Mathematica 7 Test Results

For Integration Problems Involving Exponentials

Unable to integrate:

$\left\{e^{(a+b x)^3} x^3, x, 21, 0\right\}$

$$-\frac{2 a e^{(a+b x)^3}}{3 b^4}+\frac{e^{(a+b x)^3} x}{3 b^3}+\frac{\left(1+3 a^3\right) (a+b x) \text{Gamma}\left[\frac{1}{3},-(a+b x)^3\right]}{9 b^4 \left(-(a+b x)^3\right)^{1/3}}-\frac{a^2 (a+b x)^2 \text{Gamma}\left[\frac{2}{3},-(a+b x)^3\right]}{b^4 \left(-(a+b x)^3\right)^{2/3}}$$

$$\int e^{(a+b x)^3} x^3 \, dx$$

Unable to integrate:

$\left\{e^{(a+b x)^3} x^2, x, 9, 0\right\}$

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

$$\int e^{(a+b x)^3} x^2 \, dx$$

Unable to integrate:

$\left\{e^{(a+b x)^3} x, x, 5, 0\right\}$

$$\frac{a (a+b x) \text{Gamma}\left[\frac{1}{3},-(a+b x)^3\right]}{3 b^2 \left(-(a+b x)^3\right)^{1/3}}-\frac{(a+b x)^2 \text{Gamma}\left[\frac{2}{3},-(a+b x)^3\right]}{3 b^2 \left(-(a+b x)^3\right)^{2/3}}$$

$$\int e^{(a+b x)^3} x \, dx$$

Unable to integrate:

$\left\{e^{(a+b x)^n} (a+b x)^m, x, 2, 0\right\}$

$$-\frac{(a+b x)^{1+m} \left(-(a+b x)^n\right)^{-\frac{1+m}{n}} \text{Gamma}\left[\frac{1+m}{n},-(a+b x)^n\right]}{b n}$$

$$\int e^{(a+b x)^n} (a+b x)^m \, dx$$

Unable to integrate:

$\left\{f^{(a+b x)^n} (a+b x)^m, x, 2, 0\right\}$

$$-\frac{(a+b x)^{1+m} \text{Gamma}\left[\frac{1+m}{n},-(a+b x)^n \text{Log}[f]\right] \left(-(a+b x)^n \text{Log}[f]\right)^{-\frac{1+m}{n}}}{b n}$$

$$\int f^{(a+b x)^n} (a+b x)^m \, dx$$

Unable to integrate:

$\left\{e^{(c+d x)^3} (a+b x)^2, x, 13, 0\right\}$

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

$$\int e^{(c+d x)^3} (a+b x)^2 \, dx$$

Unable to integrate:

$$\left\{e^{(c+d x)^3} (a+b x), x, 6, 0\right\}$$

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

$$\int e^{(c+d x)^3} (a+b x) \, dx$$

Incorrect antiderivative:

$$\left\{\frac{4^x}{a+2^x b}, x, 4, 0\right\}$$

$$\frac{2^x}{b \text{Log}[2]}-\frac{a \text{Log}[a+2^x b]}{b^2 \text{Log}[2]}$$

$$\frac{\text{Log}[-a-2^x b]}{b \text{Log}[4]}$$

Incorrect antiderivative:

$$\left\{\frac{2^{2 x}}{a+2^x b}, x, 4, 0\right\}$$

$$\frac{2^x}{b \text{Log}[2]}-\frac{a \text{Log}[a+2^x b]}{b^2 \text{Log}[2]}$$

$$\frac{\text{Log}[-a-2^x b]}{b \text{Log}[4]}$$

Incorrect antiderivative:

$$\left\{\frac{4^x}{a-2^x b}, x, 4, 0\right\}$$

$$-\frac{2^x}{b \text{Log}[2]}-\frac{a \text{Log}[-a+2^x b]}{b^2 \text{Log}[2]}$$

$$-\frac{\text{Log}[-a+2^x b]}{b \text{Log}[4]}$$

Incorrect antiderivative:

