



**35.  $yy''_{xx} - (y'_x)^2 + f(x)yy'_x + g(x)y^2 = 0.$**

The substitution  $u = y'_x/y$  leads to a first-order linear equation:  $u'_x + f(x)u + g(x) = 0.$

### Reference

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