge result suppressed!

Problem 141: Humongous result has more than 200000 leaves.

$$\int \sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)\,dx$$

Optimal (type 3, 697 leaves, 16 steps):

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

$$\frac{\sqrt{a+i b}\,(i A-B-i C)\,(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]}{f}-\frac{1}{64\, b^{7/2}\, d^{3/2}\, f}$$

$$\left(5 a^4 C d^4-4 a^3 b d^3 (5 c C+2 B d)+2 a^2 b^2 d^2 \left(15 c^2 C+20 B c d+8 (A-C) d^2\right)-\right.$$
$$4 a b^3 d \left(5 c^3 C+30 B c^2 d+40 c (A-C) d^2-16 B d^3\right)+$$
$$\left.b^4 \left(5 c^4 C-40 B c^3 d-240 c^2 (A-C) d^2+320 B c d^3+128 (A-C) d^4\right)\right)$$

$$\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]+\frac{1}{64\, b^3\, d\, f}\left(64 b^2 d^2 (A b c+a B c-b c C+a A d-b B d-a C d)+\right.$$
$$\left.(b c-a d) \left(48 b (A b+a B-b C) d^2-5 (b c-a d) (b c C-8 b B d-a C d)\right)\right)$$
$$\sqrt{a+b \text{Tan}[e+f x]}\,\sqrt{c+d \text{Tan}[e+f x]}+\frac{1}{96\, b^2\, d\, f}$$
$$\left(48 b (A b+a B-b C) d^2-5 (b c-a d) (b c C-8 b B d-a C d)\right)$$
$$\sqrt{a+b \text{Tan}[e+f x]}\,(c+d \text{Tan}[e+f x])^{3/2}-$$
$$\frac{(b c C-8 b B d-a C d)\,\sqrt{a+b \text{Tan}[e+f x]}\,(c+d \text{Tan}[e+f x])^{5/2}}{24\, b\, d\, f}+$$
$$\frac{C\,\sqrt{a+b \text{Tan}[e+f x]}\,(c+d \text{Tan}[e+f x])^{7/2}}{4\, d\, f}$$

Result (type ?, 1 631 616 leaves) : Display of huge result suppressed!

Problem 142: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d \text{Tan}[e+f x])^{5/2}\,\left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{\sqrt{a+b \text{Tan}[e+f x]}}\, dx$$

Optimal (type 3, 505 leaves, 15 steps) :

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a-\mathrm{i}\,b}\,f}-\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a+\mathrm{i}\,b}\,f}-\frac{1}{8\,b^{7/2}\,\sqrt{d}\,f}\left(5\,a^3\,C\,d^3-3\,a^2\,b\,d^2\,(5\,c\,C+2\,B\,d)+a\,b^2\,d\,\left(15\,c^2\,C+20\,B\,c\,d+8\,(A-C)\,d^2\right)-b^3\,\left(5\,c^3\,C+30\,B\,c^2\,d+40\,c\,(A-C)\,d^2-16\,B\,d^3\right)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]+\frac{1}{8\,b^3\,f}\left(8\,b^2\,d\,(B\,c+(A-C)\,d)+(b\,c-a\,d)\,(5\,b\,c\,C+6\,b\,B\,d-5\,a\,C\,d)\right)\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+\frac{(5\,b\,c\,C+6\,b\,B\,d-5\,a\,C\,d)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{12\,b^2\,f}+\frac{C\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{3\,b\,f}$$

Result (type ?, 933 453 leaves): Display of huge result suppressed!

Problem 143: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 535 leaves, 15 steps):

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-\mathrm{i}\,b)^{3/2}\,f}-\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+\mathrm{i}\,b)^{3/2}\,f}+\frac{1}{4\,b^{7/2}\,f}\sqrt{d}\,\left(15\,a^2\,C\,d^2-6\,a\,b\,d\,(5\,c\,C+2\,B\,d)+b^2\,\left(15\,c^2\,C+20\,B\,c\,d+8\,(A-C)\,d^2\right)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]-\frac{1}{4\,b^3\,(a^2+b^2)\,f}d\,\left(15\,a^3\,C\,d-8\,A\,b^2\,(b\,c-a\,d)-3\,a^2\,b\,(5\,c\,C+4\,B\,d)-b^3\,(7\,c\,C+4\,B\,d)+a\,b^2\,(8\,B\,c+7\,C\,d)\right)\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+\frac{1}{2\,b^2\,(a^2+b^2)\,f}\left(4\,A\,b^2-4\,a\,b\,B+5\,a^2\,C+b^2\,C\right)\,d\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{b\,(a^2+b^2)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 1 654 245 leaves): Display of huge result suppressed!

