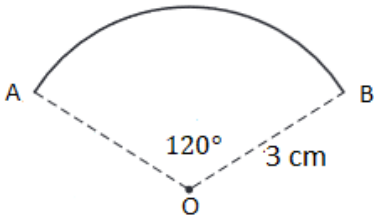
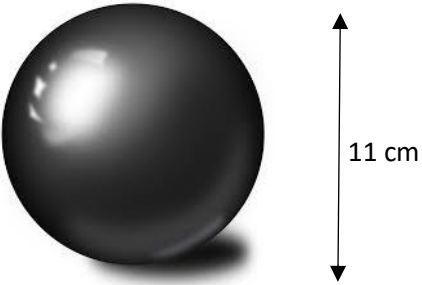
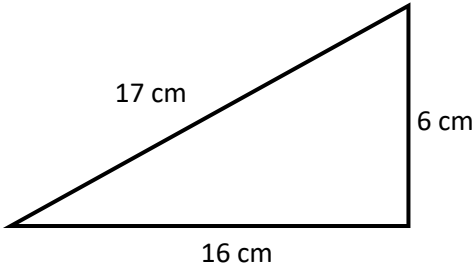


B	S3 Nat 5 Non-Calculator Revision	29
1	Express $\sqrt{63} - \sqrt{7}$ as a surd in its simplest form	2
2	Express in the simplest form (a) $\frac{c^9 d^2}{c^4 d^3}$ (b) $(5y^4)^2$	2 2
3	Multiply out the brackets and collect like terms $3x(7x + 15) - 6(x - 4)$	3
4	Factorise (a) $x^2 - 49$ (b) $x^2 + 3x - 70$	4
5	Write $x^2 + 6x + 11$ in completed square form $(x + a)^2 + b$	2
6	Find the equation of the line between the points C (1, 7) and D (4,1)	3
7	Part of the circle with centre O and radius 3cm cm is shown.  Calculate the area of this sector. Use $\pi = 3.14$	 3
B	S3 Nat 5 Calculator Revision	
8	$E = mc^2$ Change the subject of the formula to c	2
9	The diagram represents a sphere.    This sphere has a diameter of 11cm  Calculate the volume, round your answer to 3 significant figures	3
10	  Is this triangle a right-angled triangle?	3

	Answers
1	$\sqrt{63} = \sqrt{9}\sqrt{7} = 3\sqrt{7}$ , So $\sqrt{63} - \sqrt{7} = 2\sqrt{7}$
2	(a) $\frac{c^5}{d}$ (b) $5y^4 \times 5y^4 = 25y^8$
3	$21x^2 + 45x - 6x + 24 = 21x^2 + 39x + 24$
4	(a) $(x + 7)(x - 7)$ (b) $(x + 10)(x - 7)$   5   $(x + 3)^2 + 2$
6	The gradient $m = \frac{-6}{3} = -2$ Substituting into $y = mx + c$ where $m = -2$ , $x = 1$ and $y = 7$ $7 = -2 \times 1 + c$ , $7 = -2 + c$ , $c = 9$ and $y = -2x + 9$
7	$Area = \frac{120}{360} \times 3.14 \times 3^2 = \frac{1}{3} \times 3.14 \times 9 = 3 \times 3.14 = 9.42 \text{ cm}^2$
8	$mc^2 = E$ , divide by $m$ $c^2 = \frac{E}{m}$ , take a square root $c = \sqrt{\frac{E}{m}}$
9	$Volume = \frac{4}{3} \times \pi \times 5.5^3 = 696.9099 = 697 \text{ cm}^3$
10	$c^2 = 17^2 = 289$ , $a^2 + b^2 = 16^2 + 6^2 = 292$ As $289 \neq 292$ , then $c^2 \neq a^2 + b^2$ or $17^2 \neq 16^2 + 6^2$ So by the converse of Pythagoras this is not a right-angled triangle.

Extra Help from <a href="https://mathsworkout.co.uk">mathsworkout.co.uk</a> . School login is <b>madrascal</b> school password is <b>value28</b>		
1	Arcs and Sectors	<b>Geometry:</b> topic 21 <ul style="list-style-type: none"> <li>• Calculating Arcs</li> <li>• Calculating Sectors</li> </ul>
1	Changing the subject	<b>Algebra:</b> topic 11 Any Level 5 tasks
2	Completing the square	<b>Algebra:</b> topic 12 Completing the Square (level 7)
3	Indices	<b>Number:</b> topic 19 <ul style="list-style-type: none"> <li>• Indices problems</li> <li>• Multiplying and dividing Indices</li> <li>• Raising a power to a Power</li> <li>• Simplifying Indices</li> </ul>
4	Expanding Brackets	<b>Algebra:</b> topic 12 Expanding Brackets (Level 4)
5	Factorising	<b>Algebra:</b> topic 12 Factorising Quadratics (Level 5)
6	Straight Lines	<b>Graphs:</b> topic 2 <ul style="list-style-type: none"> <li>• Calculating the Gradient</li> <li>• Equation of a Straight Line 1 and 2</li> </ul>
7	Surds	<b>Number:</b> topic 20 <ul style="list-style-type: none"> <li>• All level 6 surds,</li> <li>• Simplifying a sum or difference of surds</li> </ul>
8	Volume	<b>Geometry:</b> topic 15 <ul style="list-style-type: none"> <li>• Volume of a sphere</li> </ul>