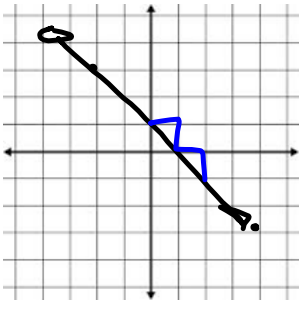
Warm Up

Draw an example of the following:

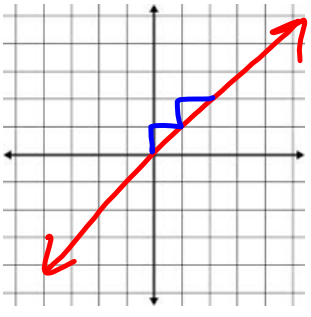
undefined

Negative slope



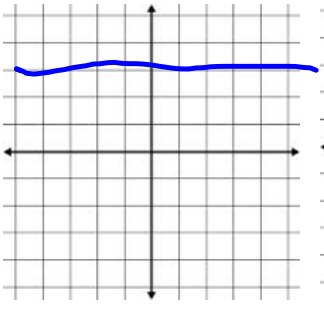
$-\frac{1}{1}$

Positive slope

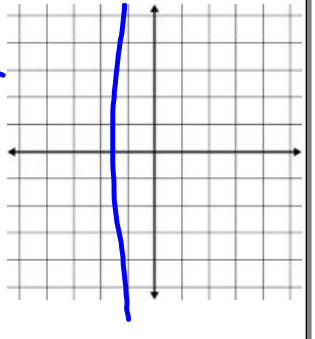


$\frac{1}{1}$

0 slope



No slope



4-2 Slope Between Two Points

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

Vocabulary

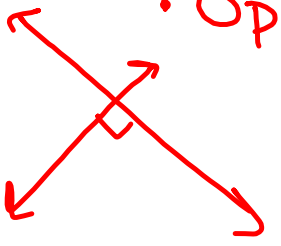
$(x_1, y_1)(x_2, y_2)$

Slope Formula: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

Parallel Lines Slope: Same Slope

Perpendicular Lines Slope:

- Reciprocal (flip)
- Opposite Signs



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

Change in y's: +2

Change in x's: +1

Slope: 2/1 = 2

X	Y
-6	3
-4	9
-2	12
0	15

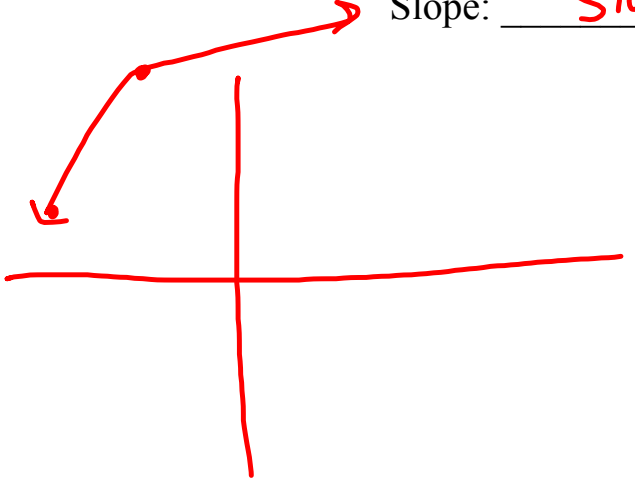
Change in y's: +6 = 3

= 3/2

Change in x's: +4

+3 = 3/2

Slope: No Constant Slope



Find the slope of the following tables:

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

+2, +2 → +4; +4, +4

Slope: $\frac{4}{2} = 2$

X	Y
2	3
3	5
4	7
5	9
7	13

+1, +2 → +2 = 2; +2, +2 → +4 = 2; +2, +2 → +4 = 2

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

What is different about this table?

X	Y
3	5
4	7
6	11
7	13

+1, +2, +2, +4, +1, +2

Find the change in x's and change in y's from one row to the next row on the side of the table.

SLOPE: 2

Does the **ratio** stay the same? Why or why not?

yes!

