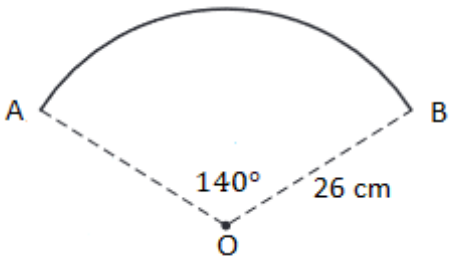
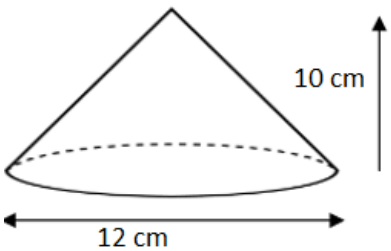
A	S3 Nat 5 Non-Calculator Revision	30
1	(a) Simplify $\sqrt{27} + 2\sqrt{3}$ (b) Evaluate $4^{\frac{3}{2}}$	2 2
2	Express in the simplest form $4y^8 \times 3y^7 \times 2y^{-3}$	3
3	Calculate $4\frac{2}{5} + 1\frac{3}{8}$	2
4	Multiply out the brackets and collect like terms $(3x - 5)(2x + 6)$	2
5	Factorise (a) $x^2 + 8x + 15$ (b) $x^2 - 81$	2 2
6	Write $x^2 + 10x + 29$ in completed square form $(x + a)^2 + b$	2
7	$T = \frac{1}{2}(h - 3)$ Change the subject of the formula to h	2
A	S3 Nat 5 Calculator Revision	
8	Find the equation of the line between the points $A\ (0,5)$ and $B\ (2,11)$. Give your answer in the simplest form.	2
9	Part of the circle with centre O and radius 26 cm is shown. Angle AOB is $140°$ Calculate the length of arc AB 	3
10	In a sale Janie bought a pair of boots which were marked down by 15%. If the sale price was £51, what was the original price?	3
11	 Calculate the volume of this cone. Give your answer rounded to **two significant figures.**	3

	Answers		
1	$(a)\ \sqrt{27} = \sqrt{9}\sqrt{3} = 3\sqrt{3}\ so\ \sqrt{27} + 2\sqrt{3} = 5\sqrt{3}\ \ (b)\ 4^{\frac{3}{2}} = \left(\sqrt{4}\right)^3 = 2^3 = 8$		
2	$4y^8 \times 3y^7 \times 2y^{-3} = 24y^{12}$	3	$4\frac{2}{5} + 1\frac{3}{8} = 5\left(\frac{2}{5} + \frac{3}{8}\right) = 5\frac{31}{40}$
4	$6x^2 + 18x - 10x - 30 = 6x^2 + 8x - 30$		
5	$(x+3)(x+5)$ $(x+9)(x-9)$	6	$(x+5)^2 + 4$
7	$\frac{1}{2}(h-3) = T$, multiply by 2 $(h-3) = 2T$, add 3 $h = 2T + 3$		
8	The gradient $m = \frac{6}{2} = 3$ and $\boldsymbol{y = 3x + 5}$		
9	Arc length $= \frac{140}{360} \times \pi \times 52 = 63.5\ cm$	10	85% = £51, 1% = £6, 100% = £60
11	$Volume = \frac{1}{3} \times \pi \times 6^2 \times 10 = 376.99 = 380\ cm^3$		

Extra help from **mathsworkout.co.uk.** School login is **madrascol** school password is **value28**		
1	Arcs and Sectors	**Geometry:** topic 21 • Calculating Arcs • Calculating Sectors
2	Changing the subject	**Algebra:** topic 11 Any Level 5 tasks
3	Completing the square	**Algebra:** topic 12 Completing the Square (level 7)
4	Indices	**Number:** topic 19 • Indices problems • Multiplying and dividing Indices • Raising a power to a Power • Simplifying Indices
5	Expanding Brackets	**Algebra:** topic 12 Expanding Brackets (Level 4)
6	Factorising	**Algebra:** topic 12 Factorising Quadratics (Level 5)
7	Fractions	**Number:** topic 14 – Add, Subtract, Multiply and Divide
8	Percentages	**Ratio:** topic 7 • Percentage increase and decrease • Calculating reverse percentages
9	Straight Lines	**Graphs:** topic 2 • Calculating the Gradient • Equation of a Straight Line 1 and 2
10	Surds	**Number:** topic 20 • All level 6 surds, • Simplifying a Product of Surds • Simplifying a sum or difference of surds • Rationalising the denominator
11	Volume	**Geometry:** topic 15 • Volume of a cone