

**44.**  $y''_{xx} + f(y)(y'_x)^2 + g(y) = 0$ .

The substitution  $w(y) = (y'_x)^2$  leads to a first-order linear equation:  $w'_y + 2f(y)w + 2g(y) = 0$ .

## 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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