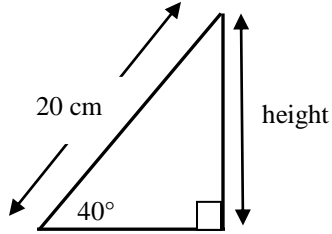
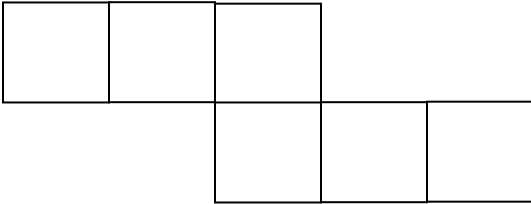
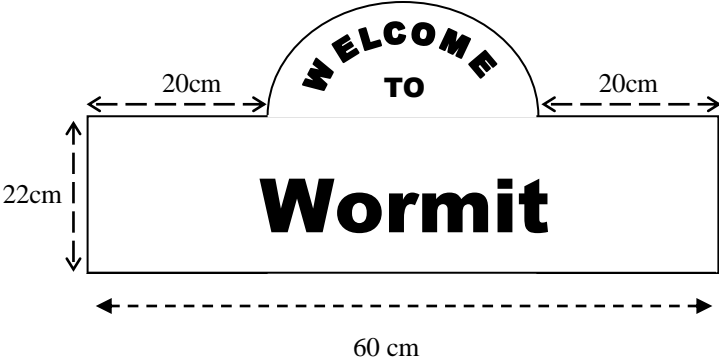
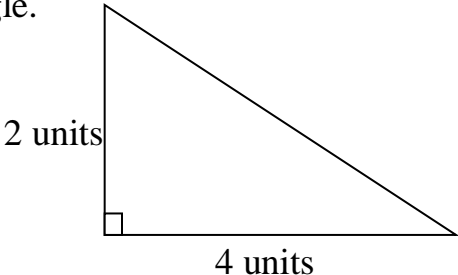
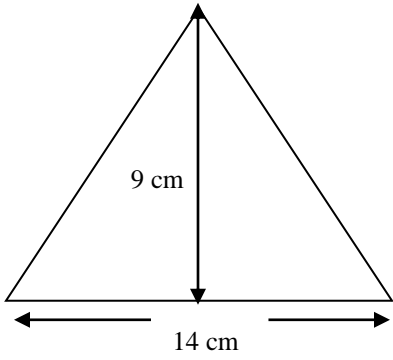
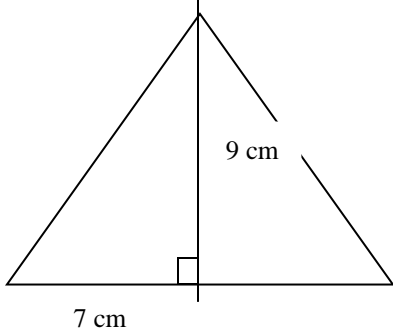


S3 Nat 5 Revision – September Test		40														
1.	Factorise this expression $7c^2 - 14c$	2														
2.	Simplify (a) $\frac{\sqrt{50}}{\sqrt{2}}$ (b) $\sqrt{7} \times \sqrt{7}$	2, 1														
3.	In cooking one fluid ounce is equal to 28.4 millilitres. How much is one fluid ounce equal to in litres? Give you answer in scientific notation	2														
4.	Solve the equation $2(1 + x) - 6 = 11$	3														
5.	Calculate the height of this triangle 	3														
6.	(a) Complete the table below <table border="1" data-bbox="264 1098 1409 1272"> <tbody> <tr> <td>Number of sections (s)</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>Number of metal rings (r)</td> <td>7</td> <td>12</td> <td>17</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> (b) Write down a formula for calculating the number of rings (r) when you know the number of sections (c) Calculate the number of metal rings needed when you have 26 sections	Number of sections (s)	2	3	4	5	6	7	Number of metal rings (r)	7	12	17				2 2 1
Number of sections (s)	2	3	4	5	6	7										
Number of metal rings (r)	7	12	17													
7.	The diagram below shows the net for a cube. If this cube has a total surface area of 150 cm^2 , calculate the length of the side of the cube 	2														

