



19.  $y''_{xx} + [2ay + f(x)]y'_x + af(x)y^2 = g(x).$

On setting  $u = y'_x + ay^2$ , we obtain a first-order linear equation:  $u'_x + f(x)u = g(x).$

### Reference

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