Intro to College Math: Chapter 3.2
Graphing lines

1. For the following equation, which of the given ordered pairs are solutions.

$y = 7x - 3$

$(5, 15)$ (x y)

$y = 7x - 3$

$15 = 7(5) - 3$

$15 = 32$

false

$(0, 3)$ (x y)

$y = 7x - 3$

$3 = 7(0) - 3$

$3 = -3$

false

$(1, 4)$ (x y)

$y = 7x - 3$

$4 = 7(1) - 3$

$4 = 4$

true

$(1, 4)$

So..., $(1, 4)$ is a solution

* Take each order pair and replace $x + y$ in the equation.
* See if the 2 sides equal each other.
* If statement is true (meaning 2 sides are equal), then that ordered pair is a solution.

2. For the following equation, which of the given ordered pairs are solutions?

$5x - 3y = 15$

$(5, 2)$ (x y)

$5x - 3y = 15$

$5(5) - 3(2) = 15$

$25 - 6 = 15$

$19 = 15$

false

$(0, -5)$ (x y)

$5x - 3y = 15$

$5(0) - 3(-5) = 15$

$0 + 15 = 15$

$15 = 15$

true

$(\frac{3}{5}, 1)$ (x y)

$5x - 3y = 15$

$5(\frac{3}{5}) - 3(1) = 15$

$3 - 3 = 15$

$0 = 15$

false

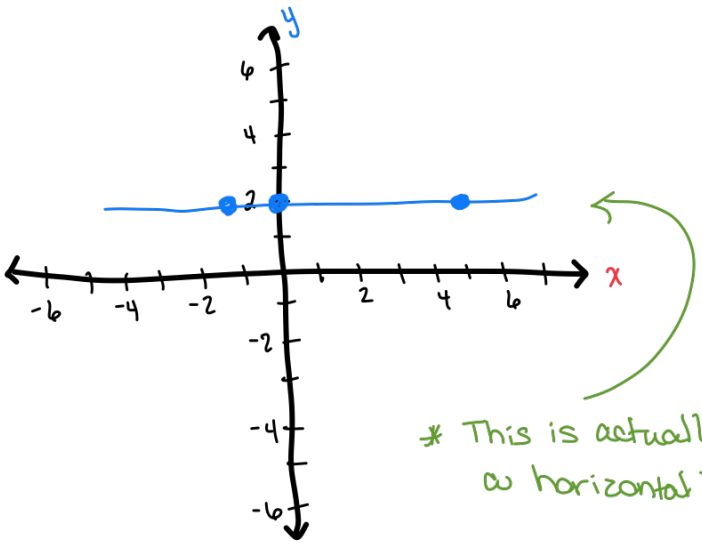
$(0, -5)$

3. For the following equation, complete the given ordered pairs, and use the results to graph the solution set for the equation.

$y = 2$

$(0, 2)$, $(-1, 2)$, $(5, 2)$

← Just insert the number for your y in each box.



* This is actually a horizontal line.

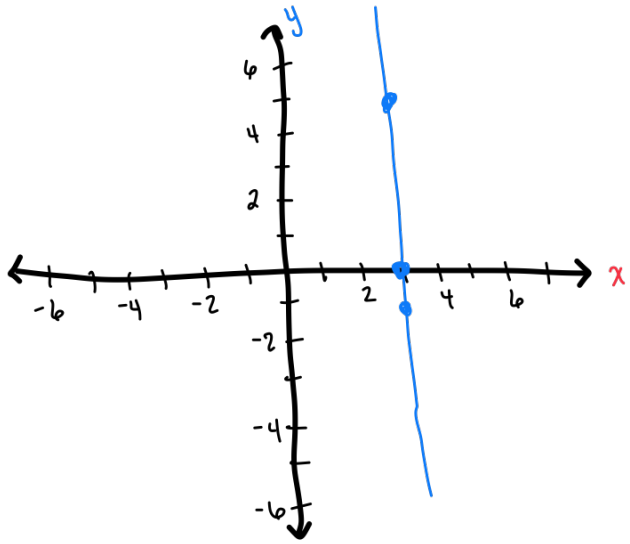
* Now graph each point on the graph
- Remember:
  - 1st number tells you to go left (if negative) and right (if positive)
  - 2nd number tells you to go up (if positive) + down (if negative)

4. For the following equation, complete the given ordered pairs, and use the results to graph the solution set for the equation.