Problem 144: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(a+b\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 545 leaves, 15 steps):

$$-\frac{(i\,A+B-i\,C)\,(c-i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{5/2}\,f}-\frac{(B-i\,(A-C))\,(c+i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{5/2}\,f}+\frac{d^{3/2}\,(5\,b\,c\,C+2\,b\,B\,d-5\,a\,C\,d)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{b^{7/2}\,f}-\frac{1}{b^3\,(a^2+b^2)^2\,f}d\,\left(2\,a^3\,b\,B\,d-5\,a^4\,C\,d-2\,a\,b^3\,(2\,A\,c-2\,c\,C-3\,B\,d)+2\,a^2\,b^2\,(B\,c-5\,C\,d)-b^4\,(2\,B\,c+(4\,A+C)\,d)\right)\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}+\left(2\,\left(2\,a^3\,b\,B\,d-5\,a^4\,C\,d-b^4\,(3\,B\,c+5\,A\,d)-2\,a\,b^3\,(3\,A\,c-3\,c\,C-4\,B\,d)+a^2\,b^2\,(3\,B\,c+(A-11\,C)\,d)\right)(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)\Big/\left(3\,b^2\,(a^2+b^2)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\right)-\frac{2\,(A\,b^2-a\,(b\,B-a\,C))\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{3\,b\,(a^2+b^2)\,f\,(a+b\,\text{Tan}[e+f\,x])^{3/2}}$$

Result (type ?, 2 018 669 leaves): Display of huge result suppressed!

Problem 145: Attempted integration timed out after 120 seconds.

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(a+b\,\text{Tan}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 590 leaves, 15 steps):

$$-\frac{(i A+B-i C)(c-i d)^{5/2}\operatorname{ArcTanh}\left[\frac{\sqrt{c-i d}\sqrt{a+b\operatorname{Tan}[e+f x]}}{\sqrt{a-i b}\sqrt{c+d\operatorname{Tan}[e+f x]}}\right]}{(a-i b)^{7/2} f}-$$

$$\frac{(B-i(A-C))(c+i d)^{5/2}\operatorname{ArcTanh}\left[\frac{\sqrt{c+i d}\sqrt{a+b\operatorname{Tan}[e+f x]}}{\sqrt{a+i b}\sqrt{c+d\operatorname{Tan}[e+f x]}}\right]}{(a+i b)^{7/2} f}+\frac{2 C d^{5/2}\operatorname{ArcTanh}\left[\frac{\sqrt{d}\sqrt{a+b\operatorname{Tan}[e+f x]}}{\sqrt{b}\sqrt{c+d\operatorname{Tan}[e+f x]}}\right]}{b^{7/2} f}-$$

$$\Big(2\left(a^6 C d^2+3 a^4 b^2 C d^2-3 a^2 b^4\left(c^2 C+2 B c d-2 C d^2-A\left(c^2-d^2\right)\right)+b^6\left(c(c C+2 B d)-A\left(c^2-d^2\right)\right)-a^3 b^3\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)+3 a b^5\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)\right)\sqrt{c+d\operatorname{Tan}[e+f x]}\Big)\Big/\left(b^3\left(a^2+b^2\right)^3 f\sqrt{a+b\operatorname{Tan}[e+f x]}\right)-$$

$$\left(2\left(a^4 C d+b^4(B c+A d)+2 a b^3(A c-c C-B d)-a^2 b^2(B c+(A-3 C) d)\right)(c+d\operatorname{Tan}[e+f x])^{3/2}\right)\Big/\left(3 b^2\left(a^2+b^2\right)^2 f(a+b\operatorname{Tan}[e+f x])^{3/2}\right)-$$

$$\frac{2\left(A b^2-a(b B-a C)\right)(c+d\operatorname{Tan}[e+f x])^{5/2}}{5 b\left(a^2+b^2\right) f(a+b\operatorname{Tan}[e+f x])^{5/2}}$$

Result (type 1, 1 leaves):

???

Problem 146: Humongous result has more than 200000 leaves.

$$\int\frac{(c+d\operatorname{Tan}[e+f x])^{5/2}\left(A+B\operatorname{Tan}[e+f x]+C\operatorname{Tan}[e+f x]^2\right)}{(a+b\operatorname{Tan}[e+f x])^{9/2}}\,dx$$

Optimal (type 3, 946 leaves, 11 steps):

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-\mathrm{i}\,b)^{9/2}\,f}-$$

$$\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+\mathrm{i}\,b)^{9/2}\,f}-$$

$$\Big(2\,\big(6\,a^5\,b\,B\,d^2+15\,a^6\,C\,d^2+a^4\,b^2\,d\,(14\,B\,c+8\,A\,d+37\,C\,d)+3\,a^2\,b^4\,(35\,A\,c^2-35\,c^2\,C-70\,B\,c\,d-39\,A\,d^2+54\,C\,d^2)-a^3\,b^3\,(98\,c\,(A-C)\,d+B\,(35\,c^2-75\,d^2))+a\,b^5\,(182\,c\,(A-C)\,d+B\,(105\,c^2-71\,d^2))+b^6\,(7\,c\,(5\,c\,C+8\,B\,d)-5\,A\,(7\,c^2-3\,d^2))\big)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Big)\Big/\Big(105\,b^3\,(a^2+b^2)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\Big)-$$

