WolframAlpha computational intelligence™

solve y"-y=a cosh(tx)

NATURAL LANGUAGE MATH INPUT EXTENDED KEYBOARD EXAMPLES UPLOAD RANDOM

Input interpretation

solve	$y''(x) - y(x) = a\cosh(t\,x)$

$\cosh(x)$ is the hyperbolic cosine function

Result

Step-by-step solution

$$y(x) = \frac{a\cosh(t\,x)}{t^2 - 1} + c_1\,e^x + c_2\,e^{-x}$$

ODE classification

second-order linear ordinary differential equation

Alternate forms

$$a\cosh(t\,x) + y(x) = y''(x)$$

$$y''(x) - y(x) = \frac{1}{2}\,a\,e^{-t\,x} + \frac{1}{2}\,a\,e^{t\,x}$$

Possible Lagrangian

$$\mathcal{L}(y', y, x) = \frac{1}{2}\left(2\,a\,y\cosh(t\,x) + y^2 + (y')^2\right)$$

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Related Queries:

- y y' + y y" = y' y"
- solve y'(x) = -2 y+x ap…
- y""" + 2 y"" + 3 y"' + 4 …
- solve {y'(x) = -2 y, y(0)…

= y'' = lambertW(y')