## FURTHER QUESTIONS

[6]

[5]

[8]

[4]

**1** Copy and complete the table shown below:

measurement	unit	symbol
length	?	?
?	kilogram	?
?	?	S

**2** Write down the number of

- A mg in 1 g
- **B** g in 1 kg
- **C** mg in 1 kg
- **D** mm in 4 km
- E cm in 5 km
- **3** Write down the values of
  - **a** 300 cm, in m
  - **b** 500 g, in kg
  - **c** 1500 m, in km
  - **d** 250 ms, in s
  - **e** 0.5 s, in ms
  - **f** 0.75 km, in m
  - **g** 2.5 kg, in g
  - **h** 0.8 m, in mm
- **4** The volume of a rectangular block can be calculated using this equation:

volume = length  $\times$  width  $\times$  height Using this information, copy and complete the table below. [4]

length	width	height	volume of rectangular block
2 cm	3 cm	4 cm	?
5 cm	5 cm	?	100 cm <sup>3</sup>
6 cm	?	5 cm	300 cm <sup>3</sup>
?	10 cm	10 cm	50 cm <sup>3</sup>

- **5** In each of the following pairs, which quantity is the larger?
  - a 2 km or 2500 m?
  - **b** 2 m or 1500 mm?
  - **c** 2 tonnes or 3000 kg?
  - **d** 2 litres or  $300 \text{ cm}^3$ ?

- **6** Which of the following statements is/are correct?
  - A One milligram equals one million grams.
  - **B** One thousand milligrams equals one gram.
  - **C** One million milligrams equals one gram.
  - **D** One million milligrams equals one kilogram. [2]

S

m g/cm <sup>3</sup> m <sup>3</sup> km cr	7 r	m g/cn	n <sup>3</sup> m <sup>3</sup>	km	cm
--	-----	--------	-------------------------------	----	----

kg ms ml kg/m<sup>3</sup>

Which of the above are

- **a** units of mass?
- **b** units of length
- **c** units of volume?
- d units of time?e units of density?

[11]

**8** Which block is made of the densest material?

block	mass/g	length/cm	breadth/cm	height/cm
Α	480	5	4	4
В	360	10	4	3
С	800	10	5	2
D	600	5	4	3

**9** The mass of a measuring cylinder and its contents are measured before and after putting a stone in it.



Which of the following could you calculate using measurements taken from the apparatus above?

- A the density of the liquid only
- **B** the density of the stone only
- **C** the densities of the liquid and the stone [2]
- 10 A plastic bag filled with air has a volume of 0.008 m<sup>3</sup>. When air in the bag is squeezed into a rigid container, the mass of the container (with air) increases from 0.02 kg to 0.03 kg. Use the formula

density = 
$$\frac{\text{mass}}{\text{volume}}$$

to calculate the density of the air in the bag. [2]





In the diagram above, the tanks contain two different liquids, X and Y.

**a** What is the volume of each liquid in m<sup>3</sup>?

[2]

[2]

[2]

[2]

- **b** If you had 1 m<sup>3</sup> of the liquid X, what would its mass be?
- **c** What is the density of liquid X?
- **d** What is the density of liquid Y?

**12** The table shows the density of various substances.

substance	density/ g/cm³
copper	8.9
iron	7.9
kerosene	0.87
mercury	13.6
water	1.0

Consider the following statements:

- **A** 1 cm<sup>3</sup> of mercury has a greater mass than 1 cm<sup>3</sup> of any other substance in this table true or false?
- **B** 1 cm<sup>3</sup> of water has a smaller mass than 1 cm<sup>3</sup> of any other substance in this table true or false?
- **C** 1 g of iron has a smaller volume than 1 g of copper true or false?
- D 1 g of mercury has a greater mass than 1 g of copper true or false? [2]
- **13** A student decides to measure the period of a pendulum (the period is the time taken for one complete swing). Using a stopwatch, he finds that 8 complete swings take 7.4 seconds. With his calculator, he then uses this data to work out the time for one swing. The number shown on his calculator is 0.925.
  - a Is it acceptable for the student to claim that the period of the pendulum is 0.925 seconds? Explain your answer. [2]
  - **b** How could the student measure the period more accurately? [2]
  - c Later, another student finds that 100 complete swings take 92.8 seconds. From these measurements, what is the period of the pendulum?