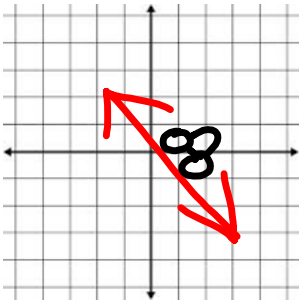
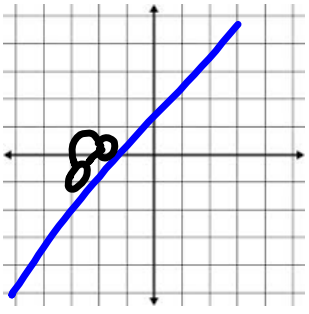
Warm Up

Draw an example of the following:

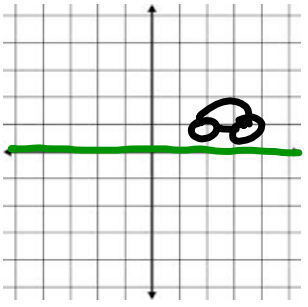
Negative slope



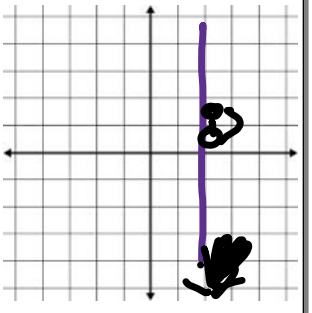
Positive slope



0 slope



No slope



2-2 Slope Between Two Points

Objective: I can find the slope between two points without a graph.

Vocabulary

Slope Formula: $y = mx + b$

m: Slope

b: y-intercept

Finding the slope of a table of values is not much different that finding slope on a graph.

x	y
1	2
2	4
3	6
4	8

x_1 y_1

x_2 y_2

Change in y's: $y_2 - y_1$

$4 - 2 = 2$

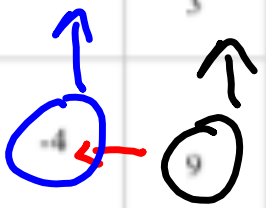
Change in x's: $x_2 - x_1$

$2 - 1 = 1$

$M = \frac{2}{1} = 2$

Slope: _____

x	y
-6	3
-4	9
-2	12
0	15



Change in y's: $9 - 3 = 6$

Change in x's: $-4 - -6$

$-4 + 6 = 2$

$\frac{6}{2} = \frac{3}{1} = 3$

Slope: _____

Find the slope of the following tables:

X	Y
-7	-4
-5	0
-3	4
-1	8

Slope: $\frac{\Delta y}{\Delta x} = \frac{8-4}{-1-(-3)} = \frac{4}{2} = \frac{2}{1}$

X	Y
2	3
3	5
5	9
7	13

Slope: $\frac{9-5}{5-3} = \frac{4}{2} = \frac{2}{1}$

In the following tables, start with x = 0 and y whatever you want and then fill in the remaining values with the given slope.

Slope: 2/3

x	y
0	2
3	4
6	6
9	8

$\frac{4-2}{3-0}$

Slope: 0

x	y
1	1
2	1
3	1
4	1

$\frac{1-1}{4-3} = \frac{0}{1}$

$\therefore$

$$\frac{\text{change in y}}{\text{change in x}} = \frac{y_2 - y_1}{x_2 - x_1} =$$

Example: Find the slope of the line that passes through the points (1,4) and (3, 8)

$x^1 \quad y^1$

$(3,8)$

$x^2 \quad y^2$

$(1,4)$

$$\frac{4-8}{1-3} = \frac{-4}{-2} = 2$$

Find the slope of the line through the following ordered pairs:

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

1. (3,0) and (7, -2)

$x_1\ y_1 \quad x_2\ y_2$

$\frac{-2-0}{7-3}$

$\frac{-2 \div 2}{4 \div 2} = \frac{-1}{2}$

2. (-1, -2) and (-3, 8)

$x_1\ y_1 \quad x_2\ y_2$

$\frac{8-1-2}{-3+1} = \frac{10}{-2}$

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3. (2, 9) and (2, 11)

$x_1 y_1 \quad x_2 y_2$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{11-9}{2-2}$$

$$\frac{2}{0} = \text{Undefined}$$

4. (-2, 7) and (4, 7)

$$\frac{7-7}{4+2} = \frac{0}{6}$$

Zero Slope

Extra practice if needed

(3,7) and (5, 10)

(-1, 4) and (3,3)

(0,0) and (−2, 5)

(−1, −5) and (-4, −5)