

Density



1. In each of the following questions find the **density**. State the units of your answer.

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|----------|-------------------------------------|----------|---|
| a | Mass 45g, volume 5cm^3 | d | Mass 18.9g, volume 9cm^3 |
| b | Volume 7cm^3 , mass 56g | e | Mass 4340kg, volume 7m^3 |
| c | Volume 0.4m^3 , mass 688kg | f | Volume 12.8cm^3 , mass 8601.6cm^3 |

2. In each of the following questions find the **mass**. State the units of your answer.

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|----------|--|----------|--|
| a | Density 5g/cm^3 , volume 4cm^3 | d | Density 190kg/m^3 , volume 3m^3 |
| b | Volume 19cm^3 , density 8g/cm^3 | e | Volume 4m^3 , density 5450kg/m^3 |
| c | Volume 3cm^3 , density 1.4g/cm^3 | f | Density 960kg/m^3 , Volume 0.25m^3 |

3. In each of the following questions find the **volume**. State the units of your answer.

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|----------|---|----------|--|
| a | Density 1.4g/cm^3 , mass 5.6g | d | Density 800kg/m^3 , mass 4800kg |
| b | Mass 4.2g, density 0.7g/cm^3 | e | Mass 420kg, density 140kg/m^3 |
| c | Mass 16.32g, density 2.4g/cm^3 | f | Density 6904kg/m^3 , Mass 28306.4kg |

4. Lead has a density of 11.5g/cm^3 . A rectangular block of lead measures $7\text{cm} \times 5\text{cm} \times 2\text{cm}$.

- Find the volume of the block of lead.
- Find the mass of the block of lead

5. A plywood plank measures $1\text{cm} \times 8\text{cm} \times 90\text{cm}$ and weighs 396g.

- Find the volume of the plywood plank.
- Find the density of the plywood.

6. The petrol in a petrol can weighs 2000g. The density of petrol is 0.8g/cm^3 .

What is the volume of the petrol in the can in **a)** cm^3 **b)** litres ($1000\text{cm}^3 = 1 \text{ litre}$)

7. A marble slab is 1 metre long and has a rectangular cross section of area 15cm^2 .

- What is the volume of the marble slab?
- The density of marble is 2.7g/cm^3 , what is the mass of the marble slab?

8. Olympics medals have a diameter of 60mm and a thickness of 3mm. Gold has a density of 19g/cm^3 . Work out

- the volume of a gold medal
- the mass of a gold medal.

Hint – think of the gold medal as a cylinder

9. Jack makes some concrete steps. The diagrams show their dimensions in centimetres.

- Calculate, in cm^3 , the volume of concrete needed.
- There are 1000000cm^3 in 1m^3 . Change your answer from a) into m^3
- The density of concrete is 2400kg/m^3 . How much will the steps weigh?