$$\frac{1}{105\,b^3\,(a^2+b^2)^4\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}$$

$$2\,\big(6\,a^7\,b\,B\,d^3+15\,a^8\,C\,d^3+2\,a^6\,b^2\,d^2\,(7\,B\,c+4\,A\,d+26\,C\,d)-2\,a\,b^7\,(210\,A\,c^3-210\,c^3\,C-525\,B\,c^2\,d-406\,A\,c\,d^2+406\,c\,C\,d^2+88\,B\,d^3)-a^4\,b^4\,(105\,B\,c^3+525\,A\,c^2\,d-525\,c^2\,C\,d-749\,B\,c\,d^2-311\,A\,d^3+221\,C\,d^3)+2\,a^2\,b^6\,(315\,B\,c^3+875\,A\,c^2\,d-875\,c^2\,C\,d-812\,B\,c\,d^2-261\,A\,d^3+291\,C\,d^3)+2\,a^5\,b^3\,d\,(56\,c\,(A-C)\,d+B\,(35\,c^2-12\,d^2))-b^8\,(5\,d\,(49\,A\,c^2-49\,c^2\,C-3\,A\,d^2)+7\,B\,(15\,c^3-23\,c\,d^2))-2\,a^3\,b^5\,(210\,c^3\,C+700\,B\,c^2\,d-798\,c\,C\,d^2-317\,B\,d^3-42\,A\,(5\,c^3-19\,c\,d^2))\big)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}-$$

$$\Big(2\,\big(2\,a^3\,b\,B\,d+5\,a^4\,C\,d+b^4\,(7\,B\,c+5\,A\,d)+2\,a\,b^3\,(7\,A\,c-7\,c\,C-6\,B\,d)-a^2\,b^2\,(7\,B\,c+9\,A\,d-19\,C\,d)\big)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\Big)\Big/\Big(35\,b^2\,(a^2+b^2)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\Big)-$$

$$\frac{2\,(A\,b^2-a\,(b\,B-a\,C))\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{7\,b\,(a^2+b^2)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{7/2}}$$

Result (type ?, 2719441 leaves): Display of huge result suppressed!

Problem 147: Humongous result has more than 200000 leaves.

$$\int\frac{(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 505 leaves, 15 steps):

$$-\frac{(a-\mathrm{i}\,b)^{5/2}\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c-\mathrm{i}\,d}\,f}-\frac{(a+\mathrm{i}\,b)^{5/2}\,(B-\mathrm{i}\,(A-C))\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c+\mathrm{i}\,d}\,f}+\frac{1}{8\,\sqrt{b}\,d^{7/2}\,f}\left(5\,a^3\,C\,d^3-15\,a^2\,b\,d^2\,(c\,C-2\,B\,d)+5\,a\,b^2\,d\,(3\,c^2\,C-4\,B\,c\,d+8\,(A-C)\,d^2)-b^3\,(5\,c^3\,C-6\,B\,c^2\,d+8\,c\,(A-C)\,d^2+16\,B\,d^3)\right)\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]+\frac{1}{8\,d^3\,f}\left(8\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(5\,b\,c\,C-6\,b\,B\,d-5\,a\,C\,d)\right)\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}-\frac{(5\,b\,c\,C-6\,b\,B\,d-5\,a\,C\,d)\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{12\,d^2\,f}+\frac{C\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{3\,d\,f}$$

Result (type ?, 933 387 leaves) : Display of huge result suppressed!

Problem 148: Humongous result has more than 200000 leaves.

$$\int\frac{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)}{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 383 leaves, 14 steps) :

$$-\frac{(a-\mathrm{i}\,b)^{3/2}\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c-\mathrm{i}\,d}\,f}+\frac{(a+\mathrm{i}\,b)^{3/2}\,(\mathrm{i}\,A-B-\mathrm{i}\,C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c+\mathrm{i}\,d}\,f}+\frac{1}{4\,\sqrt{b}\,d^{5/2}\,f}\left(3\,a^2\,C\,d^2-6\,a\,b\,d\,(c\,C-2\,B\,d)+b^2\,(3\,c^2\,C-4\,B\,c\,d+8\,(A-C)\,d^2)\right)\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]-\frac{(3\,b\,c\,C-4\,b\,B\,d-3\,a\,C\,d)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{4\,d^2\,f}+\frac{C\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{2\,d\,f}$$

Result (type ?, 599 000 leaves) : Display of huge result suppressed!

Problem 149: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 290 leaves, 13 steps):

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

Result (type ?, 332 685 leaves): Display of huge result suppressed!

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

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 239 leaves, 12 steps):

$$-\frac{\left(B+i\,\left(A-C\right)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a-i\,b}\,\sqrt{c-i\,d}\,f}+\frac{\left(i\,A-B-i\,C\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a+i\,b}\,\sqrt{c+i\,d}\,f}+\frac{2\,C\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{b}\,\sqrt{d}\,f}$$

Result (type 4, 168 745 leaves): Display of huge result suppressed!

