

Day 10 - Writing Equations of Lines

Name: Key

Practice Assignment

Date: \_\_\_\_\_ Block: \_\_\_\_\_

Review

1. Solve the equation for x:  $6x + 11 = -2x - 5$

$$\begin{array}{r} +2x \quad +2x \\ 8x + 11 = -5 \\ -11 \quad -11 \\ \hline 8x = -16 \\ \frac{8x}{8} = \frac{-16}{8} \\ x = -2 \end{array}$$

2. Solve for y:  $4x - 2y = 12$

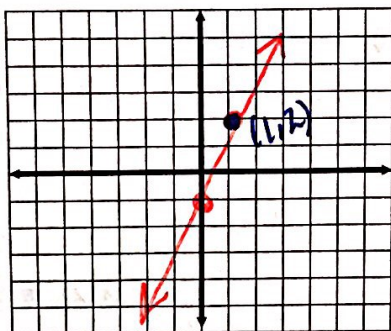
$$\begin{array}{r} -4x \quad -4x \\ -2y = -4x + 12 \\ \frac{-2y}{-2} = \frac{-4x + 12}{-2} \\ y = 2x - 6 \end{array}$$

Directions: Write the equation of the line given the slope and a point on the line in both slope intercept form. Then graph.

**Slope Intercept Form:**  $y = mx + b$        $m = \text{slope}$        $b = \text{y-intercept}$   
**Point Slope Form:**  $y - y_1 = m(x - x_1)$

3.  $(1, 2)$ , slope = 3

$$\begin{array}{r} x \quad y \\ y - 2 = 3(x - 1) \\ y - 2 = 3x - 3 \\ \frac{+2 \quad +2}{y = 3x - 1} \end{array}$$

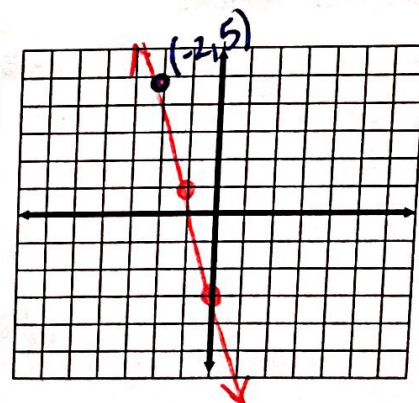


$m = 3$     $b = (0, -1)$

Slope Intercept Equation:  $y = 3x - 1$

4.  $(-2, 5)$ , slope = -4

$$\begin{array}{r} x \quad y \\ y - 5 = -4(x + 2) \\ y - 5 = -4x - 8 \\ \frac{+5 \quad +5}{y = -4x - 3} \end{array}$$

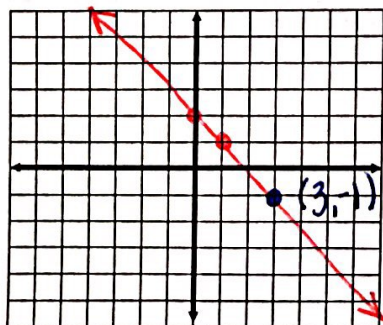


$m = -4$     $b = -3$

Slope Intercept Equation:  $y = -4x - 3$

5.  $(3, -1)$ , slope = -1

$$\begin{array}{r} x \quad y \\ y - (-1) = -1(x - 3) \\ y + 1 = -x + 3 \\ \frac{+1 \quad -1}{y = -x + 2} \end{array}$$

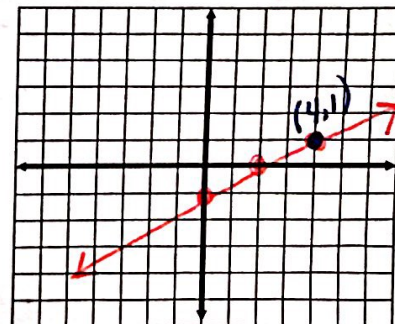


$m = -1$     $b = (0, 2)$

Slope Intercept Equation:  $y = -x + 2$

6.  $(4, 1)$ , slope =  $\frac{1}{2}$

$$\begin{array}{r} x \quad y \\ y - 1 = \frac{1}{2}(x - 4) \\ y - 1 = \frac{1}{2}x - 2 \\ \frac{+1 \quad +1}{y = \frac{1}{2}x - 1} \end{array}$$



$m = \frac{1}{2}$     $b = (0, -1)$

Slope Intercept Equation:  $y = \frac{1}{2}x - 1$

7. Nick is given \$50 to spend on a vacation. He decides to spend \$5 a day. The amount Nick has left and the number of days are related.

a. Complete the following (some may need to be calculated)

x Independent Quantity: # of days

y Dependent Quantity: money remaining

Slope: -\$5 per day

Y-intercept: (0, 50)

Point(s): N/A

Equation:  $y = -5x + 50$

b. When will Nick have \$15 left?

$x = 13$  days

$$\begin{array}{r} -15 = -5x + 50 \\ -50 \quad -50 \\ \hline -65 = -5x \\ -5 \quad -5 \\ \hline 13 = x \end{array}$$

8. Julio plans a diet to gain 0.2 kg a day. After 14 days he weighs 40 kg. The number days he diets and his weight are related.

a. Complete the following (some may need to be calculated)

x Independent Quantity: # of days

y Dependent Quantity: weight

Slope: .2 kg per day

Y-intercept: (0, 37.2)

Point(s): (14, 40)

Equation:  $y = .2x + 37.2$

$$y - 40 = .2(x - 14)$$

$$\begin{array}{r} y - 40 = .2x - 2.8 \\ +40 \quad +40 \\ \hline y = .2x + 37.2 \end{array}$$

b. When will Julio weigh 50 kg?

$x = 64$  days

$$\begin{array}{r} 50 = .2x + 37.2 \\ -37.2 \quad -37.2 \\ \hline 12.8 = .2x \\ .2 \quad .2 \\ \hline 64 = x \end{array}$$

9. A plane loses altitude at the rate of 5 meters per second. It begins with an altitude of 8500 meters. The plane's altitude is a function of the number of seconds that pass.

a. Complete the following (some may need to be calculated)

x Independent Quantity: # of seconds

y Dependent Quantity: height

Slope: -5 meters per second

Y-intercept: (0, 8500)

Point(s): N/A

Equation:  $y = -5x + 8500$

b. When will the plane land (hint: what is the altitude when the plane lands?)

$x = 1700$  seconds

$$\begin{array}{r} 0 = -5x + 8500 \\ -8500 \quad -8500 \\ \hline -8500 = -5x \\ -5 \quad -5 \\ \hline 1700 = x \end{array}$$