

# GRADE 6

# RATIO & PROPORTION

Complete Worksheet Pack

## What this pack covers

Ratios • Equivalent ratios • Ratio tables • Proportion • Unit rates • Sharing quantities  
• Scale • Real-life applications • Multi-step reasoning

6 practice worksheets + 6 separate answer-key pages

# Worksheet 1: Understanding Ratios & Equivalent Ratios

Show your working. Simplify ratios where appropriate and check that equivalent ratios use the same scale factor.

1. Write the ratio of 8 red counters to 12 blue counters in simplest form.
2. Simplify the ratio **18:30**.
3. Complete the equivalent ratio: **5:7 = 20:\_\_\_**.
4. Complete: **9:4 = \_\_\_:20**.
5. Are **12:18** and **8:12** equivalent? Explain.
6. A class has 14 boys and 21 girls. Write the ratio boys:girls in simplest form.
7. Divide 48 in the ratio **1:3**.
8. Give two different ratios equivalent to **4:9**.

# Answer Key 1

## Worksheet 1: Understanding Ratios & Equivalent Ratios — Answers

1. 2:3
2. 3:5
3. 28
4. 45
5. Yes; both simplify to 2:3
6. 2:3
7. 12 and 36
8. Examples: 8:18 and 12:27

Teacher note: Accept equivalent ratios and equivalent forms where mathematically correct.

## Worksheet 2: Ratio Tables & Missing Values

Show your working. Simplify ratios where appropriate and check that equivalent ratios use the same scale factor.

1. Complete the table: 3 red : 5 blue. If red = 6, blue = \_\_\_\_.
2. Complete: 4 notebooks cost \$12. At the same rate, 10 notebooks cost \$\_\_\_\_.
3. A recipe uses 2 cups rice for 3 cups water. Complete the table: rice 4 cups → water \_\_\_\_ cups.
4. The ratio of cats to dogs is 5:2. If there are 20 cats, how many dogs are there?
5. The ratio of boys:girls is 3:4. If there are 28 girls, how many boys are there?
6. A map scale uses 1 cm : 5 km. How far does 7 cm represent?
7. A mixture has juice:water = 2:5. If there are 15 L of water, how much juice is needed?
8. Find x: **7:9 = x:36**.

## Answer Key 2

### Worksheet 2: Ratio Tables & Missing Values — Answers

1. 10
2. \$30
3. 6 cups
4. 8 dogs
5. 21 boys
6. 35 km
7. 6 L
8. 28

Teacher note: Accept equivalent ratios and equivalent forms where mathematically correct.

## Worksheet 3: Proportion & Unit Rates

Show your working. Simplify ratios where appropriate and check that equivalent ratios use the same scale factor.

1. Are these in proportion: **3:5** and **12:20**?
2. Find x:  **$\frac{5}{8} = \frac{x}{40}$** .
3. Find x:  **$\frac{9}{12} = \frac{15}{x}$** .
4. 6 pens cost \$18. What is the cost of 1 pen?
5. At the same rate, what do 14 pens cost?
6. A car travels 180 km in 3 hours at a constant speed. How far does it travel in 5 hours?
7. 8 kg of apples cost \$24. What is the cost per kg?
8. A printer produces 45 pages in 3 minutes. At the same rate, how many pages in 8 minutes?

## Answer Key 3

### Worksheet 3: Proportion & Unit Rates — Answers

1. Yes; 3:5 simplifies to 3:5 and 12:20 to 3:5
2. 25
3. 20
4. \$3
5. \$42
6. 300 km
7. \$3/kg
8. 120 pages

Teacher note: Accept equivalent ratios and equivalent forms where mathematically correct.

## Worksheet 4: Sharing Quantities in a Given Ratio

Show your working. Simplify ratios where appropriate and check that equivalent ratios use the same scale factor.

1. Share 72 in the ratio **5:4**.
2. Share \$180 in the ratio **2:3**.
3. Two numbers are in the ratio 3:7 and total 80. Find both numbers.
4. A prize of \$450 is shared between A and B in the ratio 4:5. How much does each receive?
5. Divide 156 in the ratio **7:6**.
6. A garden has flowers and shrubs in the ratio 5:3. There are 64 plants altogether. How many are flowers?
7. Three friends share \$240 in the ratio 2:3:5. Find each share.
8. Two lengths are in the ratio 4:9. Their total is 91 cm. Find the lengths.

## Answer Key 4

### Worksheet 4: Sharing Quantities in a Given Ratio — Answers

1. 40 and 32
2. \$72 and \$108
3. 24 and 56
4. A \$200; B \$250
5. 84 and 72
6. 40 flowers
7. \$48, \$72, \$120
8. 28 cm and 63 cm

Teacher note: Accept equivalent ratios and equivalent forms where mathematically correct.

## Worksheet 5: Ratio & Proportion in Real Life

Show your working. Simplify ratios where appropriate and check that equivalent ratios use the same scale factor.

1. A sports drink is mixed in the ratio syrup:water = 1:4. How much water is needed for 3 L of syrup?
2. A classroom has 18 boys and 24 girls. What fraction of the class are boys?
3. A recipe for 8 people needs 600 g flour. How much flour is needed for 12 people?
4. A car uses 6 L of fuel for 72 km. At the same rate, how far can it travel on 15 L?
5. A photo is enlarged from 12 cm wide to 18 cm wide. If its height was 8 cm, what should the new height be to keep the same proportions?
6. A school buys 15 notebooks for \$45. How much would 28 notebooks cost at the same rate?
7. On a map, 4 cm represents 18 km. Two towns are 7 cm apart on the map. What is their actual distance?
8. A paint mixture uses blue:white = 3:5. If 20 L of white paint are used, how much blue paint is needed?

## Answer Key 5

### Worksheet 5: Ratio & Proportion in Real Life — Answers

1. 12 L water
2.  $\frac{3}{7}$
3. 900 g
4. 180 km
5. 12 cm
6. \$84
7. 31.5 km
8. 12 L

Teacher note: Accept equivalent ratios and equivalent forms where mathematically correct.

## Worksheet 6: Ratio & Proportion Reasoning Challenge

Show your working. Simplify ratios where appropriate and check that equivalent ratios use the same scale factor.

1. Two numbers are in the ratio 5:8. Their difference is 21. Find the numbers.
2. A ratio is 4:7. If both terms are increased by the same amount, the ratio becomes 3:5. Find the amount added.
3. A bag contains red and blue beads in the ratio 3:5. After adding 12 red beads, the ratio becomes 3:4. How many red and blue beads were there originally?
4. Three quantities are in the ratio 2:3:4 and total 180. Find all three.
5. A recipe uses flour:sugar = 5:2. If 350 g flour is used, how much sugar is needed?
6. A map has scale 1:50,000. What real distance does 6 cm represent in kilometres?
7. A class has boys:girls = 4:5. If 6 more boys join, the ratio becomes 1:1. How many boys and girls were there originally?
8. Two similar rectangles have widths 6 cm and 10 cm. The smaller has height 4.5 cm. Find the height of the larger rectangle.

## Answer Key 6

### Worksheet 6: Ratio & Proportion Reasoning Challenge — Answers

1. 35 and 56
2.  $\frac{1}{2}$  (because  $(4+x)/(7+x)=3/5$  gives  $x=1/2$ ).
3. 36 red and 60 blue
4. 40, 60, 80
5. 140 g
6. 3 km
7. 24 boys and 30 girls
8. 7.5 cm

Teacher note: Accept equivalent ratios and equivalent forms where mathematically correct.