

Density, Mass and Volume

For AQA GCSE Mathematics (8300) • Foundation tier

Name _____

Total marks: **24**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

- 1** A block of cheese has mass 360 g and density 1.2 g/cm^3
Circle the volume of the block of cheese.

[1 mark]

300 cm^3

358.8 cm^3

361.2 cm^3

432 cm^3

- 2** A block of ice has volume 1500 cm^3
The density of ice is 0.92 g/cm^3
Work out the mass of the block of ice.

[2 marks]

Answer _____ g

- 3** A solid cuboid measures 5 cm by 4 cm by 3 cm.
Its mass is 162 g.
Work out the density of the cuboid.

[3 marks]

Answer _____ g/cm^3

- 4 A concrete paving slab has mass 12.6 kilograms.
The density of the concrete is 2.1 g/cm^3
Work out the volume of the paving slab.
Give your answer in cm^3

[2 marks]

Answer _____ cm^3

- 5 Two pieces of wood, P and Q, are cut from the same plank.
They have the same density.
Piece P has mass 45 g and volume 60 cm^3
Piece Q has mass 78 g.
Work out the volume of piece Q.
State the units of your answer.

[3 marks]

Answer _____

- 6 Density = $\frac{\text{mass}}{\text{volume}}$

Cube X and cube Y have the same mass.
The volume of cube X is 2 times the volume of cube Y.
Complete the sentence. Circle your answer.

The density of cube X is _____ the density of cube Y.

[1 mark]

4 times

2 times

the same as

half

7 Density = $\frac{\text{mass}}{\text{volume}}$

A block of metal has mass 40 g.

A second block is made from the same metal.

The volume of the second block is 3 times the volume of the first block.

Circle the mass of the second block.

[1 mark]

13.3 g

43 g

80 g

120 g

8 Ravi makes a paperweight from solid bronze.

The volume of the paperweight is 450 cm³

density of bronze = 8.8 grams per cubic centimetre

Ravi says,

‘The mass of my paperweight is less than 4 kilograms.’

Is Ravi correct?

You must show your working.

[3 marks]

Answer _____

- 9 The table shows information about two islands.

	Population	Area (km ²)
Island A	12 400	31
Island B	20 900	55

$$\text{Population density} = \frac{\text{number of people}}{\text{area}}$$

Which island has the greater population density?

You must show your working.

[3 marks]

Answer _____

- 10 A city is in the shape of a rectangle 8 km long and 3.5 km wide.
The population density of the city is 6200 people per square kilometre.

Work out the number of people who live in the city.

[3 marks]

Answer _____

- 11** Some oil has
a mass of 460 g
a density of 920 000 g/m³
1 m³ = 1000 litres

Work out the volume of the oil.
Give your answer in litres.

[2 marks]

Answer _____ litres