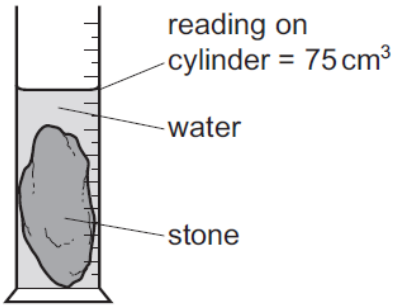
Density – 2021 O Level 5054

1. Nov/2021/Paper_11/No.6

A stone is placed in a measuring cylinder of water, as shown.



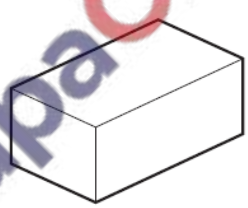
The volume of water in the cylinder before adding the stone is $15\,cm^3$ and the stone has a mass of 90 g.

What is the density of the stone?

A $1.0\,g/cm^3$ **B** $1.2\,g/cm^3$ **C** $1.5\,g/cm^3$ **D** $6.0\,g/cm^3$

2. Nov/2021/Paper_12/No.7

A student takes measurements to find the density of a regularly shaped block.



Which formula is used to calculate the density of the block?

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

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

C $\text{density} = \frac{\text{weight}}{\text{area}}$

D $\text{density} = \frac{\text{weight}}{\text{volume}}$

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3. Nov/2021/Paper_22/No.1b,1c

Fig. 1.1 shows a jug of liquid and an empty measuring cylinder that is on an electronic balance.

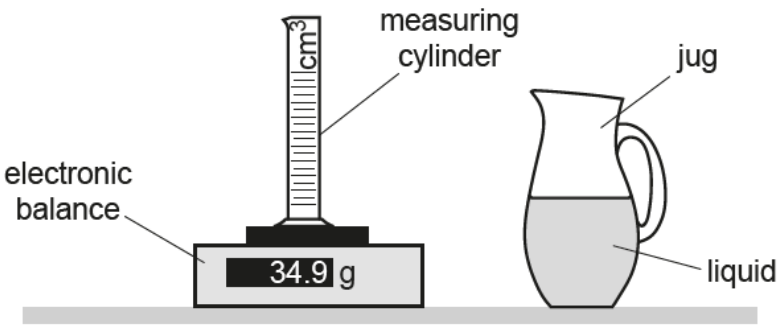

Fig. 1.1

(a) The electronic balance uses the weight of the measuring cylinder to determine its mass.

Weight and mass have different units.

State **two** other ways in which weight differs from mass.

1. .....

.....

2. .....

.....

[2]

(b) Describe how to determine the density of the liquid using the apparatus shown in Fig. 1.1.

.....

.....

.....

.....

.....

..... [4]

(c) The density of the liquid is 780 kg / m^3.

Determine the volume of 0.65 kg of the liquid.

volume = ... [2]

[Total: 8]

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4. June/2021/Paper_11/No.7

Water is added to a measuring cylinder containing 100 cm^3 of liquid paraffin.

(The density of paraffin is 0.80 g/cm^3 and that of the water is 1.0 g/cm^3.)

As the water is added, the level of the paraffin rises to 150 cm^3. The paraffin and water do not mix.

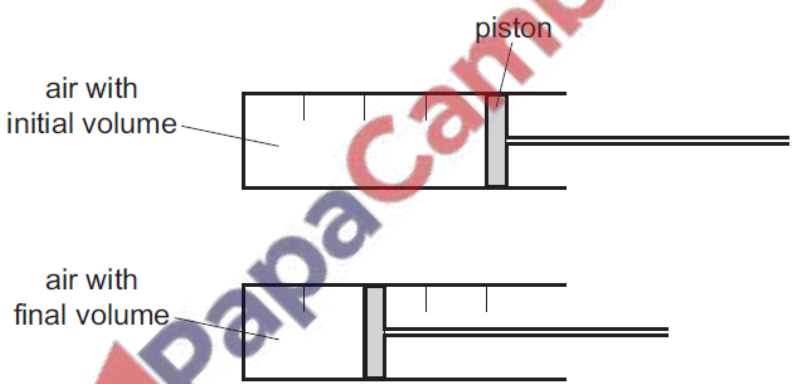
What finally is the total mass of liquid in the measuring cylinder?

A 130 g **B** 140 g **C** 167 g **D** 175 g

5. June/2021/Paper_12/No.7

Air is trapped in a cylinder by a piston.

The piston is moved inwards so that the volume of the air reduces.



The density of the air in the syringe at the initial volume is 0.0012 g/cm^3.

What is the density of the air in the syringe at the final volume?

A 0.0006 g/cm^3

B 0.0012 g/cm^3

C 0.0024 g/cm^3

D 0.0048 g/cm^3

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