

**Level 1 density exam question – If you struggled with the Level 2**

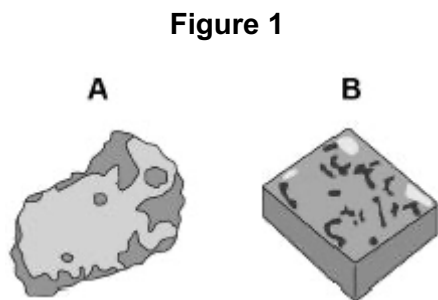
**Q1.**

Two large semi-precious stones are discovered.

A student is asked to find out what material each of the two stones is made of.

The student does this by determining the density of the material of each stone.

**Figure 1** shows the two stones.



- (a) The student wants to measure the volume of stone **A**. Stone **A** cannot be measured using a metre rule as the stone is an irregular shape.

Describe how the student could determine the volume of stone **A** by putting it into water.

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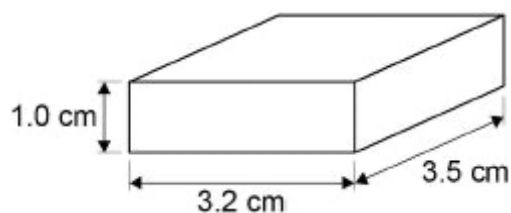
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**(3)**

The student makes measurements of stone **B** using a metre rule.

The measurements of stone **B** are shown in **Figure 2**.

**Figure 2**



- (b) Which piece of equipment could the student use to get a more accurate measurement of the length of stone **B**?

Tick **one** box.

Electronic balance

☐

Microscope

☐

Newtonmeter

☐

Vernier callipers

☐

(1)

- (c) Use the following equation to calculate the volume of stone **B** in  $\text{cm}^3$

volume = length  $\times$  width  $\times$  height

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Volume = \_\_\_\_\_  $\text{cm}^3$

(1)

- (d) The mass of stone **B** is 56 grams.

Use your answer from part (c) to calculate the density of stone **B** in g/cm<sup>3</sup>

Use the following equation.

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

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Density = \_\_\_\_\_ g/cm<sup>3</sup>

(2)

- (e) The student calculates the density of the material stone **A** is made of as 5.2 g/cm<sup>3</sup>

The student looks up the density of some materials in a text book.

**Figure 3** shows this information.

**Figure 3**

Material	Density in g/cm <sup>3</sup>
Amber	1.1 – 1.2
Cubic Zirconia	5.5 – 5.9
Garnet	3.8 – 3.9
Haematite	5.1 – 5.3

What material is stone **A** made of?

Tick **one** box.

Amber

☐

Cubic Zirconia

☐

Garnet

☐

Haematite

☐

(1)

(Total 8 marks)