

18. $y_{xx}'' + [ay + f(x)]y_x' + f_x'(x)y = 0$.

Integrating yields a Riccati equation: $y'_x + f(x)y + \frac{1}{2}ay^2 = C$.

Reference

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

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http://eqworld.ipmnet.ru/en/solutions/ode/ode0318.pdf