MEASURING DENSITY

1 A student is trying to find the density of water and of a large, regularly-shaped solid.

Which apparatus is needed to find the density of **both**?

A balance, clock, ruler

B balance, measuring cylinder, ruler

C balance, measuring cylinder, string

D clock, ruler, string

2 A metal drum has a mass of 200 kg when empty and 1000 kg when filled with 1.0 m^3 of methylated spirit.

What is the density of methylated spirit?

A 0.0050 kg/m^3

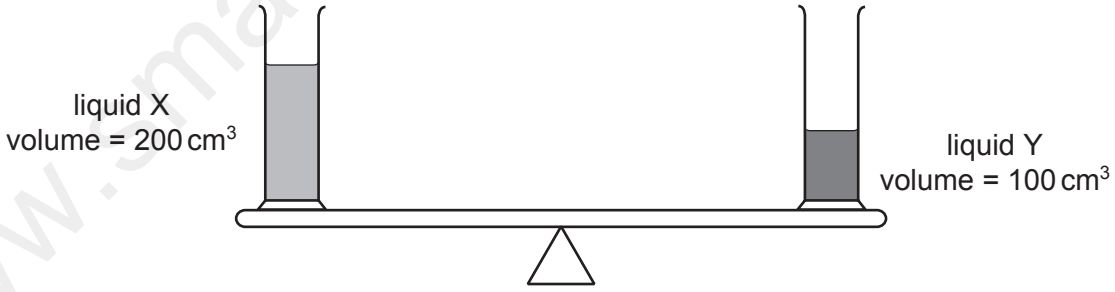
B 0.11 kg/m^3

C 800 kg/m^3

D 1000 kg/m^3

3 Two identical measuring cylinders containing different liquids are placed on a simple balance.

They balance as shown.



How does the density of X compare with the density of Y?

A density of X = $\frac{1}{2}$ × density of Y

B density of X = density of Y

C density of X = 2 × density of Y

D density of X = 4 × density of Y

4 A student needs to find the density of a cubic block of wood.

Which two pieces of apparatus should she use?

A balance and metre rule

B balance and thermometer

C measuring cylinder and metre rule

D measuring cylinder and thermometer

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5 A student is trying to find the density of water and of a large, regularly shaped concrete block.

Which apparatus is needed to find the density of **both** the water and the concrete block?

A balance, clock, measuring cylinder

B balance, clock, ruler

C balance, measuring cylinder, ruler

D clock, measuring cylinder, ruler

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6 A student is trying to find the density of water and of a large, regularly shaped concrete block.

Which apparatus is needed to find the density of **both** the water and the concrete block?

A balance, clock, measuring cylinder

B balance, clock, ruler

C balance, measuring cylinder, ruler

D clock, measuring cylinder, ruler

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7 A student is told to measure the density of a liquid and also of a large cube of metal.

Which pieces of equipment are sufficient to be able to take the measurements needed?

A balance, measuring cylinder and ruler

B balance and thermometer

C measuring cylinder and ruler

D measuring cylinder, ruler and thermometer

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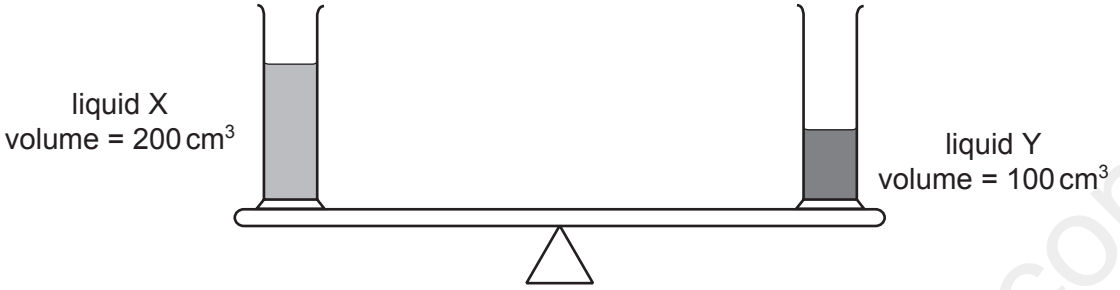
8 Two identical measuring cylinders containing different liquids are placed on a simple balance.

They balance as shown.



How does the density of X compare with the density of Y?

