


<p><b>*Trial and improvement.</b></p> <p><math>x^3 - 2x = 67</math> has a solution between 4 and 5. Use trial and improvement to find a solution to 1dp.</p> <p><math>x^2 = \frac{1}{x} + 5</math> has a solution between 2 and 3. Use trial and improvement to find a solution to 1dp.</p>	<p><b>Substitution.</b></p> <p><math>D = 3s - 7t</math> If <math>s = -4, t = 2</math>. Work out the value of <math>D</math>.</p> <p><math>E = T^2 - 2T</math> Find the value of <math>E</math> when <math>T = -3</math>.</p> <p>If <math>P = -4</math> and <math>Q = 30</math>, work out the value of 'M'</p> $M = \frac{Q(P + 2)}{6}$	<p><b>Expand and/or simplify.</b></p> <p>(i) <math>5p - 4q + 3p + q</math></p> <p>(ii) <math>4(3x + 2)</math></p> <p>(iii) <math>4(x + 5) + 3(x - 7)</math></p> <p>(iv) <math>3(2x - 1) - 2(2x - 3)</math></p> <p>(v) <math>(x + 7)(x - 4)</math></p> <p>(vi) <math>(x + 3y)(x + 2y)</math></p>	<p><b>Factorise.</b></p> <p>(i) <math>2t + 6</math></p> <p>(ii) <math>8s - 12t</math></p> <p>(iii) <math>6a - 12b + 30</math></p> <p>(iv) <math>8x + 12y - 16z</math></p> <p>(v) <math>y^2 + y</math></p> <p>(vi) <math>2x + 3ax^3</math></p>																
<p><b>Straight line graphs.</b></p> <p>A straight line passes through (0, 5) and (3, 17). Find the equation of the line.</p> <p>A straight line has the equation <math>y = 2(3 - 4x)</math>. Find the gradient and y-intercept of the line.</p>	<p><b>Index Laws.</b></p> <p>Simplify</p> <p>(i) <math>p^2 \times p^7</math></p> <p>(ii) <math>x^8 \div x^3</math></p> <p>(iii) <math>\frac{y^4 \times y^3}{y^5}</math></p> <p>(iv) <math>2t^2 \times 3r^3t^4</math></p> <p>(v) <math>(m^{-4})^{-2}</math></p>	<p><b>N<sup>th</sup> terms.</b></p> <p>Find the n<sup>th</sup> term and the 50<sup>th</sup> term of these sequences...</p> <p>(i) 2, 7, 12, 17, 22, ...</p> <p>(ii) 22, 19, 16, 13, 10, ...</p> <p>The n<sup>th</sup> term of a number sequence is given by <math>(5 - n^2)</math>. Find</p> <p>(iii) The first five terms of the sequence</p> <p>(iv) The 10<sup>th</sup> term</p> <p>(v) The 12<sup>th</sup> term</p>	<p><b>Construct an equation.</b></p> <p>The cost of hiring a car for <math>n</math> days is <math>C</math> pounds. Write down a formula for <math>C</math> in terms of <math>n</math>.</p> <p>Red cards are worth 5 points each. Green cards are worth 3 points each. We have <math>r</math> red cards and <math>g</math> green cards. If our total number of points is <math>N</math>, Write down, in terms of <math>r</math> and <math>g</math>, a formula for <math>N</math>.</p>																
<p><b>Plot graph of a quadratic equation.</b></p> <p>Copy and complete the table of values for <math>y = x^2 + x</math>.</p> <table border="1" data-bbox="125 1134 555 1214"> <tbody> <tr> <td><math>x</math></td> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td><math>y</math></td> <td>6</td> <td>2</td> <td></td> <td>0</td> <td></td> <td>6</td> <td></td> </tr> </tbody> </table> <p>Draw the graph of <math>y = x^2 + x</math> from <math>x = -3</math> to <math>x = 3</math>.</p>	$x$	-3	-2	-1	0	1	2	3	$y$	6	2		0		6		<p><b>Inequalities.</b></p> <p><math>-6 &lt; y &lt; -3</math>. If 'y' is an integer, write all its possible values.</p> <p>Solve the inequalities</p> <p>(i) <math>3x + 2 &gt; -7</math></p> <p>(ii) <math>4x - 3 &lt; 7</math></p> <p>Write the inequality represented by ...</p> 	<p><b>Solve these linear equations.</b></p> <p>(i) <math>7x + 18 = 74</math></p> <p>(ii) <math>21 = 3(2x + 11)</math></p> <p>(iii) <math>4(2y - 5) = 32</math></p> <p>(iv) <math>5p + 7 = 3(4 - p)</math></p> <p>(v) <math>4(2x + 1) = 2(3 - x)</math></p>	<p><b>Rearranging algebraic expressions.</b></p> <p>Make 't' the subject of the formula <math>v = u + 5t</math></p> <p>Make 'a' the subject of the formula <math>s = \frac{a}{4} + 8u</math></p>
$x$	-3	-2	-1	0	1	2	3												
$y$	6	2		0		6													

\*Calculator allowed

courtesy of Dave Russell