

Name of the Student: _____

Max. Marks : 21 Marks

Time : 21 Minutes

Q1.

Figure 1 shows a small piece of copper about 3 cm high.



© David J. Green/Alamy Stock Photo

Figure 1

A student wants to determine the density of copper.

The student uses a balance to measure the mass of the piece of copper.

(i) Explain how the student could measure the volume of the piece of copper.

(3)

.....

.....

.....

.....

.....

.....

(ii) The mass of the piece of copper is 0.058 kg.

The volume of the piece of copper is $6.5 \times 10^{-6} \text{ m}^3$.

Calculate the density of copper.

(2)

density of copper = kg/m³

(Total for question = 5 marks)

Q2.

An object has a mass of 7.22×10^{-2} kg and a volume of 2.69×10^{-5} m³.

Calculate the density, ρ , of the object.

Use the equation

$$\rho = \frac{m}{V}$$

(3)

State the unit.

(Total for question = 3 marks)

Q3.

Figure 3 shows the dimensions of a solid block of concrete.

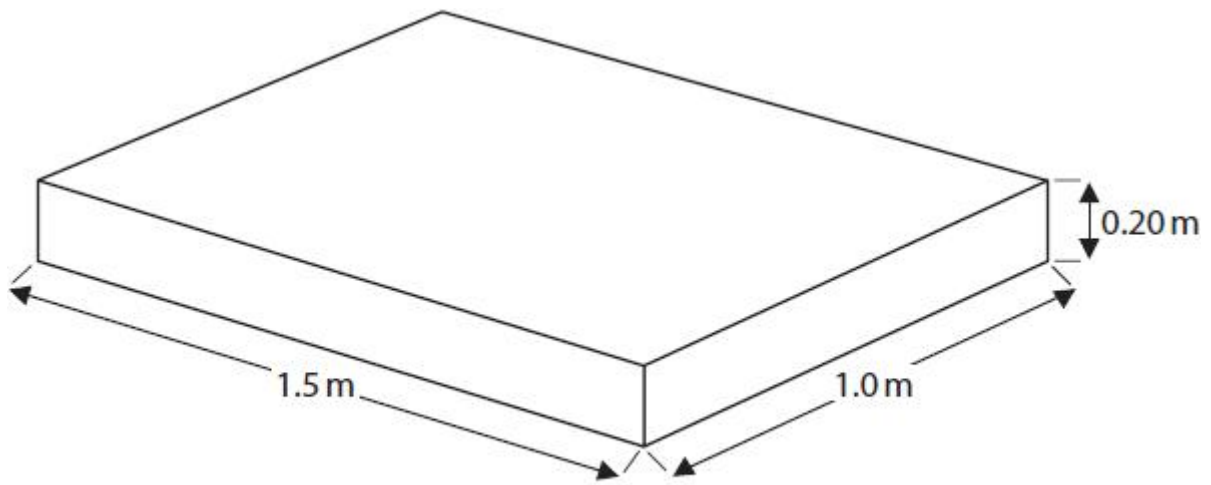


Figure 3

Density of concrete, ρ , = 2100 kg / m³.

Calculate the mass of the concrete block.

Use the equation

$$m = \rho \times V$$

(3)

mass of concrete block = kg

(Total for question = 3 marks)

Q4.

Figure 3 shows some water in a measuring cylinder and a lump of iron.

