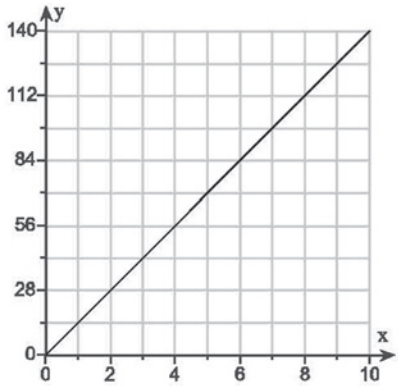
Name _____ Class _____ Date _____

Practice 5-2

Linear Equations: y = mx

1. The variable y has a proportional relationship with x as suggested by the graph. Use the graph to write an equation that models the line.



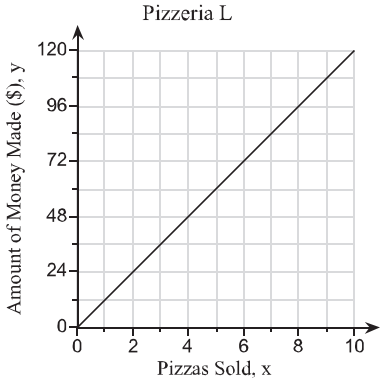
2. The graph shows a proportional relationship between a family's distance from home, y, and the time they spend driving, x. Write an equation for the relationship shown by the graph.

3. Write an equation for the following description: y is three times the value of x.

4. A company donates money to a charity every time the baseball team hits a home run. They donate $150 for every home run. Write an equation for the situation, where y is the total amount of money donated and x is the number of home runs hit.

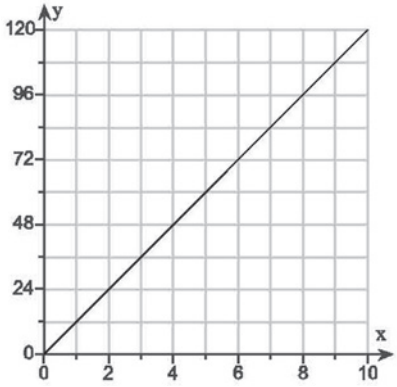
5. The number of miles Catalina walks is represented by the equation y = 7x, where x is the number of hours spent walking and y is the number of miles walked. The number of miles Jake walks in x hours is modeled by the equation y = 5x. Who walks faster?

6. The amount of money, y, pizzeria W makes by selling x pizzas can be modeled by the equation y = 15x. The relationship of the amount of money pizzeria L makes is shown in the following graph. Which pizzeria makes more money per pizza?



- ❍ A. Pizzeria L makes more money per pizza.
- ❍ B. Pizzeria W makes more money per pizza.
- ❍ C. They make the same amount per pizza.

7. Writing The graph shows a proportional relationship between the variables y and x.

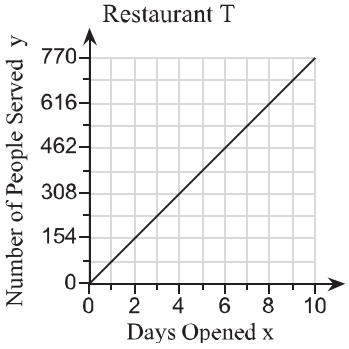


a) Write an equation to model the relationship.

b) Explain how you know there is a proportional relationship if you are given either an equation or a graph.

8. Money The graph shows a proportional relationship between a person's total savings in dollars and the number of weeks they have been saving. Write an equation that models the savings.

9. Reasoning Two new restaurants, T and S, opened in a town. The graphs below show the relationship between the total number of people served since they opened, y, and the total number of days since they opened, x.



a) Which restaurant served more customers per day?

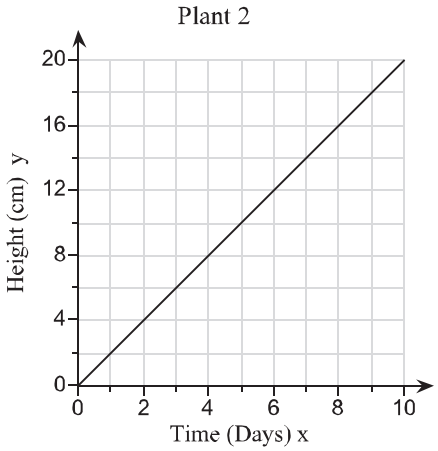
❍ A. Both restaurants served the same number of customer per day.

