

Mathematica 11.3 Integration Test Results

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

Problem 1: Result more than twice size of optimal antiderivative.

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

Optimal (type 3, 65 leaves, 6 steps):

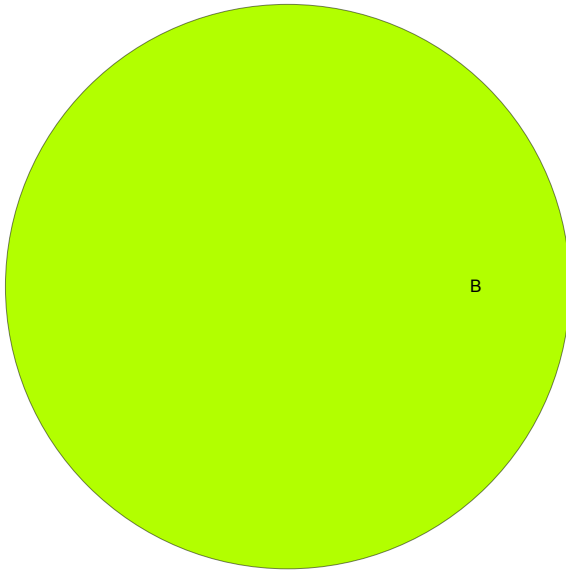
$$-\frac{3 a^2 \operatorname{ArcTanh}[\sin[e + f x]]}{c f} + \frac{4 a^2 \sin[e + f x]}{c f (1 - \cos[e + f x])} - \frac{a^2 \tan[e + f x]}{c f}$$

Result (type 3, 194 leaves):

$$\left(2 a^2 \sin\left[\frac{1}{2}(e + f x)\right] \left(4 \operatorname{Csc}\left[\frac{e}{2}\right] \sin\left[\frac{f x}{2}\right] + \sin\left[\frac{1}{2}(e + f x)\right] \right) \right. \\ \left. \left(-3 \operatorname{Log}\left[\cos\left[\frac{1}{2}(e + f x)\right] - \sin\left[\frac{1}{2}(e + f x)\right]\right] + 3 \operatorname{Log}\left[\cos\left[\frac{1}{2}(e + f x)\right] + \sin\left[\frac{1}{2}(e + f x)\right]\right] \right) + \right. \\ \left. \sin[f x] \left/ \left(\left(\cos\left[\frac{e}{2}\right] - \sin\left[\frac{e}{2}\right] \right) \left(\cos\left[\frac{e}{2}\right] + \sin\left[\frac{e}{2}\right] \right) \left(\cos\left[\frac{1}{2}(e + f x)\right] - \sin\left[\frac{1}{2}(e + f x)\right] \right) \right) \right. \right. \\ \left. \left. \left(\cos\left[\frac{1}{2}(e + f x)\right] + \sin\left[\frac{1}{2}(e + f x)\right] \right) \right) \right) \left/ (c f (-1 + \cos[e + f x])) \right)$$

Summary of Integration Test Results

1 integration problems



- A - 0 optimal antiderivatives
- B - 1 more than twice size of optimal antiderivatives
- C - 0 unnecessarily complex antiderivatives
- D - 0 unable to integrate problems
- E - 0 integration timeouts