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2.  $y'_x = f(x)g(y)$ .

**Separable equation.**

Solution:

$$\int \frac{dy}{g(y)} = \int f(x) dx + C,$$

where  $C$  is an arbitrary constant.

Particular solutions:  $y = A_k$ , where the  $A_k$  are roots of the algebraic (transcendental) equation  $g(A_k) = 0$ .

## References

- Kamke, E.**, *Differentialgleichungen: Lösungsmethoden und Lösungen, I, Gewöhnliche Differentialgleichungen*, B. G. Teubner, Leipzig, 1977.
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- Polyanin, A. D. and Zaitsev, V. F.**, *Handbook of Exact Solutions for Ordinary Differential Equations*, 2nd Edition , Chapman & Hall/CRC, Boca Raton, 2003.

Separable Equation

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