

If the right-hand side of the equation

$$\frac{dy}{dx} = f(x, y)$$

can be written in the form

$$f(x, y) = g(x) \cdot h(y),$$

then the differential equation is called *separable*.

In theory, separable equations can be solved by separating the variables and integrating:

$$\frac{dy}{dx} = g(x) \cdot h(y)$$

$$\frac{1}{h(y)} dy = g(x) dx$$

$$\int \frac{1}{h(y)} dy = \int g(x) dx$$