21	$\pi x^2 + 2\pi x \times 3x + \frac{1}{2} \times 4\pi x^2 = 81\pi$ 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 (= 81π + 18π = 99π = 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