Name_____ Date_____

9.5 Analyzing Graphs

For use with Activity 9.5

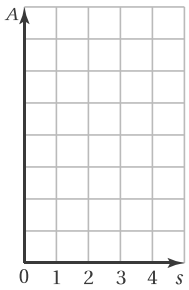
Essential Question How can you analyze a function from its graph?

1 ACTIVITY: Analyzing Graphs

Work with a partner. Complete the table for the given situation. Then make a graph of the data. Write an equation for the function. Describe the characteristics of the graph.

a. Find the area of a square with side length s.

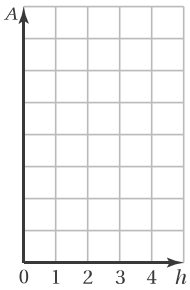
Side, *s*	1	2	3	4
Area, *A*				



Side, s

b. Find the amount earned for working h hours at \$3 per hour.

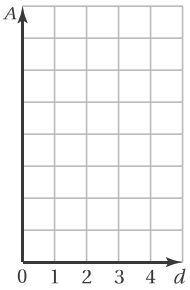
Hour, *h*	1	2	3	4
Amount, *A*				



Hour, h

c. You start with \$20 in a savings account. Find the amount left in the account when you withdraw \$2 each day d.

Day, *d*	1	2	3	4
Amount, *A*				



Day, d

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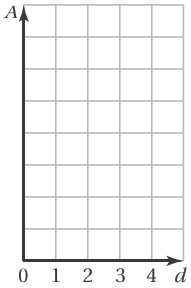
9.5 Analyzing Graphs (continued)

d. You start with \$10 in a savings account. Find the amount in the account when you deposit \$2 each day d.

Day, *d*	1	2	3	4
Amount, *A*				



Day, d

2 ACTIVITY: Conducting an Experiment

Work with a partner.

Collect Materials:

- A board at least 8 feet long
- Five books of the same thickness
- Toy car
- Stopwatch

Perform the Experiment:

- Place one book underneath one end of the board.
- Put the car at the top of the ramp. Measure the time (in seconds) it takes the car to roll down the ramp.
- Record your result in a table.

Number of Books	1	2	3	4
Time (seconds)				

- Repeat the experiment with two, three, and four books.

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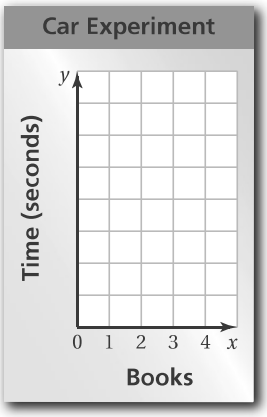
9.5 Analyzing Graphs (continued)

Analyze the Results:

- Make a graph of your data.
- Does the graph have the characteristics of any of the graphs in Activity 1? Explain.



Use Your Results to Predict:

- Use your graph to predict how long it will take the car to roll down the ramp when five books are placed under the board.

Test Your Prediction:

- Repeat the experiment with five books. How close was your prediction?

What Is Your Answer?

3. **IN YOUR OWN WORDS** How can you analyze a function from its graph? Give a real-life example of how a graph can help you make a decision.

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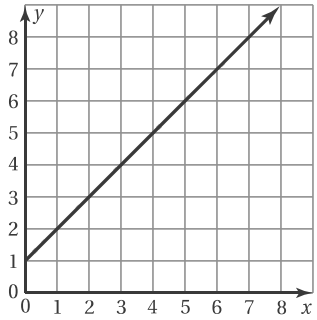
9.5 Practice

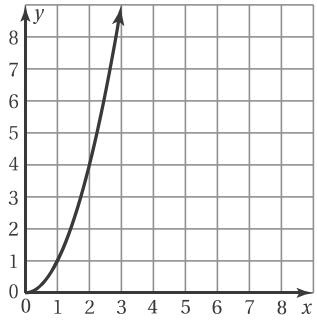
For use after Lesson 9.5

Does the graph represent a linear function? Explain.

1.



2.



Does the input-output table represent a linear function? Explain.

3.

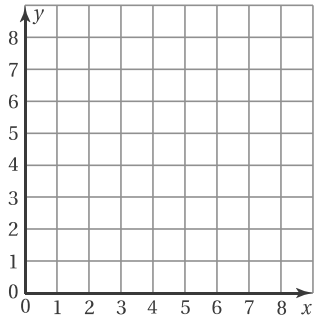
Input, *x*	0	3	5	9
Output, *y*	0	6	10	18

4.

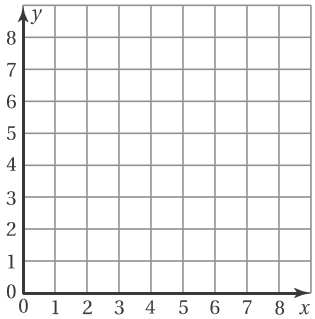
Input, *x*	1	4	9	16
Output, *y*	1	2	3	4

Graph each linear function. Which graph is steeper? Explain.

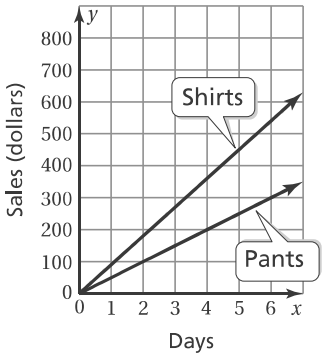
5. $y = 3x$ and $y = \frac{1}{3}x$



6. $y = \frac{3}{8}x$ and $y = \frac{5}{8}x$



7. The graphs show the number of shirts and pants sales during a week. Which item has more sales in a day? How much more? Explain.



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