Rubi 3 Test Suite Results

Indefinite Integration Problems Involving Trig Functions

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{\sqrt{a+b\,\mathrm{Sec}[c+d\,x]}}{1+\mathrm{Cos}[c+d\,x]},\ x,\ -6,\ 6\right\}$$

$$\frac{(a+b)\sqrt{\frac{b+a\,\mathrm{Cos}[c+d\,x]}{(a+b)\,(1+\mathrm{Cos}[c+d\,x])}}\ \mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right],\ \frac{a-b}{a+b}\right]}{d\sqrt{\frac{1}{1+\mathrm{Sec}[c+d\,x]}}\ \sqrt{a+b\,\mathrm{Sec}[c+d\,x]}}$$

$$\frac{\mathrm{EllipticE}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right],\ \frac{a-b}{a+b}\right]\sqrt{1-\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\ \sqrt{\frac{a+b-(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}}{d\sqrt{\frac{a+b-(a-b)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{a+b}}}$$

Unable to integrate:

$$\{x\,\mathrm{Cos}[2\,x]\,\mathrm{Sec}[x],\ x,\ -1,\ 0\}$$

$$2\,\mathrm{Cos}[x]-x\,\mathrm{Log}\left[1-i\,e^{i\,x}\right]+x\,\mathrm{Log}\left[1+i\,e^{i\,x}\right]-i\,\mathrm{PolyLog}\left[2,\ -i\,e^{i\,x}\right]+i\,\mathrm{PolyLog}\left[2,\ i\,e^{i\,x}\right]+2\,x\,\mathrm{Sin}[x]$$

$$\mathrm{Int}[x\,\mathrm{Cos}[2\,x]\,\mathrm{Sec}[x],\ x]$$

Unable to integrate:

$$\left\{x\,\mathrm{Cos}[2\,x]\,\mathrm{Sec}[x]^3,\ x,\ -1,\ 0\right\}$$

$$-3\,i\,x\,\mathrm{ArcTan}\left[e^{i\,x}\right]+\frac{3}{2}\,i\,\mathrm{PolyLog}\left[2,\ -i\,e^{i\,x}\right]-\frac{3}{2}\,i\,\mathrm{PolyLog}\left[2,\ i\,e^{i\,x}\right]+\frac{\mathrm{Sec}[x]}{2}-\frac{1}{2}\,x\,\mathrm{Sec}[x]\,\mathrm{Tan}[x]$$

$$\mathrm{Int}\left[x\,\mathrm{Cos}[2\,x]\,\mathrm{Sec}[x]^3,\ x\right]$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{1}{a+c\,\mathrm{Sec}[x]+b\,\mathrm{Tan}[x]},\ x,\ -9,\ 9\right\}$$

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

$$\frac{2\,a\,\mathrm{ArcTan}\left[\mathrm{Tan}\left[\frac{x}{2}\right]\right]}{a^2+b^2}+\frac{2\,a\,c\,\mathrm{ArcTanh}\left[\frac{b-(a-c)\,\mathrm{Tan}\left[\frac{x}{2}\right]}{\sqrt{a^2+b^2-c^2}}\right]}{\left(a^2+b^2\right)\sqrt{a^2+b^2-c^2}}-\frac{b\,\mathrm{Log}\left[\mathrm{Sec}\left[\frac{x}{2}\right]^2\right]}{a^2+b^2}+\frac{b\,\mathrm{Log}\left[a+c+2\,b\,\mathrm{Tan}\left[\frac{x}{2}\right]-(a-c)\,\mathrm{Tan}\left[\frac{x}{2}\right]^2\right]}{a^2+b^2}$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{1}{a+b\,\mathrm{Cot}[x]+c\,\mathrm{Csc}[x]},\ x,\ -9,\ 9\right\}$$

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

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

Unable to integrate:

$$\left\{\frac{x\,\text{Cos}[x]-\text{Sin}[x]}{(x-\text{Sin}[x])^2},\,x,\,-7,\,7\right\}$$

$$\frac{x}{x-\text{Sin}[x]}$$

$$-\text{Int}\left[\frac{1}{x-\text{Sin}[x]},\,x\right]+\text{Int}\left[\frac{\text{Cos}[x]}{x-\text{Sin}[x]},\,x\right]+\text{Log}[-x+\text{Sin}[x]]+\frac{x}{x-\text{Sin}[x]}$$

