

Density, Mass & Volumes Mark Scheme																		
1(a)	$27000g \div 0.0015 m^3$	[1] Density = mass / volume																
	$18000000 g/m^3$	[1] Correct density in g/m^3																
1(b)	<table border="1"> <thead> <tr> <th>Object</th> <th>Mass</th> <th>Volume</th> <th>Density</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>27 kg</td> <td>1500 cm^3</td> <td>0.018 kg/cm^3</td> </tr> <tr> <td>B</td> <td>24050g</td> <td>250 m^3</td> <td>96.2 g/m^3</td> </tr> <tr> <td>C</td> <td>8.1 g</td> <td>0.3cm^3</td> <td>27 g/cm^3</td> </tr> </tbody> </table>	Object	Mass	Volume	Density	A	27 kg	1500 cm^3	0.018 kg/cm^3	B	24050g	250 m^3	96.2 g/m^3	C	8.1 g	0.3cm^3	27 g/cm^3	[1] 0.018 kg/cm^3 [1] 24050g [1] 0.3 cm^3
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2	$Volume = 3cm \times 4cm \times 5cm = 60cm^3$	[1] Find the volume of the cube																
	$Mass = Density \times Volume = 0.57g/cm^3 \times 60cm^3$	[1] Use of rearranged $d = m/v$ formula																
	$Mass = 34.2g$	[1] Correct mass																
3(a)	$Mass = Density \times Volume = 7.8 g/cm^3 \times 3 cm^3$	[1] Use of rearranged $d = m/v$ formula																
	$Mass = 23.4g$	[1] Correct mass																
3(b)	Iron: $5g \div 7.8g/cm^3 = 0.64cm^3$	[1] Volume = mass/density																
	Aluminium: $5g \div 2.7g/cm^3 = 1.85cm^3$	[1] Volume = mass/density																
	Difference: $1.85cm^3 - 0.64cm^3 = 1.21cm^3$	[1] Correct difference in volumes																
4	$Mass = Density \times Volume = 9.8g/cm^3 \times 60cm^3$	[1] Use of rearranged $d = m/v$ formula																
	$588g$	[1] Correct mass																
5(a)	$233.1g \div 1.85gm/cm^3$	[1] Volume = mass/density																
	$= 126cm^3$	[1] Correct volume																
5(b)	$126cm^3 \div (3cm \times 6cm) = 7cm$	[1] Correct length																
6	$Volume = \frac{4}{3}\pi \times 4^3 = 268cm^3$	[1] Correct volume calculation																
	$Mass = 8g/cm^3 \times 268cm^3$	[1] Mass = density \times volume																
	$= 2140g$	[1] Correct mass to 3 sf																

END