$$\left\{\frac{2^{2 x}}{a-2^x b}, x, 4, 0\right\}$$

$$-\frac{2^x}{b \text{Log}[2]}-\frac{a \text{Log}[a-2^x b]}{b^2 \text{Log}[2]}$$

$$-\frac{\text{Log}[-a+2^x b]}{b \text{Log}[4]}$$

Incorrect antiderivative:

$$\left\{\frac{4^x}{a+2^{-x} b}, x, 5, 0\right\}$$

$$-\frac{2^x b}{a^2 \text{Log}[2]}+\frac{4^x}{a \text{Log}[4]}+\frac{b^2 \text{Log}[2^x a+b]}{a^3 \text{Log}[2]}$$

$$\frac{\text{Log}[-2^x a-b]}{a \text{Log}[8]}$$

Incorrect antiderivative:

$$\left\{\frac{2^{2 x}}{a+2^{-x} b}, x, 5, 0\right\}$$

$$\frac{2^{-1+2 x}}{a \text{Log}[2]}-\frac{2^x b}{a^2 \text{Log}[2]}+\frac{b^2 \text{Log}[2^x a+b]}{a^3 \text{Log}[2]}$$

$$\frac{\text{Log}[-2^x a-b]}{a \text{Log}[8]}$$

Incorrect antiderivative:

$$\left\{\frac{4^x}{a-2^{-x} b}, x, 5, 0\right\}$$

$$\frac{2^x b}{a^2 \text{Log}[2]}+\frac{4^x}{a \text{Log}[4]}+\frac{b^2 \text{Log}[2^x a-b]}{a^3 \text{Log}[2]}$$

$$\frac{\text{Log}[-2^x a+b]}{a \text{Log}[8]}$$

Incorrect antiderivative:

$$\left\{\frac{2^{2 x}}{a-2^{-x} b}, x, 5, 0\right\}$$

$$\frac{2^{-1+2 x}}{a \text{Log}[2]}+\frac{2^x b}{a^2 \text{Log}[2]}+\frac{b^2 \text{Log}[-2^x a+b]}{a^3 \text{Log}[2]}$$

$$\frac{\text{Log}[-2^x a+b]}{a \text{Log}[8]}$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{2^x}{a+4^{-x} b}, x, 6, 0\right\}$$

$$\frac{2^x}{a \text{Log}[2]}-\frac{\sqrt{b} \text{ArcTan}\left[\frac{2^x \sqrt{a}}{\sqrt{b}}\right]}{a^{3/2} \text{Log}[2]}$$

$$\frac{8^x \text{Hypergeometric2F1}\left[1, \frac{\text{Log}[8]}{\text{Log}[4]}, \frac{\text{Log}[32]}{\text{Log}[4]}, -\frac{4^x a}{b}\right]}{b \text{Log}[8]}$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{2^x}{a+2^{-2x}b},\ x,\ 4,\ 0\right\}$$

$$\frac{2^x}{a\,\text{Log}[2]}-\frac{\sqrt{b}\,\text{ArcTan}\left[\frac{2^x\sqrt{a}}{\sqrt{b}}\right]}{a^{3/2}\,\text{Log}[2]}$$

$$\frac{8^x\,\text{Hypergeometric2F1}\left[1,\frac{\text{Log}[8]}{\text{Log}[4]},\frac{\text{Log}[32]}{\text{Log}[4]},-\frac{4^x a}{b}\right]}{b\,\text{Log}[8]}$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{2^x}{a-4^{-x}b},\ x,\ 6,\ 0\right\}$$

$$\frac{2^x}{a\,\text{Log}[2]}-\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{2^x\sqrt{a}}{\sqrt{b}}\right]}{a^{3/2}\,\text{Log}[2]}$$

$$-\frac{8^x\,\text{Hypergeometric2F1}\left[1,\frac{\text{Log}[8]}{\text{Log}[4]},\frac{\text{Log}[32]}{\text{Log}[4]},\frac{4^x a}{b}\right]}{b\,\text{Log}[8]}$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{2^x}{a-2^{-2x}b},\ x,\ 4,\ 0\right\}$$

$$\frac{2^x}{a\,\text{Log}[2]}-\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{2^x\sqrt{a}}{\sqrt{b}}\right]}{a^{3/2}\,\text{Log}[2]}$$

$$-\frac{8^x\,\text{Hypergeometric2F1}\left[1,\frac{\text{Log}[8]}{\text{Log}[4]},\frac{\text{Log}[32]}{\text{Log}[4]},\frac{4^x a}{b}\right]}{b\,\text{Log}[8]}$$

