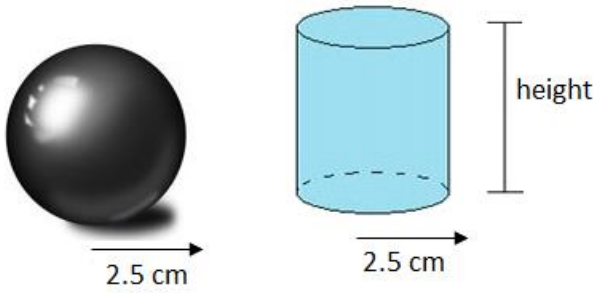
D	S3 Nat 5 Non-Calculator Revision	30
1	Evaluate $1\frac{1}{8} \times 3\frac{1}{5}$	2
2	Evaluate 2^{-2}	2
3	Expand the brackets and simplify $(x+1)(x-2)+(x-3)^2$	3
4	Factorise (a) $x^2+11x-60$ (b) x^2-y^2	4
5	Write x^2+8x-1 in completed square form $(x+a)^2+b$	2
6	A straight line passes through the points (-1,2) and (4,-3). Find the equation of the straight line in the simplest form.	3
5	Hannah pays £330 for an antique mirror that she buys at an auction. This price includes 10% sales tax. What is the price of the mirror before tax?	3
8	Three of these expressions have the same value $\sqrt{2} \times \sqrt{12}, \quad 3\sqrt{8}, \quad \sqrt{24}, \quad 2\sqrt{6}$ Which one is the odd one out? **You must give a reason for your answer**	3
D	S3 Nat 5 Calculator Revision	
9	$P = \frac{W}{5} - g$ Change the subject of the formula to W	2
10	Simplify $\frac{10c^4 \times 3c^{11}}{6c^7}$	2
11	The sphere and the cylinder both have a radius of 2.5 centimetres.  (a) Calculate the volume of the sphere, give your answer rounded to the nearest whole number. (b) The cylinder has the same volume as the sphere. Calculate the height of the cylinder.	2 2

	Paper D - Answers			30
1	$\frac{9}{8} \times \frac{16}{5} = \frac{144}{40} = \frac{18}{5}$	2	$2^{-2} = \frac{1}{2^2} = \frac{1}{4}$	
3	$x^2 - 2x + x - 2 + (x-3)(x-3)$ $= x^2 - x - 2 + [x^2 - 6x + 9] = \mathbf{2x^2 - 7x + 7}$			
4	(a) $(x+15)(x-4)$ (b) $(x+y)(x-y)$			
5	$(x+4)^2 - 17$			
6	$m = -\frac{5}{5} = -1$, Using $m = -1$, $x = 4$ *and* $y = -3$, $-3 = -1(4) + c$ $c = 1$ The equation of this straight line is $y = -x + 1$			
7	110% = £330, 10% = 30 (divide by 11) so 100% = £300			
8	$\sqrt{2} \times \sqrt{12} = \sqrt{24} = \sqrt{4}\sqrt{6} = 2\sqrt{6}$ $3\sqrt{8}$ is a simplified surd $\sqrt{24} = \sqrt{4}\sqrt{6} = 2\sqrt{6}$, $2\sqrt{6}$ is a simplified surd $\mathbf{3\sqrt{8}}$ is the odd one out as all the other expression are equal to $\sqrt{24}$ or $2\sqrt{6}$			
9	add g $\frac{w}{5} = P + g$, multiply by 5 $w = 5(P+g)$			
10	$\frac{10c^4 \times 3c^{11}}{6c^7} = \frac{30c^{15}}{6c^7} = 5c^8$			
11	Volume of the sphere is $\frac{4}{3} \times \pi \times 2.5^3 = 65.4498 \ldots = 65\ cm^3$ The volume of a cylinder is $V = \pi \times r^2 \times h$. Substitute into this formula $65 = \pi \times 2.5^2 \times height$. height is $65 \div (\pi \times 2.5^2) = 3.3\ cm$ check $\pi \times 2.5^2 \times 3.3 = 64.78 = 65$			

Extra Help from **mathsworkout.co.uk.** School login is **madrascol** school password is **value28**		
1	Changing the subject	**Algebra:** topic 11 Any Level 5 tasks
2	Completing the square	**Algebra:** topic 12 Completing the Square (level 7)
3	Indices	**Number:** topic 19 Simplifying Indices
4	Expanding Brackets	**Algebra:** topic 12 Expanding Brackets (Level 4)
5	Factorising	**Algebra:** topic 12 Factorising Quadratics (Level 5)
6	Fractions	**Number:** topic 14 – Divide
7	Percentages	**Ratio:** topic 7 Calculating reverse percentages
8	Straight Lines	**Graphs:** topic 2 • Calculating the Gradient • Equation of a Straight Line 1 and 2
9	Surds	**Number:** topic 20 • All level 6 surds, • Simplifying a Product of Surds • Simplifying a sum or difference of surds
10	Volume	**Geometry:** topic 15 Volume of a cylinder and a sphere