

Foundation GCSE: Ratios and Simplifying

Name: _____

Class: _____

Instructions: Answer all questions. Questions are ordered from easiest (1) to hardest (20). Working out should be shown where appropriate.

1. Simplify the ratio 4 : 8.
2. Simplify the ratio 10 : 15.
3. Write the ratio 12 : 18 in its simplest form.
4. Simplify the ratio 24 : 36.
5. Simplify the ratio 14 : 21.
6. Write the ratio 8 : 20 in the form 1 : n .
7. Write the ratio 5 : 12 in the form 1 : n .
8. Simplify the ratio 45 : 60.
9. Simplify the ratio 1.5 : 3.
10. Write the ratio 30 cm to 2 metres in its simplest form.
11. Simplify the ratio $\frac{1}{2} : \frac{3}{4}$.
12. Write the ratio 450 g to 1.5 kg in its simplest form.
13. Simplify the ratio $2\frac{1}{2} : 4$.
14. Express the ratio 20 minutes to 1.5 hours in its simplest form.
15. Write the ratio 0.75 : 1.25 in the form $n : 1$.
16. Simplify the ratio $\frac{3}{4} : \frac{5}{6}$.
17. A map has a scale of 1 : 50,000. What actual distance in kilometres does a map length of 8 cm represent?
18. Simplify the compound ratio given that $a : b = 2 : 3$ and $b : c = 4 : 5$, find $a : b : c$.
19. Given that $3x = 4y$, find the ratio $x : y$ in its simplest form.
20. Three quantities a, b , and c are in the ratio 2 : 5 : 7. If b is 30 greater than a , find the total amount of $a + b + c$.

Answers & Worked Solutions

1. $1 : 2$
Divide both sides by 4.
2. $2 : 3$
Divide both sides by 5.
3. $2 : 3$
Divide both sides by 6.
4. $2 : 3$
Divide both sides by 12.
5. $2 : 3$
Divide both sides by 7.
6. $1 : 2.5$
Divide both sides by 8.
7. $1 : 2.4$
Divide both sides by 5.
8. $3 : 4$
Divide both sides by 15.
9. $1 : 2$
Multiply both by 2, then simplify $3 : 6$.
10. $3 : 20$
Convert 2 m to 200 cm, then simplify $30 : 200$.
11. $2 : 3$
Multiply both sides by 4 to get $2 : 3$.
12. $3 : 10$
Convert 1.5 kg to 1500 g, simplify $450 : 1500$.
13. $5 : 8$
Multiply both sides by 2 to get $5 : 8$.
14. $2 : 9$
Convert 1.5 hours to 90 minutes, simplify $20 : 90$.
15. $0.6 : 1$
Divide both sides by 1.25 ($0.75 \div 1.25 = 0.6$).
16. $9 : 10$
Multiply both sides by 12 to get $9 : 10$.
17. 4 km
 $8 \times 50,000 = 400,000 \text{ cm} = 4 \text{ km}.$
18. $8 : 12 : 15$
Scale b to match: $a : b = 8 : 12$, $b : c = 12 : 15$.
19. $4 : 3$
Rearrange $3x = 4y$ to $\frac{x}{y} = \frac{4}{3}$.
20. 140
 $3 \text{ parts} = 30 \implies 1 \text{ part} = 10. \text{ Total parts} = 14,$
 $14 \times 10 = 140.$