Incorrect antiderivative:

$$\left\{\frac{4^x}{\sqrt{a+2^x b}},\ x,\ 4,\ 0\right\}$$

$$-\frac{4a\sqrt{a+2^x b}}{3b^2\,\text{Log}[2]}+\frac{2^{1+x}\sqrt{a+2^x b}}{3b\,\text{Log}[2]}$$

$$\frac{2\sqrt{a+2^x b}}{b\,\text{Log}[4]}$$

Incorrect antiderivative:

$$\left\{\frac{2^{2x}}{\sqrt{a+2^x b}},\ x,\ 3,\ 0\right\}$$

$$-\frac{4a\sqrt{a+2^x b}}{3b^2\,\text{Log}[2]}+\frac{2^{1+x}\sqrt{a+2^x b}}{3b\,\text{Log}[2]}$$

$$\frac{2\sqrt{a+2^x b}}{b\,\text{Log}[4]}$$

Incorrect antiderivative:

$$\left\{\frac{4^x}{\sqrt{a-2^x b}},\ x,\ 4,\ 0\right\}$$

$$-\frac{4 a \sqrt{a-2^x b}}{3 b^2 \text{Log}[2]}-\frac{2^{1+x} \sqrt{a-2^x b}}{3 b \text{Log}[2]}$$

$$-\frac{2 \sqrt{a-2^x b}}{b \text{Log}[4]}$$

Incorrect antiderivative:

$$\left\{\frac{2^{2 x}}{\sqrt{a-2^x b}},\ x,\ 3,\ 0\right\}$$

$$-\frac{4 a \sqrt{a-2^x b}}{3 b^2 \text{Log}[2]}-\frac{2^{1+x} \sqrt{a-2^x b}}{3 b \text{Log}[2]}$$

$$-\frac{2 \sqrt{a-2^x b}}{b \text{Log}[4]}$$

Unable to integrate:

$$\left\{\frac{a^x b^x}{x^2},\ x,\ 3,\ 0\right\}$$

$$-\frac{a^x b^x}{x}+\text{ExpIntegralEi}[x (\text{Log}[a]+\text{Log}[b])] (\text{Log}[a]+\text{Log}[b])$$

$$\int \frac{a^x b^x}{x^2} \, dx$$

Unable to integrate:

$$\left\{\frac{a^x b^x}{x^3},\ x,\ 4,\ 0\right\}$$

$$-\frac{a^x b^x}{2 x^2}-\frac{a^x b^x (\text{Log}[a]+\text{Log}[b])}{2 x}+\frac{1}{2} \text{ExpIntegralEi}[x (\text{Log}[a]+\text{Log}[b])] (\text{Log}[a]+\text{Log}[b])^2$$

$$\int \frac{a^x b^x}{x^3} \, dx$$

Unable to integrate:

$$\left\{e^{a+c+b x^n+d x^n},\ x,\ 2,\ 0\right\}$$

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

$$\int e^{a+c+b x^n+d x^n} \, dx$$

Unable to integrate:

$$\left\{f^{a+b x^n} g^{c+d x^n},\ x,\ 2,\ 0\right\}$$

$$-\frac{f^a g^c x \text{Gamma}\left[\frac{1}{n},-x^n (b \text{Log}[f]+d \text{Log}[g])\right] \left(-x^n (b \text{Log}[f]+d \text{Log}[g])\right)^{-1/n}}{n}$$

