

Short Answer Ratio and Proportions

Name: _____

1 Canadian athletes won 13 medals at the 1994 winter Olympics in Lillehammer.

The types of medals won are listed in the table below.

Canada's Medals at Lillehammer

Gold	Silver	Bronze	Total
3	6	4	13

Quebec athletes won 9 of these medals. Myriam Bédard won two gold medals and a silver medal.

Express as a ratio the number of medals won by Myriam Bédard to the total number of medals won by Canadian athletes.

2 Mark scored 32 out of 40 on a Mathematics test.

If he wants to maintain this average, what mark does he have to get out of 75 on his next math test?

3 At a sugar shack, 2 litres of syrup are produced for every 80 litres of maple sap. How much syrup will be produced from 45 litres of sap?

Solve the following equation to find the result.

$$\frac{2}{80} = \frac{x}{45}$$

4

A photograph is 10 cm long and 7 cm wide. After being enlarged, it is 15 cm long.

What is the width of the enlarged photo?

5

Simone takes her pulse and finds that her heart beats 18 times in 15 seconds.

At this rate, how many times does her heart beat in one minute (60 seconds)?

6

Marie-Claire claims that 27 of the 35 students in her class wear jeans. She believes this same ratio applies to the entire school which has 840 students in all.

Write a mathematical expression that Marie-Claire could use to find out how many students in her school wear jeans.

7

The relationship between the distance that a car travels and the cost of the gas needed to drive that distance is shown in the table below.

Distance in km	10	100	500
Cost in \$	0.54	5.40	27.00

Given this information, calculate how much the gas for a 400-km trip would cost.

8

Mark wants to take golf lessons. He gave his parents this ad that had been placed in the newspaper by the marketing department of a golf course.

<p style="text-align: center;">Golf - Golf - Golf - Golf</p> <p style="text-align: center;">Lessons for Beginners</p> <p style="text-align: center;">Schedule: Thursday from 7:00 pm - 8:30 pm</p> <p style="text-align: center;">Duration of the entire course: 12 hours</p> <p style="text-align: center;">Cost: \$84.00</p>

His parents agree to pay for part of the cost on the condition that Mark himself pays for the first three lessons.

How much must Mark pay out?

9

Maria is in charge of mixing fruit drinks for the basketball team.

For every 2 servings, she mixes 0.5 L of water, 25 mL of orange juice concentrate and 5 mL of sugar.

How much orange juice concentrate will she need to serve the 11 players on the team?

10

A cook, Henri, is making salad dressing for a large wedding party.

He uses a 1 : 4 ratio of vinegar to oil.

Henri pours 2 cups of vinegar and 8 cups of oil into a large bowl.

Henri's assistant, Jessica, knows that more salad dressing is needed. Jessica pours 3 cups of vinegar into the large bowl.

Exactly how much oil must Jessica pour into the mixture to keep the ratio of vinegar to oil at 1 : 4?

11

a) Maria has ingredients for 8 pancakes:

2 eggs

100 mL milk

100 mL flour

In the table below, write the ingredients for 100 pancakes.

b) It takes Georgina 18 minutes to walk 1.5 kilometres to school.

Demetrius walks at the same speed as Georgina.

How many minutes will it take Demetrius to walk 2 kilometres to school?

12

Joe wants to use his family muffin recipe in his restaurant.

The recipe makes only 24 muffins however, and he needs to make 600 muffins.

Milk and Eggs in Muffin Recipe	
24 muffins	600 muffins
4 eggs	? eggs
1.5 cups of milk	? cups of milk

How many eggs and cups of milk will Joe need to make 600 muffins?

13

In September, Ann signed up for a mixed soccer league. By the end of the season, the ratio of boys/girls had diminished, yet the number of boys had remained the same.

What change in the team membership could explain this situation?

2- Correction key

1

The ratio is $\frac{3}{13}$ or 3:13.

2

He will have to get a mark of 60 out of 75.

3

1.125 litres of syrup

4

10.5 cm wide.

5

72 beats

6

$\frac{27 \times 840}{35}$ or any other equivalent chain of operations

Do not penalize a student who also writes the answer.

7

The gas would cost \$21.60.

8

Mark will pay out \$31.50.

9

Examples of appropriate solutions

Example 1

$$\frac{25}{x} = \frac{2}{11}$$

$$x = \frac{25 \times 11}{2}$$

$$x = \frac{275}{2}$$

$$x = 137.5 \text{ mL}$$

Answer: Maria will need 137.5 mL of orange juice concentrate.

Example 2

$$2 \text{ servings} = 25 \text{ mL}$$

$$1 \text{ serving} = 12.5 \text{ mL}$$

$$11 \text{ servings} = 12.5 \times 11 = 137.5 \text{ mL}$$

10

Examples of appropriate solutions

Example 1

Ratio of vinegar to oil is 1 : 4

2 + 3 = 5 cups of vinegar in the bowl

$$\frac{1}{4} = \frac{5}{x}$$

x = 20 cups of oil required

20 – 8 = **12 cups** of oil to be addedAnswer: Jessica must pour **12** cups of oil into the mixture.**Example 2**

Ratio of vinegar to oil is 1 : 4

$$\frac{1}{4} = \frac{3}{x}$$

$$x = 12$$

11

a)

Ingredients for 100 Pancakes	
25	eggs
1250	mL milk
1250	mL flour

Note: Do not penalize students for not having shown their work.

b) Example of an appropriate solution

Georgina: $\frac{18 \text{ min}}{1.5 \text{ km}} = 12 \text{ min per km}$

Demetrius: Since Demetrius walks at the same speed as Georgina

$$\frac{12 \text{ min}}{\text{km}} = \frac{x \text{ min}}{2 \text{ km}}$$

$$\Rightarrow x = 2(12)$$

$$x = 24$$

Answer: It will take Demetrius **24 minutes** to walk to school.

12

Eggs used

$$\frac{4}{24} = \frac{x}{600}$$
$$24x = 2400$$
$$x = 100$$

100 eggs

Milk used

$$\frac{1.5}{24} = \frac{x}{600}$$
$$24x = 900$$
$$x = 37.5$$

37.5 cups of milk

Answer: Joe will need **100** eggs and **37.5** cups of milk to make 600 muffins.

13

The change in the team's membership that could explain this situation is:

the number of girls increased.