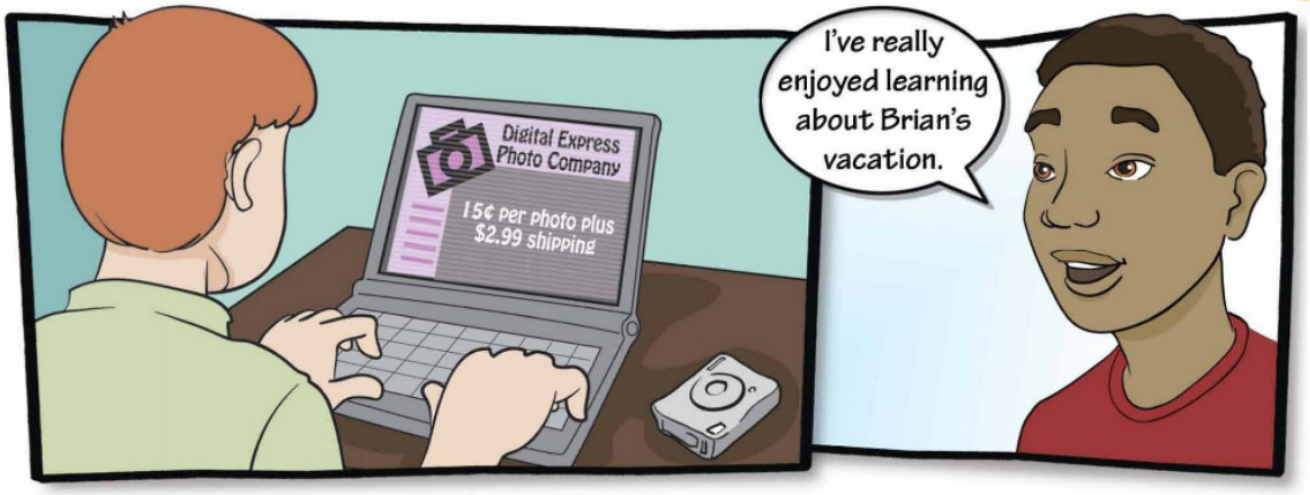
6. **Model with Mathematics** Refer to the graphic novel frame below for Exercises a–c. Show your work on a separate sheet of paper. **a–c. See Answer Appendix.**




$Y = .15x + 2.99$

| X | Y |
|---|---|
| 10 | 4.49 |
| 20 | 5.99 |
| 30 | 7.49 |
| 40 | 8.99 |

12.99
+1.50
14.49

**a.** Make a table to find the cost to print 10, 20, 30, 40 pictures.

**b.** Graph the ordered pairs.

**c.** How much would it cost for Brian to print and ship 75 pictures? 100?

$11.25 + 2.99

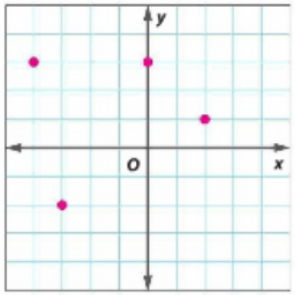
17.49

**Express each relation as a table and a graph. Then state the domain and range.** (Example 1)

**1.** {(−4, 3), (2, 1), (0, 3), (−3, −2)}

**D:{−4, −3, 0, 2}; R: {−2, 1, 3}**

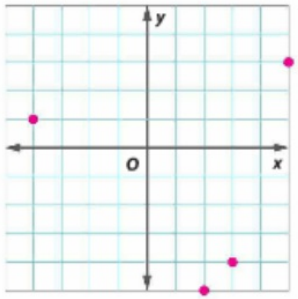
| x | y |
|---|---|
| −4 | 3 |
| 2 | 1 |
| 0 | 3 |
| −3 | −2 |




**2.** {(5, 3), (−4, 1), (2, −5), (3, −4)}

**D: {−4, 2, 3, 5}; R: {−5, −4, 1, 3}**

| x | y |
|---|---|
| 5 | 3 |
| −4 | 1 |
| 2 | −5 |
| 3 | −4 |

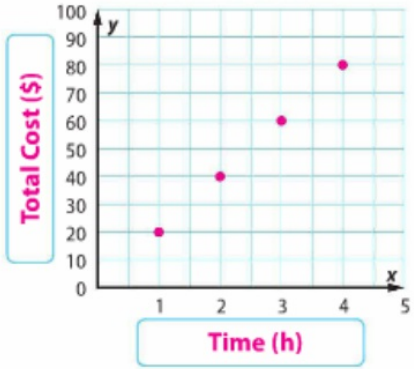



**3.** At a vacation resort, you can rent a personal watercraft for $20 per hour. (Example 2)

**a.** Make a table of ordered pairs in which the *x*-coordinate represents the number of hours and the *y*-coordinate represents the total cost for 1, 2, 3, or 4 hours.

