

GCSE density and measurement

Questions · Set 42 · Selected AQA 8463 / OCR Gateway J249 skills
Treat the given values as exact unless an uncertainty is stated.

Question 1

An object has mass 0.1242 kg and volume 46 cm³. Calculate its density in kg m⁻³. Give your answer to 3 significant figures.

gcse-density / density / v1.0.0 / seed 42

Check this question online: [physicshelp.co.uk/gcse/density/](https://www.physicshelp.co.uk/gcse/density/)

Question 2

A material has density 2700 kg m⁻³. Find the mass of 61 cm³ of it in kg. Give your answer to 3 significant figures.

gcse-density / mass / v1.0.0 / seed 104771

Check this question online: [physicshelp.co.uk/gcse/density/](https://www.physicshelp.co.uk/gcse/density/)

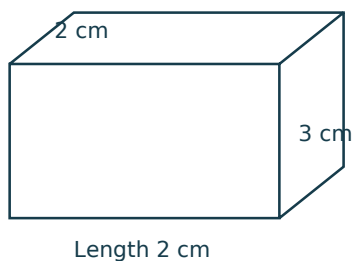
GCSE density and measurement

Questions · Set 42 · Selected AQA 8463 / OCR Gateway J249 skills
Treat the given values as exact unless an uncertainty is stated.

Question 3

A rectangular block measures $2\text{ cm} \times 3\text{ cm} \times 2\text{ cm}$ and has mass 14.4 g . Calculate density in g cm^{-3} . Give your answer to 3 significant figures.

Mass 14.4 g



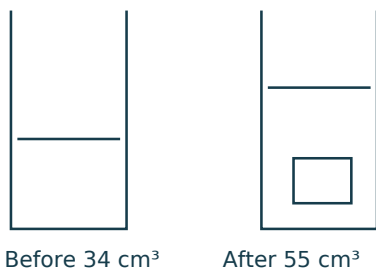
gcse-density / regular-solid / v1.0.0 / seed 209500

Check this question online: physicshelp.co.uk/gcse/density/

Question 4

A fully submerged, non-porous solid raises a measuring-cylinder reading from 34 cm^3 to 55 cm^3 . Its mass is 56.7 g . Find its density in g cm^{-3} . Give your answer to 3 significant figures.

Solid mass 56.7 g



gcse-density / displacement / v1.0.0 / seed 314229

Check this question online: physicshelp.co.uk/gcse/density/

GCSE density and measurement

Questions · Set 42 · Selected AQA 8463 / OCR Gateway J249 skills
Treat the given values as exact unless an uncertainty is stated.

Question 5

An empty cylinder has mass 27 g. With 50 cm³ of liquid its mass is 77 g. Calculate the liquid density in g cm⁻³. Give your answer to 3 significant figures.

gcse-density / liquid / v1.0.0 / seed 418958

Check this question online: [physicshelp.co.uk/gcse/density/](https://www.physicshelp.co.uk/gcse/density/)

Question 6

Convert a density of 7.8 g cm⁻³ to kg m⁻³. Give your answer to 3 significant figures.

gcse-density / conversion / v1.0.0 / seed 523687

Check this question online: [physicshelp.co.uk/gcse/density/](https://www.physicshelp.co.uk/gcse/density/)

Worked answers

GCSE density and measurement

Keep intermediate values unrounded. Final answers use 3 significant figures.

Question 1

$$V = 0.000046 \text{ m}^3.$$

$$\rho = 0.1242 / 0.000046 \text{ kg m}^{-3}.$$

Answer: $2.70 \times 10^3 \text{ kg m}^{-3}$ (3 significant figures).

Question 2

$$m = 2700 \times 0.000061 \text{ kg}.$$

Answer: $1.65 \times 10^{-1} \text{ kg}$ (3 significant figures).

Question 3

$$V = 2 \times 3 \times 2 = 12 \text{ cm}^3.$$

$$\rho = 14.4 / 12 \text{ g cm}^{-3}.$$

Answer: 1.20 g cm^{-3} (3 significant figures).

Question 4

$$V = 55 - 34 = 21 \text{ cm}^3.$$

$$\rho = 56.7 / 21 \text{ g cm}^{-3}.$$

Answer: 2.70 g cm^{-3} (3 significant figures).

Question 5

$$m = 77 - 27 = 50 \text{ g}.$$

$$\rho = 50 / 50 \text{ g cm}^{-3}.$$

Answer: 1.00 g cm^{-3} (3 significant figures).

Question 6

$$1 \text{ g cm}^{-3} = 1000 \text{ kg m}^{-3}.$$

$$\rho = 7.8 \times 1000 \text{ kg m}^{-3}.$$

Answer: $7.80 \times 10^3 \text{ kg m}^{-3}$ (3 significant figures).