

11. 
$$y_{xx}'' = y^{-3}f\left(\frac{y}{\sqrt{ax^2 + bx + c}}\right)$$
.

Setting  $u(x) = y(ax^2 + bx + c)^{-1/2}$  and integrating the equation, we obtain a first-order separable equation:

$$(ax^{2} + bx + c)^{2}(u'_{x})^{2} = (\frac{1}{4}b^{2} - ac)u^{2} + 2\int u^{-3}f(u) du + C_{1}.$$

## 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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