| x | y |
|---|---|
| 1 | 20 |
| 2 | 40 |
| 3 | 60 |
| 4 | 80 |

**b.** Graph the ordered pairs.



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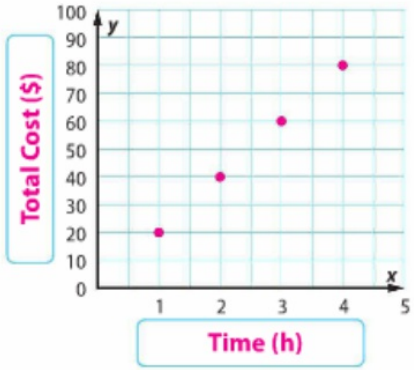



**4.** **Building on the Essential Question** How do tables and graphs represent relations?

**Sample answer: A set of ordered pairs is a relation. They can be represented by a table with a column for the *x*-values and a column for the *y*-values. The ordered pairs can also be graphed on a coordinate plane.**

**Rate Yourself!**

How confident are you about relations? Check the box that applies.

For more help, go online to access a Personal Tutor.

Tutor

FOLDABLES Time to update your Foldable!

## Independent Practice

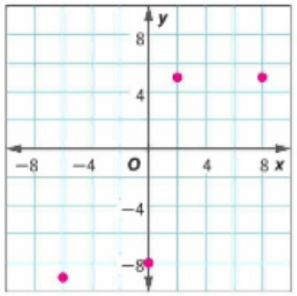
Go online for Step-by-Step Solutions eHelp

**Express each relation as a table and a graph. Then state the domain and range.** (Example 1)

1. {(8, 5), (−6, −9), (2, 5), (0, −8)}

D: {−6, 0, 2, 8}; R: {−9, −8, 5}

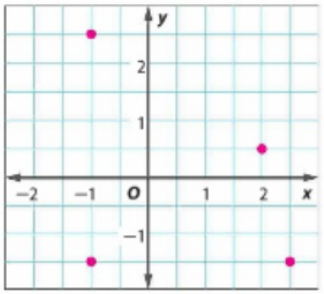
| x | y |
|---|---|
| 8 | 5 |
| −6 | −9 |
| 2 | 5 |
| 0 | −8 |




2. $\left\{\left(2\frac{1}{2}, -1\frac{1}{2}\right), \left(2, \frac{1}{2}\right), \left(-1, 2\frac{1}{2}\right), \left(-1, -1\frac{1}{2}\right)\right\}$

D: $\{-1, 2, 2\frac{1}{2}\}$; R: $\{-1\frac{1}{2}, \frac{1}{2}, 2\frac{1}{2}\}$

| x | y |
|---|---|
| $2\frac{1}{2}$ | $-1\frac{1}{2}$ |
| 2 | $\frac{1}{2}$ |
| −1 | $2\frac{1}{2}$ |
| −1 | $-1\frac{1}{2}$ |




**Copy and Solve** **Draw the table and graph on a separate sheet of paper. A company can manufacture 825 small cars per day.** (Example 2) **3-4. See Answer Appendix.**

3. Make a table of ordered pairs in which the *x*-coordinate represents the number of days and the *y*-coordinate represents the total number of cars produced in 1, 2, 3, 4, and 5 days.

4. Graph the ordered pairs.

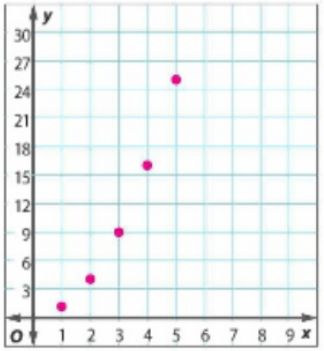
**Copy and Solve** **Draw the table and graph on a separate sheet of paper. A company can manufacture 825 small cars per day.** (Example 2) **3-4. See Answer Appendix.**

3. Make a table of ordered pairs in which the *x*-coordinate represents the number of days and the *y*-coordinate represents the total number of cars produced in 1, 2, 3, 4, and 5 days.

