

Ratio Problems

GCSE Maths · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Share £84 between Kai and Lena in the ratio 3 : 4.

Step 1 · Total parts

$$3 + 4 = 7$$

Step 2 · One part

$$£84 \div 7 = £12$$

Step 3 · Each share

$$\text{Kai } 3 \times £12 = £36, \text{ Lena } 4 \times £12 = £48$$

Answer: £36 and £48

Check: $£36 + £48 = £84$ and $36 : 48 = 3 : 4$ ✓

2. Now try one with the steps

The ratio of boys to girls in a club is 5 : 3. There are 12 more boys than girls. How many members are there?

Step 1 · The difference is $5 - 3 = 2$ parts

Step 2 · One part

Step 3 · Total = 8 parts

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Write 24 : 36 in its simplest form. [1]

2. Share £60 in the ratio 2 : 3. [2]

3. Two amounts are in the ratio 2 : 5. What fraction of the total is the first amount? [1]

4. Write 1.5 kg : 600 g in its simplest form. [2]

5. Share 120 sweets in the ratio 3 : 4 : 5. [2]

6. Paint is mixed blue : yellow = 3 : 2. Seb uses 12 litres of blue. How many litres of yellow does he need? [2]

7. Sara's and Tom's ages are in the ratio 4 : 7. Tom is 15 years older than Sara. How old are they? [3]

8. Write 3 : 8 in the form 1 : n. [1]

9. $a : b = 3 : 4$ and $b : c = 2 : 5$. Find $a : b : c$. [3]

10. A recipe for 4 people uses 300 g of flour. How many grams are needed for 10 people? [2]

11. In a class, $\frac{3}{8}$ of the pupils are boys. Write the ratio of boys to girls. [1]

12. $x : y = 2 : 7$ and $x + y = 54$. Find y . [2]

13. $x : y = 3 : 5$. Write y in terms of x . [2]

14. Counters are red : green = 4 : 7. After 10 red counters are added, the ratio is 6 : 7. How many green counters are there? [4]

15. $(x + 3) : (x - 1) = 5 : 3$. Find x . [3]

4. Before you hand it in

Share £84 in 3 : 4 → £84 ÷ 3 = £28 and £84 ÷ 4 = £21

Add the parts first: $3 + 4 = 7$ parts, so one part is £12. The shares are £36 and £48.

Boys : girls = 5 : 3 with 12 more boys → one part = 12 ÷ 8

The difference between the shares is $5 - 3 = 2$ parts, so 2 parts = 12 and one part = 6.

a : b = 2 : 3, b : c = 4 : 5 → a : b : c = 2 : 3 : 5

b must be the same number in both: scale to 8 : 12 and 12 : 15, giving 8 : 12 : 15.

1.5 kg : 600 g = 1.5 : 600

Convert to the same unit first: 1500 g : 600 g = 5 : 2.