

WRITTEN EXERCISE #01 - T23.4

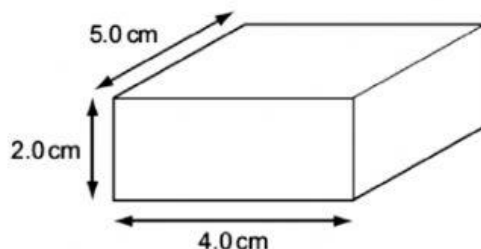
TOPIC 23 MOTION, FORCE & ENERGY  
***SUBTOPIC 23.4 DENSITY***

ANSWER ALL QUESTIONS

- 1 Which of the following describes the density of a material?
- A the amount of matter in the material
  - B the mass per unit volume of the material
  - C the pull of gravity on the material
  - D the volume per unit mass of the material

☐

- 2 The diagram shows a solid with dimensions 5 cm x 4 cm x 2 cm. It has a mass of 100 g.



What is the density of the solid?

- A 0.40 g/cm<sup>3</sup>    B 2.5 g/cm<sup>3</sup>    C 5.0 g/cm<sup>3</sup>    D 10 g/cm<sup>3</sup>

☐

- 3 A container is filled with 5 kg of paint. The density of the paint is 2 g / cm<sup>3</sup>. Which volume of container is needed?

- A 10 cm<sup>3</sup>    B 400 cm<sup>3</sup>    C 2500 cm<sup>3</sup>    D 10 000 cm<sup>3</sup>.

☐

- 4 The mass and density of four objects are given in the table. Which object has the largest volume?

|   | <u>density</u><br>kg/m <sup>3</sup> | mass / kg |
|---|-------------------------------------|-----------|
| A | 200                                 | 0.6       |
| B | 400                                 | 1.0       |
| C | 1000                                | 2.0       |
| D | 1500                                | 3.0       |

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5 Fig. 3.1 shows a measuring cylinder containing liquid paraffin.

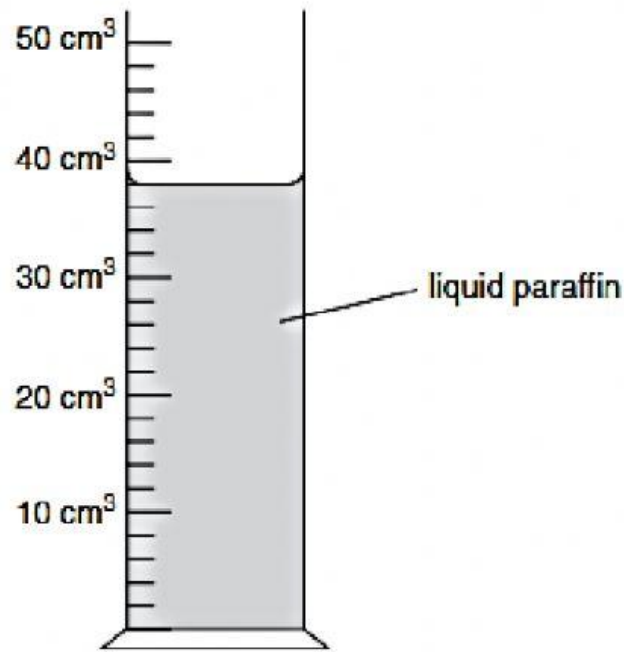


Fig. 3.1

(a) State the volume of the liquid paraffin shown in the measuring cylinder in Fig. 3.1.

..... cm<sup>3</sup> [1]

(b) A student measures the mass of the empty measuring cylinder and then containing the liquid paraffin. His results are shown in Fig. 3.2.

|                                                           |        |
|-----------------------------------------------------------|--------|
| mass of empty measuring cylinder                          | 20.2 g |
| mass of measuring cylinder containing the liquid paraffin | 50.6 g |

Fig. 3.2

Calculate

(i) the mass of the paraffin .....[1]

(ii) the density of the paraffin. [3]

- 6 A measuring cylinder contains  $80\text{ cm}^3$  of water and has a total mass of  $300\text{ g}$ .

A stone is then lowered into the cylinder. The new reading of the volume is  $110\text{ cm}^3$  and the total mass is  $390\text{ g}$ .

The readings are shown in Fig. 12.1.

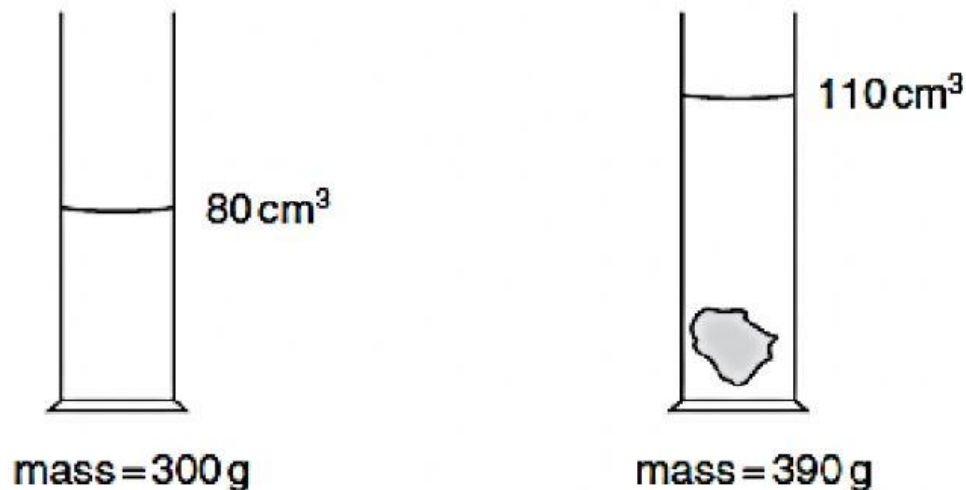


Fig. 12.1

(a) What is the mass of the stone? ..... g [1]

(b) What is the volume of the stone? .....  $\text{cm}^3$  [1]

(c) Use your answers to (a) and (b) to calculate the density of the stone.

[3]