

Foundation GCSE: Equivalent Fractions

Name: _____

Class: _____

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

1. Write down a fraction equivalent to $\frac{1}{2}$ with a denominator of 6.
2. Fill in the missing number: $\frac{3}{4} = \frac{\square}{12}$.
3. Simplify $\frac{4}{8}$ to its simplest form.
4. Fill in the missing number: $\frac{2}{5} = \frac{10}{\square}$.
5. Simplify $\frac{15}{20}$ to its simplest form.
6. Which of these fractions is equivalent to $\frac{2}{3}$:
 $\frac{4}{5}, \frac{6}{9}, \frac{8}{15}$?
7. Fill in the missing number: $\frac{\square}{7} = \frac{24}{28}$.
8. Simplify $\frac{36}{48}$ fully.
9. Find x if $\frac{x}{15} = \frac{4}{5}$.
10. Write $\frac{450}{750}$ in its simplest form.
11. Find y if $\frac{12}{y} = \frac{3}{7}$.
12. Which fraction is NOT equivalent to the others: $\frac{12}{18}, \frac{18}{27}, \frac{20}{32}$?
13. Fill in the missing numbers: $\frac{5}{8} = \frac{35}{\square} = \frac{\square}{72}$.
14. Simplify $\frac{108}{144}$ fully.
15. Find the value of a if $\frac{a+3}{12} = \frac{3}{4}$.
16. Write $\frac{84}{126}$ in its simplest form.
17. Find k if $\frac{2k}{15} = \frac{16}{30}$.
18. Given that $\frac{x}{y} = \frac{3}{5}$ and $x + y = 40$, find the values of x and y .
19. Simplify completely: $\frac{4ab}{6a^2b}$.
20. Find n if $\frac{3^{10}}{3^n}$ is equivalent to $\frac{1}{81}$.

Answers & Worked Solutions

1. $\frac{3}{6}$
Multiply numerator and denominator by 3.
2. 9
Multiply numerator and denominator by 3.
3. $\frac{1}{2}$
Divide top and bottom by 4.
4. 25
Multiply numerator and denominator by 5.
5. $\frac{3}{4}$
Divide top and bottom by 5.
6. $\frac{6}{9}$
Simplify $\frac{6}{9}$ by dividing by 3 to get $\frac{2}{3}$.
7. 6
Denominator divided by 4 ($28 \div 4 = 7$), so $24 \div 4 = 6$.
8. $\frac{3}{4}$
Divide top and bottom by their HCF, which is 12.
9. 12
Denominator multiplied by 3, so $4 \times 3 = 12$.
10. $\frac{3}{5}$
Divide top and bottom by 150.
11. 28
 $12 \div 3 = 4$, so $7 \times 4 = 28$.
12. $\frac{20}{32}$
Simplifies to $\frac{5}{8}$, whereas the others simplify to $\frac{2}{3}$.
13. 56 and 45
 $5 \times 7 = 35$, so $8 \times 7 = 56$; $8 \times 9 = 72$, so $5 \times 9 = 45$.
14. $\frac{3}{4}$
Divide top and bottom by their HCF, 36.
15. 6
 $12 \div 4 = 3$, so $a + 3 = 3 \times 3 = 9 \implies a = 6$.
16. $\frac{2}{3}$
Divide top and bottom by their HCF, 42.
17. 6
 $\frac{16}{30} = \frac{8}{15}$, so $2k = 8 \implies k = 6$ wait:
 $2k = 16 \implies k = 8$.
18. $x = 15, y = 25$
Parts total $3 + 5 = 8$ parts. $40 \div 8 = 5$ per part. $3 \times 5 = 15, 5 \times 5 = 25$.
19. $\frac{2}{3a}$
Cancel common factors of 2, a, and b.
20. $n = 14$
 $\frac{1}{81} = \frac{1}{3^4} = 3^{-4}$, so $10 - n = -4 \implies n = 14$.