Unable to integrate:

$$\left\{\frac{1}{\text{Cos}[x]^{3/2}\sqrt{3\,\text{Cos}[x]+\text{Sin}[x]}},\,x,\,-6,\,6\right\}$$

$$\frac{2\sqrt{3\,\text{Cos}[x]+\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}$$

$$\frac{4\,\text{Cos}\left[\frac{x}{2}\right]^2\,\text{Subst}\left[\text{Int}\left[\frac{1}{\sqrt{3+2\,x-3\,x^2}\,\left(1-x^2\right)^{3/2}},\,x\right],\,x,\,\text{Tan}\left[\frac{x}{2}\right]\right]\sqrt{3+2\,\text{Tan}\left[\frac{x}{2}\right]-3\,\text{Tan}\left[\frac{x}{2}\right]^2}\,\sqrt{1-\text{Tan}\left[\frac{x}{2}\right]^2}}{\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(3+2\,\text{Tan}\left[\frac{x}{2}\right]-3\,\text{Tan}\left[\frac{x}{2}\right]^2\right)}\,\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(1-\text{Tan}\left[\frac{x}{2}\right]^2\right)}}-$$

$$\frac{2\,\text{Cos}\left[\frac{x}{2}\right]^2\,\text{Subst}\left[\text{Int}\left[\frac{1}{\sqrt{3+2\,x-3\,x^2}\,\sqrt{1-x^2}},\,x\right],\,x,\,\text{Tan}\left[\frac{x}{2}\right]\right]\sqrt{3+2\,\text{Tan}\left[\frac{x}{2}\right]-3\,\text{Tan}\left[\frac{x}{2}\right]^2}\,\sqrt{1-\text{Tan}\left[\frac{x}{2}\right]^2}}{\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(3+2\,\text{Tan}\left[\frac{x}{2}\right]-3\,\text{Tan}\left[\frac{x}{2}\right]^2\right)}\,\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(1-\text{Tan}\left[\frac{x}{2}\right]^2\right)}}$$

Unable to integrate:

$$\left\{\frac{\text{Csc}[x]\sqrt{\text{Cos}[x]+\text{Sin}[x]}}{\text{Cos}[x]^{3/2}},\,x,\,-6,\,6\right\}$$

$$-\text{Log}[\text{Sin}[x]]+2\,\text{Log}\left[-\sqrt{\text{Cos}[x]}+\sqrt{\text{Cos}[x]+\text{Sin}[x]}\right]+\frac{2\sqrt{\text{Cos}[x]+\text{Sin}[x]}}{\sqrt{\text{Cos}[x]}}$$

$$\frac{\text{Subst}\left[\text{Int}\left[\frac{\sqrt{1+2x-x^2}}{x\left(1-x^2\right)^{3/2}}, x\right], x, \text{Tan}\left[\frac{x}{2}\right]\right]\sqrt{1-\text{Tan}\left[\frac{x}{2}\right]^2}\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(1+2\,\text{Tan}\left[\frac{x}{2}\right]-\text{Tan}\left[\frac{x}{2}\right]^2\right)}}{\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(1-\text{Tan}\left[\frac{x}{2}\right]^2\right)}\sqrt{1+2\,\text{Tan}\left[\frac{x}{2}\right]-\text{Tan}\left[\frac{x}{2}\right]^2}}+$$

$$\frac{\text{Subst}\left[\text{Int}\left[\frac{x\sqrt{1+2x-x^2}}{\left(1-x^2\right)^{3/2}}, x\right], x, \text{Tan}\left[\frac{x}{2}\right]\right]\sqrt{1-\text{Tan}\left[\frac{x}{2}\right]^2}\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(1+2\,\text{Tan}\left[\frac{x}{2}\right]-\text{Tan}\left[\frac{x}{2}\right]^2\right)}}{\sqrt{\text{Cos}\left[\frac{x}{2}\right]^2\left(1-\text{Tan}\left[\frac{x}{2}\right]^2\right)}\sqrt{1+2\,\text{Tan}\left[\frac{x}{2}\right]-\text{Tan}\left[\frac{x}{2}\right]^2}}$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\text{Cos}[x]^{12}\,\text{Sin}[x]^{10}-\text{Cos}[x]^{10}\,\text{Sin}[x]^{12},\ x,\ -23,\ 23\right\}$$

$$\frac{1}{11}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^{11}$$

$$\frac{3\,\text{Cos}[x]^{11}\,\text{Sin}[x]}{5632}-\frac{3\,\text{Cos}[x]^{13}\,\text{Sin}[x]}{5632}+\frac{1}{512}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^3-\frac{7\,\text{Cos}[x]^{13}\,\text{Sin}[x]^3}{2816}+\frac{7\,\text{Cos}[x]^{11}\,\text{Sin}[x]^5}{1280}-\frac{7}{880}\,\text{Cos}[x]^{13}\,\text{Sin}[x]^5+$$
$$\frac{1}{80}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^7-\frac{9}{440}\,\text{Cos}[x]^{13}\,\text{Sin}[x]^7+\frac{1}{40}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^9-\frac{1}{22}\,\text{Cos}[x]^{13}\,\text{Sin}[x]^9+\frac{1}{22}\,\text{Cos}[x]^{11}\,\text{Sin}[x]^{11}$$