Problem 151: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{\left(a+b\,\mathrm{Tan}[e+f\,x]\right)^{3/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 251 leaves, 8 steps):

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

Result (type ?, 273 190 leaves) : Display of huge result suppressed!

Problem 152: Humongous result has more than 200000 leaves.

$$\int\frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{(a+b\,\text{Tan}[e+f x])^{5/2}\sqrt{c+d\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 375 leaves, 9 steps) :

$$-\frac{(\mathrm{i} A+B-\mathrm{i} C)\,\text{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i} d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-\mathrm{i} b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-\mathrm{i} b)^{5/2}\sqrt{c-\mathrm{i} d}\,f}-\frac{(B-\mathrm{i}(A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i} d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+\mathrm{i} b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+\mathrm{i} b)^{5/2}\sqrt{c+\mathrm{i} d}\,f}-\frac{2\left(A b^2-a(b B-a C)\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{3\,(a^2+b^2)\,(b c-a d)\,f\,(a+b\,\text{Tan}[e+f x])^{3/2}}-$$
$$\left(2\left(5 a^3 b B d-2 a^4 C d+b^4(3 B c-2 A d)+a b^3(6 A c-6 c C-B d)-a^2 b^2(3 B c+8 A d-4 C d)\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/\left(3\,(a^2+b^2)^2\,(b c-a d)^2 f\sqrt{a+b\,\text{Tan}[e+f x]}\right)$$

Result (type ?, 415 768 leaves) : Display of huge result suppressed!

Problem 153: Humongous result has more than 200000 leaves.

$$\int\frac{(a+b\,\text{Tan}[e+f x])^{5/2}\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 528 leaves, 15 steps) :

$$-\frac{(a-i b)^{5/2}\,(i A+B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c-i d)^{3/2} f}-\frac{(a+i b)^{5/2}\,(B-i (A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c+i d)^{3/2} f}+\frac{1}{4 d^{7/2} f}\sqrt{b}\,\left(15 a^2 C d^2-10 a b d (3 c C-2 B d)+b^2 \left(15 c^2 C-12 B c d+8 (A-C) d^2\right)\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d \text{Tan}[e+f x]}}\right]-\frac{2 \left(c^2 C-B c d+A d^2\right) (a+b \text{Tan}[e+f x])^{5/2}}{d \left(c^2+d^2\right) f \sqrt{c+d \text{Tan}[e+f x]}}-\frac{1}{4 d^3 \left(c^2+d^2\right) f}b \left(3 (b c-a d) \left(5 c^2 C-4 B c d+(4 A+C) d^2\right)-4 d^2 ((A-C) (b c-a d)+B (a c+b d))\right)\sqrt{a+b \text{Tan}[e+f x]}\,\sqrt{c+d \text{Tan}[e+f x]}+\frac{1}{2 d^2 \left(c^2+d^2\right) f}b \left(5 c^2 C-4 B c d+(4 A+C) d^2\right) (a+b \text{Tan}[e+f x])^{3/2}\sqrt{c+d \text{Tan}[e+f x]}$$

Result (type ?, 1 653 959 leaves) : Display of huge result suppressed!

Problem 154: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b \text{Tan}[e+f x])^{3/2}\,\left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(c+d \text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 380 leaves, 14 steps) :

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

Result (type ?, 1 073 499 leaves) : Display of huge result suppressed!

Problem 155: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{\left(c+d\,\text{Tan}[e+f\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 299 leaves, 13 steps):

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

Result (type ?, 621 084 leaves): Display of huge result suppressed!

Problem 156: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2}{\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\left(c+d\,\text{Tan}[e+f\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 251 leaves, 8 steps):

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

Result (type ?, 273 112 leaves): Display of huge result suppressed!

Problem 157: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2}{\left(a+b\,\text{Tan}[e+f\,x]\right)^{3/2}\,\left(c+d\,\text{Tan}[e+f\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 383 leaves, 9 steps):

$$-\frac{(\mathrm{i} A+B-\mathrm{i} C) \operatorname{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i} d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-\mathrm{i} b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a-\mathrm{i} b)^{3/2} (c-\mathrm{i} d)^{3/2} f}-\frac{(B-\mathrm{i} (A-C)) \operatorname{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i} d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+\mathrm{i} b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a+\mathrm{i} b)^{3/2} (c+\mathrm{i} d)^{3/2} f}-\frac{2 (A b^2-a (b B-a C))}{(a^2+b^2) (b c-a d) f \sqrt{a+b \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]}}-\left(2 d (b^2 c (c C-B d)-a b B (c^2+d^2)+a^2 (2 c^2 C-B c d+C d^2)+A (a^2 d^2+b^2 (c^2+2 d^2))) \sqrt{a+b \operatorname{Tan}[e+f x]}\right) \Big/ \left((a^2+b^2) (b c-a d)^2 (c^2+d^2) f \sqrt{c+d \operatorname{Tan}[e+f x]}\right)$$

Result (type ?, 544 406 leaves) : Display of huge result suppressed!

