

# Finding Slope

## Objectives:

- ...to find the slope between two points
- ...to find the slope of a line
- ...to find the slope contained in a T-table

## Assessment Anchor:



- 8.C.3.1 – Plot and/or identify ordered pairs on a coordinate plane.
- 8.D.4.1 – Represent relationships with tables or graphs on the coordinate plane.

## Vocabulary alert!!

SLOPE – a ratio that describes the tilt (slant) of a line

## SLOPE = ...

$$\frac{\text{the change in } y \text{ coordinates}}{\text{the change in } x \text{ coordinates}} \text{ OR } \frac{\Delta y}{\Delta x} \text{ OR } \frac{y_2 - y_1}{x_2 - x_1} \text{ OR } \frac{\text{rise}}{\text{run}}$$

## NOTES

To find the slope of a line:

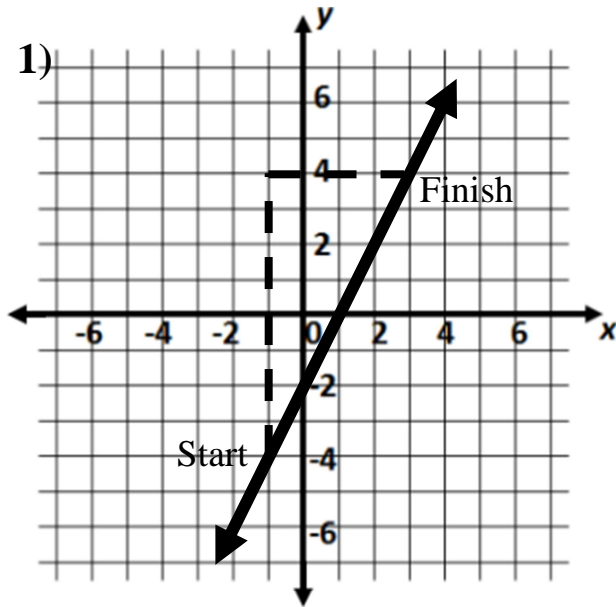
- Count the change in the y coordinates (use EXACT points)
  - This is the up/down movement
  - Up is positive, down is negative
- Count the change in the x coordinates
  - This is the left/right movement
  - Right is positive, left is negative

\*\*Most common formula is:

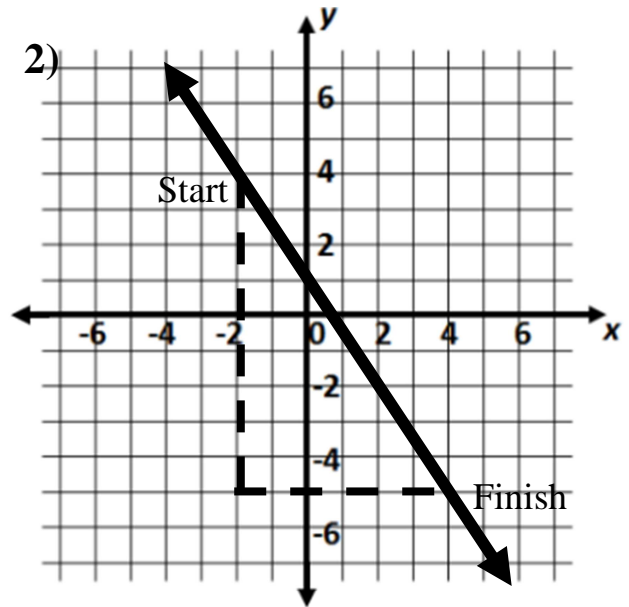
$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

# Finding Slope

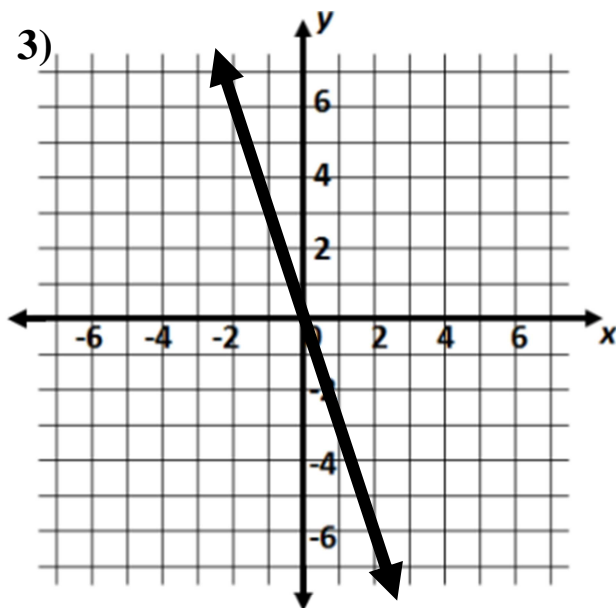
## EXAMPLES



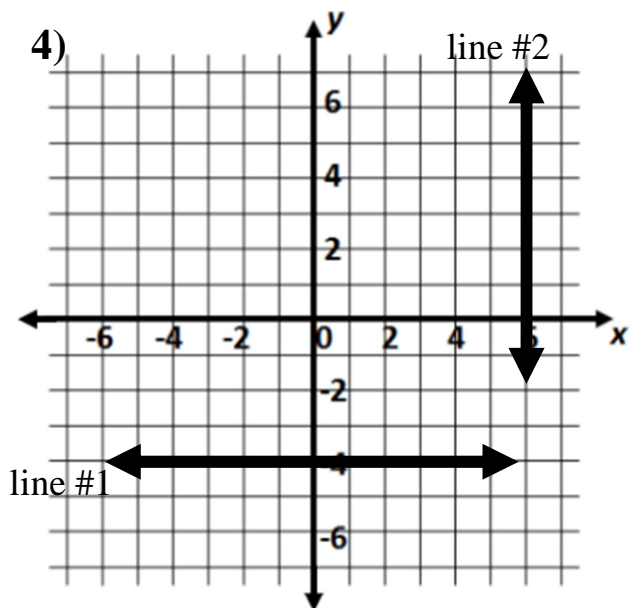
$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{8}{4} = 2$$



$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{-9}{6} = \frac{-3}{2}$$



$$\text{slope} =$$



$$\text{(line \#1) slope} =$$

$$\text{(line \#2) slope} =$$

# Finding Slope

To find the slope between two points algebraically:

1. Substitute the x and y coordinates into the formula
  - a. First, choose which ordered pair is the 1<sup>st</sup> and which is the 2<sup>nd</sup>
  - b. Either choice will be fine!
2. Simplify the ratio
  - a. Careful with your negatives
  - b. Be willing to keep fraction!

\*\*Most common formula is:

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

## EXAMPLES

5) Given: (3, 5) and (1, 11)

6) Given: (-3, -2) and (1, -12)

Label pts → (3, 5) and (1, 11)  
                   $x_1, y_1$        $x_2, y_2$

Label pts → (-3, -2) and (1, -12)  
                   $x_1, y_1$        $x_2, y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{11 - 5}{1 - 3} = \frac{6}{-2} = -3$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-12 - (-2)}{1 - (-3)} = \frac{-10}{4} = \frac{-5}{2}$$

$$m = -3$$

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

7) Given: (7, -2) and (2, 18)

8) Given: (-6, 3) and (-6, 10)

9) Given:

|    |  |    |
|----|--|----|
| x  |  | y  |
| -1 |  | 3  |
| 0  |  | -2 |
| 1  |  | -7 |