Density – 2021 IGCSE 0625

1. June/2021/Paper_11&21/No.6

The mass of an empty flask is 34 g.

The volume of liquid added to the flask is 20 cm^3.

The total mass of the flask and the liquid is 50 g.

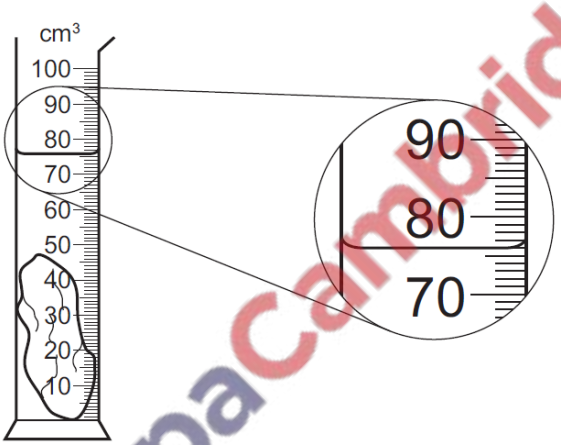
What is the density of the liquid?

A 0.80 g / cm^3 **B** 1.25 g / cm^3 **C** 2.50 g / cm^3 **D** 4.20 g / cm^3

2. June/2021/Paper_12&22/No.6,5

A measuring cylinder contains 40 cm^3 of water.

A stone of mass 94 g is lowered into the water so that it is fully submerged as shown.



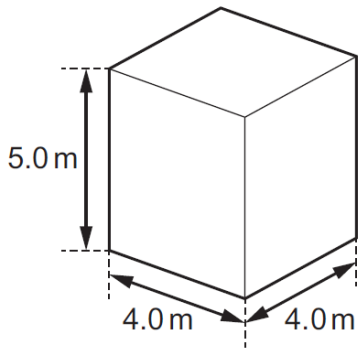
What is the density of the stone?

A 1.1 g / cm^3 **B** 1.2 g / cm^3 **C** 2.1 g / cm^3 **D** 2.6 g / cm^3

3. June/2021/Paper_13&23/No.6,5

The tank shown has the dimensions 5.0 m × 4.0 m × 4.0 m.

It is completely filled with water of density 1000 kg / m^3.



What is the mass of water in the tank?

A 12.5 kg **B** 62.5 kg **C** 16 000 kg **D** 80 000 kg

4. March/2021/Paper_12&22/No.6,5

A small bottle has a mass of 20 g when empty. The volume of the bottle is 10 cm^3.

When full of liquid, the total mass is 150 g.

What is the density of the liquid?

A 0.50 g / cm^3 **B** 2.0 g / cm^3 **C** 13 g / cm^3 **D** 15 g / cm^3

5. June/2021/Paper_31/No.2

A liquid-in-glass thermometer contains mercury.

(a) The mass of the mercury in the thermometer is 12 g.

(i) Calculate the weight of the mercury.

weight of mercury = ... N [3]

(ii) The 12 g of mercury has a volume of 0.88 cm^3.

Calculate the density of mercury.

density of mercury = ... g/cm^3 [3]

(b) The mercury in the thermometer expands when its temperature rises.

(i) State what happens to the mass of the mercury when its temperature rises.
Tick (✓) **one** box.

mass decreases	
mass stays the same	
mass increases	

[1]

(ii) State what happens to the density of the mercury when its temperature rises.
Tick (✓) **one** box.

density decreases	
density stays the same	
density increases	

[1]

[Total: 8]

6. June/2021/Paper_33/No.2

(a) A scientist has a measuring cylinder, a beaker of sea water and an electronic balance.

Describe an experiment to determine the density of the sea water.

Include any equations in your answer.

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..... [5]

(b) A plank of wood floats on the sea.

Explain why the wood floats.

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..... [1]

[Total: 6]

7. March/2021/Paper_32/No.2

Fig. 2.1 shows a measuring cylinder containing water.

Fig. 2.2 shows the same measuring cylinder after a stone has been lowered into it.

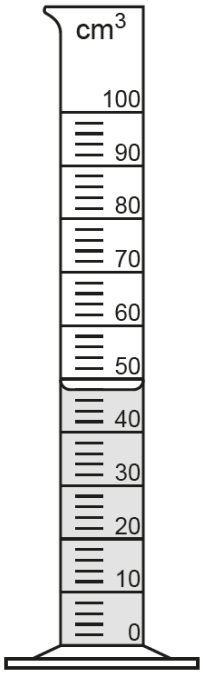

Fig. 2.1

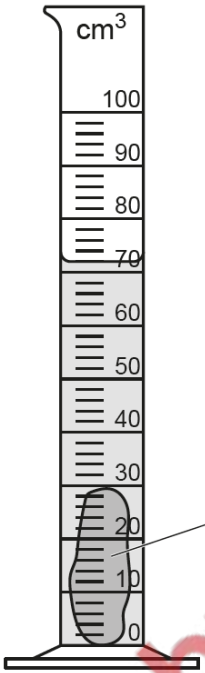

Fig. 2.2

(a) Calculate the volume of the stone.

volume = ... cm^3 [2]

(b) Another stone has a mass of 98.4 g. The volume of this stone is 41.0 cm^3.

Calculate the density of the stone.

density = ... g/cm^3 [3]

(c) The stone with a mass of 98.4 g has a weight of 0.984 N.
Explain the difference between mass and weight.

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..... [2]

[Total: 7]