Problem 158: Humongous result has more than 200000 leaves.

$$\int \frac{A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2}{(a+b \operatorname{Tan}[e+f x])^{5/2} (c+d \operatorname{Tan}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 598 leaves, 10 steps) :

$$-\frac{(\mathrm{i} A+B-\mathrm{i} C) \operatorname{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i} d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-\mathrm{i} b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a-\mathrm{i} b)^{5/2} (c-\mathrm{i} d)^{3/2} f}-\frac{(B-\mathrm{i} (A-C)) \operatorname{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i} d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+\mathrm{i} b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a+\mathrm{i} b)^{5/2} (c+\mathrm{i} d)^{3/2} f}-\frac{2 (A b^2-a (b B-a C))}{3 (a^2+b^2) (b c-a d) f (a+b \operatorname{Tan}[e+f x])^{3/2} \sqrt{c+d \operatorname{Tan}[e+f x]}}+\left(2 (7 a^3 b B d-4 a^4 C d+b^4 (3 B c-4 A d)+a b^3 (6 A c-6 c C+B d)-a^2 b^2 (3 B c+2 (5 A-C) d))\right) \Big/ \left(3 (a^2+b^2)^2 (b c-a d)^2 f \sqrt{a+b \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]}\right)-\left(2 d (8 a^3 b B d (c^2+d^2)+2 a b^3 (3 A c-3 c C+B d) (c^2+d^2)-a^4 d (8 c^2 C-3 B c d+(3 A+5 C) d^2)-a^2 b^2 (3 B c^3+11 A c^2 d+5 c^2 C d-3 B c d^2+17 A d^3-C d^3)-b^4 (d (5 A c^2+3 c^2 C+8 A d^2)-3 B (c^3+2 c d^2))) \sqrt{a+b \operatorname{Tan}[e+f x]}\right) \Big/ \left(3 (a^2+b^2)^2 (b c-a d)^3 (c^2+d^2) f \sqrt{c+d \operatorname{Tan}[e+f x]}\right)$$

Result (type ?, 815 997 leaves) : Display of huge result suppressed!

Problem 159: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b \operatorname{Tan}[e+f x])^{5/2} (A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2)}{(c+d \operatorname{Tan}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 549 leaves, 15 steps) :

$$-\frac{(a-i b)^{5/2}(i A+B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c-i d)^{5/2} f}-\frac{(a+i b)^{5/2}(B-i(A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c+i d)^{5/2} f}-\frac{b^{3/2}(5 b c C-2 b B d-5 a C d)\,\text{ArcTanh}\left[\frac{\sqrt{d}\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{d^{7/2} f}$$

$$\frac{2\left(c^2 C-B c d+A d^2\right)(a+b\,\text{Tan}[e+f x])^{5/2}}{3 d\left(c^2+d^2\right) f (c+d\,\text{Tan}[e+f x])^{3/2}}-$$

$$\left(2\left(b\left(5 c^4 C-2 B c^3 d-c^2(A-11 C) d^2-8 B c d^3+5 A d^4\right)+3 a d^2\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)\right)(a+b\,\text{Tan}[e+f x])^{3/2}\right)\Big/\left(3 d^2\left(c^2+d^2\right)^2 f\sqrt{c+d\,\text{Tan}[e+f x]}\right)+\frac{1}{d^3\left(c^2+d^2\right)^2 f}$$

$$b\left(b\left(5 c^4 C-2 B c^3 d+10 c^2 C d^2-6 B c d^3+(4 A+C) d^4\right)+2 a d^2\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\sqrt{c+d\,\text{Tan}[e+f x]}$$

Result (type ?, 2 018 643 leaves) : Display of huge result suppressed!

Problem 160: Humongous result has more than 200000 leaves.

$$\int\frac{(a+b\,\text{Tan}[e+f x])^{3/2}\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 407 leaves, 14 steps) :

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

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

$$\left(2\left(b\left(c^4 C-c^2(A-3 C) d^2-2 B c d^3+A d^4\right)+a d^2\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\right)\Big/\left(d^2\left(c^2+d^2\right)^2 f\sqrt{c+d\,\text{Tan}[e+f x]}\right)$$

Result (type ?, 1 347 117 leaves) : Display of huge result suppressed!

