GRADE 7 MATHEMATICS

# Ratio, Proportion & Rates

## Complete Printable Worksheet Pack

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| **Includes** | 6 Practice Worksheets + 6 Answer Keys |
| **Skills** | Ratios • Sharing • Unit Rates • Proportion • Scale • Real-Life Reasoning |
| **Level** | Grade 7 / International Curriculum Friendly |
| **Format** | A4 • Print Ready |

Show your working • Use units • Check whether your answers are reasonable

# Worksheet 1 — Ratios & Equivalent Ratios

Name: _____ Date: _____

*Instructions: Read each question carefully. Show your working clearly and use units where appropriate.*

**1.** Simplify the ratio 42:56.

**2.** Write an equivalent ratio to 5:8 with the second term 40.

**3.** Complete: 7:9 = 35: __.

**4.** Complete: __:24 = 5:8.

**5.** A class has 18 girls and 12 boys. Write the ratio girls:boys in simplest form.

**6.** The ratio red beads:blue beads is 3:5. If there are 45 blue beads, how many red beads are there?

**7.** A map uses the scale 1 cm : 6 km. What distance does 7.5 cm represent?

**8.** Two quantities are in the ratio 4:7 and their total is 88. Find both quantities.

**9.** The ratio of cats to dogs at a shelter is 5:3. There are 64 animals altogether. How many cats and dogs are there?

**10.** A recipe uses flour:sugar = 7:2. If 450 g of flour is used, how much sugar is needed?

Show your working clearly. Check that each answer is reasonable.

# Answer Key — Worksheet 1

*Check your method as well as your final answer.*

**1.** 3:4

**2.** 25:40

**3.** 45

**4.** 15

**5.** 3:2

**6.** 27 red beads

**7.** 45 km

**8.** 32 and 56

**9.** 40 cats and 24 dogs

**10.** 128 4/7 g sugar (about 128.6 g)

# Worksheet 2 — Simplifying & Sharing in a Ratio

Name: _____ Date: _____

*Instructions: Read each question carefully. Show your working clearly and use units where appropriate.*

**1.** Simplify 84:126.

**2.** Simplify 144:96.

**3.** Share $180 in the ratio 2:3.

**4.** Share 420 points between A and B in the ratio 5:2.

**5.** Divide 96 sweets between three children in the ratio 2:3:7.

**6.** A 72 cm ribbon is cut in the ratio 5:7. Find the two lengths.

**7.** A school has 360 students in Years 7 and 8. The ratio Year 7:Year 8 is 4:5. How many students are in each year?

**8.** A paint mixture uses blue:white in the ratio 3:7. How much white paint is needed if 240 mL of blue paint is used?

**9.** Two numbers are in the ratio 7:11 and differ by 36. Find the numbers.

**10.** A prize fund of $1,260 is shared among three winners in the ratio 2:3:4. Find each share.

Show your working clearly. Check that each answer is reasonable.

# Answer Key — Worksheet 2

*Check your method as well as your final answer.*

**1.** 2:3

**2.** 3:2

**3.** $72 and $108

**4.** 300 and 120

**5.** 16, 24, 56

**6.** 30 cm and 42 cm

**7.** Year 7 = 160; Year 8 = 200

**8.** 560 mL

**9.** 63 and 99

**10.** $280, $420, $560

# Worksheet 3 — Rates & Unit Rates

Name: _____ Date: _____

*Instructions: Read each question carefully. Show your working clearly and use units where appropriate.*

**1.** A car travels 240 km in 3 hours. Find its average speed.

**2.** 6 notebooks cost $15. What is the cost per notebook.

**3.** A tap fills 18 litres in 4 minutes. Find the rate in litres per minute.

**4.** A cyclist travels 42 km in 2.5 hours. Find the average speed.

**5.** A 750 g bag of rice costs $2.70. Find the price per kilogram.

**6.** A printer produces 420 pages in 7 minutes. How many pages per minute?

**7.** A train travels 315 km in 3.5 hours. Find its average speed.

**8.** Store A sells 8 pens for $6.40. Store B sells 12 pens for $9.00. Which store has the lower unit price, and by how much per pen?

**9.** A machine makes 1,260 parts in 9 hours. At the same rate, how many parts will it make in 14 hours?

**10.** A runner completes 5 km in 24 minutes. At the same average pace, approximately how long will 12.5 km take?

Show your working clearly. Check that each answer is reasonable.

