

Ratio and proportion problems

- 1 Whitney buys 6 cans of lemonade for £3

a) How much do 12 cans cost?

£6

b) How much do 3 cans cost?

£1.50

c) How much do 15 cans cost?

£7.50

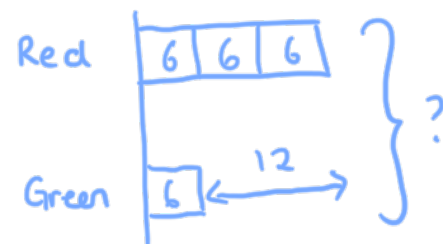


- 2 The ratio of red to green grapes in a bowl is 3:1

a) Explain what this means.

For every 3 red grapes there is 1 green grape.

b) There are 12 more red grapes than green grapes.
What is the total number of grapes in the bowl?



$$12 \div 2 = 6$$

$$4 \times 6 = 24$$

24

- 3 Amir is making some chocolate chip biscuits.

He has this list of ingredients to make 6 biscuits.

Chocolate chip biscuits (makes 6)

120 g butter

72 g sugar

180 g plain flour

60 g chocolate chips

a) How much of each ingredient does Amir need to make 2 biscuits?
 $6 \div 3 = 2$

butter $120 \div 3$
40 g

plain flour $180 \div 3$
60 g

sugar $72 \div 3$
24 g

chocolate chips $60 \div 3$
20 g

b) How much of each ingredient does Amir need to make 10 biscuits?
 $2 \times 5 = 10$

butter 40×5
200 g

plain flour 60×5
300 g

sugar 24×5
120 g

chocolate chips 20×5
100 g

c) Amir has 240 g of chocolate chips.

What is the maximum number of biscuits he can make?

60 g 6 biscuits
 240 g 24 biscuits

24

- 4 Dexter has some 20p and 50p coins in a jar.
For every three 20p coins he has one 50p coin.

There are 12 coins in the jar in total.

How much money is in the jar?

Handwritten solution for Question 4:

Diagram: A jar containing 9 boxes of 20p coins and 3 boxes of 50p coins. Total coins = 12.

Calculations:

$$12 \div 4 = 3$$

$$3 \times 3 = 9$$

$$9 \times 20p = £1.80$$

$$3 \times 50p = £1.50$$

$$£1.80 + £1.50 = £3.30$$

Answer: £3.30

- 5 A drink is made using 3 parts orange juice to 2 parts lemonade.
Esther makes 1.2 litres of this drink.

How much orange juice does she need?

Handwritten solution for Question 5:

Diagram: A drink made of 3 parts orange juice (O) and 2 parts lemonade (L). Total = 1,200 ml.

Calculations:

$$1,200 \div 5 = 240$$

$$3 \times 240 = 720$$

Answer: 720 ml

- 6 Two shops sell the same cereal but in different-sized boxes.

Shop A	Shop B
500 g of cornflakes £2.10	750 g of cornflakes £3.30

Which shop is better value for money? Shop A

Handwritten calculations for Question 6:

Shop A: 500g £2.10, 250g £1.05. $£2.10 \div 2 = £1.05$

Shop B: 750g £3.30, 250g £1.10. $£3.30 \div 3 = £1.10$

Since £1.05 < £1.10, Shop A is better value.

Explain why.

- 7 Dora draws two similar rectangles.

My larger rectangle is 4 times the size of the smaller one.

The perimeter of the larger rectangle is 48 cm.

The length and width of both rectangles are even numbers.

What is the largest possible area for the small rectangle?

Perimeter (larger) 48 cm $\div 4 = 12$

Perimeter (smaller) 12 cm



8 cm²

- 8 Aisha has two boxes of sweets.

- In the first box, the ratio of red sweets to green sweets is 3:1
- In the second box, for every 2 orange sweets there are 3 yellow sweets.
- There is the same number of sweets in each box.
- There are 12 yellow sweets in the second box.

How many sweets are in the first box?

Handwritten solution for Question 8:

1st box: R (red) and G (green) sweets. Ratio 3:1.

2nd box: O (orange) and Y (yellow) sweets. Ratio 2:3. Total 12 yellow sweets.

Calculations:

$$12 \div 3 = 4$$

$$5 \times 4 = 20$$

Answer: 20