Your notes

GCSE Maths: revision notes

Ratio

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Writing and simplifying ratios

- A **ratio** compares quantities. 3 : 2 means that for every 3 of the first, there are 2 of the second.
- Simplify by dividing both **parts** by their highest common factor: 12 : 18 = 2 : 3.
- Use the same units first: 50 cm : 2 m = 50 : 200 = 1 : 4.
- The form 1 : n divides both **parts** by the first **part**: 4 : 10 = 1 : 2.5.

Sharing in a ratio

- Add the **parts**, find one **part**, then multiply. Share £60 in the **ratio** 2 : 3: there are 5 parts, 1 part = £12, so the shares are £24 and £36.
- If you know one share: in the **ratio** 3 : 5 the smaller share is 12, so 1 **part** = 4 and the larger share is 20.
- If you know the difference: in the **ratio** 2 : 7 the difference is 35, so 5 **parts** = 35, 1 **part** = 7, and the numbers are 14 and 49.

Ratios and fractions

- In the **ratio** 2 : 3, the first **part** is 2/5 of the total and the second **part** is 3/5.
- If 3/8 of a class are boys, the **ratio** of boys to girls is 3 : 5.

Using ratios

- Recipes: a recipe for 4 people uses 300 g of flour, so for 6 people use 300 ÷ 4 × 6 = 450 g.
- Combining **ratios**: if a : b = 2 : 3 and b : c = 4 : 5, make the b **parts** the same: 8 : 12 and 12 : 15, so a : b : c = 8 : 12 : 15.

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Worked examples

Share £60 in the ratio 2 : 3

Add the parts. **2 + 3 = 5 parts**

Find one part. **£60 ÷ 5 = £12**

Multiply to find each share. **2 × £12 = £24 and 3 × £12 = £36**

Check: £24 + £36 = £60. ✓

Answer: £24 and £36

Sweets are shared between Ali and Bea in the ratio 3 : 5. Bea gets 12 more than Ali. How many sweets are there?

The difference between the shares is 5 – 3 = 2 parts. **2 parts = 12 sweets**

Find one part. **1 part = 6**

There are 3 + 5 = 8 parts altogether. **8 × 6 = 48**

Answer: 48 sweets

Key terms

Ratio	A comparison of two or more quantities, written with colons, such as 3 : 2.
Simplest form	A ratio whose parts have no common factor other than 1.
Part	One share of the total in a ratio problem.
Unit ratio	A ratio written as 1 : n or n : 1.
Equivalent ratios	Ratios that simplify to the same ratio, such as 2 : 3 and 8 : 12.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. Simplify 12 : 18.
2. Share £60 in the ratio 2 : 3.
3. Write 50 cm : 2 m in its simplest form.
4. Write 4 : 10 in the form 1 : n.
5. In the ratio 3 : 5, the smaller share is 12. What is the larger share?
6. Red and blue counters are in the ratio 2 : 3. What fraction of the counters are red?
7. 3/8 of a class are boys. What is the ratio of boys to girls?
8. A recipe for 4 people uses 300 g of flour. How much flour is needed for 6 people?

Answers

1. 2 : 3
2. £24 and £36

Your notes

3. 1 : 4
4. 1 : 2.5
5. 20
6. 2/5
7. 3 : 5
8. 450 g

What to do next

Practise 12 questions on this topic

Try 7 exam questions, with mark schemes

Read the lesson, one step at a time

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