



Writing/Simplifying Ratio



REVISE THIS
TOPIC

1 Simplify fully $18 : 10$



$$\div 2 \left(\begin{array}{c} 18 : 10 \\ 9 : 5 \end{array} \right) \div 2$$

$$9 : 5$$

(Total for Question 1 is 1 mark)

2 Simplify fully $20 : 8$



$$\begin{array}{l} \div 2 \left(\begin{array}{c} 20 : 8 \\ 10 : 4 \end{array} \right) \div 2 \\ \div 2 \left(\begin{array}{c} 10 : 4 \\ 5 : 2 \end{array} \right) \div 2 \end{array}$$

$$5 : 2$$

(Total for Question 2 is 1 mark)

3 Simplify fully $12 : 18$



$$\begin{array}{l} \div 2 \left(\begin{array}{c} 12 : 18 \\ 6 : 9 \end{array} \right) \div 2 \\ \div 3 \left(\begin{array}{c} 6 : 9 \\ 2 : 3 \end{array} \right) \div 3 \end{array}$$

$$2 : 3$$

(Total for Question 3 is 1 mark)



4 Simplify fully 15 : 35



$$\begin{array}{ccc} \div 5 \swarrow & 15 : 35 & \searrow \div 5 \\ & 3 : 7 & \end{array}$$

$$3 : 7$$

(Total for Question 4 is 1 mark)

5 Simplify fully 27 : 45



$$\begin{array}{ccc} \div 3 \swarrow & 27 : 45 & \searrow \div 3 \\ \div 3 \swarrow & 9 : 15 & \searrow \div 3 \\ & 3 : 5 & \end{array}$$

$$3 : 5$$

(Total for Question 5 is 2 marks)

6 Simplify fully 75 : 45



$$\begin{array}{ccc} \div 5 \swarrow & 75 : 45 & \searrow \div 5 \\ \div 3 \swarrow & 15 : 9 & \searrow \div 3 \\ & 5 : 3 & \end{array}$$

$$5 : 3$$

(Total for Question 6 is 2 marks)



7 Simplify fully 12 : 18 : 24



$$\begin{array}{l}
 \div 2 \downarrow 12 : 18 : 24 \\
 \div 3 \downarrow 6 : 9 : 12 \\
 2 : 3 : 4
 \end{array}$$

$$2 : 3 : 4$$

(Total for Question 7 is 2 marks)

8 Simplify fully 20 : 50 : 55



$$\begin{array}{l}
 \div 5 \downarrow 20 : 50 : 55 \\
 4 : 10 : 11
 \end{array}$$

$$4 : 10 : 11$$

(Total for Question 8 is 2 marks)

9 Simplify fully 24 : 36 : 60



$$\begin{array}{l}
 \div 2 \downarrow 24 : 36 : 60 \\
 \div 2 \downarrow 12 : 18 : 30 \\
 \div 3 \downarrow 6 : 9 : 15 \\
 2 : 3 : 5
 \end{array}$$

$$2 : 3 : 5$$

(Total for Question 9 is 2 marks)



10 A bag contains 30 counters.



16 of the counters are red and the rest are blue.

Write the ratio of red counters to blue counters.

Give your answer in its simplest form.

$$30 - 16 = 14$$

$$\begin{array}{c} \div 2 \downarrow \quad 16 : 14 \quad \downarrow \div 2 \\ \quad \quad 8 : 7 \quad \end{array}$$

$$8 : 7$$

(Total for Question 10 is 2 marks)

11 A recipe uses 240 g of flour and 180 g of sugar.



Write the ratio of flour to sugar.

Give your answer in its simplest form.

$$\begin{array}{c} \div 10 \downarrow \quad 240 : 180 \quad \downarrow \div 10 \\ \div 2 \downarrow \quad 24 : 18 \quad \downarrow \div 2 \\ \div 3 \downarrow \quad 12 : 9 \quad \downarrow \div 3 \\ \quad \quad 4 : 3 \quad \end{array}$$

$$4 : 3$$

(Total for Question 11 is 2 marks)



12 There are 54 passengers on a bus.

42 of the passengers are seated and the rest are standing.

Write the ratio of seated passengers to standing passengers.

