

Do Now: Find your new seat.

Do Now: Describe the features of Mr. Slope Guy. How do they relate to identifying the slope of a line?

8.4 The Slope of a Line

8.F

- SWBAT find and interpret slopes of lines.
- SWBAT create representations to communicate mathematical ideas.

Calculators: No

slope- the ratio of a line's vertical change (rise) to its horizontal change (run)

*Up or down
Left or right*

"Uphill"	"Downhill"	Horizontal	Vertical
Positive Slope	Negative Slope	Slope = 0	Slope is Undefined

<p>Positive Slope</p> <p>line rises from left to right</p>	<p>Negative Slope</p> <p>line falls from left to right</p>
<p>Slope of 0</p> <p>line is horizontal</p>	<p>Undefined Slope (No slope)</p> <p>line is vertical</p>

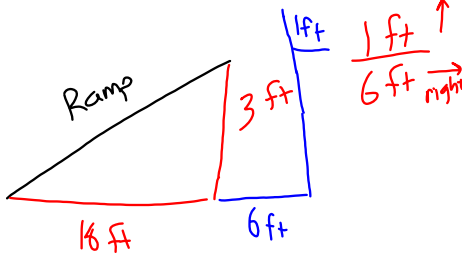
$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{difference in } y \text{ - coordinates}}{\text{difference in } x \text{ - coordinates}}$$

Subtraction

*Up or down
left or right*

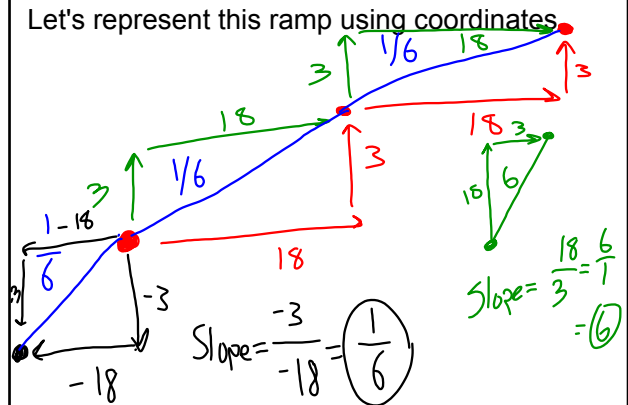
A ramp has a rise of 3 feet and a run of 18 feet. Find its slope.

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{3}{18} = \frac{1}{6}$$



A ramp has a rise of 3 feet and a run of 18 feet. Find its slope.

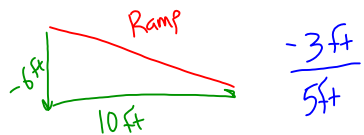
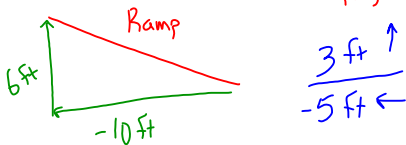
Let's represent this ramp using coordinates.



A ramp has a rise of 6 feet and a run of -10 feet. Find its slope.

