MME
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GCSE MATHEMATICS

AQA | Edexcel | OCR | WJEC

(Level 4 - 6)

Density Mass Volume

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You ***can*** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 The table below shows the density, mass and volume of different objects. *(Level 4)*

Object	Mass	Volume	Density
A	$27\ \text{kg}$	$1500\ \text{cm}^3$	
B		$250\ \text{m}^3$	$96.2\ \text{g/m}^3$
C	$8.1\ \text{g}$		$27\ \text{g/cm}^3$

1(a) Calculate the density of object A in g / m^3

[2 marks]

Answer _____

1(b) Complete the table by filling in the empty spaces with values including units.

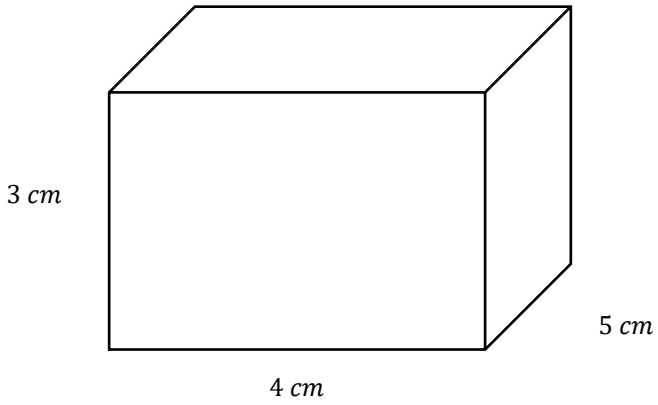
[3 marks]

Turn over for next question

5

2 The diagram shows a wooden block with density 0.57 g/cm^3 *(Level 5)*

Not drawn accurately



Calculate the mass of the cube.

[3 marks]

Answer _____ g

3

3(a) Iron has a density of $7.8\ g/cm^3$ *(Level 5)*

Calculate the mass of a $3\ cm^3$ lump of iron.

[2 marks]

Answer _____

3(b) Aluminium has a density of $2.7 g/cm^3$

Calculate the difference between the volume of a $5g$ lump of iron and a $5g$ lump of aluminium.

[3 marks]

Answer _____

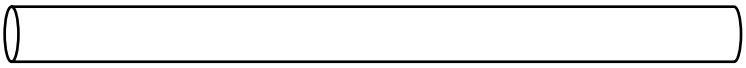
5

4 A steel rod is in the shape of a cylinder, shown below. *(Level 5)*

The steel rod has a density of 9.8 g per cm^3.

The rod has a volume of 60 cm^3.

Not drawn accurately



Steel Rod

Calculate the mass of the rod in grams.

[2 marks]

Answer _____

2

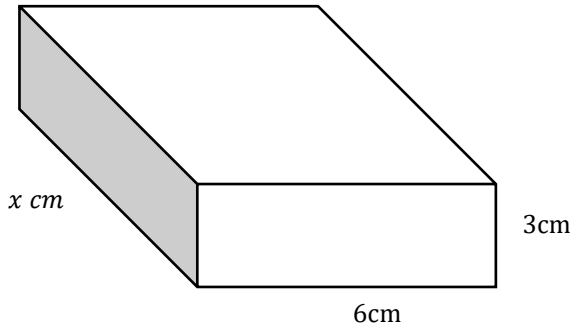
5 The diagram below shows a cuboid. *(Level 6)*

Width is 6 cm

Height his 3 cm

Length is x cm

Not drawn accurately



5(a) The cuboid is made from wood and has a mass of 233.1g.

The density of wood is 1.85g/cm^3.

Calculate the volume of the cuboid.

[2 marks]

Answer _____

5(b) Hence, or otherwise, find the missing length x of the cuboid.

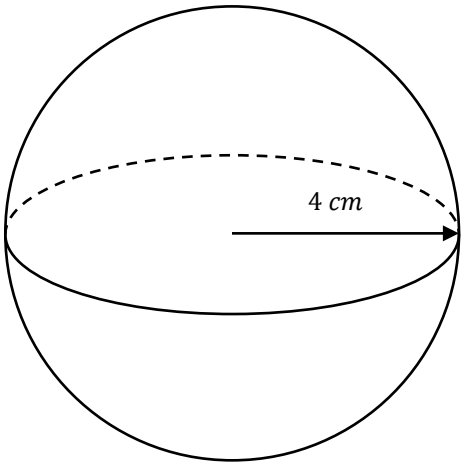
[1 mark]

Answer _____ cm

3

6 The diagram shows a spherical glass paperweight with a radius of 4cm. *(Level 6)*

Not drawn accurately



The density of glass is 8g/cm^3.

Volume of a sphere = $\frac{4}{3}\pi r^3$

Calculate the mass of the paperweight.

Give your answer correct to 3 significant figures.

[3 marks]

Answer _____

End of questions

3

END