

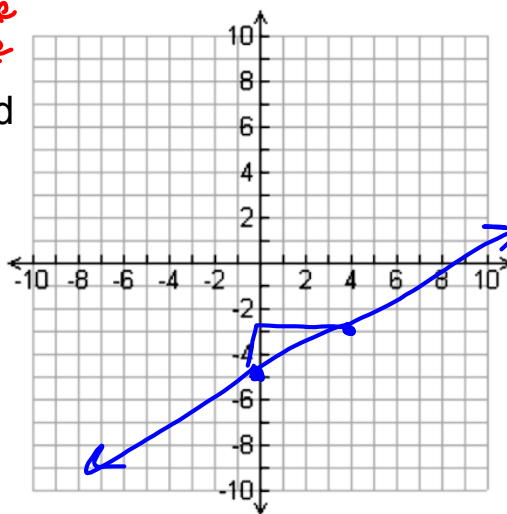
Do Now

Draw the line

Plot the following points and find the slope of the line:

(0,-5) and (4,-3)

$$\frac{\text{Rise}}{\text{Run}} = \frac{2}{4} = \frac{1}{2}$$



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Homework Answers

1) ~~$\frac{3}{2}$~~ $\frac{2}{3}$

5) $\frac{5}{2}$

2) -2

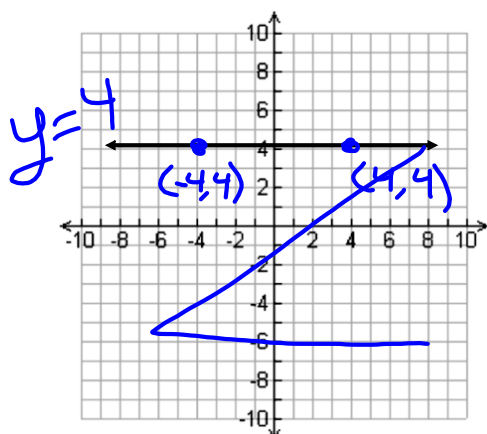
6) 2

3) $\frac{-4}{9}$

4) $\frac{1}{6}$

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Horizontal Line



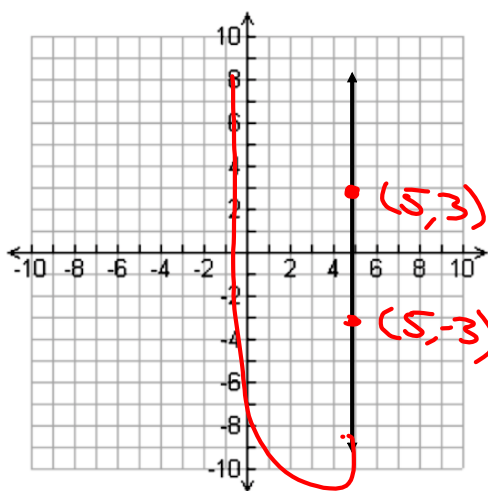
What type of slope does a horizontal line have?

$$\frac{\text{Rise}}{\text{Run}} = \frac{0}{8} = 0$$

zero slope

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Vertical Lines



What type of slope does a vertical line have?

$$\frac{\text{Rise}}{\text{Run}} = \frac{6}{0} = \text{Undefined or No Slope}$$

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Finding Slope

How would you find the slope of a line without having to graph it?

- 1) Take any 2 points on the line
- 2) Identify 1 point as (x_1, y_1) and the other as (x_2, y_2)
- 3) Calculate $y_2 - y_1$, then divide it by $x_2 - x_1$

Slope Formula = $\frac{\text{Change in } y}{\text{Change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$

(x_1, y_1) and (x_2, y_2)
 $(1, 2)$ and $(3, 4)$

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

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

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Take any two points and find the slope

1)

x	y
-2	0
-1	1
0	2
2	4

(x_1, y_1) and (x_2, y_2)
 $(0, 2)$ and $(2, 4)$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{4-2}{2-0} = \frac{2}{2} = 1$$

(x_1, y_1) and (x_2, y_2)
 $(-2, 0)$ and $(-1, 1)$

$$\frac{1-0}{-1-(-2)} = \frac{1}{1} = 1$$

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Take any two points and find the slope

$$(x_1, y_1) \quad (0, 0) \quad \text{and} \quad (x_2, y_2) \quad (1, 3)$$

2)

x	y
-1	-3
0	0
1	3
3	9

$$\frac{3-0}{1-0} = \frac{3}{1} = 3$$

$$(x_1, y_1) \quad (3, 9) \quad \text{and} \quad (x_2, y_2) \quad (1, 3)$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{3-9}{1-3} = \frac{-6}{-2} = 3$$

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Take any two points and find the slope

3) $\{(-3, 0), (0, 1), (3, 2), (6, 3), (9, 4)\}$

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

$$(0, 1) \quad (3, 2)$$

$$x_1 \quad y_1 \quad x_2 \quad y_2$$

$$= \frac{2-1}{3-0} = \frac{1}{3}$$

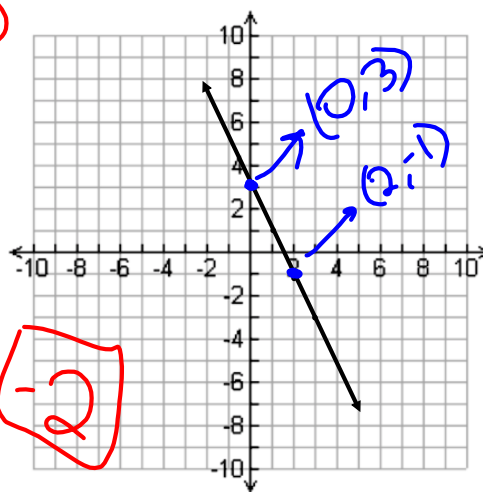
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Using the graph, Find the slope of the line
using the Slope Formula

4) (x_1, y_1) and (x_2, y_2)
 $(0, 3)$ and $(2, -1)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 3}{2 - 0}$$

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



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