A density of X = $\frac{1}{2}$ × density of Y

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D density of X = 4 × density of Y

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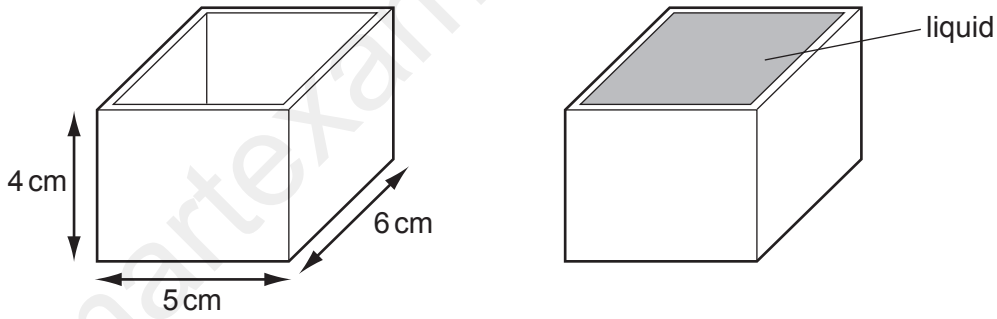
9 The diagrams show a rectangular box with inside measurements of 5 cm × 6 cm × 4 cm.



mass = 40 g

total mass = 220 g

The box has a mass of 40 g when empty. When filled with a liquid, it has a total mass of 220 g.

What is the density of the liquid?

A $\frac{220}{(5\times6\times4)}$ g/cm³

B $\frac{(220-40)}{(5\times6\times4)}$ g/cm³

C $\frac{(5\times6\times4)}{220}$ g/cm³

D $\frac{(5\times6\times4)}{(220-40)}$ g/cm³

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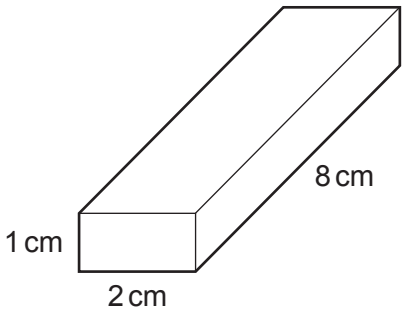
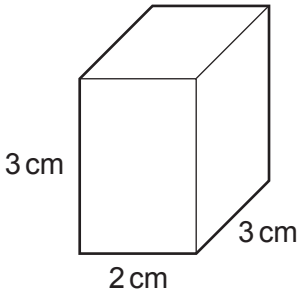
10 The diagrams show four blocks with the same mass.

Which block is made from the least dense material?