$x = 3$

$(3, -1)$, $(3, 0)$, $(3, 5)$

← Just insert the number for your x in each box.



* This is a vertical line.

* Now graph each point on the graph
- Remember:
  - 1st number tells you to go left (if negative) and right (if positive)
  - 2nd number tells you to go up (if positive) + down (if negative)

5. For the following equation, complete the given ordered pairs, and use the results to graph the solution set for the equation.

$y = -2x + 3$

$(0, \quad)$ $(-1, \quad)$ $(1, \quad)$

x x x

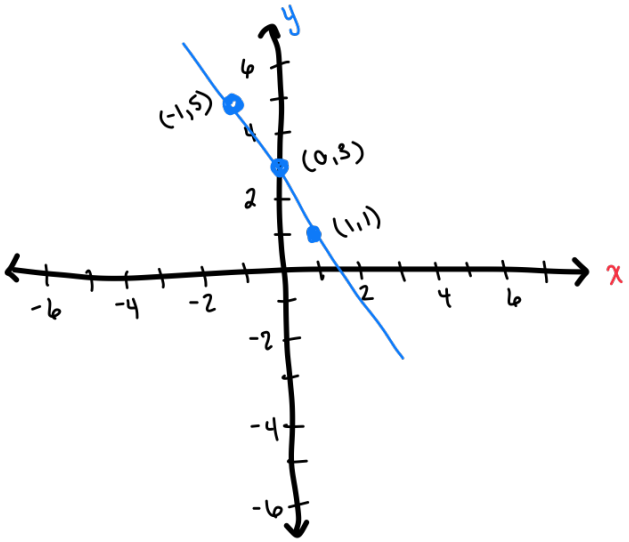
$y = -2x + 3$ $y = -2x + 3$ $y = -2x + 3$

$y = -2(0) + 3$ $y = -2(-1) + 3$ $y = -2(1) + 3$

$y = 3$ $y = 5$ $y = 1$

$(0, 3)$ $(-1, 5)$ $(1, 1)$

← Insert the number you found for y into the correct box.



* Now graph each point on the graph

- Remember:
  - 1st number tells you to go left (if negative) and right (if positive)
  - 2nd number tells you to go up (if positive) + down (if negative)

6. For the following equation, complete the given ordered pairs, and use the results to graph the solution set for the equation.

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

$(-3, \quad)$ — x

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

$y = -\frac{2}{3}(-3) - 3$

$y = -1$

$(0, \quad)$ — x

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

$y = -\frac{2}{3}(0) - 3$

$y = -3$

$(3, \quad)$ — x

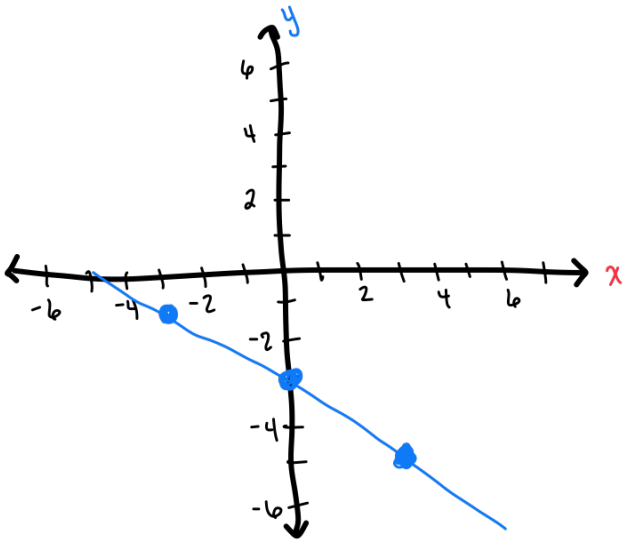
$y = -\frac{2}{3}x - 3$

$y = -\frac{2}{3}(3) - 3$

$y = -5$

$(-3, -1)$ $(0, -3)$ $(3, -5)$

← Insert the number you found for y into the correct box.



