

Warm Up

Find the slope: $\frac{\text{Change in Y}}{\text{Change in X}} = \frac{y_2 - y_1}{x_2 - x_1}$

$$(3, 7) \text{ and } (5, 10) \quad \frac{10 - 7}{5 - 3} = \frac{3}{2}$$

$$(-1, 4) \text{ and } (3, 3) \quad \frac{3 - 4}{3 - (-1)} = \frac{-1}{4}$$

2-3 Writing Equations

Objectives

I can create the equation of a line using the slope and y-intercept

$$y = mx + b$$

↑ ↑
Slope y-int

Vocabulary

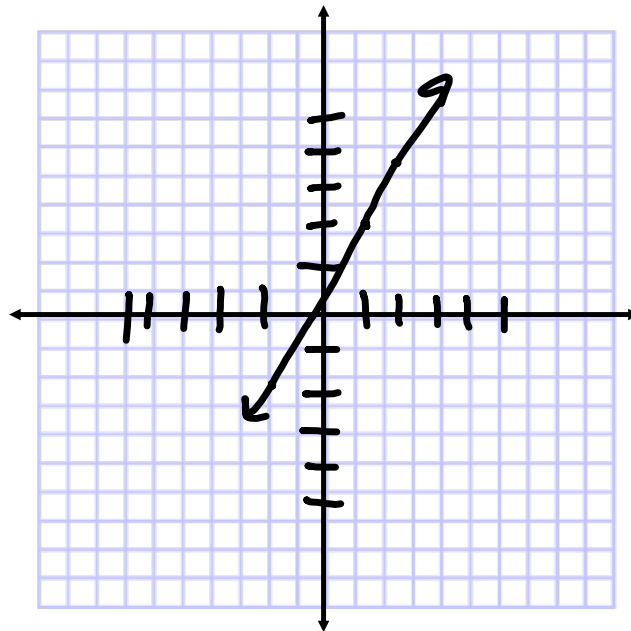
Slope: *rate of change on a line*

y-int: *Where we cross the y-axis*

Slope Intercept Form: $y = mx + b$

With a partner....

1. Graph a line with a slope of 2
2. Compare graphs with your neighbor
3. What is the same? What is different about your graphs?

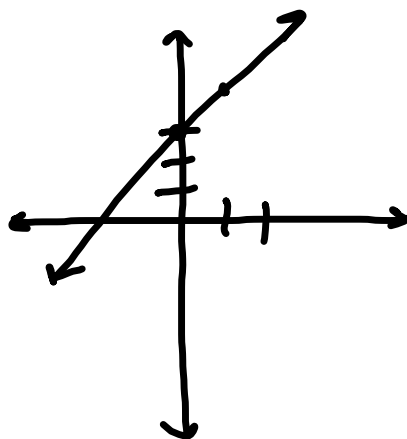


Slope Intercept Form

$$y = m x + b$$

The diagram shows the equation $y = mx + b$ with the variables m and b circled. An arrow points from the circled m to the word "slope" below it. Another arrow points from the circled b to the text "Y- Intercept" to its right.

