Journal Entry:

Explain what it means for two variables to be directly related. Then, give an example of a function that represents a direct variation.

Section 2-3
Linear Functions
and Slope-Intercept Form

Students will be able to
-graph linear functions
-write equations of lines

Drag the terms to the correct place.

y-axis

Quadrant II   Quadrant I

Origin   x-axis

Quadrant IV

Quadrant III
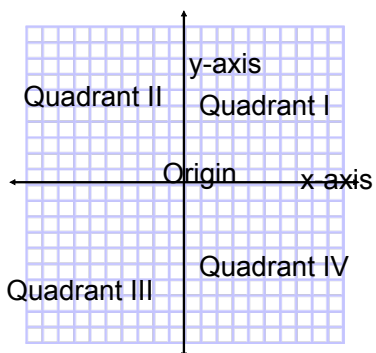
Movement on a coordinate plane can be described using how far you go vertically and how far you go horizontally to get from point to point.

This is called the slope of a line.

$$\frac{\text{vertical change}}{\text{horizontal change}} = \text{slope}$$

$$M = \frac{y - y}{x - x}$$

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

Another way to remember it?

Write one ordered pair on each of your two Post-It notes.

Pass one to the left and one to the right.

Find the slope of the ordered pairs you ended up with.
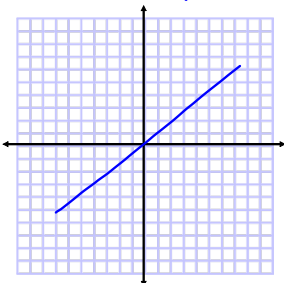

(5,④) and (8,①)

Will it matter which one we use first?

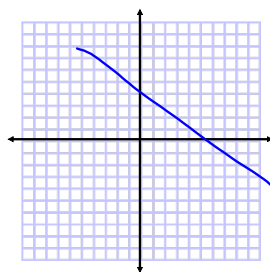$$m = \frac{y - y}{x - x} = \frac{4 - 1}{5 - 8} = \frac{3}{-3}$$
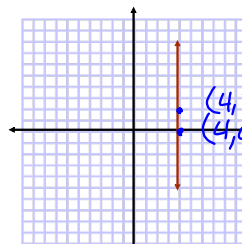
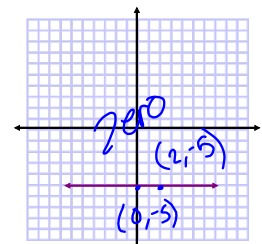$$m = -1$$

Examples:

Positive Slope

Negative Slope

Find the slope:

$(4,2)$
$(4,0)$

$\frac{2-0}{4-4} = \frac{2}{0}$ und

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

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

0

A function whose graph is a line is a linear function.

Linear equation example:
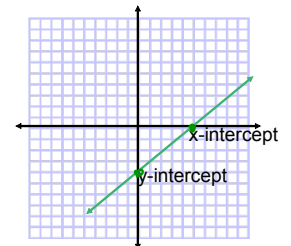y = -2x + 6

A solution to a linear equation is any ordered pair that makes the equation true.

Slope-Intercept Form:
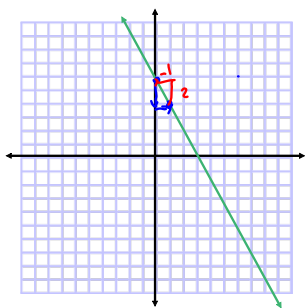
y = mx + b

m-slope
b-y-intercept

x-intercept
y-intercept

Drag the terms:

What is the equation of the line in slope-intercept form?

$y = mx + b$

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

$y = -2x + 6$

Write the equation in slope-intercept form. What are the slope and the y-intercept?

3x + 2y = 18
-3x   -3x

$y = mx + b$

$2y = -3x + 18$
$\dfrac{2y}{2} = \dfrac{-3x}{2} + \dfrac{18}{2}$

$y = \dfrac{-3}{2}x + 9$

Hwk:

pg. 78 - 80
#12, 15, 26, 27, 34, 36, 43,
44, 46 - 62 evens