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{6}{-10} = -\frac{3}{5}$$

Neg. Slope

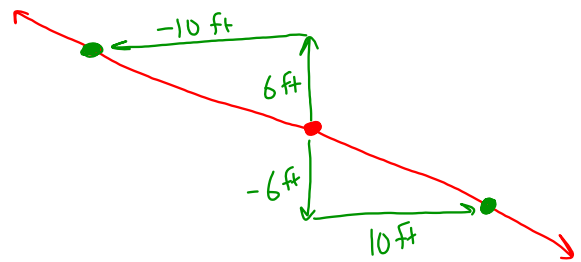


$$-\frac{3}{5}$$

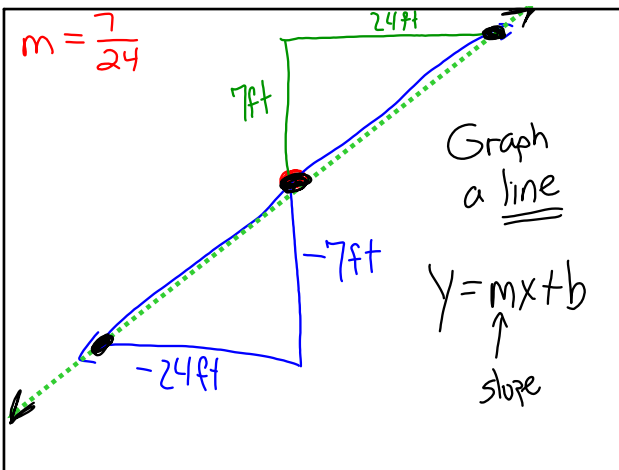


A ramp has a rise of 6 feet and a run of -10 feet. Find its slope.

Let's represent this ramp using coordinates.



$$m = \frac{7}{24}$$



Given two coordinates

(x_1, y_1) and (x_2, y_2)

$\frac{\text{rise (y-axis)}}{\text{run (x-axis)}}$

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

$$M = \frac{y_1 - y_2}{x_1 - x_2} \quad \text{This is ok!}$$

$$M = \frac{y_2 - y_1}{x_1 - x_2} \quad \text{This is not ok!}$$

Find the slope of the line.

 $(0, 2)$ and $(2, 5)$
 (x_1, y_1) (x_2, y_2)

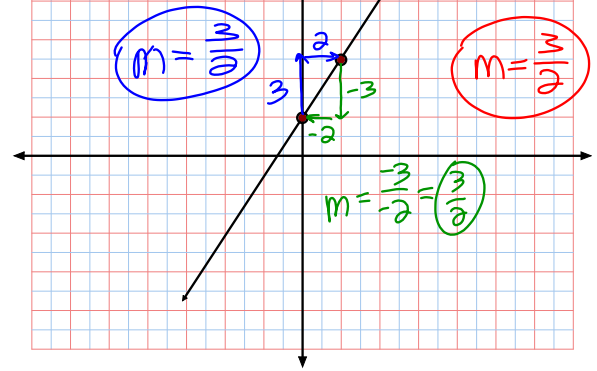
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{5 - 2}{2 - 0} = \frac{3}{2}$$

$$m = \frac{2 - 5}{0 - 2} = \frac{-3}{-2} = \frac{3}{2}$$

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

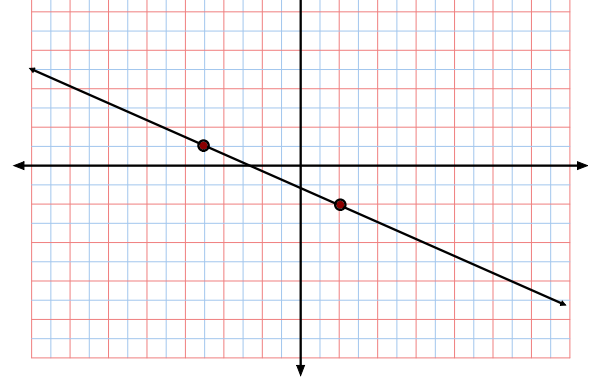
Find the slope of the line without using the formula.



Find the slope of the line.

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

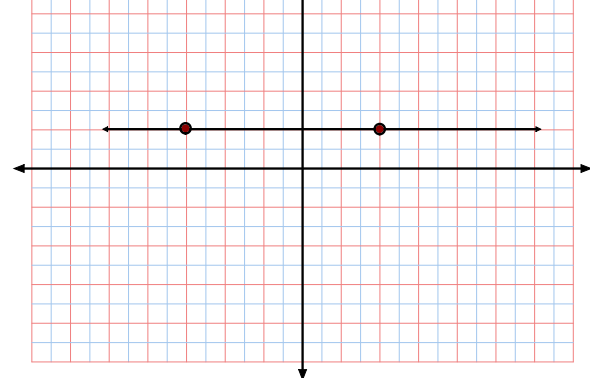
Find the slope of the line without using the formula.



Find the slope of the line.

