Name_____ Date_____

9.4 Graphs

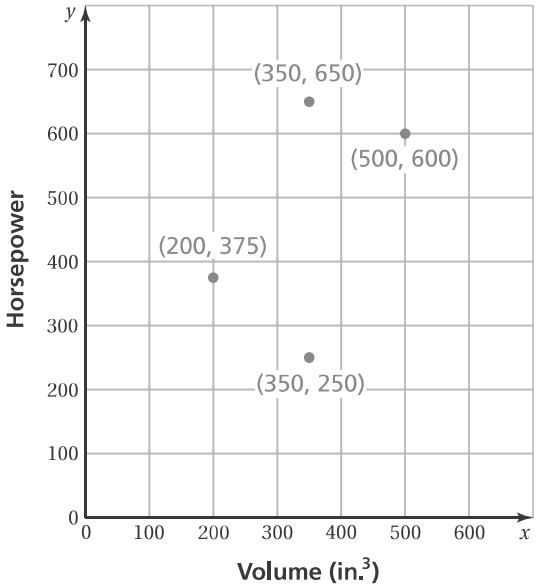
For use with Activity 9.4

Essential Question How can you use a graph to describe a function?

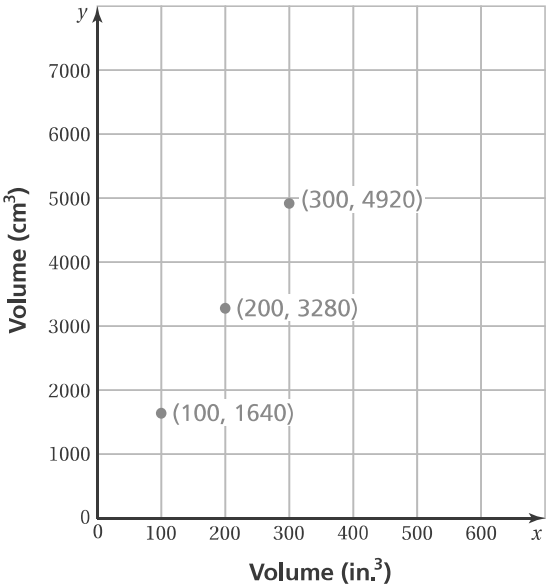
1 ACTIVITY: Interpreting a Graph

Work with a partner. Use a graph to test the truth of each statement. If the statement is true, write an equation that shows how to get one measurement from the other measurement.

a. "You can find the horsepower of a race car engine if you know its volume in cubic inches."



b. "You can find the volume of a race car engine in cubic centimeters if you know its volume in cubic inches."



2 ACTIVITY: Interpreting a Graph

Work with a partner. The table shows the average speeds of the winners of the Daytona 500. Graph the data on the next page. Does the graph allow you to predict future winning speeds? Explain why or why not.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Speed (mi/h)	156	162	143	134	156	135	143	149	153

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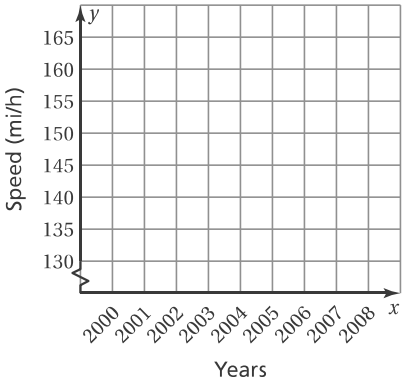
Name _____ Date _____

9.4 Graphs (continued)



3 ACTIVITY: Conducting an Experiment

Work with a partner.

Collect Materials:

- Metal washer, string (at least 15 in. long), stopwatch

Perform the Experiment:

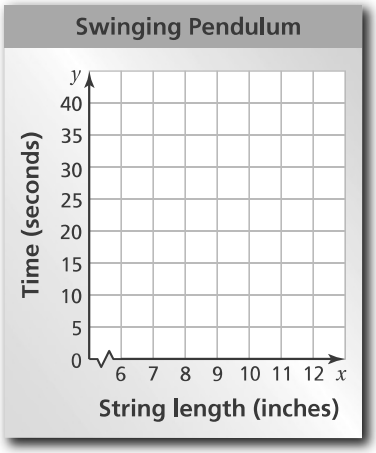
- Tie one end of the string securely around the washer.
- Hold the string 6 inches from the washer. Swing the washer and measure the time it takes to swing back and forth 10 times.
- Record your result in a table.

