

Writing Linear Equations - Extra Practice

Directions: Write the equation of the line with the given slope and point.

<p>1. Write the equation of the line with a slope of 2, through the point (2, -3).</p> <p><math>y = mx + b</math>  <math>m = 2</math>  <math>b = -7</math></p> <p style="text-align: center;"><span style="border: 1px solid black; padding: 5px;"><math>y = 2x - 7</math></span></p>	<p>2. Write the equation of the line with a slope of 4, through the point (1, 3).</p> <p><math>y = mx + b</math>  <math>m = 4</math>  <math>b = -1</math></p> <p style="text-align: center;"><span style="border: 1px solid black; padding: 5px;"><math>y = 4x - 1</math></span></p>
<p>(2, -3) x y</p> <p><math>y = mx + b</math>  <math>-3 = 2(2) + b</math>  <math>-3 = 4 + b</math>  <math>-4 \quad -4</math>  <hr style="width: 50%; margin-left: 0;"/> <math>-7 = b</math></p>	<p>(1, 3) x y</p> <p><math>y = mx + b</math>  <math>3 = 4(1) + b</math>  <math>3 = 4 + b</math>  <math>-4 \quad -4</math>  <hr style="width: 50%; margin-left: 0;"/> <math>-1 = b</math></p>
<p>3. Write the equation of the line with a slope of -3, through the point (4, 2).</p> <p><math>y = mx + b</math>  <math>m = -3</math>  <math>b = 14</math></p> <p style="text-align: center;"><span style="border: 1px solid black; padding: 5px;"><math>y = -3x + 14</math></span></p>	<p>4. Write the equation of the line with a slope of <math>m = -5</math> and passes through the point (2, -4).</p> <p><math>y = mx + b</math>  <math>m = -5</math>  <math>b = 6</math></p> <p style="text-align: center;"><span style="border: 1px solid black; padding: 5px;"><math>y = -5x + 6</math></span></p>
<p>(4, 2) x y</p> <p><math>y = mx + b</math>  <math>2 = -3(4) + b</math>  <math>2 = -12 + b</math>  <math>+12 \quad +12</math>  <hr style="width: 50%; margin-left: 0;"/> <math>14 = b</math></p>	<p>(2, -4) x y</p> <p><math>y = mx + b</math>  <math>-4 = -5(2) + b</math>  <math>-4 = -10 + b</math>  <math>+10 \quad +10</math>  <hr style="width: 50%; margin-left: 0;"/> <math>6 = b</math></p>

5. Write the equation of the line with a slope of  $\frac{1}{2}$ , through the point  $(-6, 4)$ .

$$y = mx + b$$

$$m = \frac{1}{2}$$

$$b = 7$$

$$y = \frac{1}{2}x + 7$$

$$\begin{matrix} (-6, 4) \\ x & y \end{matrix}$$

$$y = mx + b$$

$$4 = \frac{1}{2}(-6) + b$$

$$4 = -3 + b$$

$$\begin{array}{r} +3 & +3 \\ \hline b = 7 \end{array}$$

6. Write the equation of the line with a slope of  $-3$ , through the point  $(-4, -3)$ .

$$y = mx + b$$

$$m = -3$$

$$b = -15$$

$$y = -3x - 15$$

$$\begin{matrix} (-4, -3) \\ x & y \end{matrix}$$

$$y = mx + b$$

$$-3 = -3(-4) + b$$

$$-3 = 12 + b$$

$$\begin{array}{r} -12 & -12 \\ \hline -15 = b \end{array}$$

Directions: Write the equation of the line that intersects the two given points.

7. Write the equation of the line that passes through the points  $(-2, 3)$  and  $(-4, -4)$ .

$$\begin{matrix} (-2, 3) & (-4, -4) \\ x_2 & y_2 & x_1 & y_1 \end{matrix}$$

$$y = mx + b$$

$$m = \frac{7}{2}$$

$$b = 10$$

$$y = \frac{7}{2}x + 10$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{-4 - 3}{-4 - (-2)}$$

$$m = \frac{-7}{-2}$$

$$m = \frac{7}{2}$$

$$y = mx + b$$

$$3 = \frac{7}{2}(-2) + b$$

$$3 = -7 + b$$

$$\begin{array}{r} +7 & +7 \\ \hline b = 10 \end{array}$$

$$b = 10$$

8. Write the equation of the line that passes through the points  $(1, 6)$  and  $(3, -4)$ .

$$\begin{matrix} (1, 6) & (3, -4) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$y = mx + b$$

$$m = -5$$

$$b = 11$$

$$y = -5x + 11$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{-4 - 6}{3 - 1}$$

$$m = \frac{-10}{2}$$

$$m = -5$$

$$y = mx + b$$

$$6 = -5(1) + b$$

$$6 = -5 + b$$

$$\begin{array}{r} +5 & +5 \\ \hline 11 = b \end{array}$$

$$11 = b$$

Directions: Write the equation of the line given the following table of values.

9. Provided the table of values, write an equation that correctly represents the relationship between  $x$  and  $y$ .

$x$	$y$
5	-2
7	0
9	2
11	4

$$y = mx + b$$

$$m = 1$$

$$b = -7$$

$$y = x - 7$$

10. Provided the table of values, write an equation that correctly represents the relationship between  $x$  and  $y$ .

$x$	0	1	2	3	4
$y$	5	3	1	-1	-3

$$y = mx + b$$

$$m = -2$$

$$b = 5$$

$$y = -2x + 5$$

$$(5, -2) \quad (7, 0)$$

$$x_1 \quad y_1 \quad x_2 \quad y_2$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{0 - (-2)}{7 - 5}$$

$$m = \frac{2}{2}$$

$$m = 1$$

$$y = mx + b$$

$$-2 = 1(5) + b$$

$$-2 = 5 + b$$

$$\frac{-5 \quad -5}{-7 = b}$$

$$-7 = b$$

$$(0, 5) \quad (1, 3)$$

$$x_1 \quad y_1 \quad x_2 \quad y_2$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{3 - 5}{1 - 0}$$

$$m = \frac{-2}{1}$$

$$m = -2$$

$$y = mx + b$$

$$5 = -2(0) + b$$

$$5 = 0 + b$$

$$5 = b$$