$$\int f^{a+b x^n} g^{c+d x^n} \, dx$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{e^x}{1-e^{2x}},\ x,\ 2,\ 0\right\}$$

$$\mathrm{ArcTanh}[e^x]$$

$$\frac{1}{2}\left(-\mathrm{Log}[-1+e^x]+\mathrm{Log}[1+e^x]\right)$$

Unable to integrate:

$$\left\{\frac{x}{a+b f^{c+d x}+c f^{2c+2dx}},\ x,\ 7,\ 0\right\}$$

$$\frac{c x^2}{\sqrt{b^2-4ac}\left(b-\sqrt{b^2-4ac}\right)}-\frac{c x^2}{\sqrt{b^2-4ac}\left(b+\sqrt{b^2-4ac}\right)}-\frac{2 c x \,\mathrm{Log}\left[1+\frac{2 c f^{c+d x}}{b-\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b-\sqrt{b^2-4ac}\right) d \,\mathrm{Log}[f]}+$$

$$\frac{2 c x \,\mathrm{Log}\left[1+\frac{2 c f^{c+d x}}{b+\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b+\sqrt{b^2-4ac}\right) d \,\mathrm{Log}[f]}-\frac{2 c \,\mathrm{PolyLog}\left[2,-\frac{2 c f^{c+d x}}{b-\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b-\sqrt{b^2-4ac}\right) d^2 \,\mathrm{Log}[f]^2}+\frac{2 c \,\mathrm{PolyLog}\left[2,-\frac{2 c f^{c+d x}}{b+\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b+\sqrt{b^2-4ac}\right) d^2 \,\mathrm{Log}[f]^2}$$

$$\int \frac{x}{a+b f^{c+d x}+c f^{2c+2dx}} \, dx$$

Unable to integrate:

$$\left\{\frac{x^2}{a+b f^{c+d x}+c f^{2c+2dx}},\ x,\ 9,\ 0\right\}$$

$$\frac{2 c x^3}{3\sqrt{b^2-4ac}\left(b-\sqrt{b^2-4ac}\right)}-\frac{2 c x^3}{3\sqrt{b^2-4ac}\left(b+\sqrt{b^2-4ac}\right)}-\frac{2 c x^2 \,\mathrm{Log}\left[1+\frac{2 c f^{c+d x}}{b-\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b-\sqrt{b^2-4ac}\right) d \,\mathrm{Log}[f]}+$$

$$\frac{2 c x^2 \,\mathrm{Log}\left[1+\frac{2 c f^{c+d x}}{b+\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b+\sqrt{b^2-4ac}\right) d \,\mathrm{Log}[f]}-\frac{4 c x \,\mathrm{PolyLog}\left[2,-\frac{2 c f^{c+d x}}{b-\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b-\sqrt{b^2-4ac}\right) d^2 \,\mathrm{Log}[f]^2}+\frac{4 c x \,\mathrm{PolyLog}\left[2,-\frac{2 c f^{c+d x}}{b+\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b+\sqrt{b^2-4ac}\right) d^2 \,\mathrm{Log}[f]^2}+$$

$$\frac{4 c \,\mathrm{PolyLog}\left[3,-\frac{2 c f^{c+d x}}{b-\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b-\sqrt{b^2-4ac}\right) d^3 \,\mathrm{Log}[f]^3}-\frac{4 c \,\mathrm{PolyLog}\left[3,-\frac{2 c f^{c+d x}}{b+\sqrt{b^2-4ac}}\right]}{\sqrt{b^2-4ac}\left(b+\sqrt{b^2-4ac}\right) d^3 \,\mathrm{Log}[f]^3}$$

$$\int \frac{x^2}{a+b f^{c+d x}+c f^{2c+2dx}} \, dx$$

Unable to integrate:

