



28. $y''_{xx} + (ae^x - b)y = 0.$

Solution:

$$y = C_1 J_{2\sqrt{b}}(2\sqrt{a} e^{x/2}) + C_2 Y_{2\sqrt{b}}(2\sqrt{a} e^{x/2}),$$

where C_1 and C_2 are arbitrary constants, $J_\nu(z)$ and $Y_\nu(z)$ are the Bessel functions.

Reference

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