

Density, Mass and Volume (A)

ANSWERS

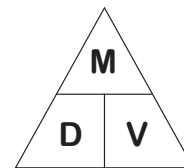


Section A

Calculating Density

Use the mass and volume of each element to calculate its density in g/cm^3 .

Element	Mass	Volume	Density (g/cm^3)
Silicon	15 g	6.44 cm^3	2.33 g/cm^3
Zinc	2.5 kg	350.63 cm^3	7.13 g/cm^3
Lithium	340 g	636.7 cm^3	0.53 g/cm^3
Mercury	3251 g	240 cm^3	13.55 g/cm^3
Titanium	0.8 kg	176.21 cm^3	4.54 g/cm^3
Oxygen	8.574 g	6000 cm^3	0.0014 g/cm^3



Given that $1000 \text{ cm}^3 = 1 \text{ L}$,
Convert this density to g/L .

$$0.0014 \times 1000 =$$

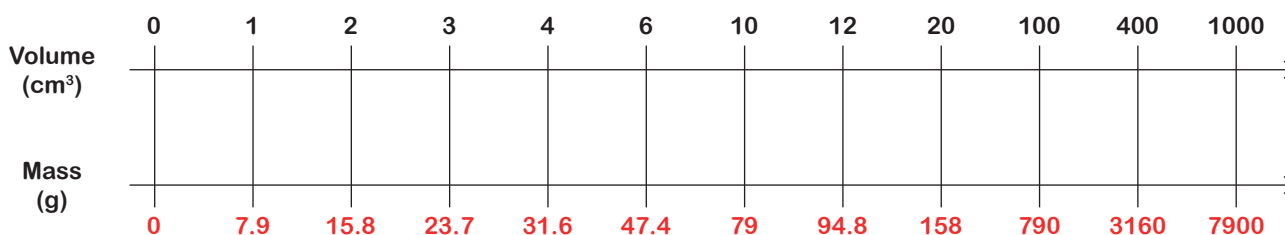
$$\underline{1.4 \text{ g/L}}$$

Section B

Calculating Mass and Volume

1) The density of iron is 7.9 g/cm^3 to 1 d.p.

a) Use the density to complete stacked number line:



b) What kind of relationship exists between mass and volume?

Mass is directly proportional to volume.
For example, as volume doubles, mass doubles.

2) Complete the table, giving your answer in the specified units.

Element	Mass	Volume	Density (g/cm^3)
Silver	4.2 kg	400 cm^3	10.5 g/cm^3
Tin	5000 g	684 cm^3	7.31 g/cm^3
Nitrogen	0.94 g	750 cm^3	1.25 g/L
Carbon	2712 g	1.2 L	2.26 g/cm^3
Copper	723 g	80.7 cm^3	8.96 g/cm^3
Calcium	1.4 kg	903.23 cm^3	1.55 g/cm^3
Aluminum	54.04 kg	0.02 m^3	2.702 g/cm^3
Gold	1 tonne	0.0518 m^3	19.31 g/cm^3