$$\left\{\frac{x}{a+b f^{-c-d x}+c f^{c+d x}},\ x,\ 8,\ 0\right\}$$

$$\frac{x \,\mathrm{Log}\left[1+\frac{2 c f^{c+d x}}{a-\sqrt{a^2-4bc}}\right]}{\sqrt{a^2-4bc}\; d \,\mathrm{Log}[f]}-\frac{x \,\mathrm{Log}\left[1+\frac{2 c f^{c+d x}}{a+\sqrt{a^2-4bc}}\right]}{\sqrt{a^2-4bc}\; d \,\mathrm{Log}[f]}+\frac{\mathrm{PolyLog}\left[2,-\frac{2 c f^{c+d x}}{a-\sqrt{a^2-4bc}}\right]}{\sqrt{a^2-4bc}\; d^2 \,\mathrm{Log}[f]^2}-\frac{\mathrm{PolyLog}\left[2,-\frac{2 c f^{c+d x}}{a+\sqrt{a^2-4bc}}\right]}{\sqrt{a^2-4bc}\; d^2 \,\mathrm{Log}[f]^2}$$

$$\int \frac{x}{a + b\, f^{-c-d\,x} + c\, f^{c+d\,x}}\, dx$$

Unable to integrate:

$$\left\{\frac{x^2}{a + b\, f^{-c-d\,x} + c\, f^{c+d\,x}},\ x,\ 10,\ 0\right\}$$

$$\frac{x^2\,\mathrm{Log}\left[1+\frac{2\,c\,f^{c+d\,x}}{a-\sqrt{a^2-4\,b\,c}}\right]}{\sqrt{a^2-4\,b\,c}\ d\,\mathrm{Log}[f]} - \frac{x^2\,\mathrm{Log}\left[1+\frac{2\,c\,f^{c+d\,x}}{a+\sqrt{a^2-4\,b\,c}}\right]}{\sqrt{a^2-4\,b\,c}\ d\,\mathrm{Log}[f]} + \frac{2\,x\,\mathrm{PolyLog}\left[2,-\frac{2\,c\,f^{c+d\,x}}{a-\sqrt{a^2-4\,b\,c}}\right]}{\sqrt{a^2-4\,b\,c}\ d^2\,\mathrm{Log}[f]^2} -$$
$$\frac{2\,x\,\mathrm{PolyLog}\left[2,-\frac{2\,c\,f^{c+d\,x}}{a+\sqrt{a^2-4\,b\,c}}\right]}{\sqrt{a^2-4\,b\,c}\ d^2\,\mathrm{Log}[f]^2} - \frac{2\,\mathrm{PolyLog}\left[3,-\frac{2\,c\,f^{c+d\,x}}{a-\sqrt{a^2-4\,b\,c}}\right]}{\sqrt{a^2-4\,b\,c}\ d^3\,\mathrm{Log}[f]^3} + \frac{2\,\mathrm{PolyLog}\left[3,-\frac{2\,c\,f^{c+d\,x}}{a+\sqrt{a^2-4\,b\,c}}\right]}{\sqrt{a^2-4\,b\,c}\ d^3\,\mathrm{Log}[f]^3}$$

$$\int \frac{x^2}{a + b\, f^{-c-d\,x} + c\, f^{c+d\,x}}\, dx$$

Valid but unnecessarily complicated antiderivative:

$$\{e^x\,\mathrm{Csc}[e^x]\,\mathrm{Sec}[e^x],\ x,\ 2,\ 0\}$$

$$\mathrm{Log}[\mathrm{Tan}[e^x]]$$

$$-\mathrm{Log}[2\,\mathrm{Cos}[e^x]] + \mathrm{Log}[2\,\mathrm{Sin}[e^x]]$$

Valid but unnecessarily complicated antiderivative:

$$\{e^x\,\mathrm{Sec}[e^x],\ x,\ 2,\ 0\}$$

$$\mathrm{ArcTanh}[\mathrm{Sin}[e^x]]$$

$$-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{e^x}{2}\right] - \mathrm{Sin}\left[\frac{e^x}{2}\right]\right] + \mathrm{Log}\left[\mathrm{Cos}\left[\frac{e^x}{2}\right] + \mathrm{Sin}\left[\frac{e^x}{2}\right]\right]$$