4. Graph the ordered pairs.

5 CCSS **Multiple Representations** Refer to the table at the right.

| *x* | *y* |
|---|---|
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |
| 4 | 16 |
| 5 | 25 |




a. **Words** Describe the pattern, if any, in the table. **To get the *y*-value, the *x*-value was multiplied by itself.**

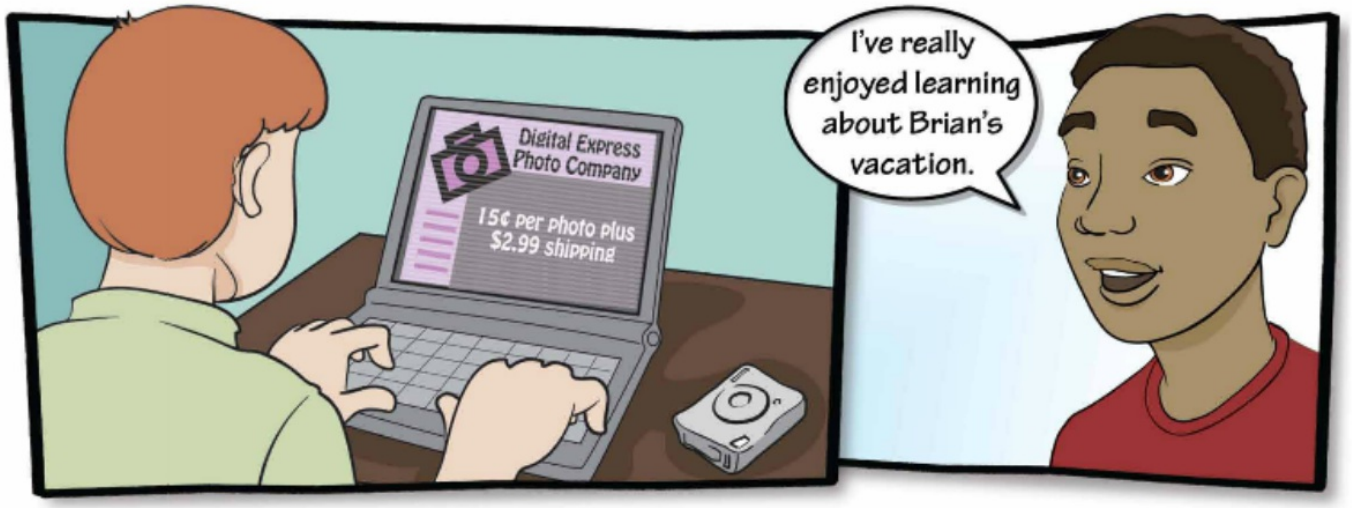
b. **Numbers** Write the ordered pairs (*x*, *y*). **(1, 1), (2, 4), (3, 9), (4, 16), (5, 25)**

c. **Graphs** Graph the ordered pairs on a coordinate plane.

d. **Words** Describe the graph. How is it different from the other real-world graphs in this lesson?

**Sample answer: This graph curves upward. The points in all of the other graphs in the lesson lie in a straight line.**

6. CCSS **Model with Mathematics** Refer to the graphic novel frame below for Exercises a–c. Show your work on a separate sheet of paper. **a–c. See Answer Appendix.**

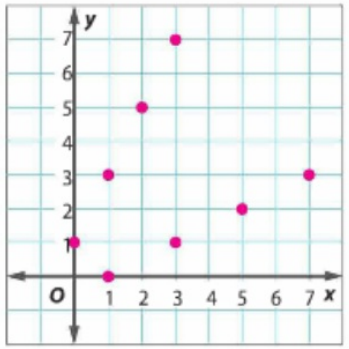



**a.** Make a table to find the cost to print 10, 20, 30, 40 pictures.
**b.** Graph the ordered pairs.
**c.** How much would it cost for Brian to print and ship 75 pictures? 100?

## H.O.T. Problems Higher Order Thinking

**7. Persevere with Problems** Refer to the table at the right.

| x | y |
|---|---|
| 0 | 1 |
| 1 | 3 |
| 2 | 5 |
| 3 | 7 |




**a.** Graph the ordered pairs.

**b.** Reverse the *y*-coordinates and *x*-coordinates in each ordered pair.

(1, 0), (3, 1), (5, 2), (7, 3)

**c.** Graph the new ordered pairs on the same coordinate plane in part a.

**d.** Describe the relationship between the two sets of ordered pairs.

Sample answer: The distance between each point in the original table and the *x*-axis is the same as the distance between the points with the reversed ordered pairs and the *y*-axis.

**8. Model with Mathematics** Describe a real-world situation that can be represented using a table and a graph. Sample answer: The number of movie tickets bought and the total cost of the tickets can be represented using a table and graph.

**9. Find the Error** Morgan says that the domain of the relation {(2, 3), (–4, 2), (0, –4), (1, 5)} is {–4, 2, 3, 5}. Find her mistake and correct it. Sample answer: The domain is the set of *x*-coordinates. Morgan listed the set of *y*-coordinates; {–4, 0, 1, 2}