Problem 161: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{\left(c+d\,\mathrm{Tan}[e+f\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 373 leaves, 9 steps):

$$-\frac{\sqrt{a-i\,b}\,\left(i\,A+B-i\,C\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\left(c-i\,d\right)^{5/2}\,f}-\frac{\sqrt{a+i\,b}\,\left(B-i\,\left(A-C\right)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\left(c+i\,d\right)^{5/2}\,f}-\frac{2\,\left(c^2\,C-B\,c\,d+A\,d^2\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,d\,\left(c^2+d^2\right)\,f\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)^{3/2}}+\left(2\,\left(b\,\left(c^4\,C+2\,B\,c^3\,d-c^2\,\left(5\,A-7\,C\right)\,d^2-4\,B\,c\,d^3+A\,d^4\right)+3\,a\,d^2\,\left(2\,c\,\left(A-C\right)\,d-B\,\left(c^2-d^2\right)\right)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\right)\Big/\left(3\,d\,\left(b\,c-a\,d\right)\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)$$

Result (type ?, 815645 leaves): Display of huge result suppressed!

Problem 162: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 379 leaves, 9 steps):

$$-\frac{\left(B+i\,\left(A-C\right)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a-i\,b}\,\left(c-i\,d\right)^{5/2}\,f}+\frac{\left(i\,A-B-i\,C\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a+i\,b}\,\left(c+i\,d\right)^{5/2}\,f}+\frac{2\,\left(c^2\,C-B\,c\,d+A\,d^2\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,\left(b\,c-a\,d\right)\,\left(c^2+d^2\right)\,f\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)^{3/2}}+\left(2\,\left(b\,\left(2\,c^4\,C-5\,B\,c^3\,d+4\,c^2\,\left(2\,A-C\right)\,d^2+B\,c\,d^3+2\,A\,d^4\right)-3\,a\,d^2\,\left(2\,c\,\left(A-C\right)\,d-B\,\left(c^2-d^2\right)\right)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\right)\Big/\left(3\,\left(b\,c-a\,d\right)^2\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)$$

Result (type ?, 415768 leaves): Display of huge result suppressed!

Problem 163: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{\left(a+b\,\mathrm{Tan}[e+f\,x]\right)^{3/2}\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 651 leaves, 10 steps):

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

$$\left(2 d \left(b^2 c (c C-B d)-3 a b B \left(c^2+d^2\right)+a^2 \left(4 c^2 C-B c d+3 C d^2\right)+A \left(a^2 d^2+b^2 \left(3 c^2+4 d^2\right)\right)\right) \sqrt{a+b \text{Tan}[e+f x]}\right) \Big/ \left(3 \left(a^2+b^2\right) (b c-a d)^2 \left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^{3/2}\right)-$$

$$\left(2 d \left(b^3 c \left(5 c^3 C-8 B c^2 d-c C d^2-2 B d^3\right)+a^2 b \left(8 c^4 C-8 B c^3 d+5 c^2 C d^2-2 B c d^3+3 C d^4\right)+3 a^3 d^2 \left(2 c C d+B \left(c^2-d^2\right)\right)+3 a b^2 \left(2 c C d^3-B \left(c^4+c^2 d^2+2 d^4\right)\right)-A \left(6 a^3 c d^3+6 a b^2 c d^3-a^2 b d^2 \left(11 c^2+5 d^2\right)-b^3 \left(3 c^4+17 c^2 d^2+8 d^4\right)\right)\right) \sqrt{a+b \text{Tan}[e+f x]}\right) \Big/ \left(3 \left(a^2+b^2\right) (b c-a d)^3 \left(c^2+d^2\right)^2 f \sqrt{c+d \text{Tan}[e+f x]}\right)$$

Result (type ?, 816 231 leaves): Display of huge result suppressed!

Problem 164: Unable to integrate problem.

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

Optimal (type 6, 376 leaves, 9 steps):

$$-\left(\left(\left(B+i (A-C)\right) \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{d (a+b \text{Tan}[e+f x])}{b c-a d},\frac{a+b \text{Tan}[e+f x]}{a-i b}\right] (a+b \text{Tan}[e+f x])^{1+m} (c+d \text{Tan}[e+f x])^n \left(\frac{b (c+d \text{Tan}[e+f x])}{b c-a d}\right)^{-n}\right) \Big/ \left(2 (a-i b) f (1+m)\right)\right)-$$

$$\left(\left(A+i B-C\right) \text{AppellF1}\left[1+m,-n,1,2+m,-\frac{d (a+b \text{Tan}[e+f x])}{b c-a d},\frac{a+b \text{Tan}[e+f x]}{a+i b}\right] (a+b \text{Tan}[e+f x])^{1+m} (c+d \text{Tan}[e+f x])^n \left(\frac{b (c+d \text{Tan}[e+f x])}{b c-a d}\right)^{-n}\right) \Big/ \left(2 (i a-b) f (1+m)\right)+$$

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

Result (type 8, 47 leaves):

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

Problem 165: Unable to integrate problem.

$$\int (a+b \text{Tan}[e+f x])^m (c+d \text{Tan}[e+f x])^3 \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right) dx$$