<p>8.</p>	<p>This sign consists of a rectangle and a semi-circle The rectangle measures 22 cm by 60cm</p>  <p>Calculate the area and perimeter of the sign</p>	<p>6</p>
<p>9.</p>	<p>Simplify (a) $5a^3 \times 2a^{\frac{1}{2}}$ (b) $\frac{20a^7b^3}{5a^2b^{-4}}$</p>	<p>2, 3</p>
<p>10.</p>	<p>Calculate the hypotenuse of this triangle. Give your answer as a surd in a simplified form</p> 	<p>4</p>
<p>11.</p>	<p>If the height of this isosceles triangle is 9cm and the base is 14 cm, calculate all the angles in this triangle</p> 	<p>5</p>

Answers															
1.	$7c^2 - 14c = 7c(c - 2)$														
2.	(a) $\frac{\sqrt{50}}{\sqrt{2}} = \sqrt{\frac{50}{2}} = \sqrt{25} = 5$ (b) $\sqrt{7} \times \sqrt{7} = \sqrt{49} = 7$														
3.	$28.4 \div 1000 = 0.0284 = 2.84 \times 10^{-2}$														
4.	Expand the bracket $2 + 2x - 6 = 11$ Collect like terms and solve $2x - 4 = 11$ $2x = 15$ $x = \frac{15}{2}$														
5.	Using trigonometry $\sin 40^\circ = \frac{\text{height}}{20}$ $\text{height} = 20 \times \sin 40^\circ$ $\text{height} = 12.9 \text{ cm}$														
6.	<table border="1" data-bbox="272 1297 1417 1470"> <tbody> <tr> <td>Number of sections (s)</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>Number of metal rings (r)</td> <td>7</td> <td>12</td> <td>17</td> <td>22</td> <td>27</td> <td>32</td> </tr> </tbody> </table> <p>(b) $r = 5s - 3$</p> <p>(c) $r = 5 \times 26 - 3 = 127$</p>	Number of sections (s)	2	3	4	5	6	7	Number of metal rings (r)	7	12	17	22	27	32
Number of sections (s)	2	3	4	5	6	7									
Number of metal rings (r)	7	12	17	22	27	32									
7.	Area of one square is $150 \div 6 = 25 \text{ cm}^2$ Length of the cube is $\sqrt{25} = 5 \text{ cm}$														

8.	<p>radius of circle is $\frac{60-40}{2} = 10\text{ cm}$</p> <p>Area = $22 \times 60 + \frac{\pi \times 10^2}{2}$</p> <p style="margin-left: 150px;">$= 1320 + 157.0796$</p> <p style="margin-left: 150px;">$= 1477.0796$</p> <p style="margin-left: 150px;">$= 1477\text{ cm}^2$</p> <p>Perimeter = $\frac{\pi \times 20}{2} + 20 + 22 + 60 + 22 + 60 = 175.4\text{ cm}$</p>
9.	<p>(a) $5a^3 \times 2a^{\frac{1}{2}} = 10a^{3+\frac{1}{2}} = 10a^{\frac{7}{2}}$</p> <p>(b) $\frac{20a^7b^3}{5a^2b^{-4}} = 4a^{7-2}b^{3-(-4)} = 4a^5b^7$</p>
10.	<p style="margin-left: 150px;">$c^2 = a^2 + b^2$</p> <p style="margin-left: 150px;">$c^2 = 2^2 + 4^2$</p> <p>By Pythagoras $c^2 = 20$</p> <p style="margin-left: 150px;">$c = \sqrt{20}$</p> <p style="margin-left: 150px;">$c = \sqrt{4} \sqrt{5} = 2\sqrt{5}\text{ units}$</p>
11.	<p>Cut the triangle in half to get a right-angled triangle</p> <p>Find one of the base angles using tan</p> <p>$\tan x = \frac{9}{7}$</p> <p>$x = \tan^{-1}\left(\frac{9}{7}\right)$</p> <p>$x = 52^\circ$</p> <div style="text-align: center;">  </div> <p>The other base angle is 52° and the angle at the top is $180^\circ - 2 \times 52^\circ = 76^\circ$</p>