# Answer Key — Worksheet 3

*Check your method as well as your final answer.*

**1.** 80 km/h

**2.** $2.50

**3.** 4.5 L/min

**4.** 16.8 km/h

**5.** $3.60/kg

**6.** 60 pages/min

**7.** 90 km/h

**8.** Store B; $0.05 less per pen

**9.** 1,960 parts

**10.** 60 minutes

# Worksheet 4 — Proportion & Scale

Name: _____ Date: _____

*Instructions: Read each question carefully. Show your working clearly and use units where appropriate.*

**1.** If 5 kg of apples cost $14, what will 8 kg cost at the same rate.

**2.** A model car has a scale of 1:20. If the model is 18 cm long, how long is the real car.

**3.** On a map, 4 cm represents 30 km. What real distance is represented by 9.6 cm.

**4.** A recipe for 6 people needs 450 g of rice. How much rice is needed for 14 people.

**5.** A photograph is enlarged from 12 cm wide to 18 cm wide. If its original height is 8 cm, what is the new height.

**6.** A blueprint uses 1 cm : 2.5 m. A wall measures 7.2 cm on the blueprint. Find its real length.

**7.** 9 workers can complete a job in 12 days at the same rate. How many worker-days does the job require.

**8.** At the same rate, 6 workers take 15 days. How many days would 10 workers take.

**9.** A map scale is 1:50,000. Two towns are 7.4 cm apart on the map. Find the real distance in kilometres.

**10.** A mixture is made using concentrate:water = 2:7. How much total drink can be made from 1.2 L of concentrate.

Show your working clearly. Check that each answer is reasonable.

# Answer Key — Worksheet 4

*Check your method as well as your final answer.*

**1.** $22.40

**2.** 360 cm = 3.6 m

**3.** 72 km

**4.** 1,050 g

**5.** 12 cm

**6.** 18 m

**7.** 108 worker-days

**8.** 9 days

**9.** 3.7 km

**10.** 5.4 L

# Worksheet 5 — Real-Life Ratio & Rate Problems

Name: _____ Date: _____

*Instructions: Read each question carefully. Show your working clearly and use units where appropriate.*

**1.** A family drives 270 km using 18 L of fuel. Find the fuel efficiency in km/L.

**2.** A school orders 15 boxes containing 24 pencils each. The pencils are shared equally among 18 classes. How many pencils does each class receive?

**3.** A sports drink is mixed in the ratio concentrate:water = 1:5. How much water is needed to make 9 L of drink?

**4.** A shop marks up an item by using a price ratio cost:selling = 5:7. If the cost is $45, find the selling price.

**5.** A recipe serves 8 people using 600 g of vegetables. How many grams are needed for 14 people?

**6.** A delivery van travels 168 km in 2 hours 24 minutes. Find its average speed in km/h.

**7.** A school trip has adults:students = 1:12. There are 156 students. How many adults are needed?

**8.** A phone plan gives 18 GB of data for $27. Another gives 25 GB for $35. Which has the lower cost per GB, and what is the difference per GB?

**9.** A tank is filled at 12 L/min for 18 minutes, then 45 L is used. How much water remains?

**10.** A map journey consists of 3.5 cm, 5.2 cm and 2.8 cm. The scale is 1 cm:4 km. Find the total journey distance.

Show your working clearly. Check that each answer is reasonable.

# Answer Key — Worksheet 5

*Check your method as well as your final answer.*

**1.** 15 km/L

**2.** 20 pencils per class

**3.** 7.5 L water

**4.** $63

**5.** 1,050 g

**6.** 70 km/h

**7.** 13 adults

**8.** $35 plan; difference $0.05/GB

**9.** 171 L

**10.** 46 km

# Worksheet 6 — Ratio, Proportion & Rates Challenge

Name: _____ Date: _____

*Instructions: Read each question carefully. Show your working clearly and use units where appropriate.*

**1.** The ratio A:B is 3:5 and B:C is 10:7. Find A:B:C in simplest whole-number form.

**2.** A quantity is increased in the ratio 5:7. The new value is 84. Find the original value.

**3.** A journey is completed at 72 km/h and takes 2 h 30 min. How long would the same journey take at 90 km/h?

**4.** A school has boys:girls = 7:9. After 24 boys join, the ratio becomes 5:6. Find the original numbers of boys and girls.

**5.** A recipe uses flour:sugar:butter = 5:2:3. The total mixture is 1.5 kg. Find the mass of each ingredient.

**6.** A car uses 7.5 L of fuel per 100 km. How much fuel is needed for a 420 km journey? If fuel costs $1.80/L, find the cost.

**7.** A map scale is 1:25,000. A hiking route measures 14.8 cm on the map. The hiker walks at 4.5 km/h. How long will the route take, ignoring stops?

**8.** Two numbers are in the ratio 4:9. If 7 is added to each number, the new ratio is 3:5. Find the original numbers.

**9.** A machine produces 840 items in 7 hours. It then works at 120% of its original rate for 3 hours. How many items are produced altogether?

**10.** A quantity is divided among A, B and C in the ratio 2:5:7. B receives 180 more than A. Find the total quantity and C's share.

Show your working clearly. Check that each answer is reasonable.

# Answer Key — Worksheet 6

*Check your method as well as your final answer.*

**1.** 6:10:7

**2.** 60

**3.** 2 hours

**4.** 336 boys and 432 girls **(corrected)**

**5.** Flour 750 g, sugar 300 g, butter 450 g

**6.** 31.5 L; $56.70

**7.** 3.7 km; about 49 min 20 sec

**8.** 8 and 18 **(corrected)**

**9.** 1,272 items **(corrected)**

**10.** Total 840; C = 420 **(corrected)**