Incorrect antiderivative:

$$\left\{f^{a+b\,x+c\,x^2}\,\mathrm{Sinh}\left[c+d\,x+e\,x^2\right],\ x,\ 9,\ 0\right\}$$

$$\frac{e^{-c+\frac{(d-b\,\mathrm{Log}[f])^2}{4\,(e-c\,\mathrm{Log}[f])}}\,f^a\,\sqrt{\pi}\ \mathrm{Erfi}\left[\frac{d-b\,\mathrm{Log}[f]+2\,x\,(e-c\,\mathrm{Log}[f])}{2\,\sqrt{-e+c\,\mathrm{Log}[f]}}\right]}{4\,\sqrt{-e+c\,\mathrm{Log}[f]}} + \frac{e^{c-\frac{(d+b\,\mathrm{Log}[f])^2}{4\,(e+c\,\mathrm{Log}[f])}}\,f^a\,\sqrt{\pi}\ \mathrm{Erfi}\left[\frac{d+b\,\mathrm{Log}[f]+2\,x\,(e+c\,\mathrm{Log}[f])}{2\,\sqrt{e+c\,\mathrm{Log}[f]}}\right]}{4\,\sqrt{e+c\,\mathrm{Log}[f]}}$$

$$\frac{1}{4\,\left(e^2-c^2\,\mathrm{Log}[f]^2\right)}\,f^{a-\frac{b\,d}{2\,(e+c\,\mathrm{Log}[f])}+\frac{c\,\left(d^2+b^2\,\mathrm{Log}[f]^2\right)}{2\,\left(e^2-c^2\,\mathrm{Log}[f]^2\right)}}\,\sqrt{\pi}$$
$$\left(e^{\frac{d^2+b^2\,\mathrm{Log}[f]^2}{4\,e+4\,c\,\mathrm{Log}[f]}}\,f^{\frac{b\,c\,d\,\mathrm{Log}[f]}{-e^2+c^2\,\mathrm{Log}[f]^2}}\,\mathrm{Erfi}\left[\frac{-d-2\,e\,x+(b+2\,c\,x)\,\mathrm{Log}[f]}{2\,\sqrt{-e+c\,\mathrm{Log}[f]}}\right]\,\sqrt{-e+c\,\mathrm{Log}[f]}\ (e+c\,\mathrm{Log}[f])\,(\mathrm{Cosh}[c]-\mathrm{Sinh}[c]) + \right.$$
$$\left. e^{\frac{d^2+b^2\,\mathrm{Log}[f]^2}{-4\,e+4\,c\,\mathrm{Log}[f]}}\,\mathrm{Erfi}\left[\frac{d+2\,e\,x+(b+2\,c\,x)\,\mathrm{Log}[f]}{2\,\sqrt{e+c\,\mathrm{Log}[f]}}\right]\,(e-c\,\mathrm{Log}[f])\,\sqrt{e+c\,\mathrm{Log}[f]}\ (\mathrm{Cosh}[c]+\mathrm{Sinh}[c])\right)$$

Incorrect antiderivative:

$$\left\{f^{a+b\,x+c\,x^2}\,\mathrm{Cosh}\left[c+d\,x+e\,x^2\right],\ x,\ 9,\ 0\right\}$$

$$-\frac{e^{-c+\frac{(d-b\,\text{Log}[f])^2}{4\,(e-c\,\text{Log}[f])}}\,f^a\,\sqrt{\pi}\,\text{Erfi}\left[\frac{d-b\,\text{Log}[f]+2\,x\,(e-c\,\text{Log}[f])}{2\,\sqrt{-e+c\,\text{Log}[f]}}\right]}{4\,\sqrt{-e+c\,\text{Log}[f]}}+\frac{e^{c-\frac{(d+b\,\text{Log}[f])^2}{4\,(e+c\,\text{Log}[f])}}\,f^a\,\sqrt{\pi}\,\text{Erfi}\left[\frac{d+b\,\text{Log}[f]+2\,x\,(e+c\,\text{Log}[f])}{2\,\sqrt{e+c\,\text{Log}[f]}}\right]}{4\,\sqrt{e+c\,\text{Log}[f]}}$$

