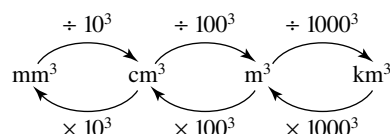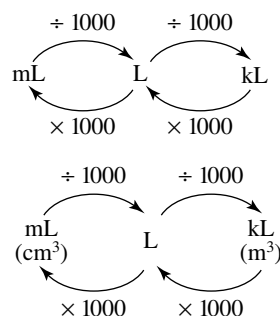# Conversion of units of volume and capacity

The diagrams below show the rules for conversion of units of volume and capacity.

Conversion of units of *volume*

Conversion of units of *capacity*

Units of volume and capacity are connected in the following way:

1 millilitre (mL) = 1 cm^3
1 litre (L) = 1000 millilitres = 1000 cm^3
1 kilolitre (kL) = 1000 litres = 1 m^3

WORKED Example

Convert each of the following measurements to the unit shown in brackets.
a 3.5 L (mL) **b** 2300 mm^3 (cm^3) **c** 5.4 m^3 (L)

Solution

a Using the diagram for conversion of units of capacity, observe that to convert litres to millilitres we need to multiply the given value by 1000. That is:
$$3.5 \text{ L} \times 1000 = 3500 \text{ mL}$$

b Using the diagram for conversion of units of volume, observe that to convert mm^3 to cm^3, we need to divide the given value by 10^3. That is:
$$2300 \text{ mm}^3 \div 10^3 = 2300 \text{ mm}^3 \div 1000$$
$$= 2.3 \text{ cm}^3$$

c Since 1 m^3 = 1000 litres, to convert from m^3 to litres, we need to multiply the given value by 1000. That is:
$$5.4 \times 1000 = 5400 \text{ L}$$

Try these

Convert each of the following measurements to the unit shown in brackets.

1 0.2 mm^3 (cm^3)

2 0.035 m^3 (cm^3)

3 0.000 061 0 km^3 (m^3)

4 3×10^{-9} km^3 (cm^3)

5 5600 ml (cm^3)

6 1 190 000 000 m^3 (km^3)

7 0.00012304 cm^3 (mm^3)

8 1.19×10^{-15} m^3 (mm^3)

9 6300 mL (L)

10 0.8 kL (L)

11 0.011 L (mL)

12 0.0042 kL (mL)

13 9000 L (m^3)

14 0.075 m^3 (L)

15 0.0063 m^3 (mL)