Give your answer in its simplest form.

$$54 - 42 = 12$$

$$\begin{array}{lcl}
 \div 2 \downarrow & 42 : 12 & \downarrow \div 2 \\
 \div 3 \downarrow & 21 : 6 & \downarrow \div 3 \\
 & 7 : 2 &
 \end{array}$$

$$7 : 2$$

(Total for Question 12 is 2 marks)

13 At a football game there are 14 250 home fans and 7500 away fans.

Write the ratio of home fans to away fans.

Give your answer in its simplest form.

$$\begin{array}{lcl}
 \div 750 \downarrow & 14250 : 7500 & \downarrow \div 750 \\
 & 19 : 10 &
 \end{array}$$

$$19 : 10$$

(Total for Question 13 is 2 marks)



**14** Neil makes paint by mixing

300 ml of red paint
360 ml of blue paint
150 ml of white paint

Write the ratio of red paint to blue paint to white paint used by Neil.

Give your answer in its simplest form.

$$\begin{array}{l} \div 10 \downarrow \\ \div 3 \downarrow \end{array} \quad \begin{array}{l} 300 : 360 : 150 \\ 30 : 36 : 15 \\ 10 : 12 : 5 \end{array} \quad \begin{array}{l} \downarrow \div 10 \\ \downarrow \div 3 \end{array}$$

$$\underline{10 : 12 : 5}$$

(Total for Question 14 is 2 marks)

- 15** The mass of an apple is 180 g
The mass of a watermelon is 3.2 kg

Write the ratio of the mass of the apple to the mass of the watermelon.

Give your answer in its simplest form.

$$3.2 \text{ kg} = 3200 \text{ g}$$

$$\begin{array}{l} \div 10 \downarrow \\ \div 2 \downarrow \end{array} \quad \begin{array}{l} 180 : 3200 \\ 18 : 320 \\ 9 : 160 \end{array} \quad \begin{array}{l} \downarrow \div 10 \\ \downarrow \div 2 \end{array}$$

$$\underline{9 : 160}$$

(Total for Question 15 is 2 marks)



16 The prices of some items in a stationery store are shown below

Ruler = 16p

Pen = 40p

Notebook = £2.20

- (a) Write the ratio of the price of a ruler to the price of a pen.
Give your answer in its simplest form.

$$\begin{array}{l}
 \div 2 \downarrow \\
 \div 2 \downarrow \\
 \div 2 \downarrow
 \end{array}
 \begin{array}{l}
 16 : 40 \\
 8 : 20 \\
 4 : 10 \\
 2 : 5
 \end{array}
 \begin{array}{l}
 \downarrow \div 2 \\
 \downarrow \div 2 \\
 \downarrow \div 2
 \end{array}$$

$$2 : 5$$

(2)

- (b) Write the ratio of the price of a pen to the price of a notebook.
Give your answer in its simplest form.

$$\begin{array}{l}
 \div 10 \downarrow \\
 \div 2 \downarrow
 \end{array}
 \begin{array}{l}
 40 : 220 \\
 4 : 22 \\
 2 : 11
 \end{array}
 \begin{array}{l}
 \downarrow \div 10 \\
 \downarrow \div 2
 \end{array}$$

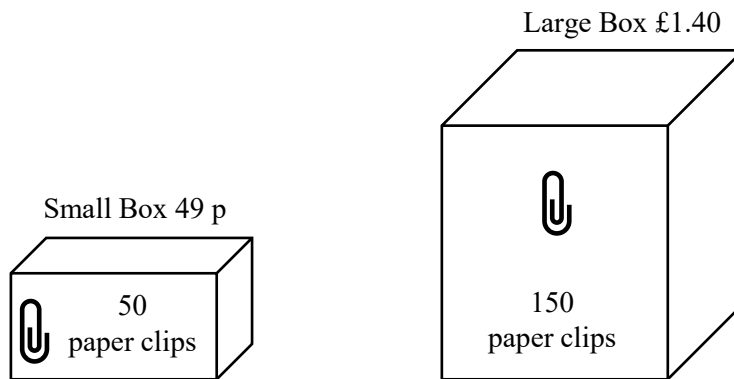
$$2 : 11$$

(2)

(Total for Question 16 is 4 marks)



17 Paper clips can be purchased in two different sized boxes shown below.



- (a) Write the ratio of the number of paper clips in a small box to the number of paper clips in a large box.
Give your answer in its simplest form.

$$\begin{array}{ccc}
 \div 10 & 50 : 150 & \div 10 \\
 \div 5 & 5 : 15 & \div 5 \\
 & 1 : 3 &
 \end{array}$$

$$\begin{array}{c}
 1 : 3 \\
 \hline
 (2)
 \end{array}$$

- (b) Write the ratio of the price of a small box to the price of a large box.
Give your answer in its simplest form.

$$\begin{array}{ccc}
 \div 7 & 49 : 140 & \div 7 \\
 & 7 : 20 &
 \end{array}$$

$$\begin{array}{c}
 7 : 20 \\
 \hline
 (2)
 \end{array}$$

(Total for Question 17 is 4 marks)





18 Aidan and Olly run an 800 m race.

Aidan takes $2\frac{1}{2}$ minutes to complete the race.

Olly takes 125 seconds to complete the race.

Write the ratio of Aidan's time to Olly's time.

Give your answer in its simplest form.

$$2 \times 60 = 120$$

$$120 + 30 = 150$$

$$\div 25 \downarrow 150 : 125 \quad \downarrow \div 25$$

$$6 : 5$$

$$6 : 5$$

(Total for Question 18 is 3 marks)

19 A ribbon has a length of 250 mm

A piece of string has a length of 45 cm

A rope has a length of 2 m

Write the ratio of the lengths of the ribbon : string : rope

Give your answer in its simplest form.

$$250 \text{ mm} = 25 \text{ cm} \quad 2 \text{ m} = 200 \text{ cm}$$

$$\div 5 \downarrow 25 : 45 : 200 \quad \downarrow \div 5$$

$$5 : 9 : 40$$

$$5 : 9 : 40$$

(Total for Question 19 is 3 marks)



20 A bag contains some red counters, blue counters and green counters.

There are twice as many blue counters as red counters.

There are four times as many green counters as blue counters.

Write the ratio of red counters : blue counters : green counters

Give your answer in its simplest form.

$$\begin{array}{cc}
 R : B & B : G \\
 1 : 2 & 1 : 4 \\
 \times 2 \swarrow & \searrow \times 2 \\
 & 2 : 8
 \end{array}$$

$$1 : 2 : 8$$

(Total for Question 20 is 2 marks)

21 A jar contains some strawberry sweets, lemon sweets and cola sweets.

There are five times as many lemon sweets as strawberry sweets.

There are four times as strawberry sweets as cola sweets.

Write the ratio of strawberry sweets : lemon sweets : cola sweets

Give your answer in its simplest form.

$$\begin{array}{cc}
 S : L & S : C \\
 1 : 5 & 4 : 1 \\
 \times 4 \swarrow & \searrow \times 4 \\
 & 4 : 20
 \end{array}$$

$$4 : 20 : 1$$

(Total for Question 21 is 2 marks)



22 A paint mixture contains some red paint, blue paint and yellow paint.

There is four times as much blue paint as yellow paint.

There is ten times as much blue paint as red paint.

Write the ratio of red paint : blue paint : yellow paint

Give your answer in its simplest form.

$$\begin{array}{c}
 B : Y \\
 \times 5 \left(\begin{array}{c} 4 : 1 \\ \hline 20 : 5 \end{array} \right) \times 5
 \end{array}$$

$$\begin{array}{c}
 B : R \\
 \times 2 \left(\begin{array}{c} 10 : 1 \\ \hline 20 : 2 \end{array} \right) \times 2
 \end{array}$$

$$2 : 20 : 5$$

(Total for Question 22 is 2 marks)

23 Sam, Alex and Priya are members of the same family.

Alex is twice as old as Sam.

Priya's age is one third of Sam's age.

Write the ratio of Sam's age : Alex's age : Priya's age.

Give your answer in its simplest form.

$$\begin{array}{c}
 A : S \\
 \times 3 \left(\begin{array}{c} 2 : 1 \\ \hline 6 : 3 \end{array} \right) \times 3
 \end{array}$$

$$\begin{array}{c}
 S : P \\
 3 : 1
 \end{array}$$

$$3 : 6 : 1$$

(Total for Question 23 is 2 marks)

