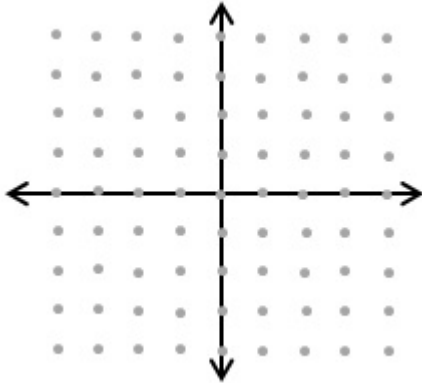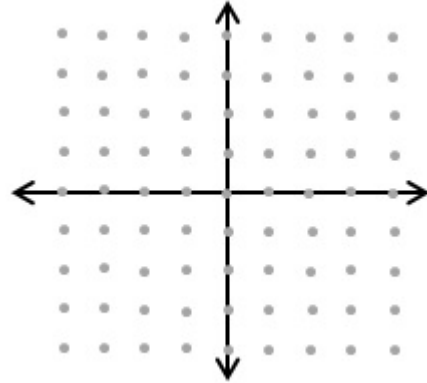Caluclus AB

Name: _____

Worksheet 25 - Slope Fields

Period: _____

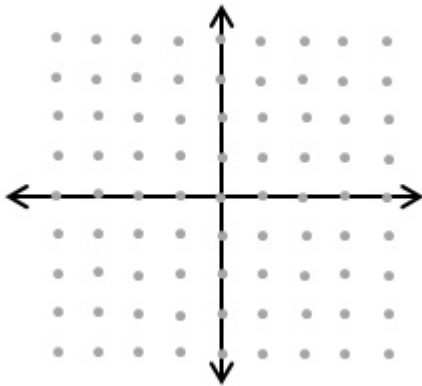1. Draw a slope field for the following differential equations:
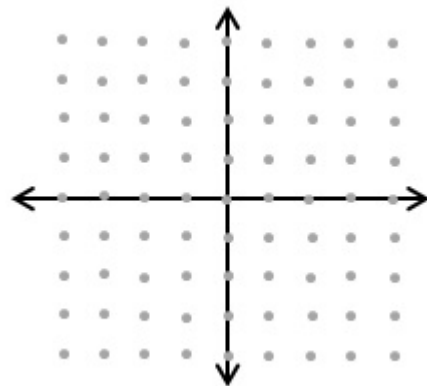
(a) $\frac{dy}{dx} = 1$
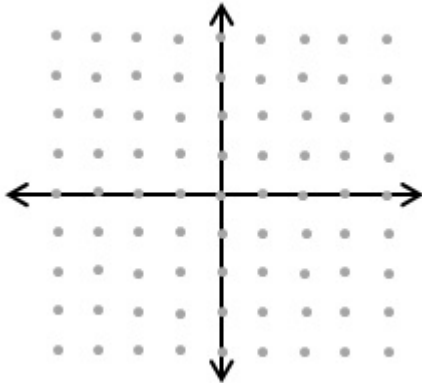
(d) $\frac{dy}{dx} = xy$
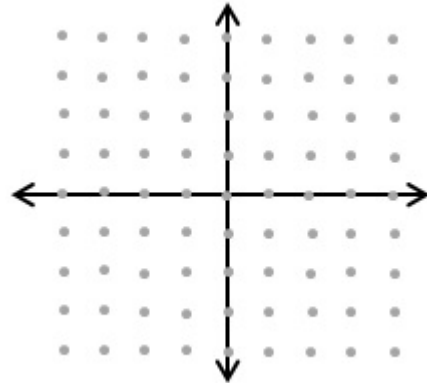
(b) $\frac{dy}{dx} = y^2$
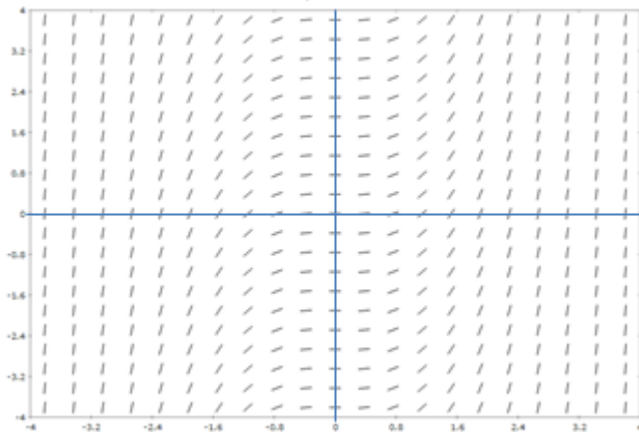
(e) $\frac{dy}{dx} = \frac{x}{y}$

