

Due: Friday, December 11

1. Find a function $y = y(t)$, $t \geq 0$, with

$$y'(t) = y(t)(2 - y(t)) \quad \text{for all } t \geq 0, \quad y(0) = 1.$$

2. Find a function $y = y(t)$, $t \geq 0$, with

$$y'(t) = e^{-y(t)} \quad \text{for all } t \geq 0, \quad y(0) = 1.$$

3. Find a function $y = y(t)$, $t \geq 2$, with

$$y'(t) = 2y(t) \quad \text{for all } t \geq 2, \quad y(2) = 1.$$

4. Find a function $y = y(t)$, $t \geq 1$, with

$$y'(t) = t^2 \quad \text{for all } t \geq 1, \quad y(1) = 2.$$