Unit: Functions
Student Handout 4

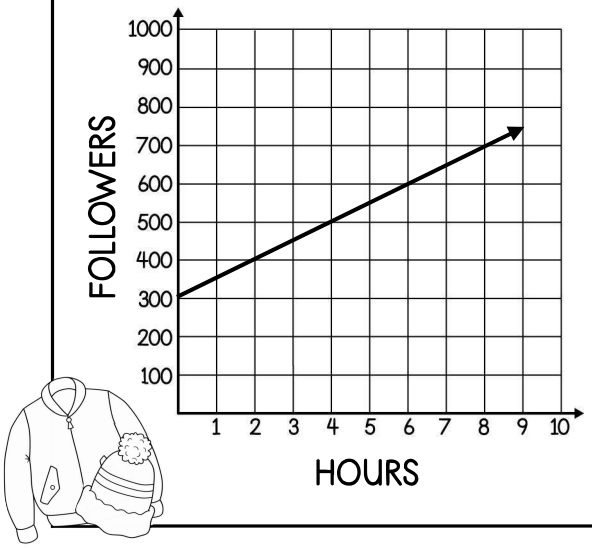
Name _____

Date _____Pd_____

APPLYING LINEAR FUNCTIONS

Many real-world situations can be modeled by linear functions. For each given situation, find the rate of change and the initial value, or y-intercept, to interpret the situation. Then, write an equation in slope-intercept form to represent the situation.

1 Zara owns an online fashion boutique. She launched a promotion where followers of her social media account who tag a friend are entered into a giveaway. The linear relationship between the hours since launching the promotion and her total number of followers on social media is shown on the graph below.



a. Find the rate of change and explain its meaning.

b. Find the y-intercept and explain its meaning.

c. Write an equation to represent the situation.

2 Shawn recently went skydiving for his birthday. The relationship between the time in seconds, x, and his elevation in feet, y, is shown in the table below.

TIME (SECONDS)	ELEVATION (FEET)
0	12,500
2	12,150
4	11,800
6	11,450
8	11,100

a. Find the rate of change and explain its meaning.

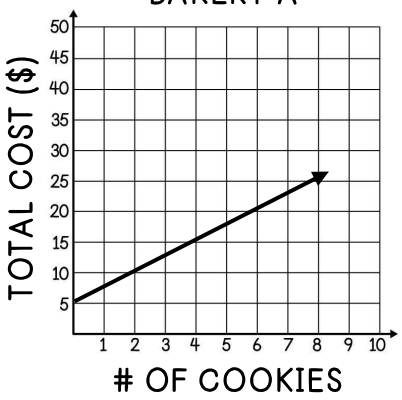
b. Find the y-intercept and explain its meaning.

c. Write an equation to represent the situation.

Apply your knowledge of linear functions to compare each situation below.

3 Tish is ordering custom cookies for an upcoming soccer team celebration and is comparing the cost of two local bakeries. Each bakery charges an initial delivery fee and a price per cookie as shown.

BAKERY A



BAKERY B

COOKIES	TOTAL COST
0	$7
2	$11.50
4	$16
6	$20.50

a. Which bakery charges a higher delivery fee? Explain.

b. Which bakery charges a higher price per cookie? Explain.

c. If Tish orders a dozen cookies, which bakery is the cheaper option?

4 Julie's family is filling up the pool in her backyard. The equation $y = 5.2x + 8{,}400$ can be used to show the rate at which the pool is filling up with water where y is the total amount of water (gallons) and x is the amount of time (minutes). Her neighbor, Elaina, is also filling up their pool as shown in the table below.

MIN	0	3	5	7
GAL	7,850	7,864.4	7,874	7,883.6

a. Whose pool is filling up at a faster rate? Explain.

b. Whose pool initially contained more water? Explain.

c. After 30 minutes, whose pool will contain more water?

5 Three friends are traveling to school. Let x represent the number of minutes traveled and y represent the distance from the school in miles for each representation.

