

**AcumenTeach**

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11+ MATHEMATICS

Ratio and Proportion Worksheet

Free practice · 10 questions · Answers and worked solutions included

Name	
Date	
Score	/ 10

Instructions

1. Choose one answer, A, B, C or D, for each question.
2. Show your working on the lines under each question.
3. No calculator. Take your time: this is practice, not a timed test.
4. Check your answers with the worked solutions at the back.

Question 1

Write $24 : 36$ in its simplest form.

A $2 : 3$ **B** $3 : 4$ **C** $4 : 5$ **D** $3 : 2$ **Question 2**

Share £90 in the ratio $2 : 3$. What is the smaller share?

A £30**B** £36**C** £45**D** £54**Question 3**

A recipe uses 4 eggs to make 12 cakes. How many eggs are needed for 30 cakes?

A 8**B** 10**C** 12**D** 14

Question 4

The ratio of boys to girls is 3 : 4. There are 28 girls. How many boys are there?

A 18**B** 21**C** 24**D** 49**Question 5**

5 pens cost £3.40. How much do 8 pens cost?

A £5.04**B** £5.44**C** £5.60**D** £6.80**Question 6**

A map has a scale of 1 : 50,000. Two towns are 4 cm apart on the map. How far apart are they in real life?

A 0.2 km**B** 2 km**C** 20 km**D** 200 km

Question 7

Paint is mixed in the ratio red : white = 2 : 7. There are 63 litres altogether. How much red paint is there?

A 9 litres**B** 14 litres**C** 18 litres**D** 49 litres**Question 8**

Three children share 60 sweets in the ratio 1 : 2 : 3. How many sweets does the largest share get?

A 20**B** 25**C** 30**D** 36**Question 9**

6 workers take 10 days to build a wall. How long would 4 workers take, working at the same rate?

A 8 days**B** 12 days**C** 15 days**D** 16 days

Question 10

The ratio of cats to dogs is 5 : 2. There are 15 more cats than dogs. How many animals are there altogether?

A 21**B** 30**C** 35**D** 50

Answers and Worked Solutions

For parents and tutors. Award 1 mark for each correct answer.

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	B	3	B	4	B	5	B
6	B	7	B	8	C	9	C	10	C

Diagram colour key

- Given in the question
 Worked out
 Groups and matching parts
 Final answer

Question 1

Core

Write $24 : 36$ in its simplest form.

A $2 : 3$ B $3 : 4$ C $4 : 5$ D $3 : 2$

Step	What to do	Working
1	Find the highest common factor	HCF of 24 and 36 = 12
2	Divide both parts by 12	$2 : 3$
✓	Answer	A = $2 : 3$

Watch out: Writing the parts in the wrong order ($3 : 2$).

Question 2**Core**

Share £90 in the ratio 2 : 3. What is the smaller share?

A £30 B £36 C £45 D £54

Step	What to do	Working
1	Total parts	$2 + 3 = 5$
2	Value of one part	$£90 \div 5 = £18$
3	Smaller share (2 parts)	$2 \times £18 = £36$
✓	Answer	B = £36

£90 shared 2 : 3 → 5 parts

Smaller share

£18	£18
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 = £36

Larger share

£18	£18	£18
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 = £54

$£90 \div 5 = £18$ per part

Watch out: Giving the larger share (£54).

Question 3**Stretch**

A recipe uses 4 eggs to make 12 cakes. How many eggs are needed for 30 cakes?

A 8 B 10 C 12 D 14

Step	What to do	Working
1	Cakes per egg	$12 \div 4 = 3$ cakes per egg
2	Eggs for 30 cakes	$30 \div 3 = 10$
✓	Answer	B = 10

Watch out: Adding 18 cakes means adding 18 eggs, or similar adding errors.

Question 4**Core**

The ratio of boys to girls is 3 : 4. There are 28 girls. How many boys are there?

A 18 B 21 C 24 D 49

Step	What to do	Working
1	4 parts = 28 girls	1 part = 7
2	Boys = 3 parts	$3 \times 7 = 21$
✓	Answer	B = 21

Watch out: Giving the total number of children (49).

Question 5**Stretch**

5 pens cost £3.40. How much do 8 pens cost?

A £5.04 B £5.44 C £5.60 D £6.80

Step	What to do	Working
1	Cost of one pen	$£3.40 \div 5 = 68p$
2	Cost of 8 pens	$68p \times 8 = £5.44$
✓	Answer	B = £5.44

Watch out: Rounding one pen to 70p (£5.60).

Question 6**Challenge**

A map has a scale of 1 : 50,000. Two towns are 4 cm apart on the map. How far apart are they in real life?

A 0.2 km B 2 km C 20 km D 200 km

Step	What to do	Working
1	Multiply by the scale	$4 \times 50,000 = 200,000 \text{ cm}$
2	Centimetres to metres	$200,000 \div 100 = 2,000 \text{ m}$
3	Metres to kilometres	$2,000 \div 1,000 = 2 \text{ km}$
✓	Answer	B = 2 km

Watch out: Converting centimetres straight to kilometres by dividing by 1,000 (200 km).

Question 7**Stretch**

Paint is mixed in the ratio red : white = 2 : 7. There are 63 litres altogether. How much red paint is there?

A 9 litres B 14 litres C 18 litres D 49 litres

Step	What to do	Working
1	Total parts	$2 + 7 = 9$
2	One part	$63 \div 9 = 7$ litres
3	Red (2 parts)	$2 \times 7 = 14$ litres
✓	Answer	B = 14 litres

Watch out: Dividing 63 by 7 only (9 litres).

Question 8**Stretch**

Three children share 60 sweets in the ratio 1 : 2 : 3. How many sweets does the largest share get?

A 20 B 25 C 30 D 36

Step	What to do	Working
1	Total parts	$1 + 2 + 3 = 6$
2	One part	$60 \div 6 = 10$
3	Largest share (3 parts)	$3 \times 10 = 30$
✓	Answer	C = 30

Watch out: Dividing 60 by 3 children (20).

Question 9**Challenge**

6 workers take 10 days to build a wall. How long would 4 workers take, working at the same rate?

A 8 days B 12 days C 15 days D 16 days

Step	What to do	Working
1	Total work in worker-days	$6 \times 10 = 60$
2	Share between 4 workers	$60 \div 4 = 15$ days
✓	Answer	C = 15 days

Watch out: Thinking fewer workers means fewer days (direct instead of inverse proportion).

Question 10**Challenge**

The ratio of cats to dogs is 5 : 2. There are 15 more cats than dogs. How many animals are there altogether?

A 21 B 30 C 35 D 50

Step	What to do	Working
1	Difference in parts	$5 - 2 = 3$ parts
2	One part	$15 \div 3 = 5$
3	Total parts $\times$ one part	$7 \times 5 = 35$
✓	Answer	C = 35

Watch out: Treating 15 as one part (7×15).

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