

Name _____

Date _____

Graphing Linear Equations Guided Lesson Explanation

1. $y = 2x - 4$

Step 1) Determine two points on the line.

We can do this by setting each variable in the equation equal to zero. This will help determine the value of the other variable in that instance.

a) Set x to 0.

$$y = 2(0) - 4$$

$$y = 0 - 4$$

$$y = -4 \quad \text{In this case we know one point on the line is } (0, -4)$$

b) Set $y = 0$.

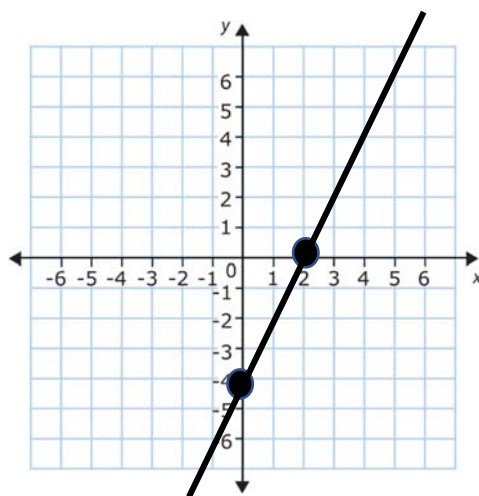
$$0 = 2x - 4$$

$$4 = 2x$$

$$2 = x \quad \text{In this case we know another point on the line is } (2, 0)$$



Step 2) Plot both points and connect them with a line.



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Sketch the line and find the slope and y-intercept of equation.

$$2. y = -x + 4$$

Step 1) Determine two points on the line.

Let us start here and we can make sense of everything after we get our line together. We follow the same procedure that we just used.

a) Set x to 0.

$$y = -0 + 4$$

$$y = 4$$

Point 1 is (0, 4)

b) Set $y = 0$.

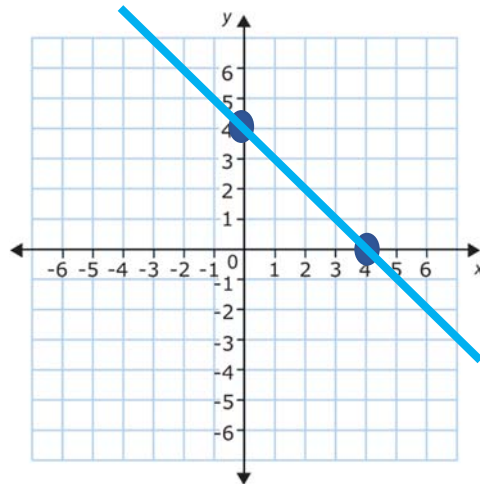
$$0 = -x + 4$$

$$-4 = -x$$

$$4 = x$$

Point 2 is (4, 0)

Step 2) Plot both points and connect them with a line.



Step 2) Determine the slope.

When an equation is in slope intercept form ($y = mx + b$), the coefficient (number in front) of the x variable indicates the slope. The equation is already in slope intercept form. So, we just look at the coefficient of x .

$$y = \underline{-x} + 4$$

Since there is no number in front of the x , it is inferred that it is a value of 1. Since the negative symbol appears in front of x , the value is -1. Slope of this equation is -1.

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Step 3) Determine the y-intercept.

The y-intercept is the position at which the linear equation crosses the y-axis. So, this is the position the line where y equals zero. We already determine that, remember?

$$0 = -x + 4$$

$$-4 = -x$$

$$4 = x$$

Point 2 is (4, 0)

We state the y-intercept as 4, because that is the point the line crosses the x-axis.