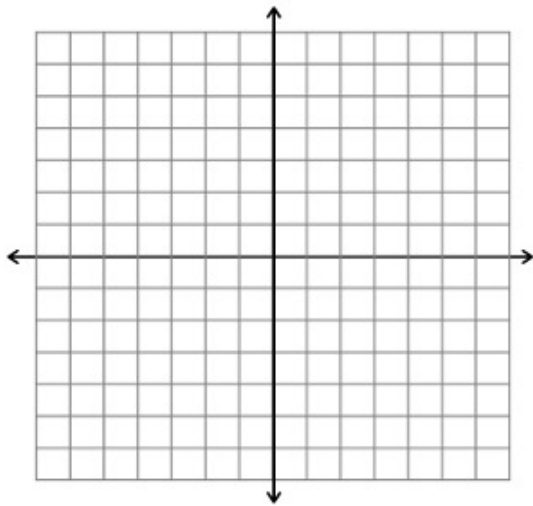(c) $\frac{dy}{dx} = \frac{1}{x}$

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

2. To which of the following differential equations could this slope field correspond? Consecutive slope segments are one unit apart.
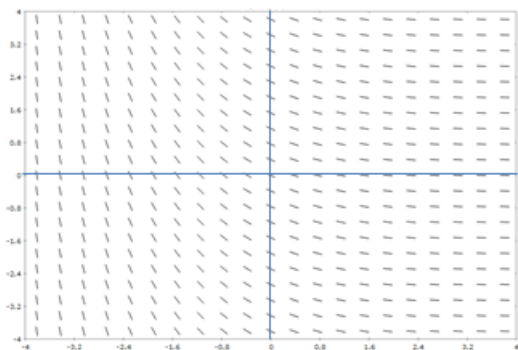

(a) $\dfrac{dy}{dx} = 3xy$

(b) $\dfrac{dy}{dx} = x^3$

(c) $\dfrac{dy}{dx} = 3x^2$

(d) $\dfrac{dy}{dx} = y$

(e) $\dfrac{dy}{dx} = x + 2y$

3. Draw the graph for the function that is the particular solution to the differential equation $\dfrac{dy}{dx} = x + 2$ that satisfies the initial condition $(0, -3)$.

4. Match each of the four slope fields below with one of the six functions representing a particular solution of the differential equation that determines the slope field.
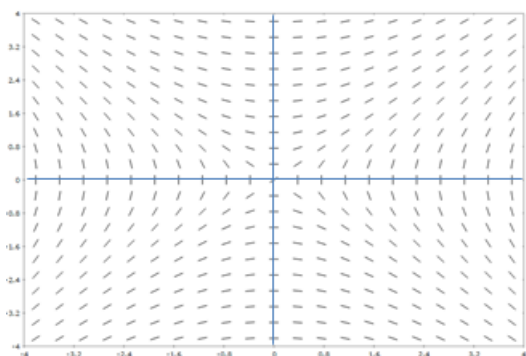
a.

1. $y = e^{-x^2}$
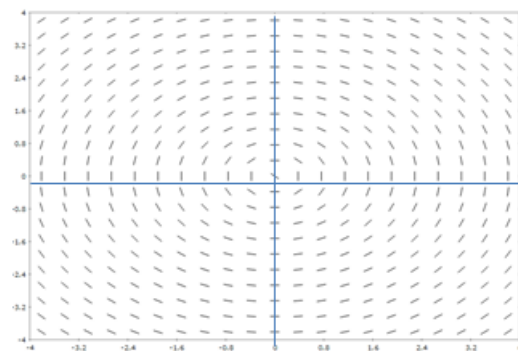
2. $y = 2^{-x}$

b.

3. $y^2 - x^2 = 1$

4. $y = \sqrt{x}$

c.

5. $x^2 + y^2 = 1$

6. $y = x^3$

d.

3