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	3
3	5
6	7
9	9

Slope: 1/3

x	y
0	3
3	4
6	5
9	6

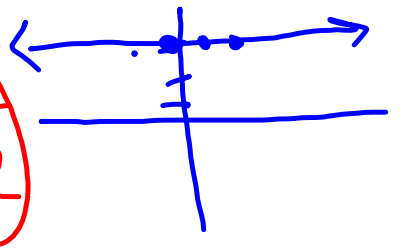
Slope: -1/2

x	y
0	3
2, -2	2, 4
4, -4	1, 5
6, -6	0, 6

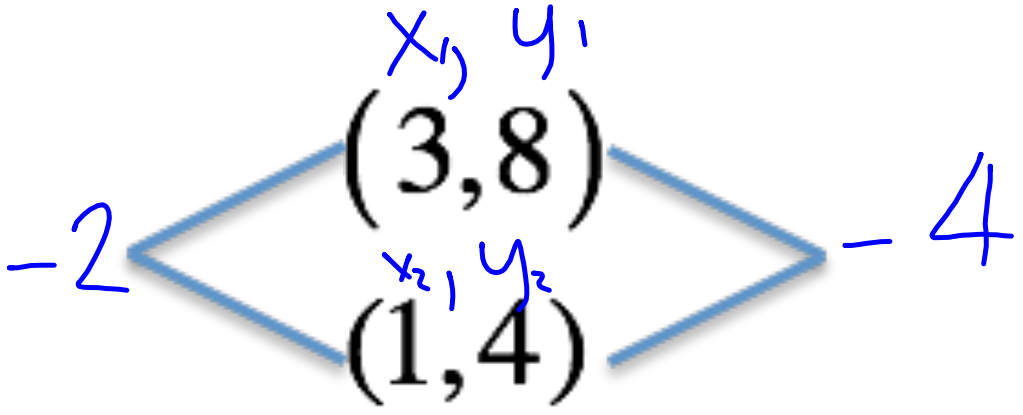
Slope: 0

x	y
0	3
1	3
2	3
100	3

$\frac{2}{3} = \frac{\Delta y}{\Delta x}$ $\frac{1}{3} = \frac{\Delta y}{\Delta x}$ $\frac{-1}{2}$ $\frac{1}{-2}$



