



S1

CfE Level 3

Working at Home Workbook

Volume

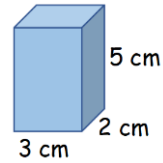
Learning Intention. To be able to -
Calculate the volume of a cube or cuboid using a formula
Calculate the volume of a Triangular Prism
Find the capacity of a container and convert from l to ml

Calculate the volume of a cube or cuboid using a formula

Volume of cuboid = length \times breadth \times height

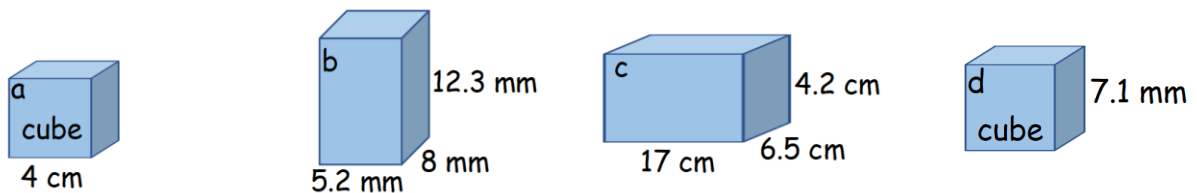
Example: Calculate the volume of the cuboid

$$\begin{aligned} V &= l \times b \times h \\ &= 3 \times 2 \times 5 \\ &= 30 \text{ cm}^3 \end{aligned}$$

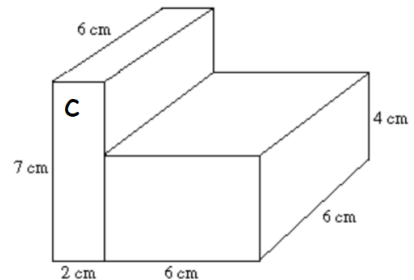
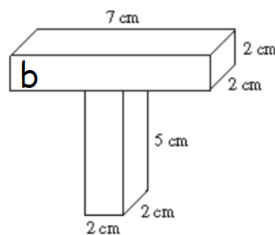
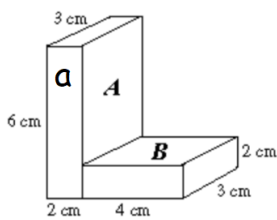


Exercise

Calculate the volume of the cube/cuboids



Calculate the composite volume of the following:



To find the height/length/breadth when given the volume

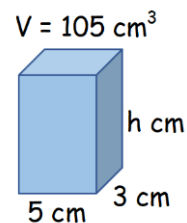
Length = Volume \div (breadth \times height)

Breadth = Volume \div (length \times height)

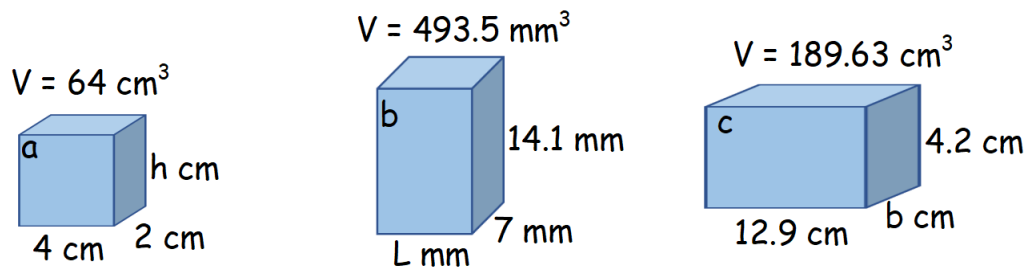
Height = Volume \div (length \times breadth)

