

## Warmup 9/(19 × 1) + 1 + 0 - 0 + 1 - 1

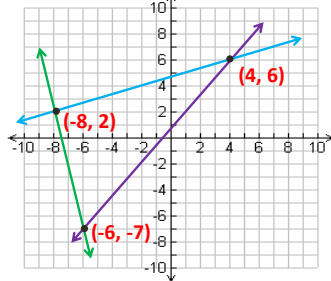
Created by Raeganne Travis

Find the slope of each line. If it is hard to count the squares from where you're sitting, use the red numbers to help you.

1) Blue line

2) Green line

3) Purple line



## Retake tomorrow?

- Must tell me TODAY. (And meet with me today)

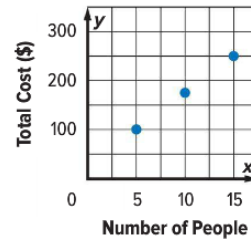
### • PROPORTIONAL

- Method 1 to check: Constant rate of change + goes through (0, 0)
- Method 2 to check: Check to see that the y/x ratio is always the same

### • LINEAR

- Constant rate of change (that's it!)

## Proportional, Linear but not Proportional, or Nonlinear?

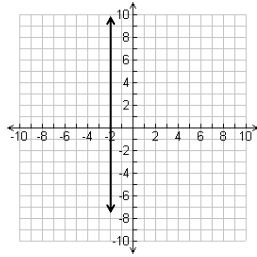
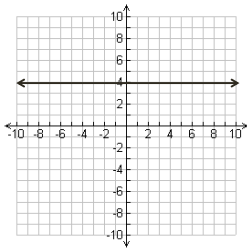


## Activity: Slope triangles

- Draw **FIVE** different slope triangles on this line.
  - The triangles should be different sizes.
  - When you draw them, use arrows to show the direction you are moving.
  - Use each triangle to find the slope of the line, then compare all five answers.
- Did you get the same answer for the slope each time? On your paper, write a convincing explanation for why this makes sense.

BACK TO YOUR NOTES PAGE  
FROM YESTERDAY!!!

Find the slope of each line...



Positive

Negative



Zero

Undefined



How do I get the slope?

- Between points (3, 2) and (5, 10)

Finding slope for a linear function  
WITHOUT a graph

- You can get the change in y by subtracting the y-coordinates.
- You can get the change in x by subtracting the x-coordinates.

$$\text{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

The 2's and 1's are not exponents. They are just LABELS.  
 $y_2 - y_1$  just means "the 2<sup>nd</sup> y minus the 1<sup>st</sup> y"

**Common Error Alert!!!**

**DO NOT PUT  
THE X'S ON  
TOP.**

**Find the slope:**

- Between (1, 4) and (3, 9)

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

- Between (-3, -4) and (7, 1)

$$m = \frac{1 - (-4)}{7 - (-3)} = \frac{5}{10} = \frac{1}{2}$$

- Between (-6, 2) and (-4, -10)

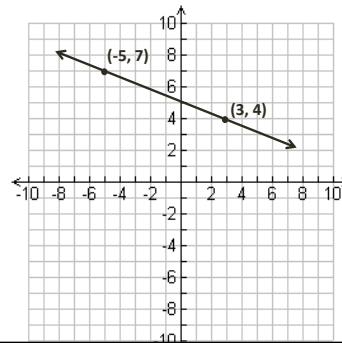
$$m = \frac{-10 - 2}{-4 - (-6)} = \frac{-12}{2} = -6$$

Would you get different answers?

What if I switched the order of the x's and the y's?  
Would it still work?

**(5, 9) and (7, 3).**

Find the slope 2 different ways



Find the slope between...

**1. (10, -7) and (13, 2)**

**1. (-4, 10) and (1, 6)**

Find the slope between...

**1. (-4, 4) and (2, 7)**

**1. (2, 0) and (-4, 8)**

Find the slope between...

**1. (2, -3) and (42, -3)**

**1. (6, 11) and (6, 8)**

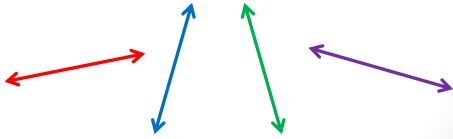
Slope?

|   |    |    |    |   |   |
|---|----|----|----|---|---|
| x | 0  | 1  | 2  | 3 | 4 |
| y | -6 | -4 | -2 | 0 | 2 |

|   |    |    |    |   |    |
|---|----|----|----|---|----|
| x | 0  | 3  | 6  | 9 | 12 |
| y | 27 | 21 | 15 | 9 | 3  |

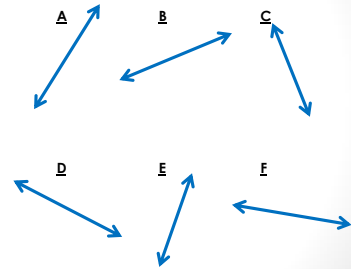
Which one of these lines could it be?

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



Match:

- 1) Slope =  $\frac{1}{2}$
- 2) Slope = 2
- 3) Slope = 3
- 4) Slope =  $-\frac{1}{2}$
- 5) Slope =  $-\frac{1}{4}$
- 6) Slope = -3



Homework

p. 185 (1 – 8, 10 – 12)