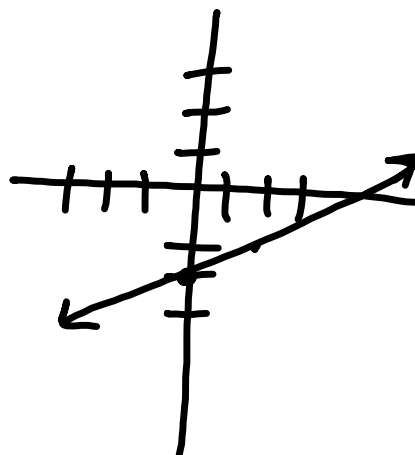
$$y = 2x + 3$$



Slope: 2

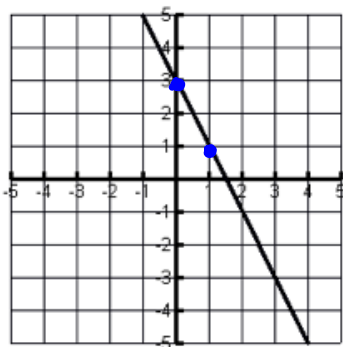
y-int: 3

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



Slope: $\frac{1}{2}$

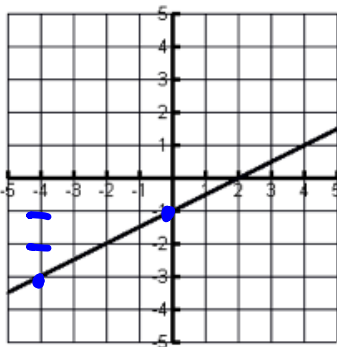
y-int: -2



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

$$y\text{-int} = \underline{3}$$

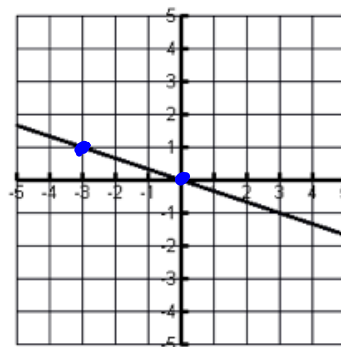
$$\text{equation: } \underline{y = -\frac{2}{1}x + 3}$$



$$m = \underline{\frac{2}{4} \text{ or } \frac{1}{2}}$$

$$y\text{-int} = \underline{-1}$$

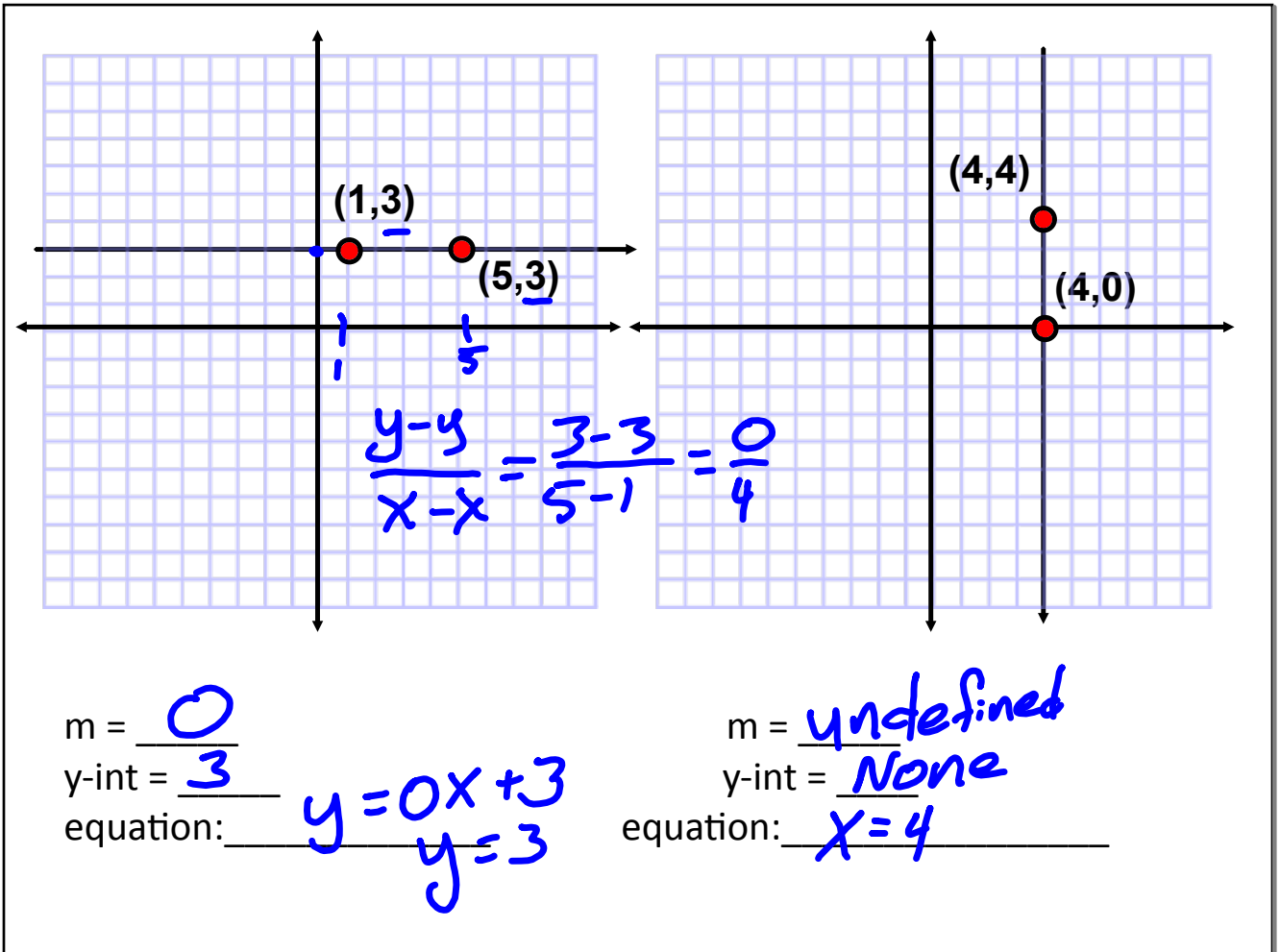
$$\text{equation: } \underline{y = \frac{1}{2}x - 1}$$



