

Do Now

Convert into slope - intercept form

$$\begin{array}{r} 2x + 6y = 12 \\ -2x \quad -2x \\ \hline 6y = -2x + 12 \\ \frac{6y}{6} = \frac{-2x}{6} + \frac{12}{6} \\ y = -\frac{1}{3}x + 2 \end{array}$$

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Writing Linear Equations

Writing Equations Given a Slope & a y-intercept

- 1) Identify your m
- 2) Identify your b
- 3) Substitute into $y = mx + b$ to write the equation

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1) Slope = -2 & y-intercept is 3

$$m = -2$$

$$y = mx + b$$

$$b = 3$$

$$y = -2x + 3$$

2) Slope is $\frac{2}{3}$ & y-intercept is -7

$$m = \frac{2}{3}$$

$$y = mx + b$$

$$b = -7$$

$$y = \frac{2}{3}x - 7$$

3) There is no slope and the x-intercept is 6

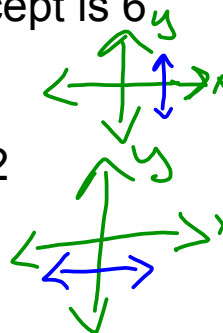
$$x = 6$$

4) Slope = 0 and the y-intercept is -2

$$m = 0$$

$$b = -2$$

$$y = -2$$



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Writing Equations Given a Graph

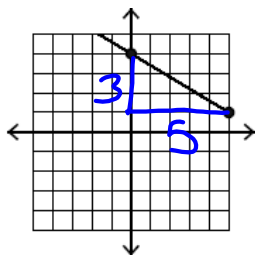
1) Locate the y-intercept

2) Find or Calculate the slope of the line use
"Count boxes" run

3) Substitute into $y = mx + b$ to write the equation

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1)

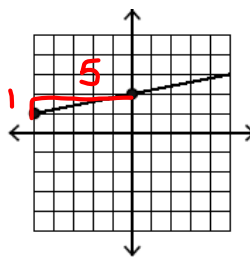


$$m = -\frac{3}{5}$$

$$b = 4$$

$$y = -\frac{3}{5}x + 4$$

2)



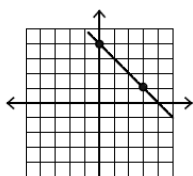
$$m = \frac{1}{5}$$

$$b = 2$$

$$y = \frac{1}{5}x + 2$$

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3)

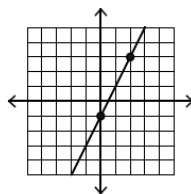


$$m = -\frac{3}{3} = -1$$

$$b = 4 \quad y = -\frac{3}{3}x + 4$$

$$y = -x + 4$$

4)

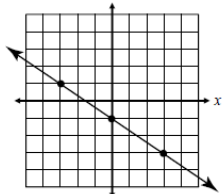


$$m = +\frac{4}{2} = 2$$

$$b = -1$$

$$y = 2x - 1$$

5)

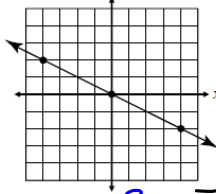


$$m = -\frac{2}{3}$$

$$b = -1$$

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

6)



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

$$b = 0$$

$$y = \frac{1}{2}x + 0$$

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