

1- Solutions sur \mathbb{R} de $y'' - 9y = x^2 + x - 1$: $y(x) = Ae^{-3x} + Be^{3x} + \frac{7}{81} - \frac{x}{9} - \frac{x^2}{9}$

2- Solutions sur \mathbb{R} de $y'' + 2y' + y = e^{-x}$: $y(x) = (A + Bx)e^{-x} + \frac{x^2}{2}e^{-x}$

3- Solutions sur \mathbb{R} de $y'' - 2y' + 5y = e^x \sin(2x)$:

$$y(x) = (A \sin(2x) + B \cos(2x))e^x - \frac{x \cos(2x)}{4}e^x$$

4- Solutions sur $]0; +\infty[$ $\text{Arctan}(x)y' - \frac{y}{1+x^2} = \frac{-2x \text{Arctan}^2 x}{3+x^2}$:

$$y(x) = K \cdot \text{Arc tan}(x) - \text{Arc tan}(x) \cdot \ln(3+x^2)$$

1- Solutions sur \mathbb{R} de $y'' - 2y' + y = e^x$: $y(x) = (A + Bx)e^x + \frac{x^2}{2}e^x$

2- Solutions sur \mathbb{R} de $y'' - 4y = x^2 + 1$. $y(x) = Ae^{-2x} + Be^{2x} - \frac{3}{8} - \frac{x^2}{4}$

3- Solutions sur \mathbb{R} de $y'' - 4y' + 5y = e^{2x} \cos(x)$:

$$y(x) = (A \sin(x) + B \cos(x))e^{2x} + \frac{x \sin(x)}{2}e^{2x}$$

4- Solutions sur \mathbb{R} de $y' + \frac{2x}{1+x^2}y = \frac{1+3x^2}{1+x^2}$: $y(x) = x + \frac{K}{1+x^2}$