

Ratios

Fractions, Decimals & % · Grade 6

Score: _____ / 10

★ Hard · 10 Questions

Solve each problem. Show your work in the space provided. Write your answer on the line.

- Two cyclists start from the same point. One rides at 15 km/h, the other at 20 km/h. After 3 hours, what is the ratio of their distances?

Answer: _____

- Gold alloy contains gold and silver in ratio 5:1. A ring weighs 18 g. How many grams of gold does it contain?

Answer: _____

3. The ratio of teachers to students is 1:25. If there are 750 students, how many teachers are there?

Answer: _____

4. On a blueprint, 2 cm represents 3 m. A wall is 7.5 m long. How long is it on the blueprint?

Answer: _____

5. A car travels at 60 mph and a train at 90 mph. They leave the same station at the same time. After 2 hours, what is the ratio of the distance traveled by the car to the train?

Answer: _____

6. If the ratio of boys to girls in a school is 7:5 and there are 360 students, how many boys and girls are there?

Answer: _____

7. A solution is 40% acid. How many ml of acid are in 250 ml of solution?

Answer: _____

8. Two gears have teeth in ratio 4:3. If the smaller gear rotates 60 times, how many times does the larger gear rotate?

Answer: _____

9. In a poll, 3 out of every 5 students prefer math over science. If 120 students prefer math, how many students were polled?

Answer: _____

10. Two numbers are in ratio 7:9. If the larger number is increased by 10, the new ratio is 7:10. Find the original numbers.

Answer: _____

Answer Key

Ratios — Hard

1. 3:4

Cyclist 1: $15 \times 3 = 45$ km. Cyclist 2: $20 \times 3 = 60$ km. Ratio: $45:60 = 3:4$.

2. 15 g

Total parts = $5+1=6$. Each part = $18 \div 6 = 3$ g. Gold = $5 \times 3 = 15$ g.

3. 30 teachers

$1:25 = t:750$. $t = 750 \div 25 = 30$.

4. 5 cm

Scale: $2/3 = x/7.5$. $x = (2 \times 7.5) \div 3 = 15 \div 3 = 5$ cm.

5. 2:3

Car: $60 \times 2 = 120$ miles. Train: $90 \times 2 = 180$ miles. Ratio: $120:180 = 2:3$.

6. 210 boys, 150 girls

Parts: $7+5=12$. Each part = $360 \div 12 = 30$. Boys: $7 \times 30 = 210$. Girls: $5 \times 30 = 150$.

7. 100 ml

40% of 250 = $0.40 \times 250 = 100$ ml.

8. 45 times

More teeth = fewer rotations (inverse). Larger:Smaller rotations = $3:4$. Larger = $(3 \times 60) \div 4 = 45$.

9. 200 students

$3:5 = 120:\text{total}$. Total = $(120 \times 5) \div 3 = 200$.

10. 70 and 90

Let numbers be $7k$ and $9k$. New: $7k:(9k+10)=7:10 \rightarrow 70k=63k+70 \rightarrow 7k=70 \rightarrow k=10$. Numbers: 70, 90.