* Now graph each point on the graph

- Remember:
  - 1st number tells you to go left (if negative) and right (if positive)
  - 2nd number tells you to go up (if positive) + down (if negative)

7. Solve the equation for y. Then, complete the given ordered pairs, and use them to draw the graph.

$-x + 2y = 8$

$-x + 2y = 8$

$+x \qquad +x$

$2y = 8 + x$

$\frac{2y}{2} = \frac{8}{2} + \frac{x}{2}$

$y = 4 + \frac{1}{2}x$

← 1st Solve for y by moving everything to the right side except the y.

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

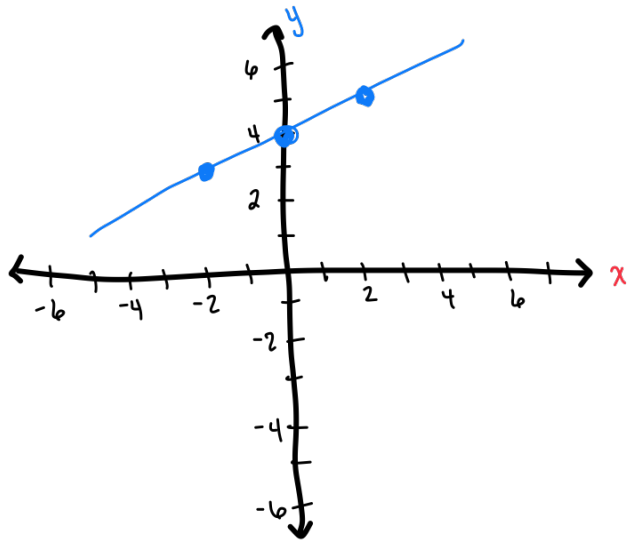
$y = 4 + \frac{1}{2}x$

$y = 4 + \frac{1}{2}(-2)$ $y = 4 + \frac{1}{2}(0)$ $y = 4 + \frac{1}{2}(2)$

$y = 3$ $y = 4$ $y = 5$

$(-2, 3)$ $(0, 4)$ $(2, 5)$

← Insert the number you found for y into the correct box.



* Now graph each point on the graph

- Remember:
  - 1st number tells you to go left (if negative) and right (if positive)
  - 2nd number tells you to go up (if positive) + down (if negative)

8. Solve the equation for y. Then, complete the given ordered pairs, and use them to draw the graph.

$5x + 4y = 20$

$5x + 4y = 20$

$-5x \qquad -5x$

$\frac{4y}{4} = \frac{20}{4} - \frac{5x}{4}$

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

← 1st Solve for y by moving everything to the right side except the y.

(0,) (4,) (8,)

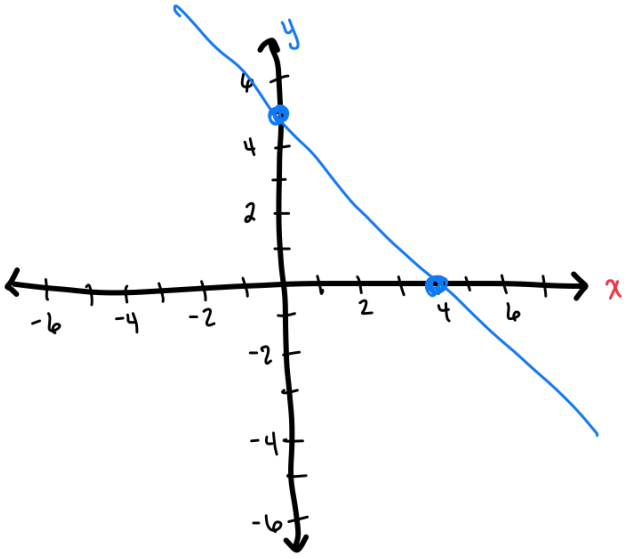
$y = 5 - \frac{5}{4}x$ $y = 5 - \frac{5}{4}x$ $y = 5 - \frac{5}{4}x$

$y = 5 - \frac{5}{4}(0)$ $y = 5 - \frac{5}{4}(4)$ $y = 5 - \frac{5}{4}(8)$

$y = 5$ $y = 0$ $y = -5$

(0, 5) (4, 0) (8, -5)

← Insert the number you found for y into the correct box.

