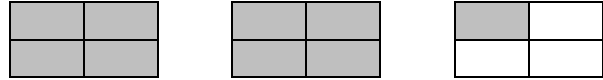


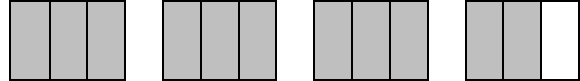
| Key Vocabulary | |
|----------------------|---|
| Numerator | The number on the top of a fraction |
| Denominator | The number on the bottom of a fraction |
| Proper fraction | A fraction where the numerator is smaller than the denominator e.g. $\frac{2}{3}$ |
| Improper fraction | A fraction where the numerator is bigger than the denominator e.g. $\frac{5}{2}$ Also known as a vulgar or top-heavy fraction |
| Mixed Number | A whole number and fraction together, e.g. $2\frac{1}{2}$ Improper fractions can be changed to mixed numbers and back again. $\frac{5}{2} = 2\frac{1}{2}$ |
| Equivalent Fractions | Two fractions that represent the same amount. Multiplying or dividing the top and bottom of a fraction by the same number gives an equivalent fraction. Dividing gives a simpler fraction |
| Percentage | A value out of 100. E.g. $23\% = \frac{23}{100} = 0.23$ |

Key facts / Diagrams



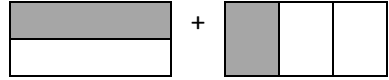
$2\frac{1}{4} = \frac{9}{4}$
 $2 \times 4 = 8$ $8 + 1 = 9$
 Total = 9 quarters = $\frac{9}{4}$

Change $\frac{11}{3}$ to a mixed number:
 $11 \div 3 = 3$ remainder $2 = 3\frac{2}{3}$

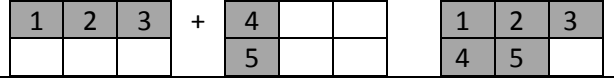


50% = $\frac{1}{2}$ = $\div 2$
 25% = $\frac{1}{4}$ = $\div 4$
 75% = $\frac{3}{4}$ = $\div 4$ then $\times 3$
 10% = $\frac{1}{10}$ = $\div 10$
 20% = find 10% and $\times 2$
 5% = find 10% and $\div 2$

How do you add fractions with different denominators? E.g. $\frac{1}{2} + \frac{1}{3}$



Change to equivalent fractions with the same denominator: $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$



Common misconceptions

- You can't have more than 100%. Not realising that while in real life contexts over 100% might not make sense, but through a percentage increase you can have over 100%.
- When asked to multiply a fraction by a whole number, e.g. multiply $\frac{3}{4}$ by 2, multiplying top and bottom by 2 and just getting an equivalent fraction.
 Proper method: $2 \times \frac{3}{4} = \frac{2 \times 3}{4} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$
- When multiplying two fractions, thinking you need to start by changing them to fractions with the same denominator.

Worked examples

$\frac{2}{3} \times \frac{3}{4} = \frac{2 \times 3}{3 \times 4} = \frac{6}{12} = \frac{1}{2}$

$\frac{2}{3} + \frac{3}{4} = \frac{2 \times 4}{3 \times 4} + \frac{3 \times 3}{4 \times 3} = \frac{8}{12} + \frac{9}{12} = \frac{17}{12} = 1\frac{5}{12}$

$1\frac{2}{3} - \frac{3}{4} = \frac{5}{3} - \frac{3}{4} = \frac{5 \times 4}{3 \times 4} - \frac{3 \times 3}{4 \times 3} = \frac{20}{12} - \frac{9}{12} = \frac{11}{12}$

20% of 300
 10% of 300 = $300 \div 10 = 30$
 20% of 300 = $30 \times 2 = 60$