

NAME \_\_\_\_\_

Solve the following differential equation by separating variables.

1.  $\frac{dy}{dx} \ln x - \frac{y}{x} = 0$

2.  $y^2 dy + x^3 dx = 0$

3.  $2 \frac{dy}{dx} = \frac{y(x+1)}{x}$

4.  $\frac{dy}{dx} = e^{x+y}$

5.  $\frac{dy}{dx} = \frac{\cos x}{\sin y}$

6.  $(x^2 y + y) \frac{dy}{dx} = 1$

7.  $\frac{dP}{dt} = kP$       $k$  constant

8.  $y'(x) = -\frac{x}{y}$

9.  $\frac{dy}{dx} = \frac{x^2}{\sqrt{y}}$

10.  $\sqrt{1-x^2} 2^y \frac{dy}{dx} = 1$