

# QT Simplifying Ratio



1. Write the ratio 250cm to 750cm in its simplest form

(1 mark)

$$\begin{aligned} &\div 5 (250 : 750) \div 5 \\ &\div 5 (50 : 150) \div 5 \\ &1 : 3 \end{aligned}$$

2. Write the ratio 64 : 48 in its simplest form.

(1 mark)

$$\begin{aligned} &\div 8 (64 : 48) \div 8 \\ &\div 2 (8 : 6) \div 2 \\ &4 : 3 \end{aligned}$$

3. Write the ratio 10 days to 2 weeks in its simplest form

(1 mark)

$$\begin{aligned} &\div 2 (10 : 14) \div 2 \\ &5 : 7 \end{aligned}$$

4. Write the ratio 350 : 25 in its simplest form.

(1 mark)

$$\begin{aligned} &\div 5 (350 : 25) \div 5 \\ &\div 5 (70 : 5) \div 5 \\ &14 : 1 \end{aligned}$$

5. (a) Write the ratio 8 : 16 in the form 1 : n

(1 mark)

(b) Write the ratio 4 : 10 in the form 1 : n

(1 mark)

(c) Write the ratio 21 : 40 in the form 1 : n

(1 mark)

$$\frac{21}{40} = \frac{21}{20} = 2\frac{1}{20}$$

$$\begin{aligned} &\div 8 (8 : 16) \div 8 \quad \div 4 (4 : 10) \div 4 \quad \div 4 (21 : 40) \div 4 \\ &1 : 2 \quad 1 : 2.5 \quad 1 : \frac{10}{4} \\ &1 : 2.5 \quad 1 : 2.5 \end{aligned}$$

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6. (a) Write the ratio 4 : 8 in the form  $n : 1$  (1 mark)  
 (b) Write the ratio 9 : 2 in the form  $n : 1$  (1 mark)  
 (c) Write the ratio 13 : 3 in the form  $n : 1$  (1 mark)

$$\begin{array}{l} \div 8 \quad (4 : 8) \div 8 \\ \quad \quad \frac{4}{8} : 1 \\ \quad \quad \frac{1}{2} : 1 \\ \quad \quad 0.5 : 1 \end{array} \quad \begin{array}{l} \div 2 \quad (9 : 2) \div 2 \\ \quad \quad \frac{9}{2} : 1 \\ \quad \quad 4.5 : 1 \end{array} \quad \begin{array}{l} \div 3 \quad (13 : 3) \div 3 \\ \quad \quad \frac{13}{3} : 1 \\ \quad \quad 4\frac{1}{3} : 1 \\ \quad \quad 4.\bar{3} : 1 \end{array}$$

7. There are milk and plain chocolates in a gift box.  $\frac{1}{4}$  of the chocolates are milk chocolates. Write the ratio of milk chocolates to plain chocolates. (1 mark)

$$\begin{array}{l} \text{milk} : \text{plain} \\ \frac{1}{4} : \frac{3}{4} \\ 1 : 3 \end{array}$$

8. There are some counters in a bag.  $\frac{1}{4}$  of the counters are green. The rest of the counters are blue. Write the ratio of the number of green counters to the number of blue counters. Give your answer in the form  $1 : n$ . (2 marks)

$$\begin{array}{l} \text{G} : \text{B} \\ \frac{1}{4} : \frac{3}{4} \\ 1 : 3 \end{array}$$

9. At a hockey match there are 2200 men and 1800 women. Write the ratio of male fans to female fans. Give your answer in its simplest form. (2 marks)

$$\begin{array}{l} \text{M} : \text{W} \\ 2200 : 1800 \\ \div 100 \quad (22 : 18) \div 100 \\ \div 2 \quad (11 : 9) \div 2 \end{array}$$

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10. There are green crayons, blue crayons and yellow crayons in a pack. There are three times as many green crayons as blue crayons. There are five times as many yellow crayons as blue crayons.

Write the ratio of green crayons to blue crayons to yellow crayons.

(2 marks)

$$\begin{array}{l} G : B : Y \\ 3 : 1 : 5 \end{array}$$

11. In a tin of biscuits there are wafers, chocolate and plain biscuits. The number of chocolate biscuits is five times the number of wafers. The number of plain biscuits is half the number of chocolate biscuits. Write down the ratio of wafer biscuits to chocolate biscuits to plain biscuits. Give your answer in the form  $a : b : c$  where  $a$ ,  $b$  and  $c$  are whole numbers.

(2 marks)

$$\begin{array}{l} W : C : P \\ 1 : 5 : 2.5 \\ 2 : 10 : 5 \end{array}$$

12. In a bag there are red sweets, blue sweets and green sweets. The number of red sweets is three times the number of blue sweets. The number of green sweets is half the number of blue sweets.

Simon says the percentage of red sweets is 60%. Is Simon correct?

You must show your working.

(2 marks)

$$\begin{array}{l} R : B : G \\ 3 : 1 : \frac{1}{2} (0.5) \\ \times 2 \left( \begin{array}{l} 3 : 1 : \frac{1}{2} (0.5) \\ 6 : 2 : 1 \end{array} \right) \times 2 \end{array}$$

$$\frac{6}{9} = \frac{2}{3} = 66.6\% \quad \text{Simon is incorrect}$$

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13. (a) Divide £60 in the ratio 2 : 3

(2 marks)

(b) Divide £600 in the ratio 2 : 3 : 5

(2 marks)

$$\begin{array}{l} 2 : 3 \\ 24 : 36 \end{array} \quad \begin{array}{l} 5 \\ 60 \end{array} \Big) \times 12$$

$$\pounds 24 : \pounds 36$$

$$\begin{array}{l} 2 : 3 : 5 \\ 120 : 180 : 300 \end{array} \quad \begin{array}{l} 10 \\ 600 \end{array} \Big) \times 60$$

$$\pounds 120 : \pounds 180 : \pounds 300$$

14. Lauren is making a cake. The instructions say that the ratio of sugar to flour is 1 : 5.

Lauren uses 75g of sugar and 350g flour. Has Lauren used the correct ratio of sugar and flour?

(2 marks)

$$\begin{array}{l} \text{Sugar : Flour} \\ 1 : 5 \\ \times 75 ( \quad ) \times 75 \\ 75 : 375 \end{array}$$

Not the correct amount - should be 375g.

15. A school is planning some trips. For every group there must be 1 teacher to 16 students.

Which of these trips can go ahead as planned?

(3 marks)

	University ✓	Museum ✓	Factory Visit ✗	Apprentice Event ✓
Number of students	80	48	126	96
Number of teachers	5	3	7	6

$$\begin{array}{l} \text{University} \\ T : S \\ 5 : 80 \\ \div 5 ( \quad ) \div 5 \\ 1 : 16 \end{array} \quad \begin{array}{l} \text{Museum} \\ 3 : 48 \\ \div 3 ( \quad ) \div 3 \\ 1 : 16 \end{array} \quad \begin{array}{l} \text{Factory} \\ 7 : 126 \\ \div 7 ( \quad ) \div 7 \\ 1 : 18 \end{array} \quad \begin{array}{l} \text{Apprentice} \\ 6 : 96 \\ \div 6 ( \quad ) \div 6 \\ 1 : 16 \end{array}$$