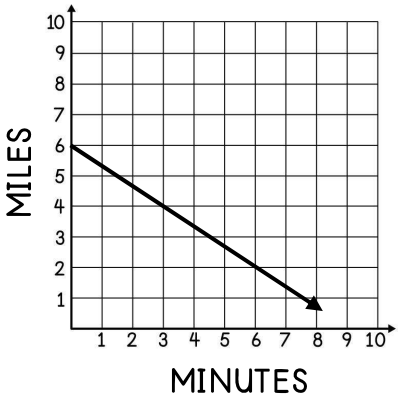
FREDDIE

$$y = -0.8x + 8$$

CHRISTIAN

MIN	0	2	4	6
MILES	0.5	0.4	0.3	0.2

TREVOR



a. Who lives the closest to the school? Explain.

b. Who is traveling the fastest? Explain.

Unit: Function
Homework 4

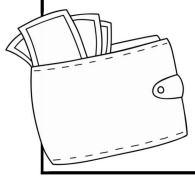
Name _____

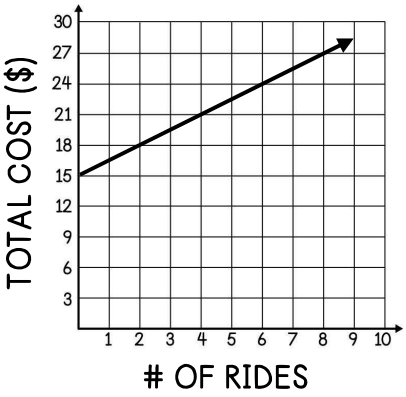
Date _____Pd_____

APPLYING LINEAR FUNCTIONS

Three statements were made about each situation below. Two are true and one is false. Mark each statement as true or false and then rewrite the false statement to make it true.

1 Robert pays for his family to go to the fair. He pays an initial entrance fee and an additional cost per ride as shown on the graph.

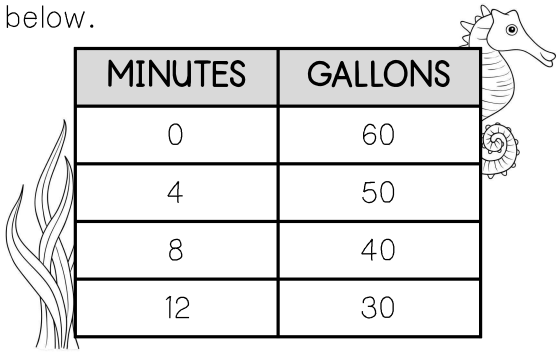




STATEMENT	T/F?
The cost per ride is $1.50.	
The situation can be represented by the equation y = 15x + 1.5.	
The initial entrance fee was $15.	

REWRITE THE FALSE STATEMENT TO MAKE IT TRUE:

2 Hanna works at an aquarium and needs to drain the seahorse tank for cleaning. The gallons of water in the tank based on the number of minutes it has been draining is shown in the table below.

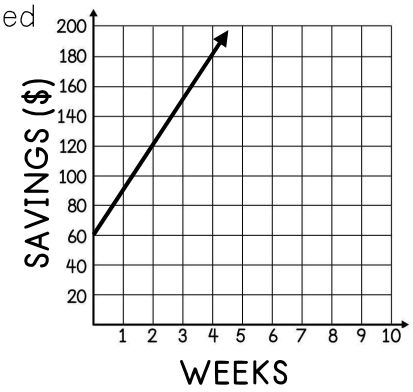


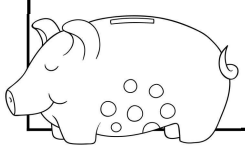
MINUTES	GALLONS
0	60
4	50
8	40
12	30

STATEMENT	T/F?
The situation can be represented by the equation y = 2.5x + 60.	
The aquarium initially contained 60 gallons of water.	
The aquarium drains at a rate of 2.5 gallons per minute.	

REWRITE THE FALSE STATEMENT TO MAKE IT TRUE:

3 The balance of Sam's account, y, based on the number of weeks spent saving, x, can be represented by y = 35x + 10. The balance of his sister's account based on the weeks spent saving is shown on the graph.





STATEMENT	T/F?
Sam is saving more money per week than his sister.	
Sam started with less money in his account than his sister.	
After 5 weeks, Sam's sister will have $25 less in her account than Sam.	

REWRITE THE FALSE STATEMENT TO MAKE IT TRUE: