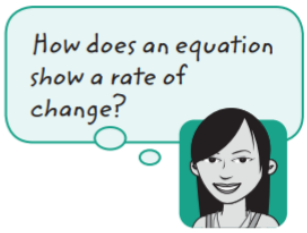
Name: _____ Date:_____

Ms. Streffacio Class: _____

I can:

Do Now (3 minutes to complete):

Alma borrows money from her mom to buy a $150 bike. She gives her mom $40 at the time of purchase and continues to pay her $10 each month until the bike is paid for in full. Alma wrote this equation to represent the amount *y* that she will have paid her mom after *x* months.



Equation: $y = 40x + 10$

Is her equation correct? How did she get that equation? If it is not correct, write a correct equation.

_____

_____

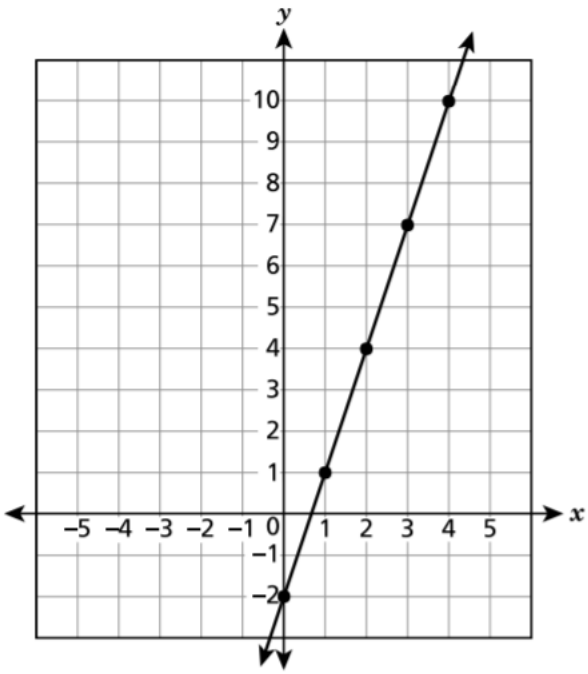
Teacher Model (10 minutes) You Watch, Listen, Copy:

The table and graph shown below each represent a function of x.

FUNCTION A

x	y
1	5
2	7
3	9
5	13
6	15

FUNCTION B



Which function, A or B, has a greater rate of change? Be sure to include the values for the rates of change in your answer.

Explain your answer.

Check for Understanding- Did you understand the Model? (2 minutes) Teacher will check!

For each verbal description, write an equation that represents the situation.

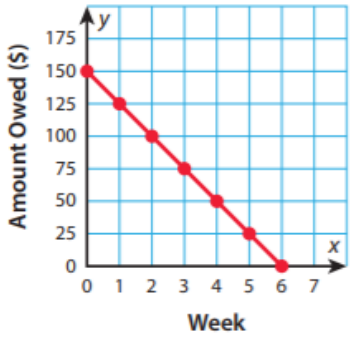
Samantha begins her road trip with 30 gallons of gasoline in the tank of her van. Her van gets 25 miles to the gallon. Let y represent the number of gallons of gasoline in the tank after x miles of travel.

Evan has a cell phone plan that costs $30 per month and $0.25 per minute of phone use. Let y represent the monthly cost of cell phone service after x minutes of phone use.

We Do Together (10 minutes):

Roy wants to buy a new wireless phone for $200. Two stores offer different payment options. Which plan has a greater initial value? Which phone will be paid for at a faster rate?

Store A Payment Plan



Store B Payment Plan

Pay $50 at the time of purchase. Pay $20 per week until the phone is paid for.

Show your work.

Solution

Final Check for Understanding before I send you to Independent Practice!
Teacher will Check (4 minutes):

Most plumbing companies charge a fee to come to your house plus a charge per hour of work. The fees and charges for two plumbing companies are shown.

Company A
Fee: $50
Charge per hour: $40

Company B
Fee: $25
Charge per hour: $50

Write an equation for each company, where c = total cost (in dollars) and h = number of hours. Explain what the initial values and rates of change mean in this context.

Company A: _____

Company B: _____

Independent Practice (on your own):

The values in the table below represent Function B, which is a linear function.

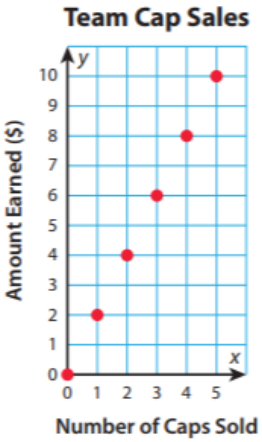
x	y
−3	−7
−1	−1
1	5
3	11

Function L is represented by the equation $y = 6x + 4$. Compare Functions B and L by determining which one has the greater rate of change and which one has the greater y-intercept. Explain why your answers are correct.

Show your work.

The table and graph show how much money a store earns selling each team T-shirt and each team cap. Compare the rates of change for these two functions.

Number of T-shirts Sold	Amount Earned ($)
1	4
2	8
3	12
4	16



Below are two companies' rates for textbook rentals. What is the initial value for each function? What is the cost to rent a textbook for 4 months from each company?

Company A: $c = 15m + 15$, where c = total cost in dollars and m = number of months

Company B: $19 per month per textbook

The equation and table show what two boys pay for gym fees. Compare the rate of change and initial value for each function.

Alfredo

Month	0	1	2	3
Cost ($)	20	30	40	50

Alex

$c = 25 + 10m$, where c = cost in dollars and m = number of months.

What do the parts of the equation represent?

Show your work.

Solution

Pair/Share

How much more will Alex's cost be each month? Why?

Roy wants to buy a new television for $300. Two stores offer different payment options. Compare the initial values and rates of change.

Store A Payment Plan

Month	0	1	2	3	4	5	6
Amount Owed ($)	300	250	200	150	100	50	0

Store B Payment Plan

Pay $100 at the time of purchase. Pay $50 per month until the television is paid for.

Show your work.

Solution: _____

Below are two companies' rates to rent a bicycle. How much does it cost per hour to rent a bicycle at Company A? What is the cost to rent a bicycle for 6 hours from each company?

Company A: $c = 5h + 4$, where c = total cost (in dollars) and h = number of hours

Company B: $6 per hour per bicycle

Sonya sells bracelets once a month at a flea market. The table shows her profits for a 5-month period.

Sonya

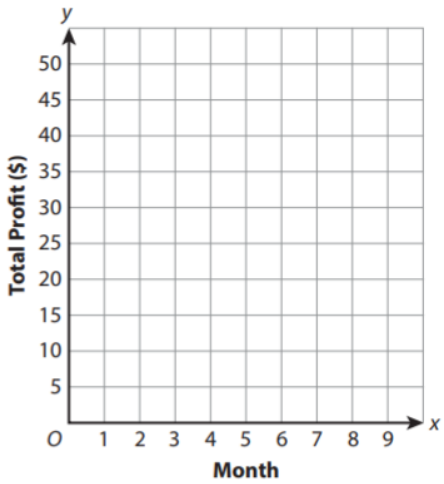
Month	1	2	3	4	5
Total Profit ($)	30	60	90	120	150

a. Kirsten sells bracelets once a month at a different flea market. The rate of change for her profits is $10 per month. Complete the table and the graph to show her total profits.

Kirsten

Month	1	2	3	4	5
Total Profit ($)	10				

Kirsten



b. Sonya says that her profit is increasing 4 times as fast as Kirsten's profit. Do you agree? Explain.

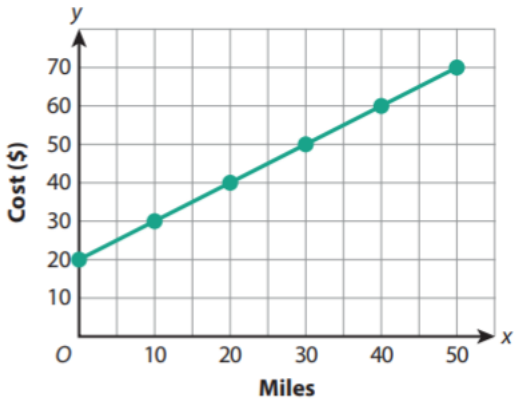
The rates for two airport shuttles are shown below.

Quick Shuttle

Rates for shuttle

- $30 for passenger pickup
- $0.50 for each mile driven

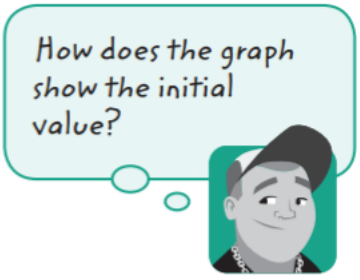
We-Drive Shuttle



Part A

Which shuttle service has a greater initial value? Which service has the greater rate of change? Explain what the greater initial value and greater rate of change mean.

Show your work.



Solution: _____

_____

_____

Part B

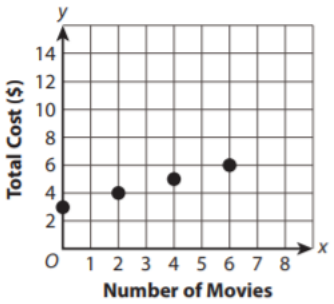
Which shuttle company would cost less for a 25-mile trip?

Show your work.

Solution: _____

Two movie clubs charge an initial membership fee plus a constant rate for each movie that is rented. The table and graph show what the two movie clubs charge.

Club A:



Club B:

Number of Movies	Total Cost ($)
0	2.25
1	3.00
2	3.75
3	4.50

Part A

Complete an equation to represent each relationship. Let y represent the total cost for renting x movies.

Answers: **Club A:** $y =$ _____ **Club B:** $y =$ _____

Part B

Which club has the greater initial value? Which club has the greater rate of change? Describe what this means in the context of the problem.

_____

_____

_____