Ratio: exam questions

10 questions · 31 marks · mark schemes at the end

Name _____ Date _____ Score / 31

- Calculators are allowed on both 4MA1 Higher papers (1H and 2H). Show your working: most marks are for method.
- Mark schemes start after the questions. M marks are for a correct method, A marks for an accurate answer that follows a correct method, and B marks for a correct result on its own.
- Online, with more practice: igcsemathrevision.com/igcse-frontend/4ma1/exam-questions/ratio

1. **2 marks**

Share £480 in the ratio $3 : 5 : 4$.

2. **2 marks**

$a : b = 2 : 3$ and $b : c = 4 : 5$.

Find $a : b : c$. Give your answer in its simplest form.

3. **3 marks**

A bag holds red counters and blue counters in the ratio $4 : 7$. There are 21 more blue counters than red counters.

How many counters are in the bag?

4. **4 marks**

In a club the ratio of boys to girls is $5 : 7$.

(a) What fraction of the club are girls? **(1)**

4 more boys join the club. The numbers of boys and girls are now equal.

(b) How many people were in the club before the 4 boys joined? **(3)**

5. **4 marks**

A recipe uses 300 g of flour to make 12 biscuits.

(a) How much flour is needed for 30 biscuits? **(2)**

(b) Ruby has 2 kg of flour. What is the greatest number of biscuits she can make? **(2)**

6. **3 marks**

$(x + 3) : (2x - 1) = 4 : 5$

Find the value of x.

7. **3 marks**

Green paint is made by mixing blue paint and yellow paint in the ratio $2 : 3$.

Ali has 1.2 litres of blue paint and 2 litres of yellow paint.

What is the greatest amount of green paint he can make?

8. **3 marks**

Ann, Ben and Cara share a profit in the ratio $2 : 3 : 7$. Cara gets £1500 more than Ann.

Work out the total profit.

9. **3 marks**

A jar holds only 5p coins and 10p coins. The ratio of the number of 5p coins to the number of 10p coins is $3 : 2$. The total value of the coins is £4.90.

How many 5p coins are in the jar?

10. **4 marks**

A map has a scale of $1 : 25\,000$.

(a) Two churches are 6.4 cm apart on the map. Work out the real distance between them in kilometres. **(2)**

(b) A lake has an area of 3 cm² on the map. Work out its real area in km². **(2)**

Answers and worked solutions

Question 1 — 2 marks

M1 $480 \div 12 = 40$

A1 £120, £200, £160

Answer: £120, £200, £160

Question 2 — 2 marks

M1 $8 : 12$ and $12 : 15$

A1 $8 : 12 : 15$

Answer: $8 : 12 : 15$

Question 3 — 3 marks

M1 $7 - 4 = 3$ parts

M1 $21 \div 3 = 7$ counters per part

A1 77

Answer: 77

Question 4 — 4 marks

(a)

B1 $\dfrac{7}{12}$

(b)

M1 $5k + 4 = 7k$

A1 $k = 2$

A1 $12 \times 2 = 24$

Answer: (a) $\dfrac{7}{12}$; (b) 24

Question 5 — 4 marks

(a)

M1 $300 \div 12 = 25\ g$ per biscuit

A1 750 g

(b)

M1 $2000 \div 25$

A1 80

Answer: (a) 750 g; (b) 80

Question 6 — 3 marks

M1 $5(x + 3) = 4(2x - 1)$

M1 $5x + 15 = 8x - 4$

A1 $x = \dfrac{19}{3}$

Answer: $x = \dfrac{19}{3}$

Question 7 — 3 marks

M1 blue needs $1.2 \div 2 = 0.6$ per part, so $0.6 \times 3 = 1.8$ litres of yellow (he has enough)

M1 $1.2 + 1.8$

A1 3 litres

Answer: 3 litres

Question 8 — 3 marks

M1 $7 - 2 = 5$ parts is £1500

M1 £300 per part

A1 $12 \times 300 =$ £3600

Answer: £3600

Question 9 — 3 marks

M1 one "set" of 3 five-pence coins and 2 ten-pence coins is worth $15 + 20 = 35p$

M1 $490 \div 35 = 14$

A1 $3 \times 14 = 42$

Answer: 42

Question 10 — 4 marks

(a)

M1 $6.4 \times 25\,000 = 160\,000$ cm

A1 1.6 km

(b)

M1 $3 \times 25\,000^2\ \text{cm}^2$ or $3 \times 0.25^2\ \text{km}^2$ (1 cm on the map is 0.25 km)

A1 $0.1875\ \text{km}^2$

Answer: (a) 1.6 km; (b) $0.1875\ \text{km}^2$

Online, with every solution: igcsemathrevision.com/igcse-frontend/4ma1/exam-questions/ratio
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