



4.  $y''_{xx} + ay'_x + (bx + c)y = 0$ .

1°. Solution with  $b \neq 0$ :

$$y = \exp\left(-\frac{1}{2}ax\right) \sqrt{\xi} \left[ C_1 J_{1/3}\left(\frac{2}{3}\sqrt{b}\xi^{3/2}\right) + C_2 Y_{1/3}\left(\frac{2}{3}\sqrt{b}\xi^{3/2}\right) \right], \quad \xi = x + \frac{4c - a^2}{4b},$$

where  $J_{1/3}(z)$  and  $Y_{1/3}(z)$  are the Bessel functions,  $C_1$  and  $C_2$  are arbitrary constants.

2°. For  $b = 0$ , see equation 2.3.

### Referenc

**Polyanin, A. D. and Zaitsev, V. F.**, *Handbook of Exact Solutions for Ordinary Differential Equations*, 2nd Edition, Chapman & Hall/CRC, Boca Raton, 2003.