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Differential Equations > Generalized Homogeneous Equation

$$10. \quad F\left(x^k y^m, \frac{xy'_x}{y}, \frac{x^2 y''_{xx}}{y}, \dots, \frac{x^n y^{(n)}_x}{y}\right) = 0.$$

**Generalized homogeneous equation.** The transformation  $t = x^k y^m$ ,  $z = xy'_x/y$  leads to an  $(n - 1)$ st-order equation.

### Reference

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

Generalized Homogeneous Equation

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