Warm-Up 3/22/2021

Calculate the slope and y-intercept. Then write the equation of the line. Slide 6

x	y
6 x_1	y_1 35
9 x_2	y_2 53
12	71
15	89

$y = 6x - 1$

Step 1: Find slope

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

$$m = \frac{53 - 35}{9 - 6}$$

$$m = 6$$

Step 2: Choose a point

$(12, 71)$

x, y

Step 3: plug in m, x, y into: $y = mx + b$

$$71 = 6(12) + b$$

$$71 = 72 + b$$

$$72 + b = 71$$

$$-72 \qquad -72$$

$$b = -1$$

Essential Question 3/22/2021

How can I compare different representations of a Linear Function?

Learning Target

Compare properties of linear functions in different representations

Multiple Representations

Standard: MGSE9–12.F.IF.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

Linear functions can be represented in multiple ways.

Set (table, mapping, list)

x	hours	0	1	2	3
y	charge	30	50	70	90

Constant rate of change (m) = 20

Words

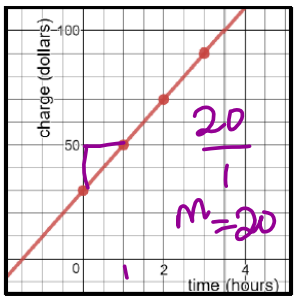
Luigi's plumbing service charges 30 dollars to make a house call plus 20 dollars per hour of service.

Algebra (equation)

L(h) = 20h + 30

$y = mx + b$

Graph



For each of the following examples, determine the slope and y-intercept, write an equation in function notation, and evaluate the function for the given input.

Scenario 1: Bennett and his friends decide to go bowling. The cost for the group is $12 for shoe rentals plus $4.00 per game. How much will it cost to play 3 games?

$y = mx + b$ $m = 4$ $b = 12$

$f(x) = 4x + 12$

$f(3) = 4(3) + 12$

$f(3) = 24$

It will cost $24 to play 3 games.

Scenario 2: How much will the salesman make if he sells 8 cars?

$m = 50$ $b = 150$

0 x

150 y

Cars Sold	1	2	3	4	10
Daily Pay	200	250	300	350	650

$f(x) = 50x + 150$

$f(8) = 50(8) + 150$

$f(8) = 550$

The salesman will make $550 if he sells 8 cars.

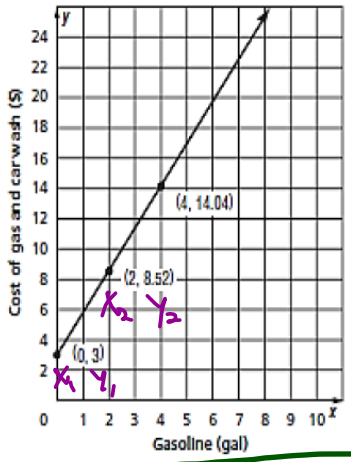
Scenario 3: The following function represents the cost of a tow service based on the number of miles the vehicle is towed: $T(m) = \frac{1}{4}m + 25$. How much will it cost to tow a car 90 miles?

$T(90) = \frac{1}{4}(90) + 25$

$T(90) = 47.50$

It will cost $47.50 to tow a car for 90 miles.

Scenario 4: How much will it cost to fill up a 16 gallon tank?



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

$m = \frac{8.52 - 3}{2 - 0}$

$m = 2.76$

Point: $(0, 3)$ x, y

$y = mx + b$

$3 = 2.76(0) + b$

$3 = b$

$b = 3$

$f(x) = 2.76x + 3$

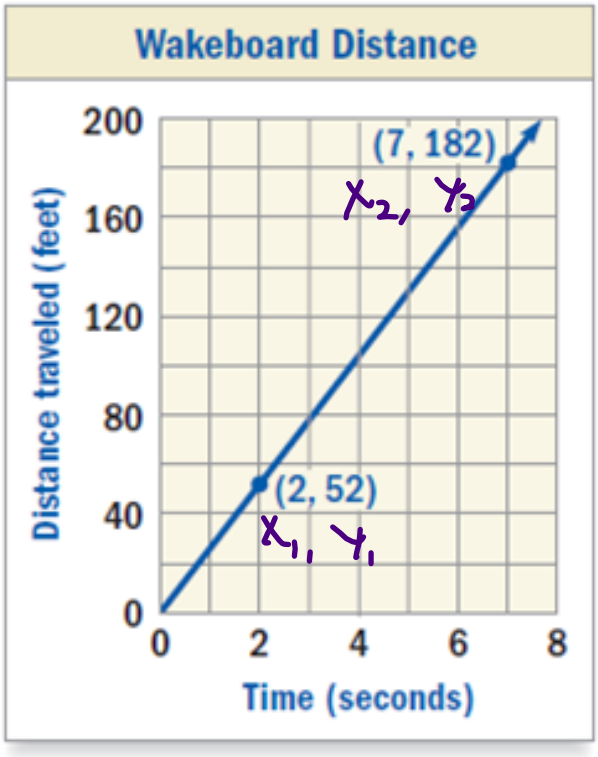
$f(16) = 2.76(16) + 3$

$f(16) = 47.16$

It will cost $47.16 to fill up a 16-gallon tank.

Scenario 5: Determine the slope of this linear relationship using the slope formula and the two points that are shown.

Write the slope in the context of the graph.



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

$m = \frac{182 - 52}{7 - 2}$

$m = \frac{130}{5}$ $\boxed{m = 26}$

Miguel is moving on the Wakeboard at 26 ft per second.

Closing

The total cost in dollars, y, of a membership at each of four health clubs is represented below in terms of x, the number of months of the membership.

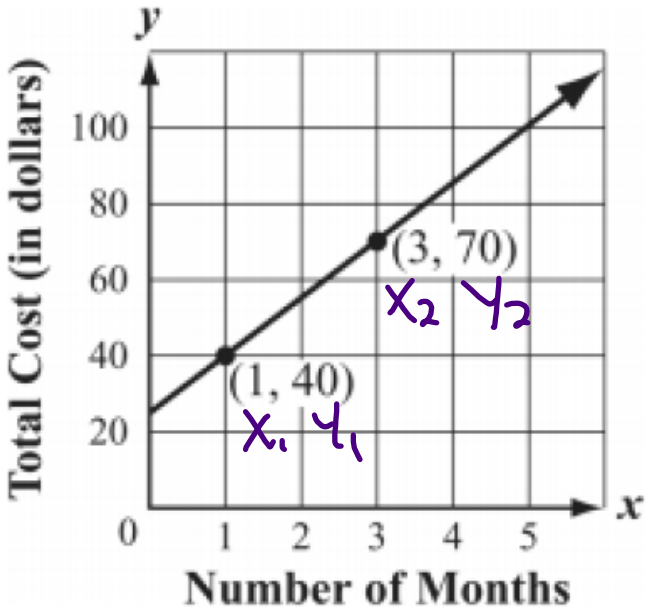
- Health Club A:

  $y = 12x + 60$

- Health Club B:

x	y
0	\$ 0
1	\$21
2	\$42
3	\$63
4	\$84

- Health Club C:



- Health Club D:

A customer pays a one-time fee of \$20 plus \$20 each month for x months.

i) Which club charges the most per month? slope (m)

ii)Which club charges the most to join? y-int (b)

iii) If you wanted to be a member for the next 6 months, which club would be the cheapest?

f(6)

Attachments

Functions notation.ppt

Functions Practice HW.docx

Functions notation notes.ppt