❍ B. Restaurant T served more customers per day.

❍ C. Restaurant S served more customers per day.

b) Explain how you found which restaurant served more customers per day.

10. Error Analysis Students have to compare the height of two plants to see which plant grows more per day. The table shows the height of plant 1, in cm, over 5 days. The graph shows the height of plant 2, in cm, over 10 days. Guillermo incorrectly says that since plant 1 grows 6 cm per day and plant 2 grows 4 cm per day, plant 1 grows more per day.



Plant 1				
Days	2	3	4	5
Height (cm)	6	9	12	15

a) Which plant grows more per day?

❍ A. Plant 2 grows more per day.

❍ B. Plant 1 grows more per day.

❍ C. They both grow the same per day.

b) What error might Guillermo have made?

❍ A. Guillermo found the incorrect constant for plant 1.

❍ B. Guillermo found the incorrect constant for plant 2.

❍ C. Guillermo found the incorrect constant for both plants.

11. Multiple Representations Erin goes to the mall to buy jeans. The equation $y = 24x$ models the total cost, y, of x pairs of jeans at store Z. The table shows the relationship between the total cost and the number of pairs of jeans at store V.

Store V				
Pairs of Jeans	2	3	4	5
Total Cost ($)	36	54	72	90

a) Which store charges more per pair of jeans?

❍ A. Store Z charges more per pair of jeans.

❍ B. Store V charges more per pair of jeans.

❍ C. Both stores charge the same per pair of jeans.

b) Show each of the relationships two other ways.

12. Write an equation for the proportional relationship below.

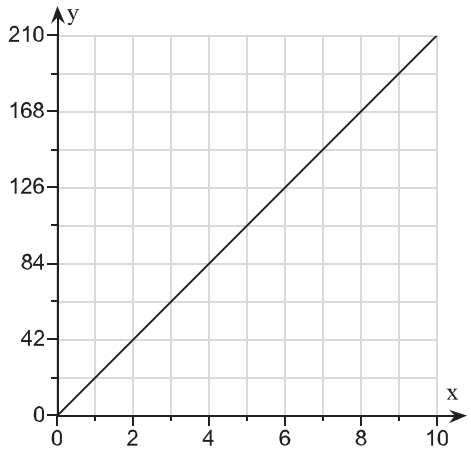
y is one-eleventh of x.

13. Michael is having a yard sale. For each item, he is asking for nine-tenths of the price for which he bought the item. Write an equation for the situation, where y is the price he is asking and x is the original price of the item.

14. Think About the Process The graph shows a proportional relationship between y and x.

a) Find the value of the constant of proportionality m.

b) Write an equation that models the line.



15. Think About the Process The tables show the relationship between the number of pages read, y, and the number of hours spent reading, x.

Parker				
Hours	1	3	5	7
Pages Read	42	126	210	294

Avery				
Hours	2	4	6	8
Pages Read	78	156	234	312

a) Which word expression below represents the constant of proportionality?

❍ A. $\frac{\text{Pages Read}}{\text{Hours}}$

❍ B. Pages Read × Hours

❍ C. $\frac{\text{Hours}}{\text{Pages Read}}$

❍ D. Pages Read − Hours

b) Find the constant of proportionality for each person.

c) Which person reads more pages per hour?

❍ A. Parker reads a greater number of pages per hour.

❍ B. Avery reads a greater number of pages per hour.

❍ C. Both read the same number of pages per hour.

*Practice 5-2: **Linear Equations: y = mx***

1. y = 14x
2. y = 46x
3. y = 3x
4. y = 150x
5. Catalina walks faster.
6. B
7. **a)** y = 12x
   b) Answers will vary
8. y = 47x
9. **a)** C
   b) Answers will vary
10. **a)** B
    b) C
11. **a)** A
    b) Answers will vary
12. $y = \frac{1}{11}x$
13. $y = \frac{9}{10}x$
14. **a)** 21
    b) $y = 21x$
15. **a)** A
    b) Parker: 42, Avery: 39
    c) A