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$$14. \quad xy'_x = x^{2n} f(x)y^2 + [ax^n f(x) - n]y + bf(x).$$

Riccati equation, special case 8.

The substitution $z = x^n y$ leads to a separable equation: $z'_x = x^{n-1} f(x)(z^2 + az + b)$.

Reference

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

Riccati Equation, Special Case 8

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