Question			Answer	Marks	Part Marks and Guidance	
1			2 feet 8 inches	5	B1 for a correct conversion from feet to inches And M1 for correct SF or multiplier And DM1 for correct calculation with their SF And A1 for 32	Such as 4' = 48" eg 3/2, 2:3, 48/9 oe, 9:48 eg $6 \times \frac{48}{9}$

2	(a)		7½×2½ in correct place on grid 5×2½ in correct ft place on grid 7½×5 in correct ft place on grid	**1** **1** **1**		Condone freehand. Ignore tabs -1 for extra rectangles
	(b)		13750	**3**	**M2** for (50×75 + 50×25 + 25×75) × 2 oe **Or M1** for any two of 50×75, 50×25, 25×75 After 0 scored Allow **SC1** for answer 137.5	Soi by 7500, 2500, 3750 Condone 1 numerical slip Soi by 3750, 1250, 1875 For M1 and M2 allow working to scale (ie using 5, 7.5, 2.5)
	(c)	(i)	125	**2**	**M1** for 5×5×5 soi	
		(ii)	750	**3**	**M2** for 10×15×5 Or for 50×75×25 *their* 125 **Or M1** for dividing one length by 5 soi Or for 93750 seen	

3	**(a)**	**(i)**	Using right-angled triangle with hyp 48 and side 42 $\sqrt{48^2 - 42^2}$ or 23.2(...) 11.76(...) or 11.8	M1 M2 A1	Just seeing marked on diagram is not sufficient **M1** for $48^2 - 42^2$ or for $\sqrt{48^2 + 42^2}$	For a scale drawing, only this first mark is available
		(ii)	sin C = 42/48 Inv trig fn seen or used 61 to 61.1	M1 M1 A1	Or equiv trig fns using *their* (a) Not dep on first M1	**0** for scale drawing
	(b)		[*d* =] 31/cos 25 34.2(...)	M2 A1	**M1** for cos 25 = 31/*d* or *d* × cos 25 = 31 Accept 34 with clear evidence of method	may use sine with 65 or their (180 − 90 − 25) or tan and Pythagoras **M0** for scale drawing

4			Answer of 161.99 to 162.24 with correct and clear method shown. Appropriate language throughout.	6	$x^2 + x^2 + x^2 = 9^2$ $3x^2 = 81$ $x^2 = 27$ $(x = \sqrt{27})$ $SA = 6x^2 = 162$ *(Allow 161.99 to 162.24)*	For Pythagoras: - *a*, *b* and *c* must be a number or a letter (one of which may be *a*, *b* or *c*) - allow cosine rule with angle 90
			Correct answer and method shown but with less structure to solution and slips in notation	5-4	Attempt to use 3D Pythagoras (could be using 2D twice) **and** attempt to find total surface area	
			Any attempt at Pythagoras in 3D **Or** correct use of Pythagoras in 2D **and** considers total surface area	3-2	Any attempt at Pythagoras in 3D **Or** any attempt at Pythagoras in 2D **and** considers total surface area	For **3** or more marks Pythag. must contain *x*
			Any attempt at Pythagoras in 2D **or** attempt to find total surface area	1-0	No relevant comment	For **2** or **1** marks Pythag. may be using values or letters and a value

5	(a)		7×2 + 3×1 soi OR 6×2 + 5×1 soi OR 7×5 − 3×6 soi	**2**	**M1** for **any one** of 7×2, 3×1, 6×2, 5×1, 7×5, 3×6 soi	
	(b)		130	**3**	**M2** for 17; 17; 4×1; 4×2; 4×3; 4×5; 4×6; 4×7 oe soi with at most one incorrect, one extra or one missing **Or M1** for **any five** of these sides soi	**M2** for 17×2; 5×4×2; 7×4×2 **Or M1** for **any two** of these

6	(a)		60	**3**	**M2** for 1200 ÷ 20 **Or M1** for *their* (1200) ÷ 20 soi by answer figs 6	
	(b)	(i)	1500	**3**	**M2** for *their*(60) × 5^2 **Or B1** for s.f. 5 soi	
		(ii)	150	**2**	**M1** for 1.2 × 5^3 soi Or for *their*(1500) × 100/1000 soi	

7	**(a)**		22 700	3	**SC2** for answer 23 400 or 18 850 OR **M2** for 2(60 × 55 + 60 × 70 + 55 × 70) oe Or **M1** for two of 60 × 55, 60 × 70, 55 × 70 seen	4 faces same or open top Soi by 3300, 4200, 3850 or by 6600, 8400, 7700
	(b)		60 × 55 × 70 231 000 *Their* volume ÷ 1000	M1 A1 M1	 Independent of first **M** mark May be implied by 1000 cm^3 = 1 litre	
	(c)		6 mins 25 secs	3	**M1** for 231 ÷ 0.6 **A1** for 385 soi by 6.416…rot	

8	(a)		6 [equal] sides Area of one side is $x \times x$ or x^2	**1** **1**		
	(b)		[0] 6 24 54 96 150	**2**	**B1** for 3 values correct	
	(c)		Their 6 points correctly plotted Curve through their 6 points	**1** **1**	±½ small square horiz or vert Within ½ small square horiz or vert	 Not too thick or hairy
	(d)		3.2 to 3.6	**1**		

9			$\pi d = 60$ oe	M1	Soi by $d = 19$ to 19.11	
			$r = \frac{60}{2\pi}$ oe	A1	Condone $r = 9.5$ to 10	
			A = 4π (*their r*)^2	M1		
			$\frac{3600}{\pi}$	A2	**A1** for <u>any</u> correct partial simplification Or for answer (364 to 365) π	