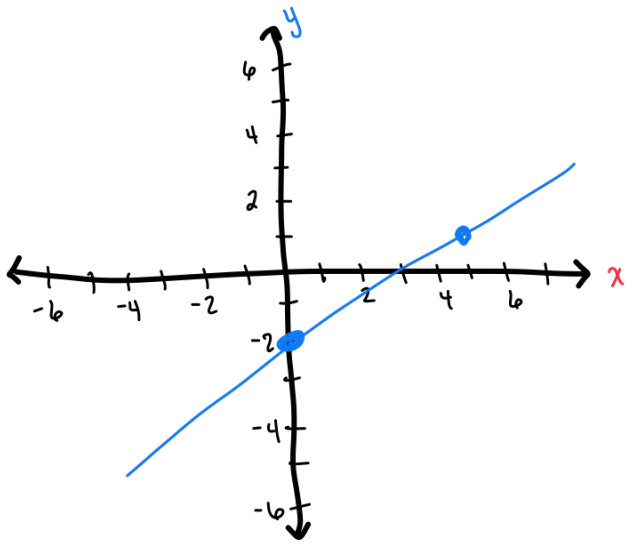


* Now graph each point on the graph

- Remember:
  - 1st number tells you to go left (if negative) and right (if positive)
  - 2nd number tells you to go up (if positive) & down (if negative)

9. Graph the equation.

$y = \frac{3}{5}x - 2$



$x = 0$

$y = \frac{3}{5}x - 2$

$y = \frac{3}{5}(0) - 2$

$y = -2$

$(0, -2)$

$x \quad y$

$x = 5$

$y = \frac{3}{5}x - 2$

$y = \frac{3}{5}(5) - 2$

$y = 1$

$(5, 1)$

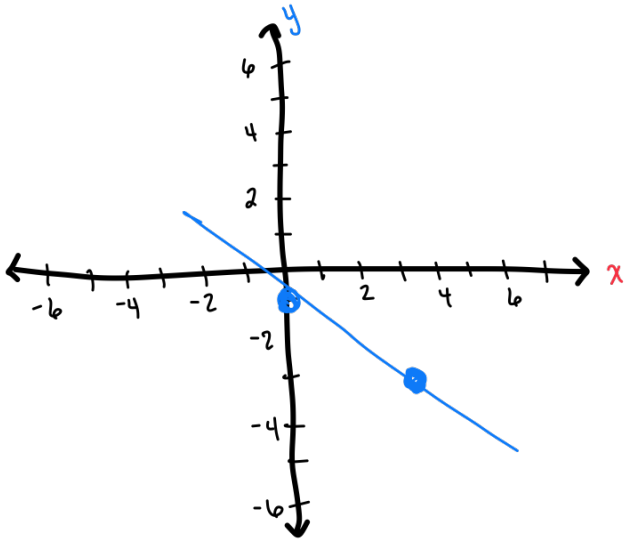
$x \quad y$

* Pick 2 numbers for x.
  - Zero is great for one of them.
  - If you have a fraction, let your other x be equal to the denominator.

* Now graph each point on the graph
  - Remember:
    - 1st number tells you to go left (if negative) and right (if positive)
    - 2nd number tells you to go up (if positive) + down (if negative)

10. Graph the equation.

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



$x = 0$

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

$y = -\frac{2}{3}(0) - 1$

$y = -1$

$(0, -1)$

$x \quad y$

$x = 3$

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

$y = -\frac{2}{3}(3) - 1$

$y = -3$

$(3, -3)$

$x \quad y$

* Pick 2 numbers for x.
  - Zero is great for one of them.
  - If you have a fraction, let your other x be equal to the denominator.

* Now graph each point on the graph
  - Remember:
    - 1st number tells you to go left (if negative) and right (if positive)
    - 2nd number tells you to go up (if positive) & down (if negative)