

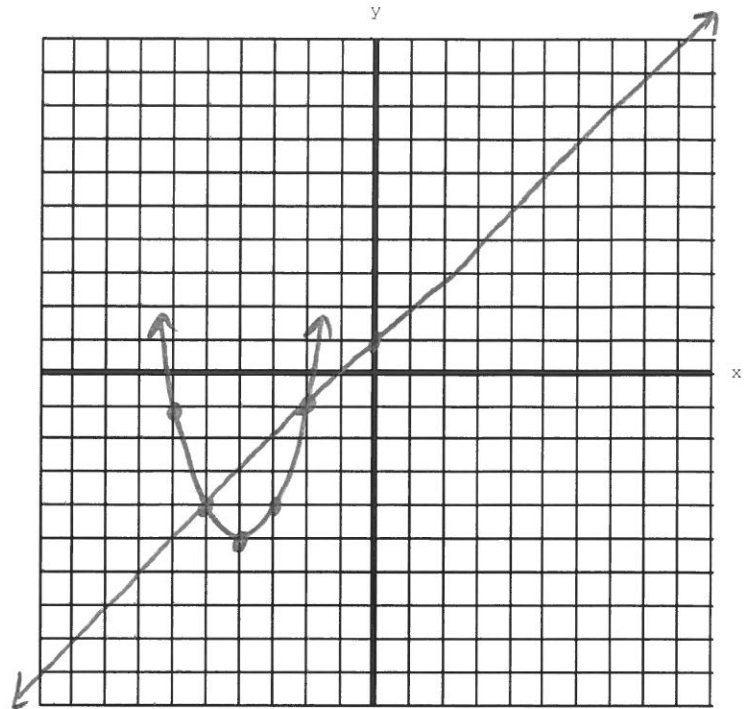
Solve the system of equations by graphing

$$3. \begin{cases} y = x^2 + 8x + 11 \\ y = x + 1 \end{cases}$$

$$x = \frac{-b}{2a} = \frac{-8}{2} = -4$$

$$y = (-4)^2 + 8(-4) + 11 = -5$$

x	y
-6	-1
-5	-4
-4	-5
-3	-4
-2	-1



$$(-5, -4) \quad (-2, -1)$$

4. Students in an Algebra class at PVHS are simulating the start-up of a company. The income, y , can be described by the equation $y = \frac{1}{8}x^2$ where x represents the time in months. The expenses have been growing at a constant rate and can be defined by the equation $y = x$. When will income equal expenses? How much income did they generate?

$$x = \frac{1}{8}x^2$$

$$8x = x^2$$

$$x^2 - 8x = 0$$

$$x(x-8) = 0$$

$$x = 0, x = 8$$

$$y = \frac{1}{8}(8^2) = 8$$

$$(8, 8)$$

break even at the beginning (don't start-up) and after 8 months.

8 dollars were generated.

Name _____

Key

Period _____

Solve each system of equations by substitution

$$1. \begin{cases} y = x^2 - 6x - 20 \\ y + x = -6 \end{cases}$$

$$x^2 - 6x - 20 + x = -6$$

$$x^2 - 5x - 14 = 0$$

$$(x-7)(x+2) = 0$$

$$x = 7, x = -2$$

$$y = -13 \quad y = -4$$

$$\begin{array}{l} (7, -13) \\ (-2, -4) \end{array}$$

$$2. \begin{cases} y = x^2 + 8x + 12 \\ y = -x^2 + 2x - 1 \end{cases}$$

$$x^2 + 8x + 12 = -x^2 + 2x - 1$$

$$2x^2 + 6x + 13 = 0$$

$$x = \frac{-6 \pm \sqrt{6^2 - 4(2)(13)}}{2(2)} = \frac{-6 \pm \sqrt{-68}}{4}$$

NO Solution