

**Do Now**

1) Write the equation of the line that has a slope of 4 and a y-intercept of -2

$$y = 4x - 2$$

$$m = 4$$

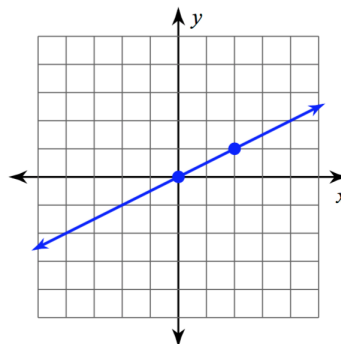
$$b = -2$$

2) Write the equation of the line shown in the graph below.

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

$$b = 0$$

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



Jan 2-11:45 AM

**Homework Answers**

1)  $m = 3; b = -3$   
 $y = 3x - 3$

2)  $m = \frac{-3}{2}; b = 2$   
 $y = \frac{-3}{2}x + 2$

3)  $y = \frac{2}{5}x + 2$

4)  $y = -3x + 1$

5)  $y = \frac{3}{2}x + 3$

6)  $y = \frac{-2}{3}x - 2$

7)  $y = x - 3$

8)  $y = 2x + 4$

9)  $y = -x + 1$

10)  $y = \frac{1}{2}x - 4$

11)  $y = -x$

12)  $y = \frac{-2}{3}x + 1$

Nov 29-7:19 PM

## Writing Linear Equations

To write an equation of a line when you know its slope and one point on the line:

Use  $y = mx + b$  and substitute the slope for  $m$

Substitute the point  $(x,y)$  into the equation

Solve the equation for  $b$  to find the y-intercept

Use  $m$  and  $b$  to write the equation

Feb 23-8:32 AM

Write an equation of the line with slope -2 that goes through the point  $(3,5)$

$$\begin{aligned}
 y &= mx + b \\
 5 &= -2(3) + b \\
 5 &= -6 + b \\
 +6 \quad +6 & \\
 \hline
 11 &= b
 \end{aligned}$$

$$\begin{aligned}
 y &= mx + b \\
 y &= -2x + 11
 \end{aligned}$$

Feb 23-8:36 AM

Write the equation of the following lines with slope  $m$  that go through the given points:

1)  $m = 4, (-2, -1)$

$$y = mx + b$$

$$-1 = 4(-2) + b$$

$$-1 = -8 + b$$

$$\begin{array}{r} +8 \\ -1 = -8 + b \\ \hline 7 = b \end{array}$$

$$\boxed{y = 4x + 7}$$

2)  $m = \frac{2}{3}, (-6, 1)$

$$y = mx + b$$

$$1 = \frac{2}{3}(-6) + b$$

$$1 = -4 + b$$

$$\begin{array}{r} +4 \\ 1 = -4 + b \\ \hline 5 = b \end{array}$$

$$\boxed{y = \frac{2}{3}x + 5}$$

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Write the equation of the following lines with slope  $m$  that go through the given points:

3)  $m = 2, (4, 1)$

$$y = mx + b$$

$$1 = 2(4) + b$$

$$1 = 8 + b$$

$$\begin{array}{r} -8 \\ 1 = 8 + b \\ \hline -7 = b \end{array}$$

$$\boxed{y = 2x - 7}$$

4)  $m = \frac{1}{2}, (2, 4)$

$$y = mx + b$$

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

$$4 = 1 + b$$

$$\begin{array}{r} -1 \\ 4 = 1 + b \\ \hline 3 = b \end{array}$$

$$\boxed{y = \frac{1}{2}x + 3}$$

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Write the equation of the following lines with slope  $m$  that go through the given points:

5)  $m = \frac{2}{3}$ ,  $(-6, 0)$

$$\begin{aligned} y &= mx + b \\ 0 &= \frac{2}{3}(-6) + b \\ 0 &= -4 + b \\ +4 & \quad +4 \\ y &= \frac{2}{3}x + 4 \end{aligned}$$

6)  $m = \frac{-3}{4}$ ,  $(-8, -1)$

$$\begin{aligned} y &= mx + b \\ -1 &= \frac{-3}{4}(-8) + b \\ -1 &= 6 + b \\ -6 & \quad -6 \\ -7 &= b \\ y &= \frac{-3}{4}x - 7 \end{aligned}$$

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Write the equation of the following lines with slope  $m$  that go through the given points:

7)  $m = -1$ ,  $(4, -3)$

$$\begin{aligned} -3 &= -1(4) + b \\ -3 &= -4 + b \\ +4 & \quad +4 \\ 1 &= b \\ y &= -1x + 1 \end{aligned}$$

8)  $m = 4$ ,  $(0, -9)$

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