



33.  $x^2 y''_{xx} + xy'_x = f(x^n e^{ay})$ .

The transformation  $z = x^n e^{ay}$ ,  $w = xy'_x$  leads to a first-order separable equation:  $z(aw+n)w'_z = f(z)$ .

### Reference

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