



# Using Graphs to Compare Relationships

Let's graph more than one relationship on the same grid.

## 8.1 Math Talk: More Division

Find the value of each expression mentally.

- $3 \div 6$
- $4 \div 5$
- $5 \div 4$
- $10 \div 6$



## 8.2 Race to the Bumper Cars

Diego, Lin, and Mai went from the ticket booth to the bumper cars.

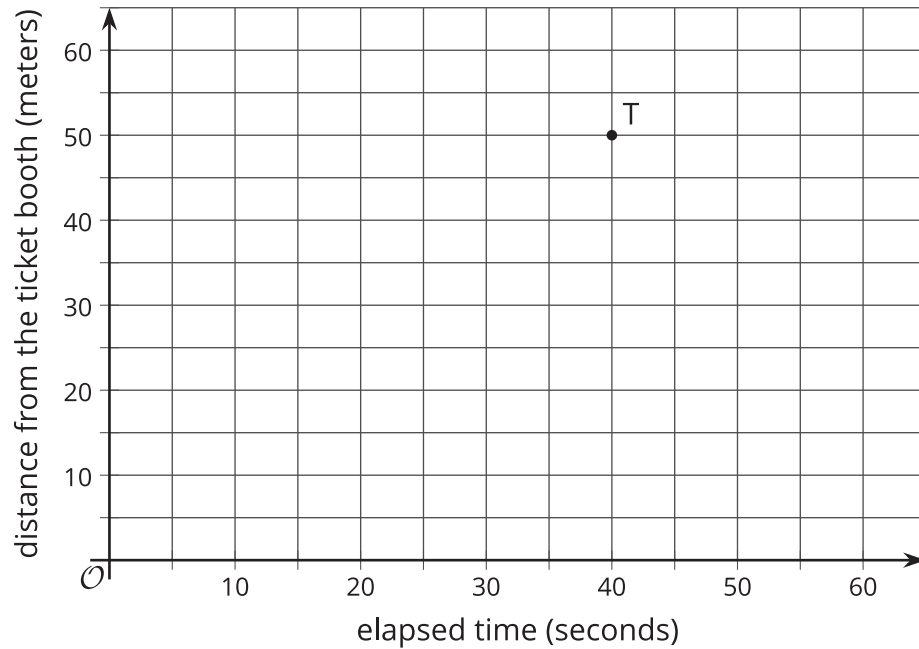
1. Use each description to complete the table representing that person's journey.
  - a. Diego left the ticket booth at the same time as Tyler. Diego jogged ahead at a steady pace and reached the bumper cars in 30 seconds.
  - b. Lin left the ticket booth at the same time as Tyler. She ran at a steady pace and arrived at the bumper cars in 20 seconds.
  - c. Mai left the booth 10 seconds later than Tyler. Her steady jog enabled her to catch up with Tyler just as he arrived at the bumper cars.

| Diego's time (seconds) | Diego's distance (meters) |
|------------------------|---------------------------|
| 0                      |                           |
| 15                     |                           |
| 30                     | 50                        |
| 1                      |                           |

| Lin's time (seconds) | Lin's distance (meters) |
|----------------------|-------------------------|
|                      | 0                       |
|                      | 25                      |
| 20                   | 50                      |
| 1                    |                         |

| Mai's time (seconds) | Mai's distance (meters) |
|----------------------|-------------------------|
| 10                   |                         |
|                      | 25                      |
| 40                   | 50                      |
| 1                    |                         |

2. Using a different color for each person, draw a graph of all four people's journeys (including Tyler's from the other day).



3. Which person is moving the most quickly? How is that reflected in the graph?

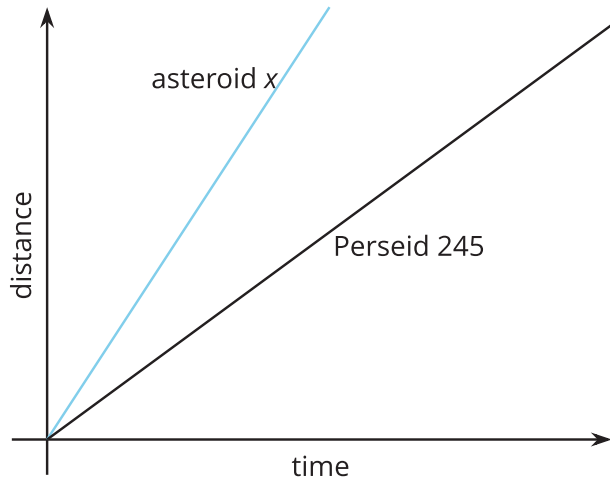
 **Are you ready for more?**

Write equations to represent the relationship between time and distance for each person.

## 8.3

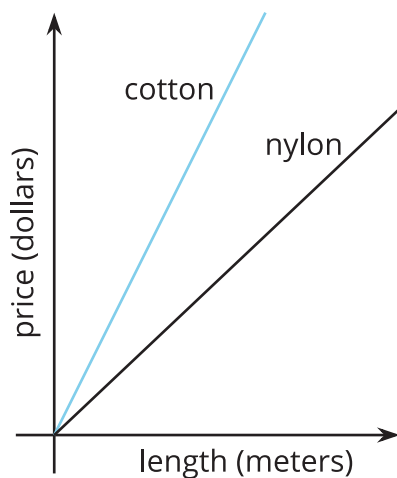
## Space Rocks and the Price of Rope

1. Meteoroid Perseid 245 and Asteroid x travel through the solar system. The graph shows the distance each traveled after a given point in time.



Is Asteroid x traveling faster or slower than Perseid 245? Explain how you know.

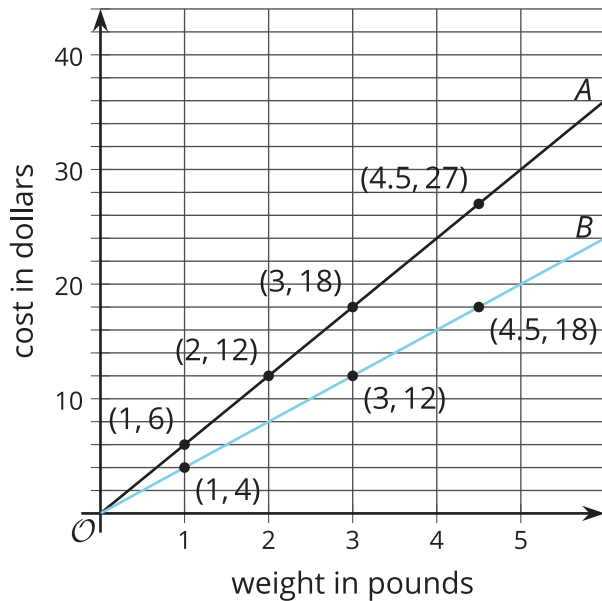
2. The graph shows the price of different lengths of two types of rope.



If you buy \$1.00 of each kind of rope, which one will be longer? Explain how you know.

## Lesson 8 Summary

Here is a graph that shows the price of blueberries at two different stores. Which store has a better price?



We can compare points that have the same  $x$  value or the same  $y$  value. For example, the points  $(2, 12)$  and  $(3, 12)$  tell us that at Store B you can get more pounds of blueberries for the same price.

The points  $(3, 12)$  and  $(3, 18)$  tell us that at Store A you have to pay more for the same quantity of blueberries. This means Store B has the better price.

We can also use the graphs to compare the constants of proportionality. The line representing Store B goes through the point  $(1, 4)$ , so the constant of proportionality is 4. This tells us that at Store B the blueberries cost \$4 per pound. This is cheaper than the \$6 per pound unit price at Store A.