

2.3

Proportional Reasoning

MathLinks 8, pages 63–69

Key Ideas Review

Choose from the following terms to complete #1 and #2.

equal proportion ratios unit rate

1. A proportion is a relationship that says that two _____ or rates are _____.

2. Identify the method shown in each example, then solve for the missing value.

a) Using a _____

$$\frac{\$6}{4 \text{ advocados}} = \frac{\$ \square}{10 \text{ advocados}}$$

$\times 2.5$ (above the arrow) $\times 2.5$ (below the arrow)

Missing value is $\$6 \times 2.5 = \$$ _____

b) Using a _____

$$\frac{\$6}{4 \text{ advocados}} = \frac{\$1.50}{1 \text{ advocado}}$$

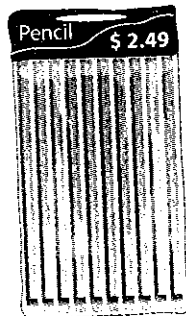
$$10 \times \$1.50 = \$$$

Practise and Apply

3. Determine the unit rate. Show your thinking.

a) Riding a bicycle 50 km in 2 h.

b) A pack of 10 pencils for \$2.49.



c) Running 400 m in 80 s.

d) Ground beef costs \$5.99 for 3 kg.

4. Fill in the missing value. Show your thinking.

a) $\frac{1}{4} = \frac{\square}{12}$

b) $\frac{12}{16} = \frac{\square}{4}$

c) $\frac{10}{\square} = \frac{2}{5}$

d) $\frac{\square}{21} = \frac{4}{7}$

5. Determine the missing value to make each rate equivalent. Include the units.

a) $\frac{16 \text{ roses}}{2 \text{ bouquets}} = \frac{\square \text{ roses}}{1 \text{ bouquet}}$

b) $\frac{190 \text{ km}}{2 \text{ h}} = \frac{\square \text{ km}}{8 \text{ h}}$

Name: _____

Date: _____

6. Set up a proportion for each situation.

- a) A plant that is 40 cm tall has a planter that is 20 cm wide. If it grows to a height of 50 cm, it will need a planter 25 cm wide.



- b) If there are 60 mL of sugar in 600 mL of pop, then 1 L of pop contains 100 mL of sugar.

- c) A car needs 9.4 L of gasoline to go 100 km. It will need 56.4 L to go 600 km.

7. There are 42 players on 7 volleyball teams. How many players are on 4 teams? Show your thinking.

8. Trevor is a high school quarterback. On average, out of each 16 attempts, he completes 5 out of 8 passes and throws 1 pass that is intercepted. Set up a proportion to answer each question, and then write a sentence answer.

- a) If Trevor passes 40 times, how many completions would he be expected to make?

- b) In last week's game, he attempted 32 passes. How many were likely intercepted?

9. Fill in the missing value in each equivalent fraction. Show your thinking.

a) $\frac{\boxed{}}{20} = \frac{4}{5} = \frac{\boxed{}}{30}$

b) $\frac{\$4.14}{3 \text{ kg}} = \frac{\boxed{}}{1 \text{ kg}} = \frac{\boxed{}}{7 \text{ kg}}$

10. Car A used 40.5 L of gasoline to travel 450 km. Car B used 18.7 L to travel 220 km. Circle the car with better fuel mileage. Justify your answer by calculating each car's L/100 km rate. Show your work.

11. On a map of Alberta, Edson is 2 cm from Spruce Grove. A proportion on the map shows that 3 cm on the map equals 225 km on the ground. Write the correct distance on the highway sign. Show your thinking.