Example: Calculate the height of the cuboid

$$\begin{aligned} h &= 105 \div (5 \times 3) \\ &= 7 \text{ cm} \end{aligned}$$



Exercise



Example: Calculate the length of a side of a cube with the volume 27 m^3

$$\text{length} = \sqrt[3]{\text{volume}}$$

$$\text{length} = \sqrt[3]{27}$$

$$= 3 \text{ cm}$$

Exercise

Calculate the length of a side of a cube with the volume:

a) 512 cm^3

b) 42.875 cm^3

c) 0.064 cm^3

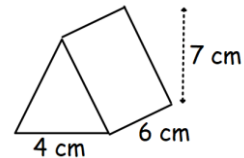
Calculate the volume of a Triangular Prism

Example: Calculate the volume of the triangular prism

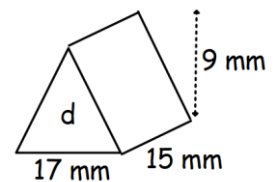
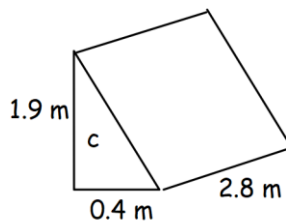
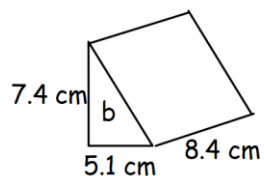
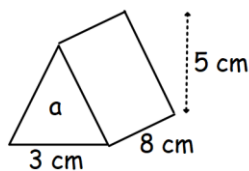
$$\text{Volume} = \frac{1}{2} \times \text{length} \times \text{breadth} \times \text{height}$$

$$= 0.5 \times 4 \times 6 \times 7$$

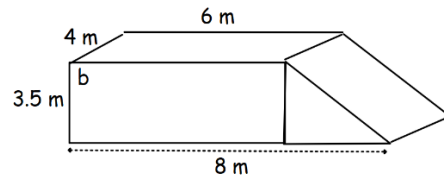
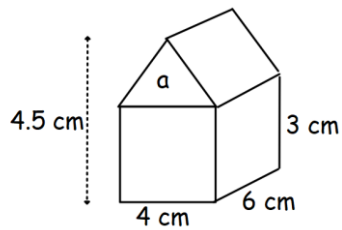
$$= 84 \text{ cm}^3$$



Exercise



Calculate the composite volume of the following



Find the capacity of a container and convert from l to ml

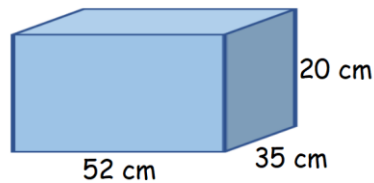
$$1 \text{ litre} = 1000 \text{ ml}$$

$$1 \text{ ml} = 1 \text{ cm}^3$$

Liquid volume (capacity) is measured in millilitres or litres.

Calculate the capacity of the cuboid in

- a) millilitres b) litres



$$\text{Volume} = l \times b \times h$$

$$= 52 \times 35 \times 20$$

$$= 36\,400 \text{ cm}^3$$

a) In millilitres = 36 400 ml

b) In litres = $36\,400 \div 1000$

$$= 36.4 \text{ litres}$$

millilitres to litres then divide by 1000

litres to millilitres then multiply by 1000

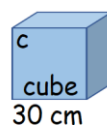
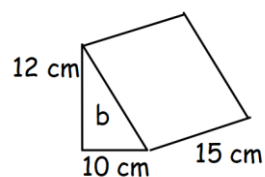
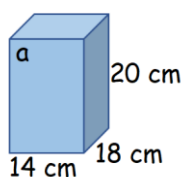
Exercise

Calculate the capacity in

i) millilitres

and

ii) litres



Change the following into millilitres:

a) 4.6 litres	b) 12 litres	c) 1.34 litres
d) 0.2 litres	e) $\frac{1}{2}$ litre	f) $2\frac{1}{4}$ litres
g) 1.1 litres	h) $\frac{3}{4}$ litres	i) 0.045 litres

Change the following into litres:

a) 2000 ml	b) 7500 ml	c) 3400 ml
d) 450 ml	e) 200 ml	f) 1850 ml
g) 35 ml	h) 75 ml	i) 50 ml