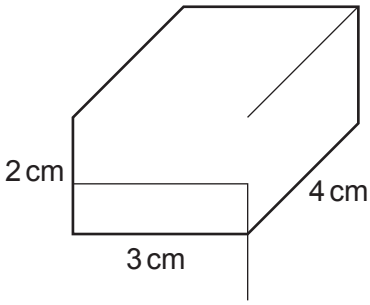
A



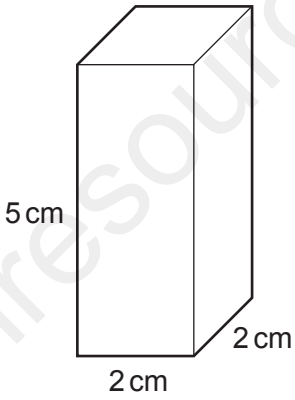
B



C ✓



D

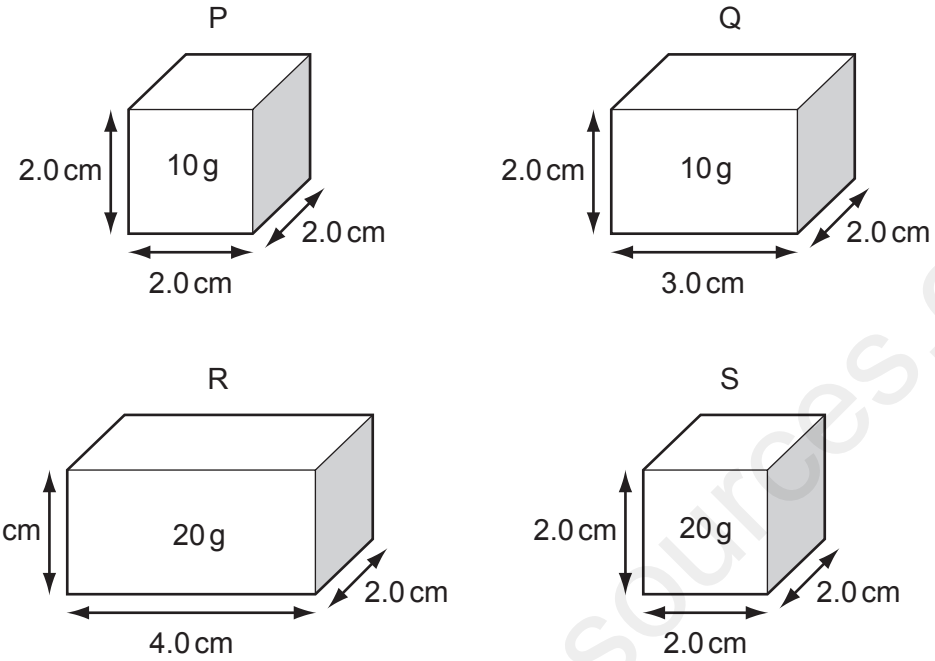


11 A liquid has a density of 0.80 g / cm^3.

Which could be the volume and mass of this liquid?

	volume / cm^3	mass / g
A	2.0	16
B	8.0	10
C ✓	10	8.0
D	16	2.0

12 Four rectangular blocks, P, Q, R and S are shown. Each block is labelled with its size and its mass.



Which two blocks have the same density?

A P and Q ✔ **B** P and R **C** Q and R **D** R and S

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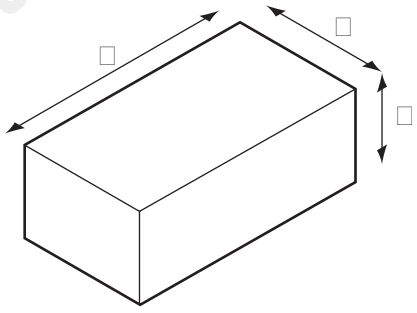
13 The diagram shows the dimensions of a rectangular block of metal of mass *m*.



Which expression is used to calculate the density of the metal?

A $m \times p \times q$

B $m \times p \times q \times r$

C $\frac{m}{(p \times q)}$

✔ **D** $\frac{m}{(p \times q \times r)}$

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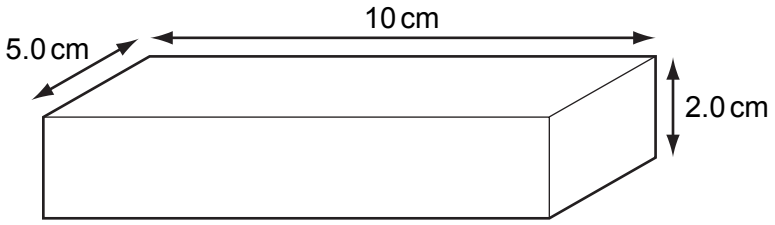
14 The diagram shows a rectangular metal block measuring 10 cm × 5.0 cm × 2.0 cm.

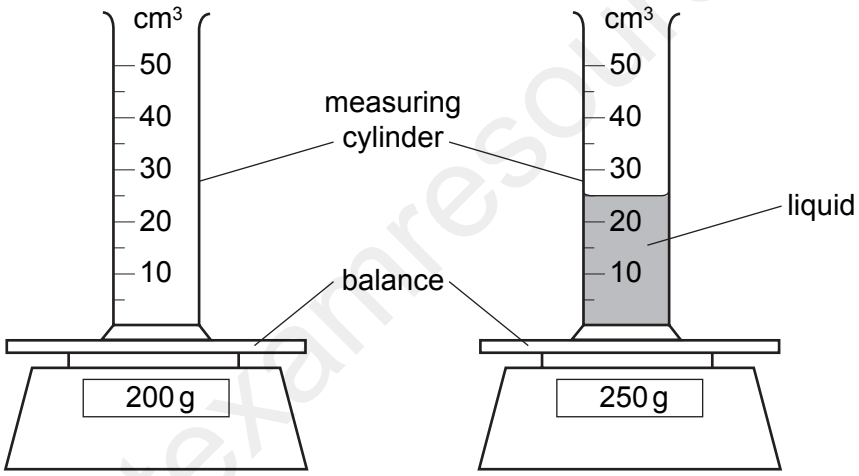


Its mass is 250 g.