String Length (in.)	6	7	8	9	10	11	12
Time (sec)							

- Repeat the experiment when holding the string at lengths of 7 in., 8 in., 9 in., 10 in., 11 in., and 12 in.

Analyze the Results:

- Make a graph of your data.
- Describe the graph.



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Name_____ Date_____

9.4 Graphs (continued)

Use Your Results to Predict:

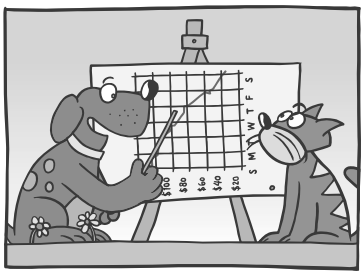
- Use your graph to predict how long it will take a 14-inch pendulum to swing 10 times.

Test Your Prediction:

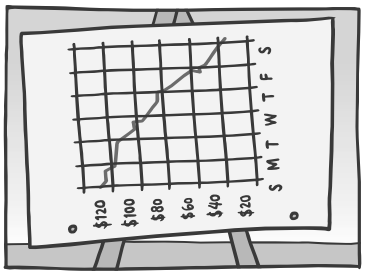
- Hold the string 14 inches from the washer and repeat the experiment. How close was your prediction?

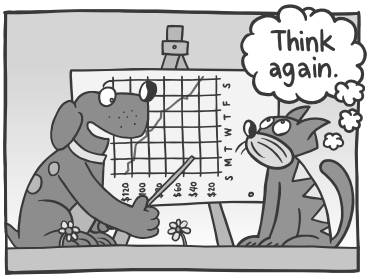
What Is Your Answer?

4. **IN YOUR OWN WORDS** How can you use a graph to describe a function? Find a graph in a magazine, in a newspaper, or on the Internet that allows you to predict the future.



"I graphed our profits."





"And I am happy to say that they are going up every day!"

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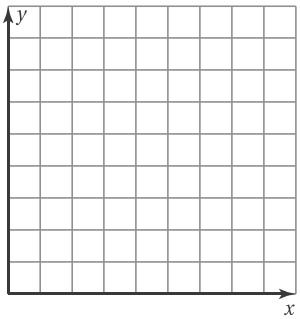
9.4 Practice

For use after Lesson 9.4

Graph the data.

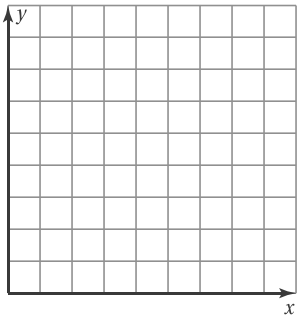
1.

Input, *x*	2	4	6	8
Output, *y*	0	2	4	6



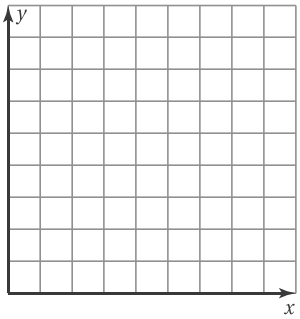
2.

Input, *x*	1	2	3	4
Output, *y*	7	10	13	16

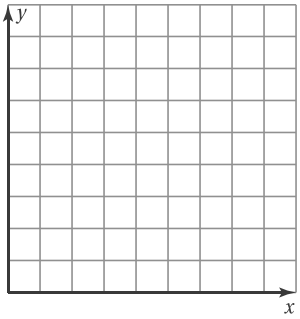


Graph the function.

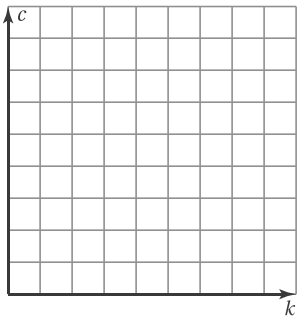
3. $y = \frac{x}{10}$



4. $y = \frac{1}{2}x + 3$



5. While on vacation, you buy key chains for your friends. Each key chain costs \$3. You have a coupon for \$2 off your entire purchase. The function $c = 3k - 2$ relates the number of key chains k you buy and your cost c. Graph the function.



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