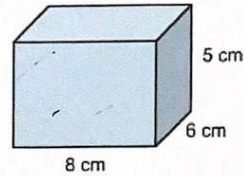# Quick Test Density

1. The diagram shows a solid cuboid made of wood.
The wood has a density of 0.56 grams per cm cubed.
Calculate the mass of the cuboid.

5 cm
6 cm
8 cm

$$Density = \frac{Mass}{Volume}$$

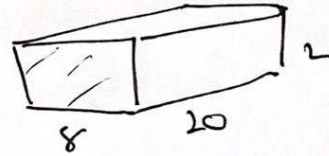$$0.56 = \frac{Mass}{240}$$

$$0.56 \times 240 = Mass$$

$$Volume = Area \times depth$$
$$= (8 \times 5) + 6$$
$$= 240 cm^3$$

Mass $\underline{134.4g}$

2. The density of gold is 19.4 grams per cm cubed.
A gold ingot is produced in the shape of a cuboid.
The cuboid has length 20cm, width 8cm, height 2cm.
Work out the mass of the gold ingot.
Give your answer in kilograms

2
8   20

$$Density = \frac{Mass}{Volume}$$

$$19.4 = \frac{Mass}{320}$$

$$19.4 \times 320 = Mass$$

$$6208 = Mass$$

$$Volume = Area \times depth$$
$$= (8 \times 2) \times 20$$
$$= 320 cm^3$$

Mass $= \underline{6.208 kg}$

3. A solid cylinder is made of wood.
It has a radius of 8cm and a height of 3cm
The cylinder has a mass of 392 grams
Work out the density of the wood
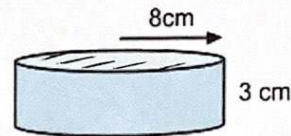
Give your answer correct to 2 significant figures.

8cm

3 cm

$$Density = \frac{Mass}{Volume}$$

$$= \frac{392}{192\pi}$$

$$= 0.64958 \, g/cm^3$$

$$= \underline{0.65 \, g/cm^3}$$

$$Volume = Area \times Depth$$

$$= \pi r^2 \times 3$$

$$= \pi 8^2 \times 3$$

$$= 192\pi$$

$$= (603.1857895)$$

4. Seawater has a density of 1.02g/cm³.
255g of seawater mixes with some freshwater, to form coastal water.
The coastal water has a mass of 304.5g, and a density of 1.015g/cm³ .
Find the density of the freshwater.

sea

$1.02 g/cm^3$

255g

$$Density = \frac{Mass}{Volume} \Rightarrow 1.02 = \frac{255}{Volume} = 250 \, cm^3$$

Fresh

$$Density = \frac{Mass}{Volume} \Rightarrow \frac{304.5 - 255}{300 - 250} = \underline{0.99 \, g/cm^3}$$

coast

$1.015 g/cm^3$

304.5g

$$Density = \frac{Mass}{Volume} \Rightarrow 1.015 = \frac{304.5}{Volume} = 300 \, cm^3$$