What is the density of the metal?

A 0.20 g / cm^3 **B** 0.40 g / cm^3 **C** 2.5 g / cm^3 **D** 5.0 g / cm^3

15 The diagram shows an experiment to find the density of a liquid.



What is the density of the liquid?

A 0.5 g / cm^3 **B** 2.0 g / cm^3 **C** 8.0 g / cm^3 **D** 10.0 g / cm^3

16 Which items of apparatus are required to determine the density of a liquid?

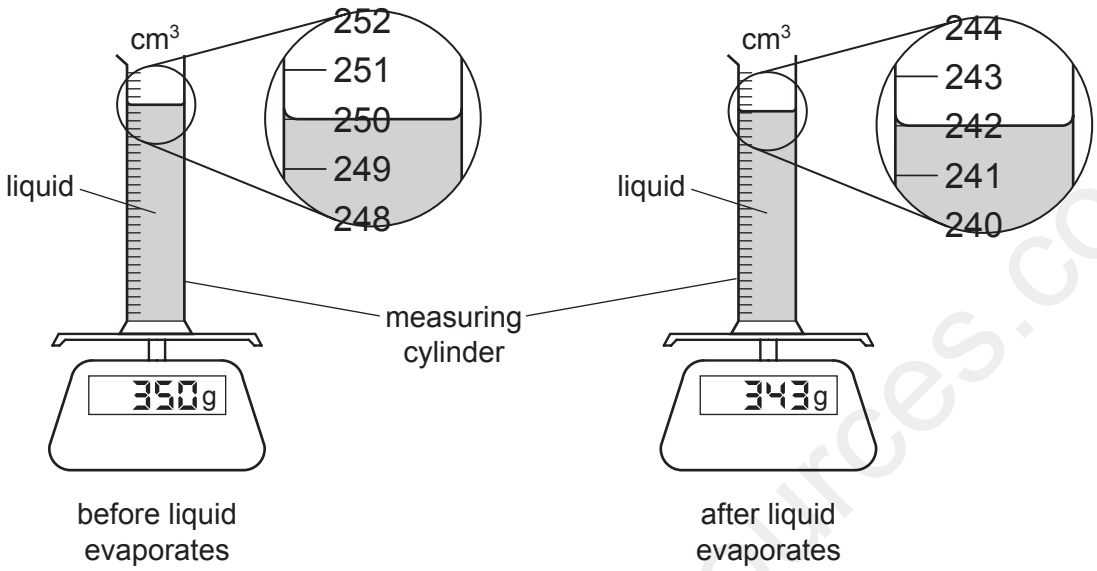
A balance and measuring cylinder

B balance and thermometer

C metre rule and measuring cylinder

D metre rule and thermometer

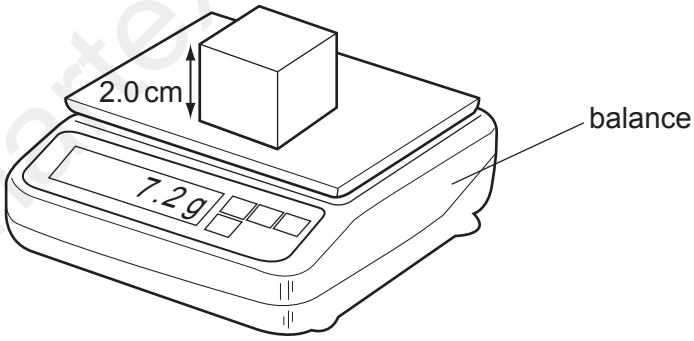
17 A measuring cylinder containing liquid is placed on a top-pan balance. The apparatus is left overnight and some of the liquid evaporates. The diagrams show the readings.



What is the density of the liquid?

A 0.875 g / cm³ **B** 1.14 g / cm³ **C** 1.40 g / cm³ **D** 1.42 g / cm³

18 A cube of side 2.0 cm is placed on a balance.



What is the density of the cube?

A 0.90 g / cm³ **B** 1.2 g / cm³ **C** 1.8 g / cm³ **D** 3.6 g / cm³