§1.2 Separable Differential Equations
Goals

- To understand that a **first-order differential equation** is an equation that can be written in the form
$$\frac{dx}{dt} = f(t, x).$$

- To understand that a differential equation is separable if it can be written in the form
$$\frac{dy}{dx} = M(x)N(y),$$
or
$$g(y)dy = f(x)dx,$$
and solve by integrating both sides.

To Prepare for Class on §1.2

- Read §1.2.1 Exponential Growth through Example 1.2.2.

- Solve the following initial value problem:
$$xdx - y^2dy = 0, \ y(0) = 1.$$