Optimal (type 5, 560 leaves, 9 steps):

$$\Big(\big(b c (2+m) \big(b^2 d (B c+(A-C) d) (3+m) (4+m)-2 (b c-a d) (3 a C d-b (3 c C+B d (4+m)))\big)+d \big(b^3 (2 c (A-C) d+B (c^2-d^2)) (2+m) (3+m) (4+m)-a \big(b^2 d (B c+(A-C) d) (3+m) (4+m)-2 (b c-a d) (3 a C d-b (3 c C+B d (4+m)))\big)\big)\big) (a+b \text{Tan}[e+f x])^{1+m}\Big)\Big/\big(b^4 f (1+m) (2+m) (3+m) (4+m)\big)+\left((A-\mathrm{i} B-C) (c-\mathrm{i} d)^3 \text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b \text{Tan}[e+f x]}{a-\mathrm{i} b}\right] (a+b \text{Tan}[e+f x])^{1+m}\right)\Big/\big(2 (\mathrm{i} a+b) f (1+m)\big)-\left((A+\mathrm{i} B-C) (c+\mathrm{i} d)^3 \text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b \text{Tan}[e+f x]}{a+\mathrm{i} b}\right] (a+b \text{Tan}[e+f x])^{1+m}\right)\Big/\big(2 (\mathrm{i} a-b) f (1+m)\big)+\Big(d \big(b^2 d (B c+(A-C) d) (3+m) (4+m)-2 (b c-a d) (3 a C d-b (3 c C+B d (4+m)))\big) \text{Tan}[e+f x] (a+b \text{Tan}[e+f x])^{1+m}\Big)\Big/\big(b^3 f (2+m) (3+m) (4+m)\big)-\Big((3 a C d-b (3 c C+B d (4+m))) (a+b \text{Tan}[e+f x])^{1+m} (c+d \text{Tan}[e+f x])^2\Big)\Big/\big(b^2 f (3+m) (4+m)\big)+\frac{C (a+b \text{Tan}[e+f x])^{1+m} (c+d \text{Tan}[e+f x])^3}{b f (4+m)}$$

Result (type 8, 47 leaves):

$$\int (a+b \text{Tan}[e+f x])^m (c+d \text{Tan}[e+f x])^3 \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right) \, dx$$

Problem 166: Unable to integrate problem.

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

Optimal (type 5, 363 leaves, 8 steps):

$$\left(\left(2 a^2 C d^2 - a b d \left(2 c C + B d\right) (3+m) + b^2 (2+m) \left(2 c^2 C + 2 B c d (3+m) + (A-C) d^2 (3+m)\right)\right) (a + b \, \text{Tan}[e+f x])^{1+m}\right) \Big/ \left(b^3 f (1+m) (2+m) (3+m)\right) + \left((A - i B - C) (c - i d)^2 \, \text{Hypergeometric2F1}\left[1, 1+m, 2+m, \frac{a + b \, \text{Tan}[e+f x]}{a - i b}\right] (a + b \, \text{Tan}[e+f x])^{1+m}\right) \Big/ \left(2 (i a + b) f (1+m)\right) + \left((i A - B - i C) (c + i d)^2 \, \text{Hypergeometric2F1}\left[1, 1+m, 2+m, \frac{a + b \, \text{Tan}[e+f x]}{a + i b}\right] (a + b \, \text{Tan}[e+f x])^{1+m}\right) \Big/ \left(2 (a + i b) f (1+m)\right) - \frac{d \left(2 a C d - b \left(2 c C + B d (3+m)\right)\right) \text{Tan}[e+f x] (a + b \, \text{Tan}[e+f x])^{1+m}}{b^2 f (2+m) (3+m)} + \frac{C (a + b \, \text{Tan}[e+f x])^{1+m} (c + d \, \text{Tan}[e+f x])^2}{b f (3+m)}$$

Result (type 8, 47 leaves) :

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

Problem 170: Unable to integrate problem.

$$\int \frac{(a + b \, \text{Tan}[e+f x])^m \left(A + B \, \text{Tan}[e+f x] + C \, \text{Tan}[e+f x]^2\right)}{(c + d \, \text{Tan}[e+f x])^2} dx$$

Optimal (type 5, 403 leaves, 9 steps) :

$$\left((A - i B - C) \, \text{Hypergeometric2F1}\left[1, 1+m, 2+m, \frac{a + b \, \text{Tan}[e+f x]}{a - i b}\right] (a + b \, \text{Tan}[e+f x])^{1+m}\right) \Big/ \left(2 (i a + b) (c - i d)^2 f (1+m)\right) + \left((i A - B - i C) \, \text{Hypergeometric2F1}\left[1, 1+m, 2+m, \frac{a + b \, \text{Tan}[e+f x]}{a + i b}\right] (a + b \, \text{Tan}[e+f x])^{1+m}\right) \Big/ \left(2 (a + i b) (c + i d)^2 f (1+m)\right) - \left(\left(a d^2 \left(2 c (A-C) d - B \left(c^2 - d^2\right)\right) - b \left(A d^2 \left(c^2 (2-m) - d^2 m\right) - B c d \left(c^2 (1-m) - d^2 (1+m)\right) - c^2 C \left(c^2 m + d^2 (2+m)\right)\right)\right) \text{Hypergeometric2F1}\left[1, 1+m, 2+m, -\frac{d (a + b \, \text{Tan}[e+f x])}{b c - a d}\right] (a + b \, \text{Tan}[e+f x])^{1+m}\right) \Big/ \left((b c - a d)^2 \left(c^2 + d^2\right)^2 f (1+m)\right) + \frac{\left(c^2 C - B c d + A d^2\right) (a + b \, \text{Tan}[e+f x])^{1+m}}{(b c - a d) \left(c^2 + d^2\right) f (c + d \, \text{Tan}[e+f x])}$$

