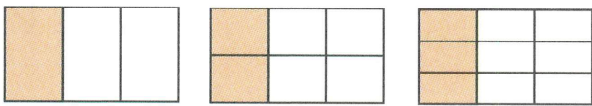
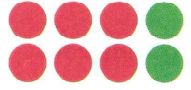

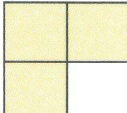
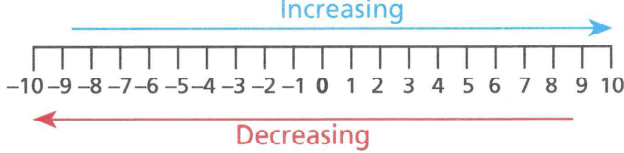
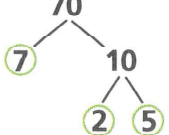

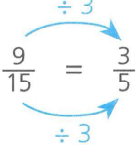



# Key facts and vocabulary

## Number

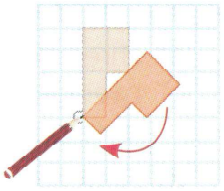
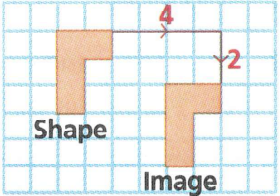
<b>Adding and subtracting</b>	<p>Line up the digits by place value</p> $\begin{array}{r} \cancel{8} \cdot 124 \\ - 2 \cdot 3 \\ \hline 6 \cdot 94 \end{array}$ <p>Convert fractions to equivalent fractions with the same denominator</p> $\frac{5}{8} - \frac{3}{12} = \frac{15}{24} - \frac{6}{24} = \frac{9}{24} = \frac{3}{8}$
<b>Dividing</b>	<p>Use place value to divide by 10, 100, 1000</p> $320 \div 10 = 32 \quad 320 \div 100 = 3.2 \quad 320 \div 1000 = 0.32$ <p>In fractions, <b>keep</b> the first fraction the same, <b>flip</b> the second fraction, <b>change</b> <math>\div</math> to <math>\times</math></p> $\frac{4}{9} \div \frac{3}{5} = \frac{4}{9} \times \frac{5}{3} = \frac{20}{27}$ <p style="text-align: center;"> <span style="color: red;">↑</span> <span style="color: blue;">↑</span> <span style="color: green;">↑</span>  <span style="color: red;">K</span> <span style="color: blue;">C</span> <span style="color: green;">F</span> </p>
<b>Equivalent</b>	<p>Represent the same amount or proportion</p> <div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 20px;">  <span style="font-size: 2em;">=</span>  </div> </div> <p style="text-align: center;"> <math>\frac{1}{3} = \frac{2}{6} = \frac{3}{9}</math>   <span style="margin-right: 100px;"><math>6:2</math></span> <span><math>3:1</math></span> </p>
<b>Factor</b>	<p>A number that divides exactly into another number</p>
<b>Fraction</b>	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <math>\frac{3}{4}</math> </div> <div style="margin-left: 10px;"> <p>← Numerator</p> <p>← Denominator</p> </div> </div>
<b>Highest common factor (HCF)</b>	<p>The highest factor that two numbers share (have in common)</p> <p><b>Factors of 12:</b></p> <p>1 2 3 4 6 12</p> <p><b>Factors of 18:</b></p> <p>1 2 3 6 9 18</p> <p style="text-align: center;">(A blue circle highlights the number 6 in both lists, with lines pointing to the numbers 6 in the lists above.)</p>
<b>Improper fraction</b>	<p>A fraction with a numerator greater than the denominator <math>\frac{13}{4}</math></p>
<b>Integer</b>	<p>A whole number</p>
<b>Lowest common multiple (LCM)</b>	<p>The lowest multiple that two numbers share (have in common)</p> <p><b>Multiples of 12:</b></p> <p>12 24 36 48 60 72</p> <p><b>Multiples of 18:</b></p> <p>18 36 54 72</p> <p style="text-align: center;">(A blue circle highlights the number 36 in both lists.)</p>
<b>Mixed number</b>	<p>Has a whole number part and a fraction part <math>3\frac{1}{4}</math></p>
<b>Multiple</b>	<p>A number in a times table. Multiples of 4 are 4, 8, 12, 16, 20, ...</p>