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

$$y\text{-int} = \underline{0}$$

$$\text{equation: } \underline{y = -\frac{1}{3}x}$$



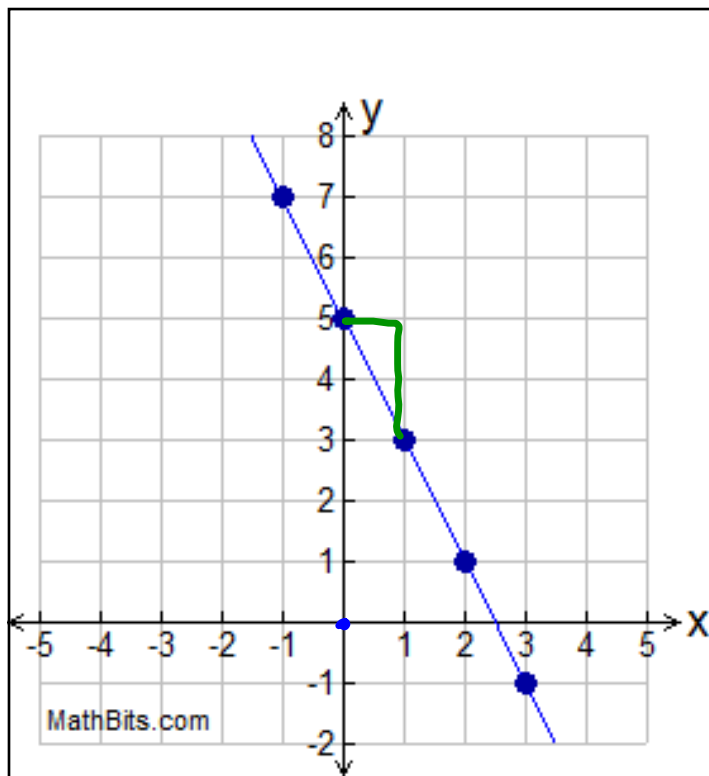
x	y
-3	2
0	4
3	6
6	8

Find the slope: $\frac{2}{3}$

Y-int: 4

Equation in Slope-
Intercept form:

$$y = \frac{2}{3}x + 4$$



Slope: $-\frac{2}{1}$

y-int: 5

Equation:

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

x	y
0	3
2	5
4	7
6	9

Slope: $\frac{2}{2} = 1$

y-int: 3

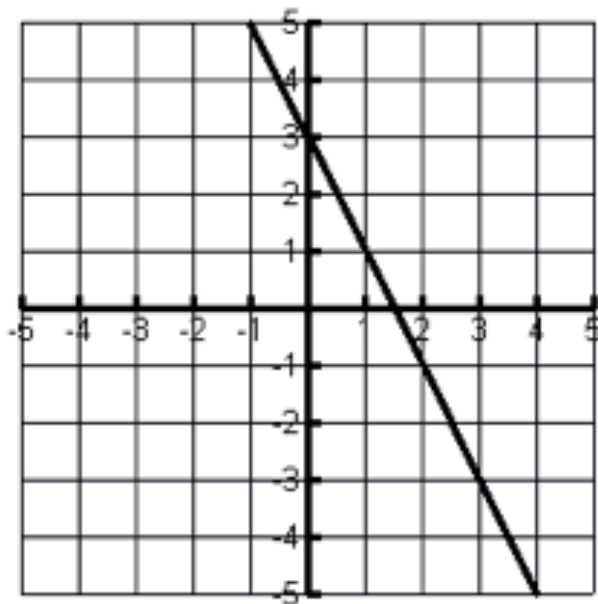
Equation:
 $y = 1x + 3$

$$\overset{x_1, y_1}{(0, 3)} \text{ and } \overset{x_2, y_2}{(2, 4)} \quad \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{Slope: } \frac{4 - 3}{2 - 0} = \frac{1}{2} \quad \frac{3 - 4}{0 - 2} = \frac{-1}{-2}$$

y-int: 3

$$\text{Equation: } y = \frac{1}{2}x + 3$$



Slope:

Y - Int:

Equation: