



Ratio in the form $n : 1$



REVISE THIS
TOPIC

1 Write the ratio $6 : 4$ in the form $n : 1$



$$\begin{array}{l} \div 2 \left(\begin{array}{l} 6 : 4 \\ 3 : 2 \end{array} \right) \div 2 \\ \div 2 \left(\begin{array}{l} 1.5 : 1 \end{array} \right) \div 2 \end{array}$$

$$1.5 : 1$$

(Total for Question 1 is 1 mark)

2 Write the ratio $18 : 12$ in the form $n : 1$



$$\begin{array}{l} \div 6 \left(\begin{array}{l} 18 : 12 \\ 3 : 2 \end{array} \right) \div 6 \\ \div 2 \left(\begin{array}{l} 1.5 : 1 \end{array} \right) \div 2 \end{array}$$

$$1.5 : 1$$

(Total for Question 2 is 1 mark)

3 Write the ratio $14 : 10$ in the form $n : 1$



$$\div 10 \left(\begin{array}{l} 14 : 10 \\ 1.4 : 1 \end{array} \right) \div 10$$

$$1.4 : 1$$

(Total for Question 3 is 1 mark)



4 Write the ratio 15 : 6 in the form $n : 1$



$$\begin{array}{lcl}
 \div 3 \left(& 15 : 6 & \right) \div 3 \\
 & 5 : 2 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 2.5 : 1 &
 \end{array}$$

$$2.5 : 1$$

(Total for Question 4 is 2 marks)

5 Write the ratio 10 : 8 in the form $n : 1$



$$\begin{array}{lcl}
 \div 2 \left(& 10 : 8 & \right) \div 2 \\
 & 5 : 4 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 2.5 : 2 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 1.25 : 1 &
 \end{array}$$

$$1.25 : 1$$

(Total for Question 5 is 2 marks)

6 Write the ratio 42 : 12 in the form $n : 1$



$$\begin{array}{lcl}
 \div 2 \left(& 42 : 12 & \right) \div 2 \\
 & 21 : 6 & \\
 \div 3 \left(& & \right) \div 3 \\
 & 7 : 2 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 3.5 : 1 &
 \end{array}$$

$$3.5 : 1$$

(Total for Question 6 is 2 marks)

7 Write the ratio 44 : 20 in the form $n : 1$



$$\begin{array}{lcl}
 \div 4 \left(& 44 : 20 & \right) \div 4 \\
 & 11 : 5 & \\
 \div 5 \left(& & \right) \div 5 \\
 & 2.2 : 1 &
 \end{array}$$

$$\begin{array}{r}
 02.2 \\
 5 \overline{) 11.0} \\
 \underline{10} \\
 10 \\
 \underline{10} \\
 0
 \end{array}$$

$$2.2 : 1$$

(Total for Question 7 is 2 marks)





8 Write the ratio 8 : 60 in the form 1 : n



$$\begin{array}{l} \div 4 \left(\begin{array}{l} 8 : 60 \\ 2 : 15 \end{array} \right) \div 4 \\ \div 2 \left(\begin{array}{l} 1 : 7.5 \end{array} \right) \div 2 \end{array}$$

$$1 : 7.5$$

(Total for Question 8 is 2 marks)

9 Write the ratio 7 : 10 in the form n : 1



$$\div 10 \left(\begin{array}{l} 7 : 10 \\ 0.7 : 1 \end{array} \right) \div 10$$

$$0.7 : 1$$

(Total for Question 9 is 1 mark)

10 Write the ratio 99 : 18 in the form n : 1



$$\begin{array}{l} \div 9 \left(\begin{array}{l} 99 : 18 \\ 11 : 2 \end{array} \right) \div 9 \\ \div 2 \left(\begin{array}{l} 5.5 : 1 \end{array} \right) \div 2 \end{array}$$

$$5.5 : 1$$

(Total for Question 10 is 2 marks)

11 Write the ratio 3 : 4 in the form n : 1



$$\begin{array}{l} \div 4 \left(\begin{array}{l} 3 : 4 \\ \frac{3}{4} : 1 \end{array} \right) \div 4 \\ 0.75 : 1 \end{array}$$

$$\begin{array}{r} 0.75 \\ 4 \overline{) 3.00} \\ \underline{3.00} \\ 0 \end{array}$$

$$0.75 : 1$$

(Total for Question 11 is 1 mark)



12 Write the ratio 36 : 25 in the form $n : 1$

$$36 \div 25 = 1.44$$

$$1.44 : 1$$

(Total for Question 12 is 1 mark)

13 Write the ratio 48 : 15 in the form $n : 1$

$$48 \div 15 = 3.2$$

$$3.2 : 1$$

(Total for Question 13 is 1 mark)

14 Write the ratio 81 : 50 in the form $n : 1$

$$81 \div 50 = 1.62$$

$$1.62 : 1$$

(Total for Question 14 is 1 mark)

15 Write the ratio 67 : 20 in the form $n : 1$

$$67 \div 20 = 3.35$$

$$3.35 : 1$$

(Total for Question 15 is 1 mark)



16 Write the ratio 25 : 68 in the form 1 : n

$$68 \div 25 = 2.72$$

$$1 : 2.72$$

(Total for Question 16 is 1 mark)

17 Write the ratio 117 : 45 in the form $n : 1$

$$117 \div 45 = 2.6$$

$$2.6 : 1$$

(Total for Question 17 is 1 mark)

18 Write the ratio 87 : 25 in the form $n : 1$

$$87 \div 25 = 3.48$$

$$3.48 : 1$$

(Total for Question 18 is 1 mark)

19 Write the ratio 1080 : 25 in the form $n : 1$

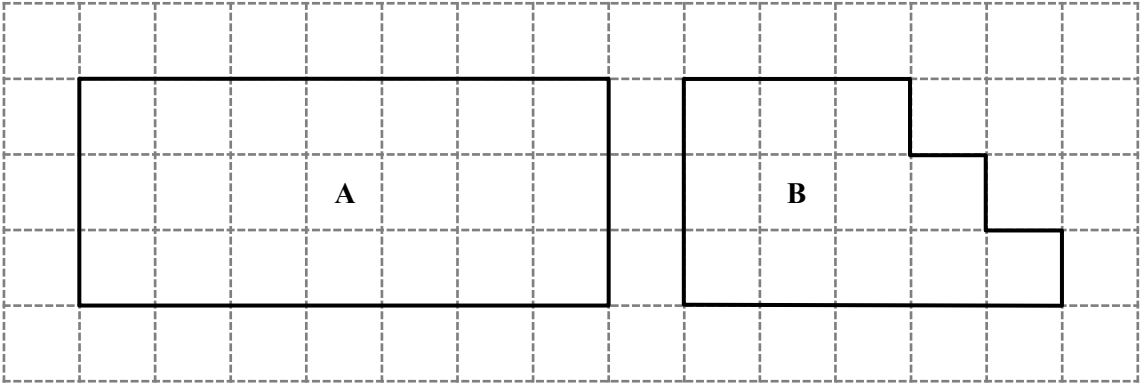
$$1080 \div 25 = 43.2$$

$$43.2 : 1$$

(Total for Question 19 is 1 mark)



20 Shape **A** and shape **B** are drawn on a centimetre grid.



(a) The area of shape **A** : the area of shape **B** = n : 1

Work out the value of n .

$$\begin{array}{rcl}
 \div 3 \hookrightarrow & 21 : 12 & \hookrightarrow \div 3 \\
 & 7 : 4 & \\
 \div 4 \hookrightarrow & 1.75 : 1 & \hookrightarrow \div 4
 \end{array}$$

$$n = \frac{1.75}{1} \quad (2)$$

(b) The perimeter of shape **A** : the perimeter of shape **B** = m : 1

Work out the value of m .

$$\begin{array}{rcl}
 \div 4 \hookrightarrow & 20 : 16 & \hookrightarrow \div 4 \\
 & 5 : 4 & \\
 \div 4 \hookrightarrow & 1.25 : 1 & \hookrightarrow \div 4
 \end{array}$$

$$m = \frac{1.25}{1} \quad (2)$$

(Total for Question 20 is 4 marks)



21 Write the ratio £2.50 : 20p in the form $n : 1$



$$\begin{array}{lcl}
 \div 10 \left(& 250 : 20 & \right) \div 10 \\
 & 25 : 2 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 12.5 : 1 &
 \end{array}$$

$$12.5 : 1$$

(Total for Question 21 is 2 marks)

22 Write the ratio 3 m : 80 cm in the form $n : 1$



$$\begin{array}{lcl}
 \div 10 \left(& 300 : 80 & \right) \div 10 \\
 & 30 : 8 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 15 : 4 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 7.5 : 2 & \\
 \div 2 \left(& & \right) \div 2 \\
 & 3.75 : 1 &
 \end{array}$$

$$3.75 : 1$$

(Total for Question 22 is 3 marks)

23 Write the ratio 4.2 kg : 750g in the form $n : 1$

$$\begin{array}{l}
 4200 : 750 \\
 4200 \div 750 = 5.6
 \end{array}$$

$$5.6 : 1$$

(Total for Question 23 is 2 marks)



24 The table shows information about students from Y10 and Y11 and if they were on time for school or late.

	On time	Late
Y10	96	24
Y11	69	20

- (a) Write the ratio of Y10 students who were late to Y11 students who were late.
Give your answer in the form $n : 1$

$$24 : 20$$

$$24 \div 20 = 1.2$$

$$\frac{1.2 : 1}{(1)}$$

- (b) Write the ratio of students who were on time to students who were late.
Give your answer in the form $n : 1$

$$96 + 69 = 165$$

$$24 + 20 = 44$$

$$165 \div 44 = 3.75$$

$$\frac{3.75 : 1}{(2)}$$

(Total for Question 24 is 3 marks)





25 Write the ratio $6^2 : 2^3$ in the form $n : 1$



$$6^2 = 6 \times 6 = 36$$

$$2^3 = 2 \times 2 \times 2 = 8$$

$$\begin{array}{l} \div 4 \left(\begin{array}{l} 36 : 8 \\ 9 : 2 \end{array} \right) \div 4 \\ \div 2 \left(\begin{array}{l} 9 : 2 \\ 4.5 : 1 \end{array} \right) \div \end{array}$$

$$4.5 : 1$$

(Total for Question 25 is 3 marks)

26 Write the ratio $2^{12} : 2^4$ in the form $n : 1$, where n is an integer.



$$\div 2^4 \left(\begin{array}{l} 2^{12} : 2^4 \\ 2^8 : 1 \end{array} \right) \div 2^4$$

$$2^8 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$= 256$$

$$256 : 1$$

(Total for Question 26 is 3 marks)

27 Write the ratio $7 \times 10^3 : 2 \times 10^2$ in the form $n : 1$



$$\begin{array}{l} \div 100 \left(\begin{array}{l} 7000 : 200 \\ 70 : 2 \end{array} \right) \div 100 \\ \div 2 \left(\begin{array}{l} 70 : 2 \\ 35 : 1 \end{array} \right) \div 2 \end{array}$$

$$35 : 1$$

(Total for Question 27 is 3 marks)





28 84% of visitors to a gym are members.

Write the ratio of visitors who are members to visitors who are **not** members.

Give your answer in the form $n : 1$

$$100 - 84 = 16$$

$$84 : 16$$

$$84 \div 16 = 5.25$$

$$5.25 : 1$$

(Total for Question 28 is 2 marks)

29 The sizes of two of the angles in a triangle are 44° and 104°

Write the ratio of the size of the largest angle to the size of the smallest angle.

Give your answer in the form $n : 1$

$$44 + 104 = 148$$

$$104 : 32$$

$$180 - 148 = 32$$

$$104 \div 32 = 3.25$$

$$3.25 : 1$$

(Total for Question 29 is 3 marks)

30 Write the ratio 2 days : 50 minutes in the form $n : 1$

$$2 \times 24 \times 60 = 2880$$

$$2880 : 50$$

$$2880 \div 50 = 57.6$$

$$57.6 : 1$$

(Total for Question 30 is 3 marks)





31 Write the ratio $\sqrt{64} : \sqrt{25}$ in the form $n : 1$



$$\div 5 \quad 8 : 5 \quad \div 5 \quad 1.6 : 1$$

$$5 \overline{) 1.60}$$

$$1.6 : 1$$

(Total for Question 31 is 3 marks)

32 Write the ratio $\frac{3}{5} : \frac{6}{7}$ in the form $n : 1$



$$\begin{aligned} \frac{3}{5} \div \frac{6}{7} &= \frac{3}{5} \times \frac{7}{6} \\ &= \frac{21}{30} \\ &= \frac{7}{10} \end{aligned}$$

$$0.7 : 1$$

(Total for Question 32 is 3 marks)

33 Write the ratio $3\frac{1}{2} : 1\frac{1}{4}$ in the form $n : 1$



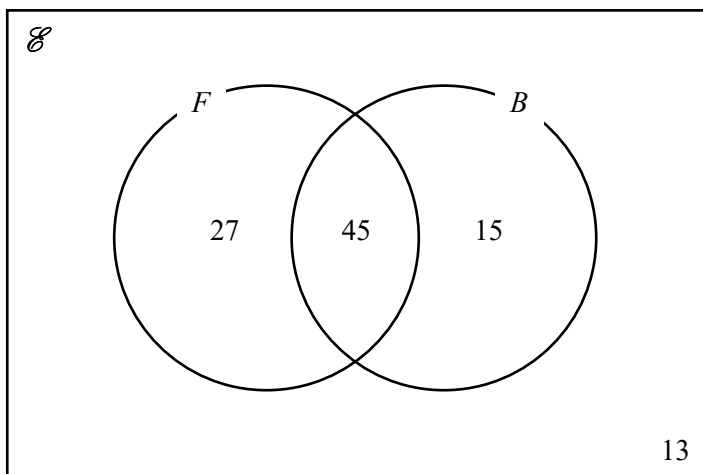
$$\begin{aligned} 3\frac{1}{2} \div 1\frac{1}{4} &= \frac{7}{2} \div \frac{5}{4} \\ &= \frac{7}{2} \times \frac{4}{5} \\ &= \frac{28}{10} \end{aligned}$$

$$2.8 : 1$$

(Total for Question 33 is 3 marks)



- 34 100 students were asked if they play football (F) or basketball (B).
The results are shown in the Venn diagram below.



- (a) Write the ratio

Students who play football : students who play basketball

Give your answer in the form $n : 1$

$$\begin{array}{ll}
 27 + 45 = 72 & 72 : 60 \\
 45 + 15 = 60 & 72 \div 60 = 1.2
 \end{array}$$

- (b) Write the ratio

Students who play basketball : students who do **not** play basketball

Give your answer in the form $n : 1$

$$\begin{array}{ll}
 45 + 15 = 60 & 60 : 40 \\
 27 + 13 = 40 & \div 20 \left(\begin{array}{l} 3 : 2 \\ \div 2 \end{array} \right) \div 20 \\
 & \div 2 \left(\begin{array}{l} 1.5 : 1 \end{array} \right) \div 2
 \end{array}$$

$$1.2 : 1$$

(3)

$$1.5 : 1$$

(3)

(Total for Question 34 is 6 marks)

