

1 (a) Define *density*.

.....
[1]

(b) The mass m of a metal sphere is given by the expression

$$m = \frac{\pi d^3 \rho}{6}$$

where ρ is the density of the metal and d is the diameter of the sphere.

Data for the density and the mass are given in Fig. 1.1.

quantity	value	uncertainty
ρ	8100 kg m ⁻³	± 5%
m	7.5 kg	± 4%

Fig. 1.1

(i) Calculate the diameter d .

$d =$ m [1]

(ii) your answer in (i) and the data in Fig. 1.1 to determine the value of d , with its absolute uncertainty, to an appropriate number of significant figures.

$d =$ ± m [3]

[Total: 5]