

Undefined Slope:
 $\text{Slope} = \frac{\Delta y}{\Delta x} = \frac{\text{pos. or neg.}}{0}$

Zero Slope
 $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{rise}}{\text{run}}$

Slope of a Line TRUTH

There are four kinds of Slopes.

Finding slope from a word problem

SLOPE

$\frac{\Delta y}{\Delta x}$ Mountain fast
 rise run
 $\frac{y_2 - y_1}{x_2 - x_1}$ Rate
 Negative
 tilt
 Rate
 increasing/decreasing
 Steep
 Constant
 Straight
 Linear
 Positive
 Speed
 WPM
 Miles per gallon
 FPS
 \$ per sq. foot

PER

Points per game
 MPH
 Damage per Second
 \$ per lb

Let's use the 3 strategies we have learned to calculate the slope

x	y
-2	3
-1	5
0	7
1	9
2	11

Given two points:
 (x_1, y_1) (x_2, y_2)
 Slope Formula:
 $\frac{y_2 - y_1}{x_2 - x_1}$

$Y = mx + b$

The state fair is telling ride tickets to students at a discounted price. Students can purchase 40 tickets for \$5.

$\frac{40 \text{ tickets}}{\$5} = \frac{8 \text{ tickets}}{\$1}$

$Y = 8x$
 $\frac{100}{8} = \frac{8x}{8}$
 $x = \$12.50$

$\frac{\$5}{40 \text{ tickets}} = \frac{x}{100}$

\$	Tix
5	40
10	80
15	120

You are headed to West Virginia for Thanksgiving.
You travel 376 miles in 6 hours.

$$\frac{62.6}{1}$$

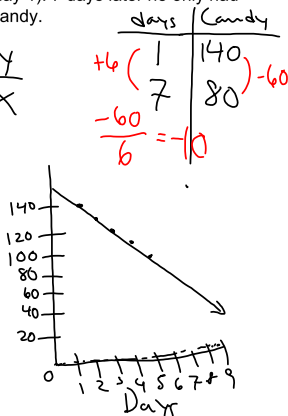
4.5 hours?

Description: The Origami Club is doing a car wash fundraiser to raise money for a trip. They charge the same price for every car. After 11 cars, they raised a total of \$93.50. After 23 cars, they raised a total of \$195.50.

Michael had 140 pieces of candy on Halloween (day 1). 7 days later he only had 80 pieces of candy.

$$\frac{\text{Candy}}{\text{day}} = \frac{y}{x}$$

$$y = -10x$$



Comparing Linear Functions

Elena babysits her neighbor's children. Her earnings are given by the equation $y = 8.40x$, where x represents the number of hours she worked and y represents the amount of money she earned. Jada earns \$7 per hour mowing her neighbors' lawns.

Elena

$$y = 8.40x$$

hours	\$
1	8.40
3	25.20
5	42.00

Jada

$$y = 7x$$

hours	\$
1	7
2	14
4	28
5	35

A contractor must haul a large amount of dirt to a work site. She collected information from two hauling companies. EZ Excavation gives its prices in a table. Happy Hauling Service gives its prices in a graph.

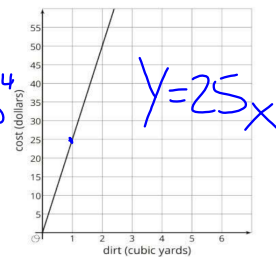
dirt (cubic yards)	cost (dollars)
8	196
20	490
26	637

$$+12 \left(\begin{array}{l} 20 \\ +6 \end{array} \right) + 294$$

$$+6 \left(\begin{array}{l} 26 \\ +140 \end{array} \right)$$

$$\frac{294}{12} = 24.50$$

$$y = 24.50x$$



Planet Fitness is running a special for their gym memberships. It will cost \$50 for 4 months. The local Anytime Fitness is running a special as well. They will charge you \$60 for 5 months.