 $(-6, 2)$ and $(4, 2)$

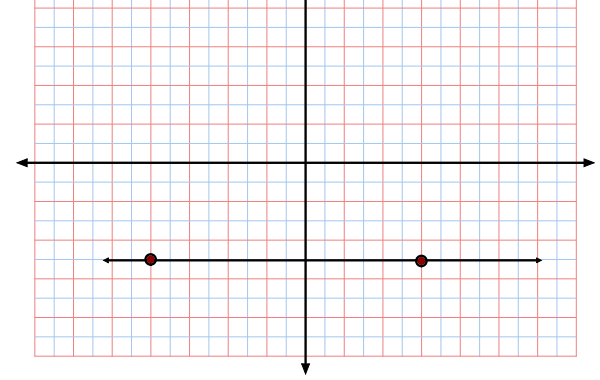
Find the slope of the line without using the formula.



Find the slope of the line.

$(-8, -5)$ and $(6, -5)$

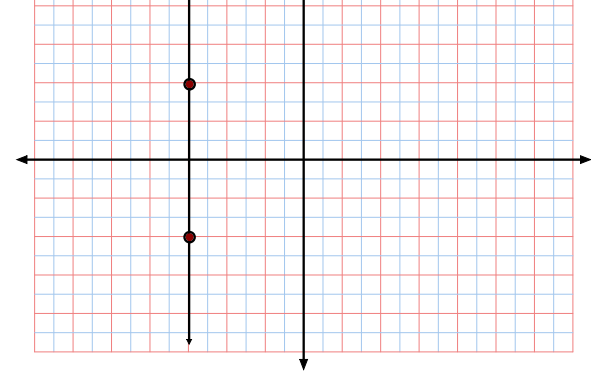
Find the slope of the line without using the formula.



Find the slope of the line.

$(-6, 4)$ and $(-6, -4)$

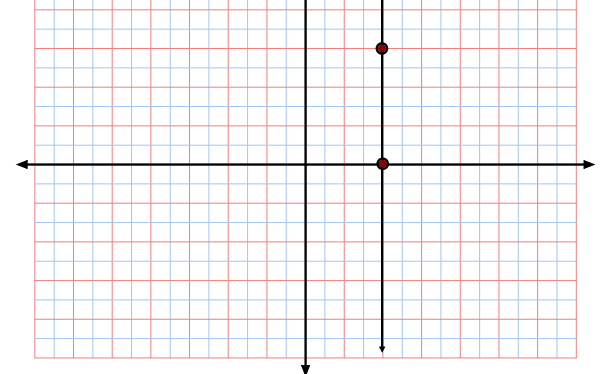
Find the slope of the line without using the formula.



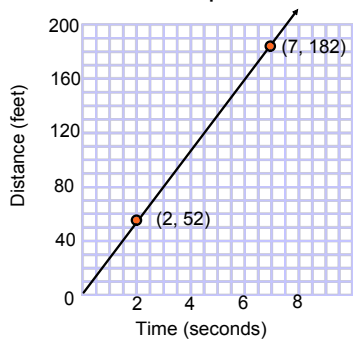
Find the slope of the line.

$(4, 6)$ and $(4, 0)$

Find the slope of the line without using the formula.



The graph shows the distance traveled by a wakeboarder as a function of time. Find the wakeboarder's speed.



Exit Pass 8.4

a.) What information about the wakeboarder can you obtain from the slope?

b.) A sea monster's top speed is about 20 feet per second. Suppose you made a graph showing the distance traveled by a sea monster as a function of time. How would the graph for the sea monster compare with the graph for the wakeboarder? Explain your thinking.

"Don't blame the sea if you cannot catch a fish."

Working individually or with a partner, complete the workbook.

Workbook pg.



Reflection of Today's Lesson

8.4 The Slope of a Line

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- SWBAT create representations to communicate mathematical ideas.

Calculators: No

Homework

pg. 407 ~~#5-11, 12, 24~~

#4-6, 8-10

Find the slope.

