

# LESSON 4

## Represent Proportional Relationships

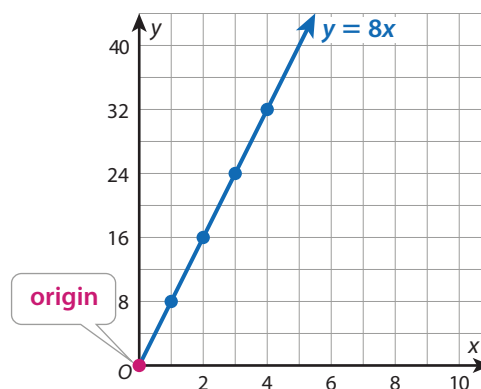
### Dear Family,

This week your student is learning about graphs and equations that can represent proportional relationships.

One way to represent a proportional relationship is with a graph. The graph will be a straight line that goes through the **origin**, or the point  $(0, 0)$ .

Another way is with an equation that tells you how many  $x$  you have for every one  $y$ . The equation for the proportional relationship at the right is  $y = 8x$ .

Your student will solve problems like the one below.



The table compares the number of people who ride a rollercoaster to the number of rollercoaster cars they fill. Is this a proportional relationship?

Cars Filled ( $x$ )	3	5	6	8
People ( $y$ )	18	30	36	48

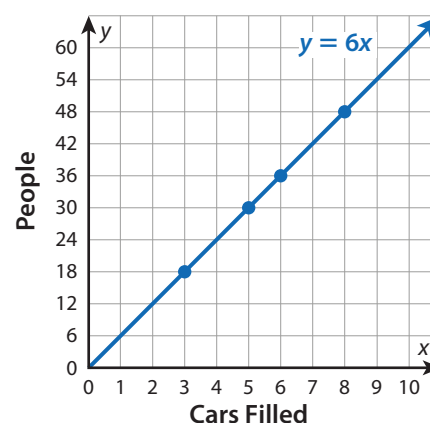
- **ONE WAY** to recognize a proportional relationship is with a graph.

Plot the pairs of values as ordered pairs and connect the points. The graph is a straight line that passes through  $(0, 0)$ , so the relationship is proportional.

- **ANOTHER WAY** to recognize a proportional relationship is to check if the ratios are equivalent.

The ratios  $3 : 18$ ,  $5 : 30$ ,  $6 : 36$ , and  $8 : 48$  are all equivalent. In each case, you can multiply the first quantity by 6 to get the second quantity.

Both ways show that the relationship is proportional.



Use the next page to start a conversation about proportional relationships.

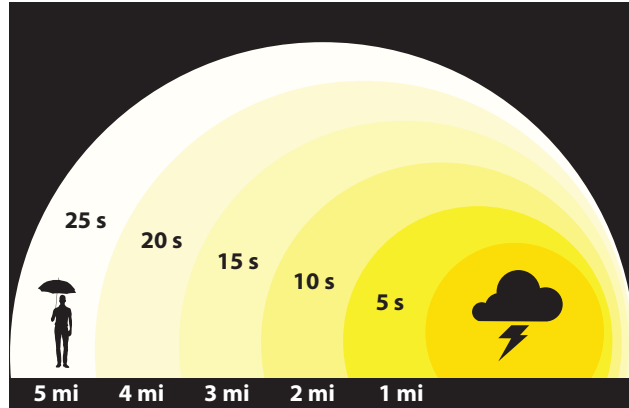
## Activity Thinking About Proportional Relationships Around You

➤ **Do this activity together to investigate proportional relationships in the real world.**

Have you ever heard or seen a thunderstorm approaching and wondered how far away it was? You can figure this out!

After you see a flash of lightning, count the number of seconds until you hear the next rumble of thunder. For every 5 seconds you count, the storm is 1 mile away.

You can multiply the number of seconds by  $\frac{1}{5}$  to find how many miles away the storm is. That means the constant of proportionality for the relationship between time and distance is  $\frac{1}{5}$ .



**?** What are other situations around you where one quantity is always a multiple of another quantity?

Graph paper area for student response.