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

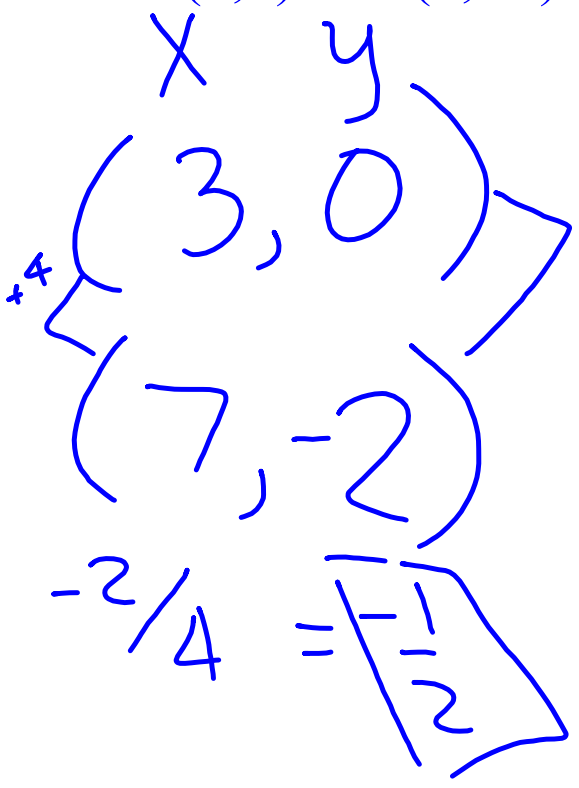


Slope: 4/2 = 2

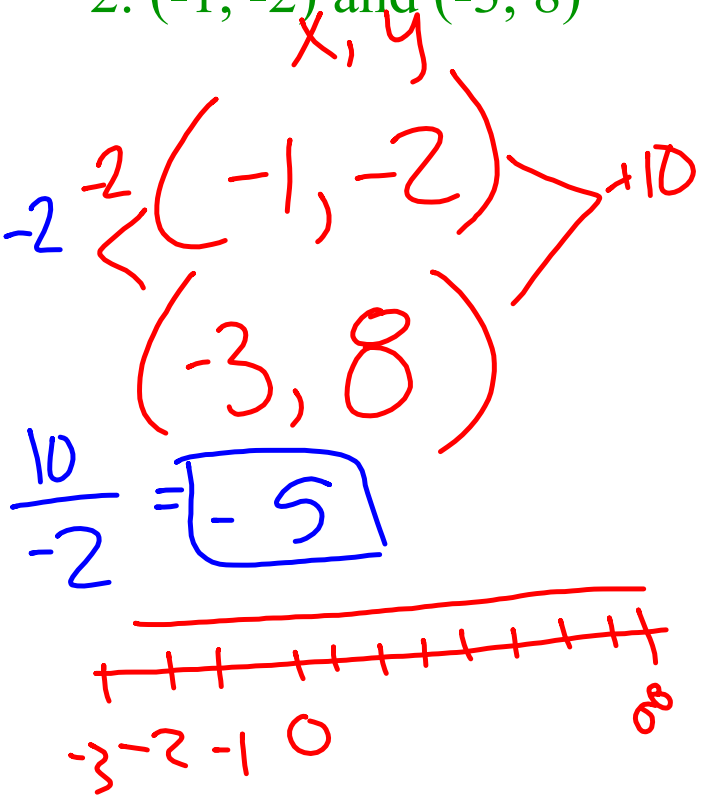
$$\frac{-4}{-2} = 2$$

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

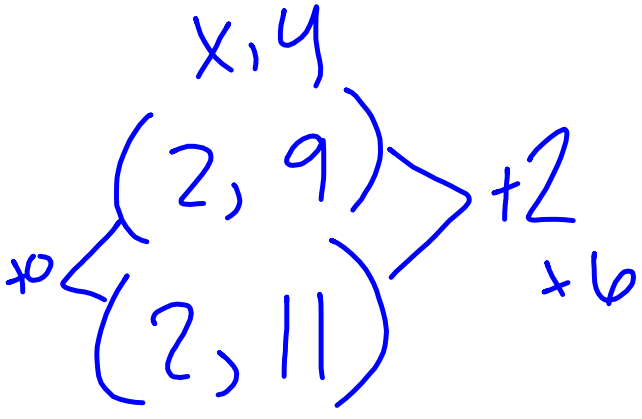
1. (3,0) and (7, -2)



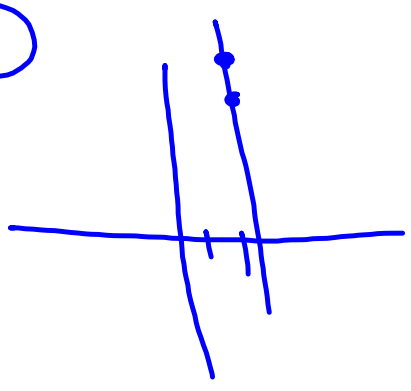
2. (-1, -2) and (-3, 8)



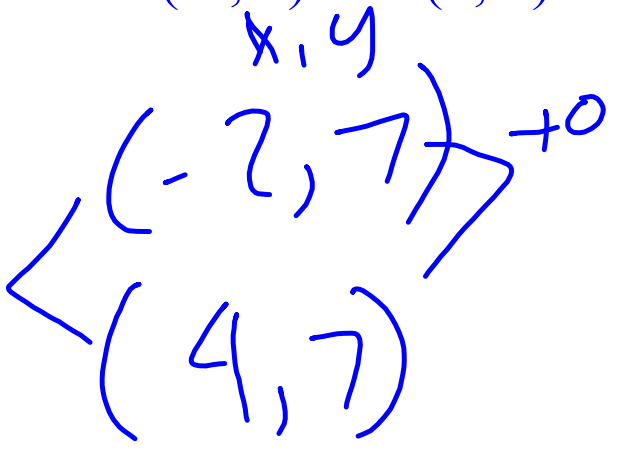
3. (2, 9) and (2, 11)



