1	$1.5 \times 2 \times 8$ (= 24 (cm^3))			M1	for finding the volume of the cuboid
	e.g. (V =) $\frac{5.73\times1000}{19.32}$ (= 296.58...) **or** (M =) 19.32 × "24" (= 463.68)			M2	complete method to find the volume of statue **or** the mass of one block, could work in g or kg (if not M2 then award M1 for correct use of density formula e.g. $19.32 = \frac{5.73\times1000}{V}$ **or** $19.32 = \frac{M}{"24"}$)
	e.g. "296.58" ÷ "24" (= 12.3576...) **or** "5730" ÷ "463.68" (= 12.3576...)			M1	could work in g or kg
		13	5	A1	cao
					Total 5 marks

2	$30 = \frac{27}{1.2x}$		3	M1	Or for $\frac{27}{30}$ (= 0.9)
	$1.2x = \frac{27}{30}$ or $36x = 27$ or $22.5 \div 30$			M1	
		0.75 oe		A1	
					Total 3 marks

3	$0.14 = \frac{56}{w^2}$ oe **or** $56 \div 0.14$ (= 400)		4	M1	for using the given formula correctly
	$\sqrt{\frac{56}{0.14}}$ **or** $\sqrt{'400'}$ (=20)			M1	for a method to find w
	'20' × '20' × '20' oe			M1	(dep on M2) for a method to find the volume of the cube
		8000		A1	
					Total 4 marks

4	19.3 × 150		2	M1	for 19.3 × 150
		2895		A1	for 2895
					Total 2 marks

5	eg (V=) $\pi \times \left(\frac{18}{2}\right)^2 \times 3.5$ (= 890.(64...) or $\frac{567}{2}\pi$)		3	M1	correct method to calculate volume
	eg (7.04 × 1000) ÷ "890.64"			M1	correct method to calculate density (if volume is incorrect, their value can be used if clearly labelled) accept use of 7.04 or an incorrect conversion from kg to g for mass
		7.9		A1	accept 7.9 – 7.92
					Total 3 marks

6	$1.4 = \frac{72}{(\text{area})}$ oe		4	M1
	(area =) $\frac{72}{1.4}$ (= $\frac{360}{7}$ = 51.4...) oe			M1 (51.4 or better)
	"51.4..." × 18 **or** $r = \sqrt{\frac{"51.4..."}{\pi}}$ (= 4.046...) **and** $\pi \times "4.046"^2 \times 18$			M1 allow use of πr^2 to find the radius and then using $\pi r^2 h$ to find the volume
		926		A1 Allow 925 – 928
				Total 4 marks

7	$\pi x^2 + 2\pi x \times 3x + \frac{1}{2} \times 4\pi x^2 = 81\pi$ oe or $9x^2 = 81$oe **or** $2\pi x \times 3x + \frac{1}{2} \times 4\pi x^2 = 81\pi$ oe or $8x^2 = 81$		6	M1	for setting up an equation (in a single variable ie x or r) for the total surface area of the shape **or** for the curved surface area.
	$(x =) \sqrt{\frac{81}{9}}$ (= 3)			M1	solving their equation in the form $kx^2\pi = 81\pi$ (where k follows correctly from their surface area) to find x
	$\pi \times '3'^2 \times 3 \times '3' + \frac{1}{2} \times \frac{4}{3} \pi '3'^3$ oe (= $81\pi + 18\pi = 99\pi$ = 311.(017...))			M1	(indep) for substituting their value of x to find the volume of the shape.
	99π or 311.(017...)			A1	
	$\frac{840}{'311'}$ (= 2.7....) oe			M1	(dep on the 3rd M) for using the formula for density
		aluminium		A1	for aluminium **and** correct working leading to 2.7
					Total 6 marks

8	eg $\pi \times 3^2 \times 7$ (= 63π or 197.9…)		3	M1	for method to find the volume of Solid **A**
	eg $\frac{2000}{[\text{vol A}]}$ **or** $\frac{3375}{450}$ (= 7.5 oe) **or** $\frac{2000+3375}{[\text{vol A}]+450}$			M1	(indep) for method to find the density of Solid **A**, **B** or **C,** allow use of their volume for Solids **A** and **C**
	Correct answer scores full marks (unless from obvious incorrect working)	8.3		A1	accept 8.29 – 8.31
					Total 3 marks

9	$(V =)\frac{1950}{7.8}(=250)$ **or** $7.8 = \frac{1950}{w \times 5 \times 4}$ or $7.8 = \frac{1950}{w \times 20}$		3	M1	for correct method to find volume using mass ÷ density **or** a correct equation with correct expression for volume (may be embedded in another calculation)
	eg $w = \frac{1950}{7.8 \times 5 \times 4}$ **or** $20w = \frac{1950}{7.8}$ **or** $20w$ = "250" **or** $4 \times 5 \times w$ = "250" **OR** eg $\frac{1950}{5 \times 4 \times 7.8}$ **or** 1950 ÷ (20 ×7.8) **or** 1950 ÷ 156 **or** "250" ÷ 20			M1	for a fully correct equation in w **or** a fully correct calculation to find the value of w (may be labelled eg x or L)
	Correct answer scores full marks (unless from obvious incorrect working)	12.5		A1	
					Total 3 marks

10	255 or 265 or 2.85 or 2.75		4	B1	for sight of a correct upper or lower bound
	$(V =)\ \frac{4}{3}\pi \times (2.75)^3$ $(= \frac{1331}{48}\pi$ or 87.1137….)			M1	calculation to find V using $V = \frac{4}{3}\pi r_{LB}^{\ 3}$ where $2.75 \leq r_{LB} < 2.8$ or use of 2.85
	$(D =)\ \frac{265\pi}{\frac{4}{3} \times \pi \times 2.75^3}$ (condone missing π for 265π (also may have cancelled out π))			M1	method to find UB of density, using LB of V and UB of M for correct substitution into $D = \frac{\pi M_{UB}}{V_{LB}}$ where $260 < M_{UB} \leq 265$ **and** $87.11... \leq V_{LB} < 91.95...$ oe
		9.56		A1	dep on M2 and all correct bounds used allow 9.55 - 9.56
					Total 4 marks