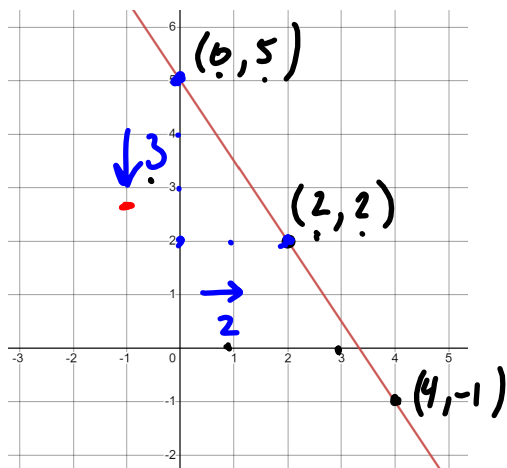


### 3.5 Slope and Slope Intercept Form

Algebra 1:

### 3.5 Slope and Slope Intercept Form

What is the slope of the line below?



Find 2 spots on the graph that touch  
Whole Number x & y's.

Slope:  $\frac{\text{rise}}{\text{run}}$

$$\text{Slope } \frac{\downarrow 3}{\rightarrow 2} = \left(-\frac{3}{2}\right)$$

### 3.5 Slope and Slope Intercept Form

Slope Formula: (You need two points to use it)

$$\frac{y_2 - y_1}{x_2 - x_1} \left\{ \begin{array}{l} (x_1, y_1) \\ (2, 2) \end{array} \right. ; \left\{ \begin{array}{l} (x_2, y_2) \\ (4, -1) \end{array} \right. \leftarrow \text{From the previous Example.}$$

Ex: Find the slope of the line passing through

$$\frac{-1 - 2}{4 - 2} = \boxed{\frac{-3}{2}}$$

Ex: Find the slope of the line when its table of values is given below.

x	y
4	20
7	14
10	8
13	2

See that these are points.

$(4, 20)$

$(7, 14)$

$(10, 8)$

$(13, 2)$

choose any of these points for your 2 points.

$(4, 20)$  ;  $(7, 14)$

$(x_1, y_1)$        $(x_2, y_2)$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{14 - 20}{7 - 4} = \frac{-6}{3} = \boxed{-2}$$

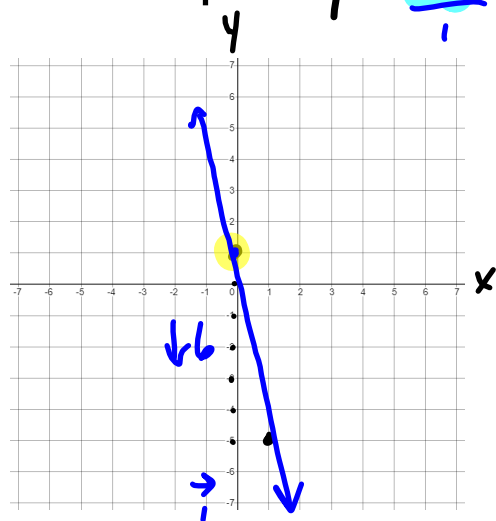
### 3.5 Slope and Slope Intercept Form

Graphing Refresher:  $y = mx + b$

$b$  : y-intercept. (Plot this first)

$m$  : slope (rise over run, do this **from** the y-int)

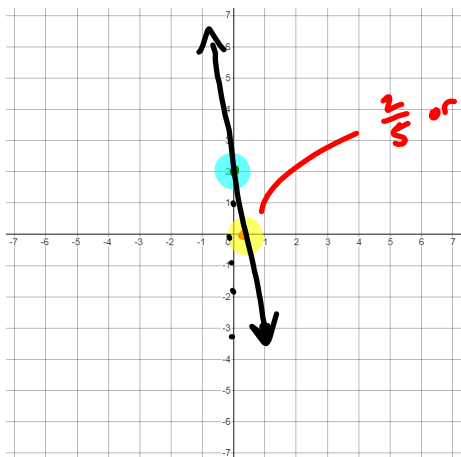
Ex: Graph  $y = \frac{-6}{1}x + 1$



y-int :  $(0, 1)$   
 $m: \frac{-6}{1}$   
 $\begin{array}{c} + \\ \updownarrow \\ \rightarrow \\ \leftarrow \end{array} \cdot \frac{\downarrow 6}{\rightarrow 1}$

### 3.5 Slope and Slope Intercept Form

Graph  $-5x - y = -2$



For this one, we will use intercepts to graph.

**x-int:** plug in 0 for y & solve.

$$-5x - 0 = -2$$

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

$$x = \frac{2}{5} \text{ or } .4$$

$$\left(\frac{2}{5}, 0\right)$$

**y-int:** plug in 0 for x

$$-5(0) - y = -2$$

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

$$y = 2$$

$$(0, 2)$$

Do it by slope-intercept form...

$$\begin{array}{r} -5x - y = -2 \\ +5x \quad +5x \end{array}$$

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

$$y = -5x + 2$$

$$b: 2$$

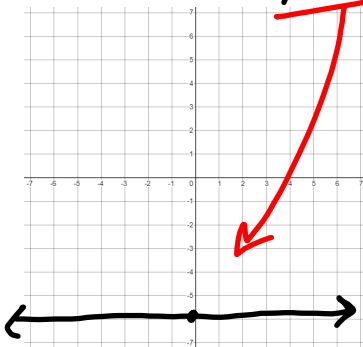
$$m: \frac{-5}{1} \xrightarrow{\downarrow 5} \frac{1}{-1}$$

## Special Cases: Horizontal and Vertical Lines

Horizontal:  $y =$

when you have  $y$   
& no  $x$ .

Ex:  
 $y = -6$

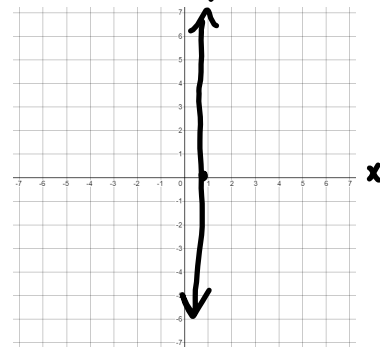


All Horizontal  
Lines have a  
Slope of  $0$

Vertical:  $x =$

when you have  $x$   
& no  $y$ .

Ex:  $x = 1$



All Vertical  
Lines have an  
Undefined Slope

### 3.5 Slope and Slope Intercept Form

Homework:

Page 141-142

Numbers 5-12, 15-21

## Attachments

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MOfficePNG.png