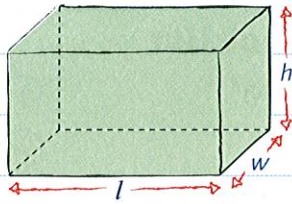




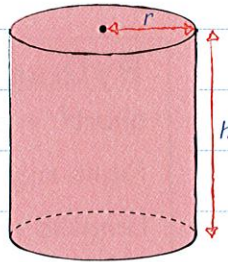
Volumes of 3-D shapes

Cuboid



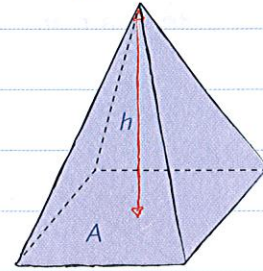
Volume of cuboid
 = length \times width \times height
 = lwh

Cylinder



Volume of cylinder
 = area of base \times height
 = $\pi r^2 h$

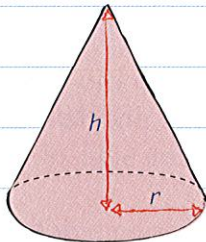
Pyramid



Volume of pyramid
 = $\frac{1}{3} \times$ area of base \times vertical height
 = $\frac{1}{3} Ah$

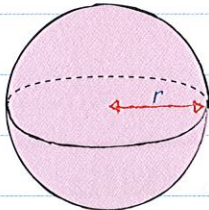
Learn these volume formulae. ✓

Cone



Volume of cone
 = $\frac{1}{3} \times$ area of base \times vertical height
 = $\frac{1}{3} \pi r^2 h$

Sphere



Volume of sphere = $\frac{4}{3} \pi r^3$

These volume formulae are on the formula sheet. ✓

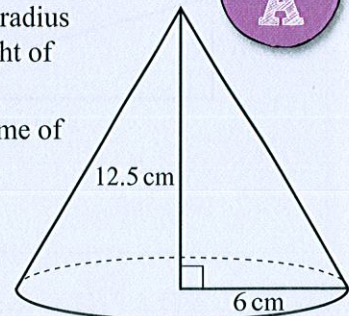
Worked example



A cone has a base radius of 6 cm and a height of 12.5 cm.

Work out the volume of the cone.

Give your answer in terms of π .

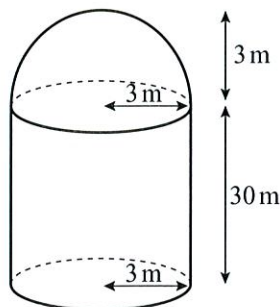


Volume = $\frac{1}{3} \times (\pi \times 6^2) \times 12.5$
 = $\frac{1}{3} \times 36\pi \times 12.5$
 = $150\pi \text{ cm}^3$

Area of circular base = πr^2

Now try this

The diagram shows a storage tank.



To work out the volume of a composite shape, work out the volumes of the shapes it is made from and add the volumes together.

The storage tank consists of a hemisphere on top of a cylinder.
 The height of the cylinder is 30 metres.
 The radius of the cylinder is 3 metres.
 The radius of the hemisphere is 3 metres.
 Calculate the total volume of the storage tank.
 Give your answer correct to 3 significant figures.

edexcel



(3 marks)