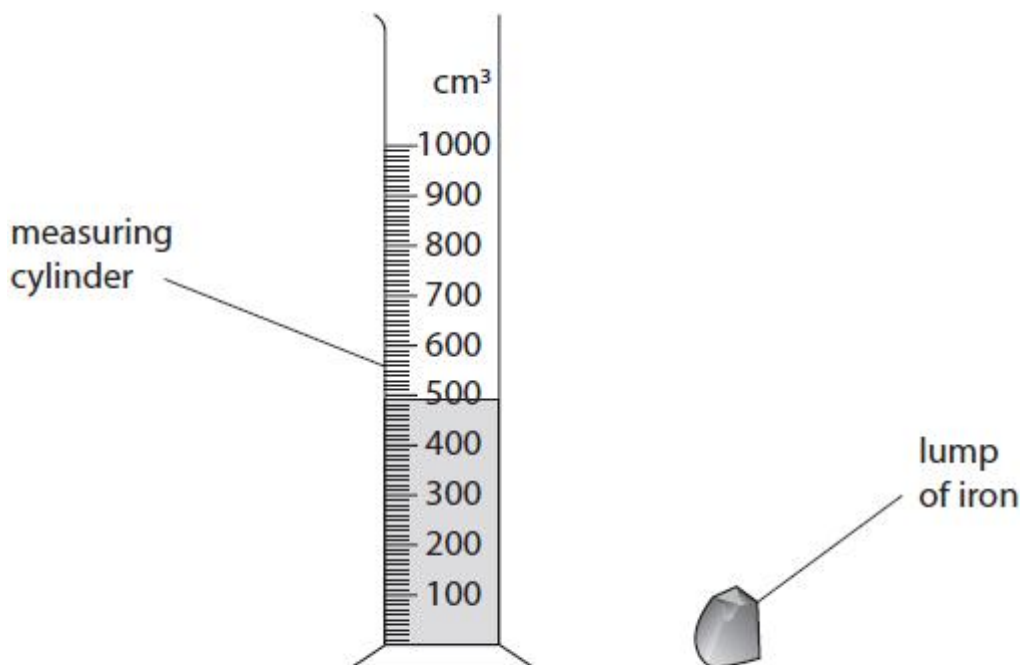


Figure 3

The lump of iron is lowered fully into the water.

The water level in the measuring cylinder rises to 530 cm³.

The density of iron is 7.9 g / cm³.

Calculate the mass of the lump of iron.

Use the equation

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

Give your answer to 2 significant figures.

(4)

mass = g

(Total for question = 4 marks)

Q5.

On a very cold day, the temperature of the air is -4 °C.

Calculate the value of this temperature on the kelvin scale.

(1)

temperature = K

(Total for question = 1 mark)

Q6.

A coil of copper wire has a mass of 14.1 g.

The density, ρ , of copper is 8.96 g/cm³.

Calculate the volume of the copper wire.

Use the equation

$$\rho = \frac{m}{V}$$

(3)

volume = cm³

(Total for question = 3 marks)

Q7.

Some students measure the volume of a lump of modelling clay using a measuring jug, as shown in Figure 5.

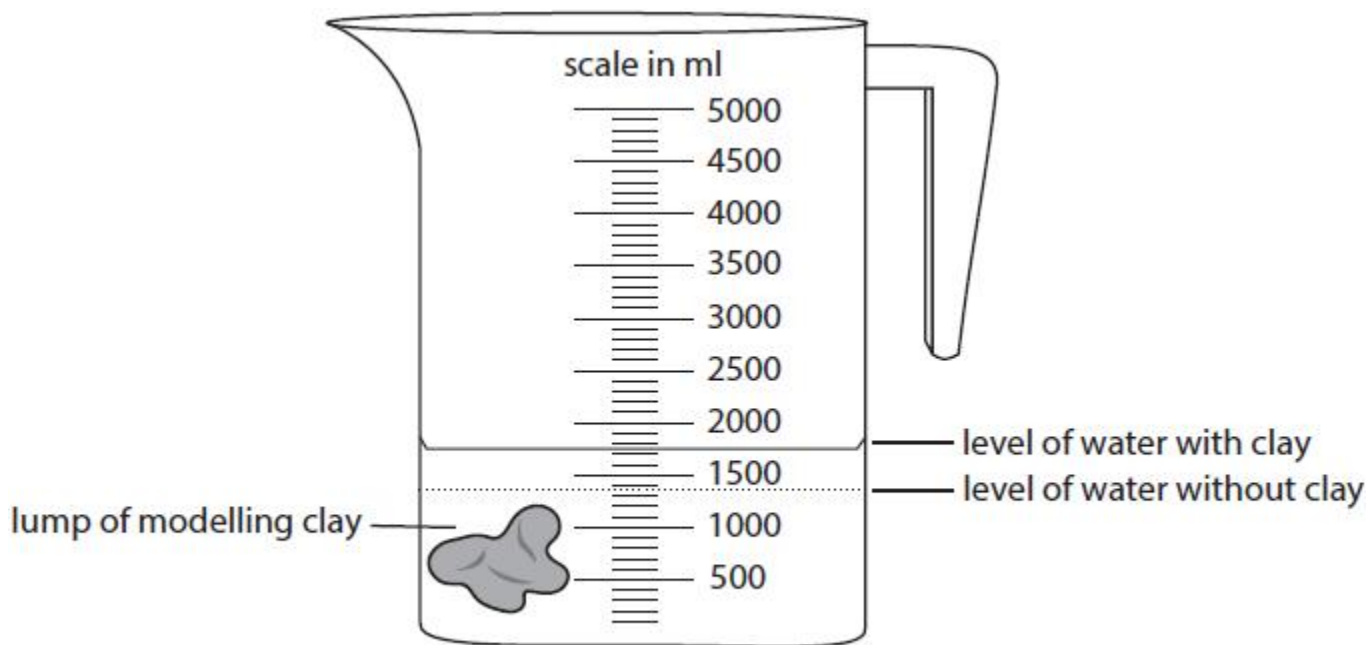


Figure 5

Using Figure 5, estimate the volume of the modelling clay in cm^3 .

You may assume that 1 litre = 1000 cm^3 .

(2)

volume = cm^3

(Total for question = 2 marks)