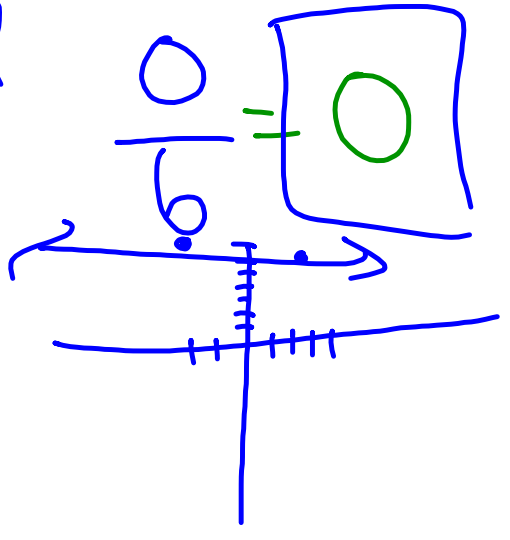
$\frac{2}{0}$ = undefined



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



$\frac{0}{6} = 0$



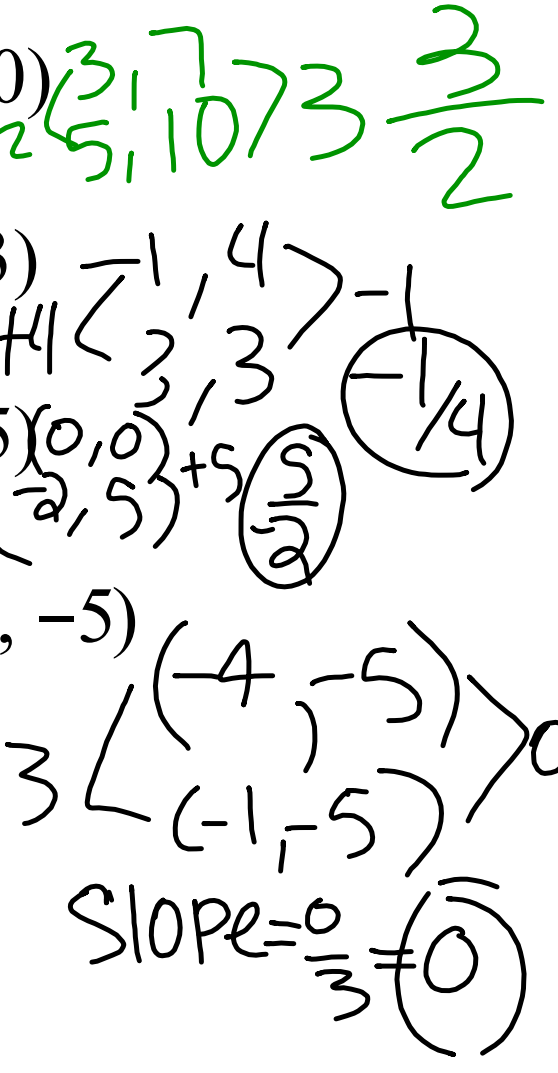
Extra practice if needed

(3,7) and (5, 10)

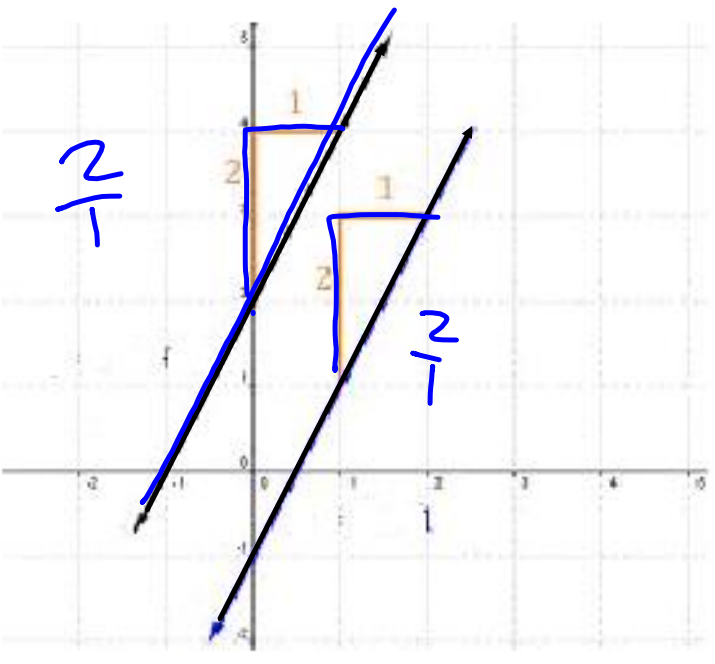
(-1, 4) and (3,3)

(0,0) and (−2, 5)

(−1, −5) and (-4, −5)



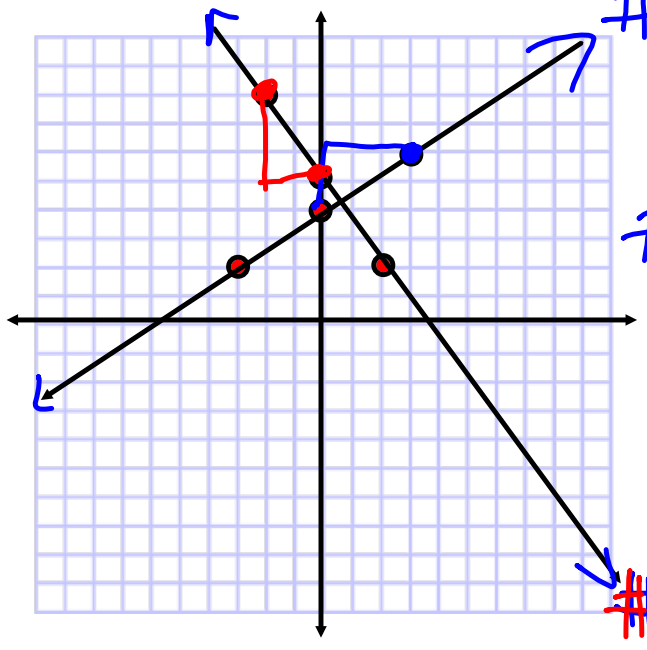
Parallel Lines



What do you notice about the slope of parallel lines?

Same slope

Perpendicular Lines



Find the slope of both lines.

#1: $\frac{2}{3}$ #2: $\frac{-3}{2}$

What do you notice about the slope of perpendicular lines?

- flip (Reciprocal)
- opposite signs

Practice finding a perpendicular slope of the given slope

m = 1/2 $-\frac{2}{1}$

m = 4/3 $-\frac{3}{4}$ kd

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

m = -2/3 3/2

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

m = -5/2 $\frac{2}{5}$