



## My Notes

4. What does the dependent variable  $y$  represent in this situation? Explain.
5. Write an equation that models the situation.
6. How can you tell whether the equation you wrote in Item 5 correctly models the situation?
7. **Construct viable arguments.** Explain how an employee could use the equation to determine how much to charge a customer.

## MATH TIP

Before you can graph the equation, you need to determine the coordinates of several points that lie on its graph. One way to do this is by using pairs of corresponding values from the table on the previous page. You can also choose several values of  $x$  and substitute them into the equation to determine the corresponding values of  $y$ .

Maria also thinks it would be useful to make a graph of the equation that relates the time in hours a tube is rented and the cost in dollars of renting a tube.

8. List five ordered pairs that lie on the graph of the relationship between  $x$  and  $y$ .

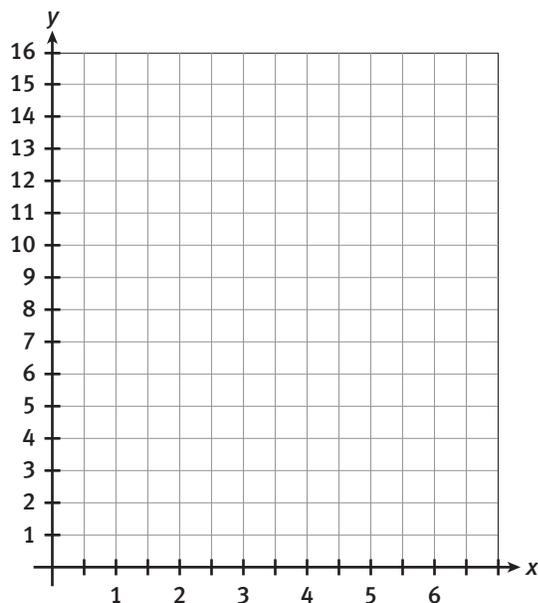
## Lesson 1-2

### Two-Variable Equations

## ACTIVITY 1

continued

9. Use the grid below to complete parts a and b.
- Write an appropriate title for the graph based on the real-world situation. Also write appropriate titles for the  $x$ - and  $y$ -axes.
  - Graph the ordered pairs you listed in Item 8. Then connect the points with a line or a smooth curve.



10. Based on the graph, explain how you know whether the equation that models this situation is or is not a *linear equation*.
11. **Reason quantitatively.** Explain why the graph is only the first quadrant.
12. What is the *y-intercept* of the graph? Describe what the *y-intercept* represents in this situation.
13. What is the slope of the graph? Describe what the slope represents in this situation.

### My Notes

#### MATH TIP

Recall that a *linear equation* is an equation whose graph is a line. A linear equation can be written in *standard form*  $Ax + By = C$ , where  $A$ ,  $B$ , and  $C$  are integers and  $A$  is nonnegative.

#### MATH TIP

The *y-intercept* of a graph is the  $y$ -coordinate of a point where the graph intersects the  $y$ -axis.

The *slope* of a line is the ratio of the change in  $y$  to the change in  $x$  between any two points.

**My Notes**

14. Describe a plausible scenario related to the water park that could be modeled by this equation:  $y = 40x - 8$ .

**Check Your Understanding**

15. Explain why the slope of the line you graphed in Item 9 is positive.
16. Explain how you would graph the equation from Item 14. What quantity and units would be represented on each axis?
17. Is the equation  $y = -2x + x^2$  a linear equation? Explain how you know.

**LESSON 1-2 PRACTICE**

Use this information for Items 18–22. Some of the water features at Sapphire Island are periodically treated with a chemical that prevents algae growth. The directions for the chemical say to add 16 fluid ounces per 10,000 gallons of water.

18. Make a table that shows how much of the chemical to add for water features that hold 10,000; 20,000; 30,000; 40,000; and 50,000 gallons of water.
19. Write a linear equation in two variables that models the situation. Tell what each variable in the equation represents.
20. Graph the equation. Be sure to include titles and use an appropriate scale on each axis.
21. What are the slope and  $y$ -intercept of the graph? What do they represent in the situation?
22. **Construct viable arguments.** An employee adds 160 fluid ounces of the chemical to a feature that holds 120,000 gallons of water. Did the employee add the correct amount? Explain.