

## Examples of Proportional Relationships

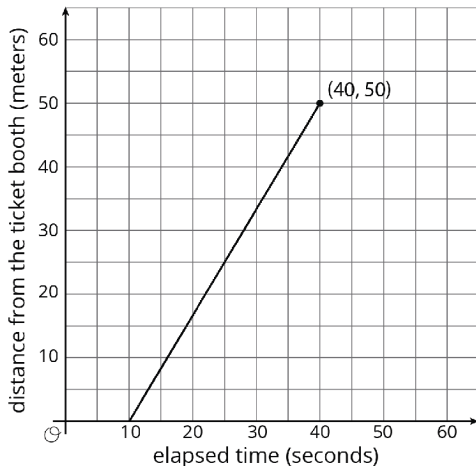
In this unit, we've seen many different types of situations that involve proportional relationships between two quantities. Here are some examples.

| Type of Situation      | Examples from this Unit                                                                                                                                                                                                                              | Sample Sentences                                         |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <b>Unit Price</b>      | <ul style="list-style-type: none"> <li>Some T-shirts cost \$8 each.</li> <li>Blueberries cost \$6 per pound.</li> </ul>                                                                                                                              | ____ costs ____ per ____.                                |
| <b>Constant Rate</b>   | <ul style="list-style-type: none"> <li>It took Priya 5 minutes to fill a cooler with 8 gallons of water.</li> <li>Andre made 10 balloon animals in 3 minutes.</li> </ul>                                                                             | It takes ____ to make ____.                              |
| <b>Constant Speed</b>  | <ul style="list-style-type: none"> <li>Mai rides her bike at a speed of 250 meters per minute.</li> <li>It took a plane 1.5 hours to fly 915 miles, at a constant speed.</li> </ul>                                                                  | ____ was traveling at a constant speed of ____ per ____. |
| <b>Recipes</b>         | <ul style="list-style-type: none"> <li>To make coco bread, a bakery uses 200 milliliters of coconut milk for every 360 grams of flour.</li> <li>To make a certain shade of purple paint, we mix 1 part red paint with 4 parts blue paint.</li> </ul> | To make ____, you mix ____ with ____.                    |
| <b>Servings</b>        | <ul style="list-style-type: none"> <li>6 spring rolls will serve 3 people.</li> <li>4 seagulls ate 10 pounds of garbage.</li> </ul>                                                                                                                  | ____ will serve ____.                                    |
| <b>Unit Conversion</b> | <ul style="list-style-type: none"> <li>1 inch is equal to 2.54 centimeters.</li> <li>The weight of 10 aluminum cans is 0.16 kilograms.</li> <li>In Canadian coins, 16 quarters is equal in value to 2 toonies.</li> </ul>                            | ____ is equal to ____.                                   |
| <b>Ratios</b>          | <ul style="list-style-type: none"> <li>There are 3 apples for every 1 orange in the fruit salad.</li> </ul>                                                                                                                                          | There are ____ for every ____.                           |

Note: These are just examples of possible types of situations to help you brainstorm. You do not have to use one of these situations.

## Examples of Nonproportional Relationships

Here are examples of relationships that are not proportional that we’ve seen in this unit.

| Type of Situation  | Examples from this Unit                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|---|---|----|---|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Price              | Entrance to a state park costs \$6 per vehicle, plus \$2 per person in the vehicle.                                                                                                                                                                                                                                                     | Here are the prices for smoothies at Smoothie Shop B. <div><table><tr><th>smoothie size (oz)</th><th>price (\$)</th></tr><tr><td>8</td><td>6</td></tr><tr><td>12</td><td>8</td></tr><tr><td>16</td><td>10</td></tr></table></div> | smoothie size (oz) | price (\$) | 8 | 6 | 12 | 8 | 16 | 10 |    |                                                                                                                                                                                                                        |
| smoothie size (oz) | price (\$)                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| 8                  | 6                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| 12                 | 8                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| 16                 | 10                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| Speed              | Han was running laps around the track. The coach recorded his times at the end of laps 2, 4, 6, and 8, as shown in this table. <div><table><tr><th>distance (laps)</th><th>time (minutes)</th></tr><tr><td>2</td><td>4</td></tr><tr><td>4</td><td>9</td></tr><tr><td>6</td><td>15</td></tr><tr><td>8</td><td>23</td></tr></table></div> | distance (laps)                                                                                                                                                                                                                   | time (minutes)     | 2          | 4 | 4 | 9  | 6 | 15 | 8  | 23 | Mai left the ticket booth 10 seconds later than Tyler. She caught up with Tyler just as he arrived at the bumper cars. <div></div> |
| distance (laps)    | time (minutes)                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| 2                  | 4                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| 4                  | 9                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| 6                  | 15                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| 8                  | 23                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                   |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |
| Formulas           | The equation $F = \frac{9}{5}C + 32$ shows the relationship where $F$ represents degrees Fahrenheit and $C$ represents degrees Celsius.                                                                                                                                                                                                 | The equation $A = 6s^2$ shows the relationship where $s$ represents the side length of a cube and $A$ represents the cube’s surface area.                                                                                         |                    |            |   |   |    |   |    |    |    |                                                                                                                                                                                                                        |