11. $\quad F\left(e^{\alpha x}y^m,\ \dfrac{y'_x}{y},\ \dfrac{y''_{xx}}{y},\ \ldots,\ \dfrac{y^{(n)}_x}{y}\right) = 0.$

Equation invariant under "translation–dilatation" transformation. The transformation $z = e^{\alpha x}y^m$, $w = y'_x/y$ 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.