

Ratios

This worksheet covers simplifying ratios, sharing a quantity in a given ratio, and solving various real-world problems involving ratios.

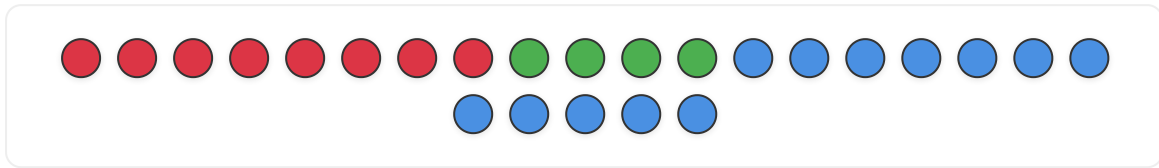
Simplifying Ratios

1. Write the following ratios in their simplest integer form:

- a. 10 : 15
- b. 8 : 24
- c. 12 : 30 : 6
- d. 150 g : 1 kg (Hint: Convert to the same unit first)

2. A box contains 12 red counters and 8 blue counters. Write the ratio of red counters to blue counters in its simplest form.

3. A bag contains coloured beads. Count the beads and write the ratio of **Red : Green : Blue** in its simplest form.



4. Simplify the following ratios, which involve fractions and decimals:

- a. $0.5 : 2$
- b. $\frac{1}{3} : \frac{1}{6}$
- c. $1.5 : 3.5$

Sharing in a Ratio

5. Share \$40 between Liam and Maya in the ratio 3 : 5. How much money does each person receive?

6. 120 tickets were sold for a concert. The ratio of adult tickets to child tickets sold was 5 : 3. How many child tickets were sold?

7. Three friends, Ana, Ben, and Chloe, share 28 sweets in the ratio 2 : 1 : 4 . How many sweets does Chloe receive?

Finding Unknown Quantities (Ratio Variations)

8. The ratio of liquid soap to water in a cleaning mixture is $2 : 9$. If the mixture contains 18 L of water, how many litres of liquid soap are in the mixture?

9. A farm has sheep and cows in the ratio $5 : 3$. If there are 45 cows on the farm, how many sheep are there?

10. An inheritance is shared between two siblings, A and B , in the ratio $7 : 4$. If sibling A receives \$2,100, what is the total amount of the inheritance?

11. The perimeter of a rectangle is 50 cm. The ratio of the length to the width is 3 : 2. Find the actual length and width of the rectangle.

12. Use the **Anzac Biscuit** recipe below to answer the questions:

Recipe for 18 Biscuits	
Rolled Oats	$1\frac{1}{2}$ cups
Flour	1 cup
Sugar	$\frac{1}{2}$ cup
Butter	125 g

- a. What is the ratio of Rolled Oats : Flour : Sugar (using cup measures only)?
Simplify the ratio.
- b. A cafe needs to make 90 biscuits for a lunch order. How many cups of Rolled Oats are needed?
- c. If a student only has 250 g of Butter, how many biscuits can they make?

13. Use the **Lemonade** recipe below to answer the questions:

Recipe for 5 Litres of Lemonade	
Lemon Juice	400 ml
Sugar Syrup	600 ml
Water	4,000 ml

- a. Write the ratio of Lemon Juice : Sugar Syrup : Water in its simplest integer form.
- b. A party requires 15 L of lemonade. How much Water and Lemon Juice is required?

14. Simplify the following algebraic ratios (find the HCF of the terms):

- a. $8x : 12x$
- b. $10a^2 : 5ab$
- c. $2\pi r^2 : 4\pi r$ (The ratio of a cylinder's base area to its curved surface area, when $h = 2r$)

