LESSON DIGITS 5-2/5-3/★

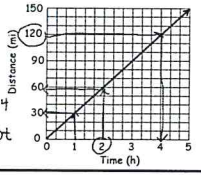
11/30/2018

Goal: I will be able to **recognize a linear equation and determine the slope of a line.**

Watch / Do Not Write

Here's How ... Notes & Examples

Distance Traveled by a Car



What is the constant speed of the car? $\frac{30 mi}{1 hr}$

How far will the car travel in 2 hours? 60

How long will it take to travel 120 miles? $\frac{120}{30} = 4$

What equation in the form $d = rt$ would model this situation? $d = 30t$

Linear Equation

$y = mx$

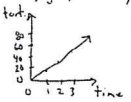
Example

A tortilla machine makes 18 tortillas in 1 minute

a) Make a table b) graph c) equation

$y = 18x$

time	tort.
0	0
1	18
2	36
3	54



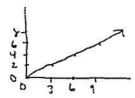
You Try

$y = \frac{2}{3}x$

a) table b) graph c) proportional?

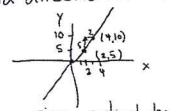
yes

x	y
0	0
3	2
6	4
9	6



Slope

Tells the steepness (↑:↑) and direction of a line



$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{vertical change}}{\text{horizontal change}} = \frac{5}{2}$

$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10-5}{4-2} = \frac{5}{2}$

Try

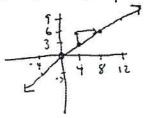
$y = \frac{3}{4}x$

b) Graph c) slope

$\frac{3}{4} \cdot 4 = \frac{3}{4} \cdot \frac{4}{1} = 3$

multiples of the denominator

x	y
0	0
1	3/4
4	3
8	6
12	9
−4	−3

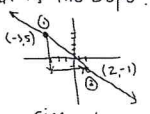


$\text{slope} = \frac{+3}{+4} = \frac{3}{4}$

Example

Given 2 points (−3, 5) & (2, −1)

What is the slope?



$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{-6}{+5} = -\frac{6}{5}$

$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1-5}{2-(-3)} = -\frac{6}{5}$

U Try

(5, −4) (−3, 17) slope = ?

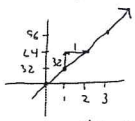
$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{17-(-4)}{-3-5} = \frac{21}{-8} = -\frac{21}{8}$

$= \frac{-4-17}{5-(-3)} = \frac{-21}{8}$

Unit Rate

How much for 1

x	y
0	0
1	32
2	64
3	96



$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{32}{1} = 32$

slope = unit rate