$$\frac{1}{4\,\left(e^2-c^2\,\text{Log}[f]^2\right)}\,f^{a-\frac{b\,d}{2\,(e+c\,\text{Log}[f])}+\frac{c\,\left(d^2+b^2\,\text{Log}[f]^2\right)}{2\,\left(e^2-c^2\,\text{Log}[f]^2\right)}}\,\sqrt{\pi}$$
$$\left(-e^{\frac{d^2+b^2\,\text{Log}[f]^2}{4\,e+4\,c\,\text{Log}[f]}}\,f^{\frac{b\,c\,d\,\text{Log}[f]}{-e^2+c^2\,\text{Log}[f]^2}}\,\text{Erfi}\left[\frac{-d-2\,e\,x+(b+2\,c\,x)\,\text{Log}[f]}{2\,\sqrt{-e+c\,\text{Log}[f]}}\right]\,\sqrt{-e+c\,\text{Log}[f]}\,(e+c\,\text{Log}[f])\,(\text{Cosh}[c]-\text{Sinh}[c])+\right.$$
$$\left.e^{\frac{d^2+b^2\,\text{Log}[f]^2}{-4\,e+4\,c\,\text{Log}[f]}}\,\text{Erfi}\left[\frac{d+2\,e\,x+(b+2\,c\,x)\,\text{Log}[f]}{2\,\sqrt{e+c\,\text{Log}[f]}}\right]\,(e-c\,\text{Log}[f])\,\sqrt{e+c\,\text{Log}[f]}\,(\text{Cosh}[c]+\text{Sinh}[c])\right)$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{e^{-x}}{\sqrt{1-e^{-2\,x}}},\,x,\,2,\,0\right\}$$

$$-\text{ArcSin}\left[e^{-x}\right]$$

$$\frac{e^x\,\sqrt{1-e^{-2\,x}}\,\text{ArcTan}\left[\sqrt{-1+e^{2\,x}}\right]}{\sqrt{-1+e^{2\,x}}}$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{e^x}{1-e^{2\,x}},\,x,\,2,\,0\right\}$$

$$\text{ArcTanh}\left[e^x\right]$$

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

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{e^x}{-1+e^{2\,x}},\,x,\,2,\,0\right\}$$

$$-\text{ArcTanh}\left[e^x\right]$$

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

Valid but unnecessarily complicated antiderivative:

$$\left\{e^x\,\text{Sech}\left[e^x\right],\,x,\,2,\,0\right\}$$

$$\text{ArcTan}\left[\text{Sinh}\left[e^x\right]\right]$$

$$2\,\text{ArcTan}\left[\text{Tanh}\left[\frac{e^x}{2}\right]\right]$$

Valid but unnecessarily complicated antiderivative:

$$\left\{e^x\,\text{Sec}\left[1-e^x\right]^3,\,x,\,3,\,0\right\}$$

$$-\frac{1}{2}\,\text{ArcTanh}[\text{Sin}[1-e^x]]-\frac{1}{2}\,\text{Sec}[1-e^x]\,\text{Tan}[1-e^x]$$

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

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{e^{3x}}{-1+e^{2x}},\ x,\ 4,\ 0\right\}$$

$$e^x-\text{ArcTanh}[e^x]$$

$$\frac{1}{2}\,(2\,e^x+\text{Log}[-1+e^x]-\text{Log}[1+e^x])$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{1}{-e^{-x}+e^x},\ x,\ 2,\ 0\right\}$$

$$-\text{ArcTanh}[e^x]$$

$$\frac{1}{2}\,(\text{Log}[-1+e^x]-\text{Log}[1+e^x])$$

Valid but unnecessarily complicated antiderivative:

$$\left\{\frac{1}{-e^x+e^{3x}},\ x,\ 5,\ 0\right\}$$

$$e^{-x}-\text{ArcTanh}[e^x]$$

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