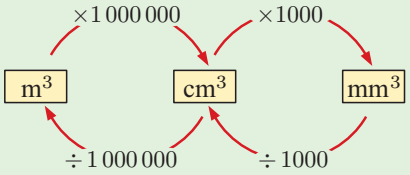
Chapter 14: Measurement: Volume and capacity

14A UNITS OF VOLUME

The **volume** of a solid is the amount of space it occupies.

$1\text{ m}^3 = 1\,000\,000\text{ cm}^3$

$1\text{ cm}^3 = 1000\text{ mm}^3$



1 Convert:

a 2.6 cm^3 into mm^3

b $980\,000\text{ cm}^3$ into m^3

c 0.051 m^3 into cm^3

d $62\,700\,000\text{ cm}^3$ into m^3.

2 Write as a percentage:

a 1200 mm^3 out of 5 cm^3

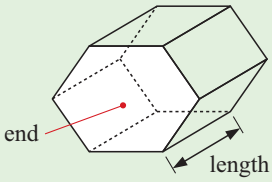
b $75\,000\text{ cm}^3$ out of 1.5 m^3

3 A sultana has volume approximately 1.1 cm^3. Estimate the number of sultanas in a 1.65 m^3 crate.

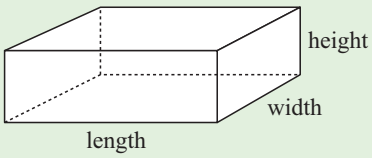
4 A ream of A4 copy paper contains 500 sheets. Given that the volume of one sheet of A4 paper is about 6.86 cm^3, find the total volume of paper in a crate containing 500 reams of A4 paper in m^3.

14B VOLUME OF A SOLID OF UNIFORM CROSS-SECTION

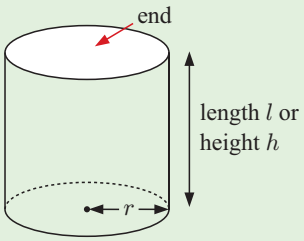
Volume of **solid of uniform cross-section**
$=$ area of end $\times$ length



Volume of **rectangular prism**
$=$ length $\times$ width $\times$ height

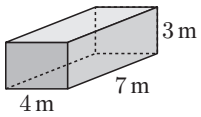


Volume of **cylinder** $V = \pi r^2 l$
or $V = \pi r^2 h$

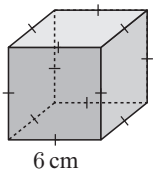


1 Find the volume of each solid:

a



b



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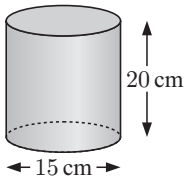

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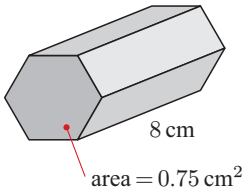

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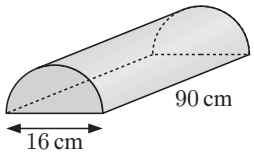

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