Result (type 8, 47 leaves) :

$$\int \frac{(a + b \, \text{Tan}[e+f x])^m \left(A + B \, \text{Tan}[e+f x] + C \, \text{Tan}[e+f x]^2\right)}{(c + d \, \text{Tan}[e+f x])^2} dx$$

Problem 171: Unable to integrate problem.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^m\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 5, 702 leaves, 10 steps):

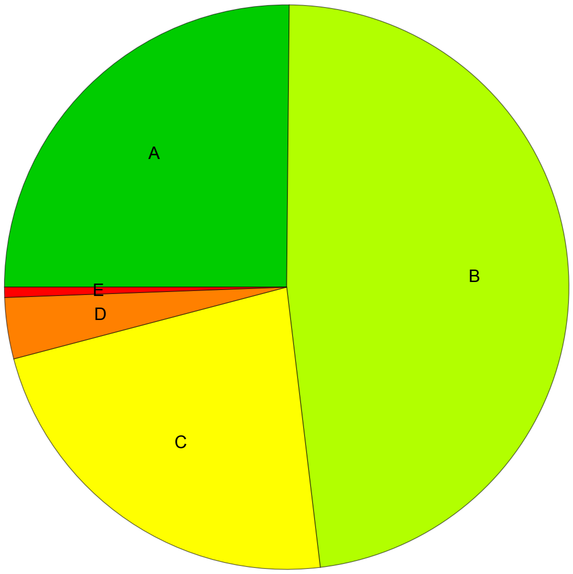
$$\frac{(A-i\,B-C)\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(i\,a+b)\,(c-i\,d)^3\,f\,(1+m)}+$$
$$\frac{(A+i\,B-C)\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(a+i\,b)\,(i\,c-d)^3\,f\,(1+m)}+$$
$$\frac{1}{2\,(b\,c-a\,d)^3\,\left(c^2+d^2\right)^3\,f\,(1+m)}\Big(2\,a^2\,d^3\,\left((A-C)\,d\,\left(3\,c^2-d^2\right)-B\,\left(c^3-3\,c\,d^2\right)\right)-$$
$$2\,a\,b\,d^2\,\left(B\,\left(6\,c^2\,d^2-c^4\,(2-m)-d^4\,m\right)+2\,c\,(A-C)\,d\,\left(c^2\,(3-m)-d^2\,(1+m)\right)\right)-$$
$$b^2\,\Big(A\,d^2\,\left(d^4\,(1-m)\,m+2\,c^2\,d^2\,\left(1+3\,m-m^2\right)-c^4\,\left(6-5\,m+m^2\right)\right)+$$
$$B\,c\,d\,\left(d^4\,m\,(1+m)-2\,c^2\,d^2\,\left(3+m-m^2\right)+c^4\,\left(2-3\,m+m^2\right)\right)+$$
$$c^2\,C\,\left(c^4\,(1-m)\,m+2\,c^2\,d^2\,\left(3-m-m^2\right)-d^4\,\left(2+3\,m+m^2\right)\right)\Big)\Big)$$
$$\text{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}+$$
$$\frac{\left(c^2\,C-B\,c\,d+A\,d^2\right)\,(a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(b\,c-a\,d)\,\left(c^2+d^2\right)\,f\,(c+d\,\text{Tan}[e+f\,x])^2}-$$
$$\Big(\left(2\,a\,d^2\,\left(2\,c\,(A-C)\,d-B\,\left(c^2-d^2\right)\right)-\right.$$
$$\left.b\,\left(c^4\,C\,(1-m)+A\,d^4\,(1-m)-B\,c^3\,d\,(3-m)+B\,c\,d^3\,(1+m)+c^2\,d^2\,(A\,(5-m)-C\,(3+m))\right)\right)$$
$$(a+b\,\text{Tan}[e+f\,x])^{1+m}\Big)\Big/\left(2\,(b\,c-a\,d)^2\,\left(c^2+d^2\right)^2\,f\,(c+d\,\text{Tan}[e+f\,x])\right)$$

Result (type 8, 47 leaves):

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^m\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^3}\,dx$$

Summary of Integration Test Results

171 integration problems



A - 43 optimal antiderivatives

B - 82 more than twice size of optimal antiderivatives

C - 39 unnecessarily complex antiderivatives

D - 6 unable to integrate problems

E - 1 integration timeouts