

PROPORTION

72

TARGET To solve problems involving proportion.

A proportion is a quantity that is part of a whole. In everyday life we often have to solve problems of proportion when dealing with recipes.

Example 1

A cake recipe requires 50 g of butter to be used for every cake. The amount of butter needed will increase in proportion to the number of cakes.

Cakes	Butter
1	50 g
2	100 g
3	150 g
...	...
7	350 g
8	400 g
and so on.	

Example 2

A recipe for 8 people requires 1000 g of fruit. How much fruit is needed for 5 people?

Step 1 Find how much fruit is needed for 1 person.

$$125 \text{ g } (1000 \text{ g} \div 8 = 125 \text{ g})$$

Step 2 Find how much fruit is needed for 5.

$$625 \text{ g } (125 \text{ g} \times 5 = 625 \text{ g})$$



A

1 In an art lesson lasting one and a half hours Keeley spends 15 minutes drawing and the rest of the time painting. Write as a fraction in its lowest terms the proportion of the lesson Keeley is:

- a) drawing b) painting.

2 One litre of orange paint is made by mixing 200 ml of red paint with 800 ml of yellow. Write as a percentage the proportion of the mixture which is:

- a) red b) yellow.

3 Rex and Rover share a 600 g can of dog food. Rex eats 250 g. Rover eats 350 g. Write the proportion eaten by each dog as a fraction in its lowest terms.

4 There are 60 passengers on a bus. 45 are children. 15 are adults. Write as a percentage the proportion of passengers who are:

- a) children b) adults.

A necklace is made using this pattern of beads.



5 How many beads are there altogether if there are:

- a) 36 red beads b) 40 yellow beads?

6 How many red beads are there if there are 40 beads altogether?

7 How many yellow beads are there if there are 72 beads altogether?

8 NUT BROWNIES

100 g butter 2 eggs
120 g chocolate 80 g sugar
60 g flour 160 g nuts

Makes 8 brownies

Rewrite the above ingredients for:

- a) 4 brownies b) 24 brownies.

B

- 1 In a cafe three cups of tea cost £1.80 altogether. What would be the cost of:
a) 2 cups b) 40 cups?
- 2 Four rolls cost £1.00. Find the cost of:
a) 3 rolls b) 10 rolls.
- 3 £8 is worth 9.6 euros. How many euros will 1 be given in exchange for:
a) £5 b) £200?
- 4 A machine can make 300 pins in six minutes. How many pins can it make in:
a) 5 minutes b) 14 minutes?
- 5 Five bricks weigh 4 kg altogether. What is the weight of:
a) 3 bricks b) 16 bricks?
- 6 A plane travels 300 km in 15 minutes. How far does it travel in:
a) 8 minutes b) 45 minutes?



- 7 Shaun uses 400 ml of squash to make ten glasses of drink. How much squash would he need to make:
a) 6 glasses b) 38 glasses?
- 8 Twelve eggs cost £2.40. Find the cost of:
a) 7 eggs b) 20 eggs.
- 9 Fish costs £7 for 1 kg. Find the cost of:
a) 600 g b) 350 g.

C

- 1 Five cinema tickets cost £38. What is the cost of:
a) 4 tickets b) 11 tickets?
- 2 A cyclist rides 6 km in 15 minutes. Travelling at the same speed how long would it take her to cycle:
a) 5 km b) 19 km?
- 3 A farmer uses 96 m of wire to fence a 20 m length of field. How much wire will he need to fence a further:
a) 7 m b) 150 m?
- 4 Nine biscuits cost £1.08. Find the cost of:
a) 4 biscuits b) 30 biscuits.
- 5 Six litres of water runs from a tap in 30 seconds. At the same rate of flow how much water will run from the tap in:
a) 18 seconds b) 1 minute 20 seconds?
- 6 Sixteen bags of flour weigh 44 kg. Find the weight of:
a) 2 bags b) 50 bags.
- 7 £400 is worth 580 US dollars. At this exchange rate what is the value in dollars of:
a) £10 b) £30 000?
- 8 In 40 minutes Martin walks 3.6 km. Walking at the same speed how far would he walk in:
a) 2 minutes b) 1 hour 25 minutes?