# Key facts and vocabulary

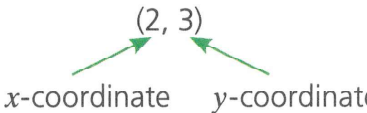
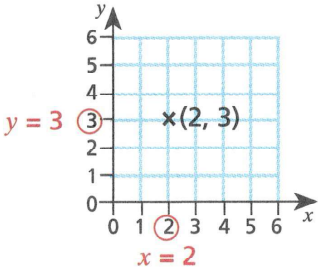
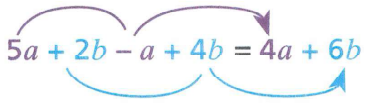
<b>Multiplying</b>	Use place value to multiply by 10, 100, 1000 $4.5 \times 10 = 45$ $4.5 \times 100 = 450$ $4.5 \times 1000 = 4500$ In fractions, multiply the numerators and multiply the denominators $\frac{3}{5} \times \frac{4}{7} = \frac{12}{35}$															
<b>Negative numbers</b>																
<b>Order of operations</b>	<p style="text-align: center; font-size: 2em; letter-spacing: 0.5em;"><b>B I D M A S</b></p> <p style="text-align: center;"> <span style="margin-right: 1em;">( )</span> <span style="margin-right: 1em;"><math>x^2</math></span> <span style="margin-right: 1em;"><math>\div</math> or <math>\times</math></span> <span style="margin-right: 1em;"><math>+</math> or <math>-</math></span> </p>															
<b>Place value</b>	The value of each digit in a number <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Ones</th> <th>tenths</th> <th>hundredths</th> <th>thousandths</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.1    <math>\frac{1}{10}</math></td> <td>0.01    <math>\frac{1}{100}</math></td> <td>0.001    <math>\frac{1}{1000}</math></td> </tr> <tr> <td>7</td> <td>3</td> <td>6</td> <td>4</td> </tr> </tbody> </table> <p style="text-align: right; margin-right: 10%;"> <math>\frac{6}{100} = \frac{3}{50}</math> </p>	Ones	tenths	hundredths	thousandths	1	0.1 $\frac{1}{10}$	0.01 $\frac{1}{100}$	0.001 $\frac{1}{1000}$	7	3	6	4			
Ones	tenths	hundredths	thousandths													
1	0.1 $\frac{1}{10}$	0.01 $\frac{1}{100}$	0.001 $\frac{1}{1000}$													
7	3	6	4													
<b>Power</b>	Repeated multiplication of a number by itself <p style="text-align: right; margin-right: 10%;"> <b>Power (or index)</b>  <math>8^5 = 8 \times 8 \times 8 \times 8 \times 8</math>  <b>Base</b> </p>															
<b>Prime</b>	Prime numbers have exactly two factors: 1 and itself; 1 is not a prime number															
<b>Prime factor decomposition</b>	 $70 = 2 \times 5 \times 7$															
<b>Ratio</b>	 <p style="text-align: center;">black to yellow = 5 : 3</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5">£30</th> </tr> </thead> <tbody> <tr> <td>£6</td> <td>£6</td> <td>£6</td> <td>£6</td> <td>£6</td> </tr> <tr> <td colspan="2">£6</td> <td colspan="3">£24</td> </tr> </tbody> </table> <p style="text-align: right; margin-right: 10%;">Sharing in the ratio of 1 : 4</p>	£30					£6	£6	£6	£6	£6	£6		£24		
£30																
£6	£6	£6	£6	£6												
£6		£24														
<b>Root</b>	Inverse of a power <p style="text-align: right; margin-right: 10%;"> <math>3^2 = 9</math>, so <math>\sqrt{9} = 3</math>    Square root of 9 is 3.  <math>3^3 = 27</math>, so <math>\sqrt[3]{27} = 3</math>    Cube root of 27 is 3.         </p>															
<b>Rounding</b>	$3.2\underline{3}5 = 3.2$ (to 1 decimal place) Less than 5 so round down <span style="margin-left: 100px;"> <math>3.23\underline{5} = 3.24</math> (to 2 decimal places)            5 or more so round up         </span>															
<b>Simplify</b>	Simplify fractions and ratios by dividing both numbers by common factors <div style="text-align: right; margin-right: 10%;">   </div>															



# Key facts and vocabulary

<p><b>Rotation</b></p>	<p>Rotation turns a shape around a point, called the centre of rotation. Use tracing paper. To describe a rotation: Rotation .....° clockwise/anti-clockwise, centre .....</p> <p style="text-align: center;"><b>angle</b>                      <b>direction</b>                      <b>point</b></p>	
<p><b>Translation</b></p>	<p>Translation slides a shape across a grid. Translation 4 squares right, 2 down. To describe a translation: Translation ..... squares right/left, ..... up/down</p> <p style="text-align: center;"><b>number</b>                      <b>direction</b>                      <b>number</b>                      <b>direction</b></p>	

## Algebra

<p><b>Coordinates</b></p>	<p>Coordinates tell you the position of a point on a grid</p> <p style="text-align: center;"> <math>(2, 3)</math>   </p>	
<p><b>Distributive law</b></p>	<p>The number outside the bracket multiplies every number inside the bracket</p> <p><math>3(10 + 2) = 30 + 6 = 36</math>                      <math>7 \times 24 = 7(20 + 4) = 140 + 28 = 168</math></p>	
<p><b>Dividing terms</b></p>	<p>Write as a fraction Simplify the fraction <math>12ab \div 2a = \frac{12ab}{2a} = 6b</math></p>	
<p><b>Equation of a line</b></p>	<p>Tells you the relationship between the coordinates of the points on the line For example, the line <math>y = x</math> goes through the points <math>(-2, -2)</math> <math>(-1, -1)</math> <math>(0, 0)</math> <math>(1, 1)</math> <math>(2, 2)</math></p>	
<p><b>Evaluate</b></p>	<p>Work out the value of For example: Evaluate <math>n^2</math> when <math>n = 3</math>. <math>3^2 = 9</math>    <b>Substitute 3 for <math>n</math>.</b></p>	
<p><b>Multiplying terms</b></p>	<p>Numbers then letters, no multiplication sign, letters in alphabetical order <math>y \times 4 = 4y</math>                      <math>4y \times 2t = 8ty</math></p>	
<p><b>Powers (indices)</b></p>	<p>Repeated multiplication of a term <math>a \times a = a^2</math>                      <math>b \times b \times b = b^3</math></p>	
<p><b>Simplify by collecting like terms</b></p>	<p>Like terms have the same letters to the same power Collecting like terms means adding/subtracting any like terms</p> <p style="text-align: right;"><math>5a + 2b - a + 4b = 4a + 6b</math></p> 	
<p><b>Substitute</b></p>	<p>Replace a letter in algebra with a number For example: Work out the value of <math>2y</math> when <math>y = 3</math>. <math>2y = 2 \times 3 = 6</math>    <b>Replace <math>y</math> with 3.</b></p>	
<p><b>Term</b></p>	<p>A letter, a number, or letter(s) and numbers multiplied together <math>a</math>   <math>3b</math>   <math>2</math>   <math>6ab</math></p>	