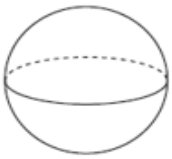
EXTRA VOLUME QUESTIONS HIGHER week 11 Higher IGCSE

1 A sphere has a surface area of 81π cm^2
Work out the volume of the sphere
Give your answers correct to 3 significant figures



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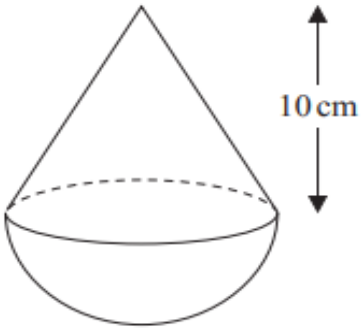
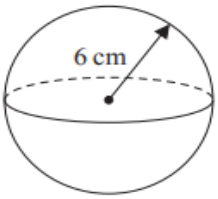


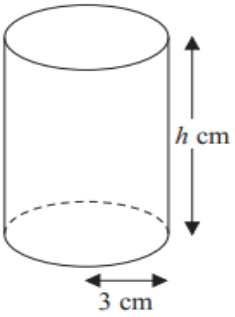
The diagram shows a solid shape
The solid shape is made from a hemisphere and a cone
The radius of the hemisphere is equal to the radius of the base of the cone

The cone has a height of 10cm
The volume of the cone is 270π cm^2

Work out the total volume of the solid shape
Give your answer in terms of π

3 The diagram shows a solid shape



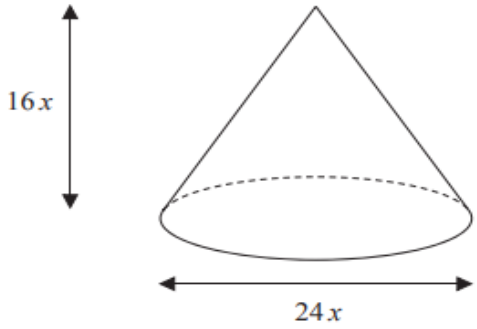


The sphere has radius 6cm
The solid cylinder has a base radius of 3cm
and a height of h cm

The total surface area of the cylinder is twice the total surface area of the sphere

Work out the ratio of the volume of the sphere to the volume of the cylinder
Give your answer in it's simpest form
You must show all your working

4



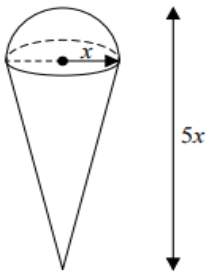
The diagram shows a solid cone

The diameter of the base of the cone is 24x cm
The height of the cone is 16x cm

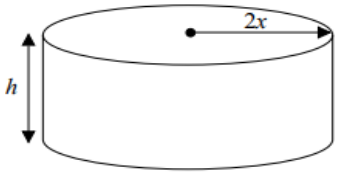
The curved surface area of the cone is 2160π cm^2
The volume of the cone is $V\pi$ cm^3, where V is an integer.

Find the value of V

5



The total height of the solid is 5x,
The radius of the base of the cone is x
The radius of the hemisphere is x



A cylinder has the same volume as the solid
The cylinder has radius 2x and height h
All measurements are in centimetres

Find a formula for h in terms of x
Give your answer in it's simplest form

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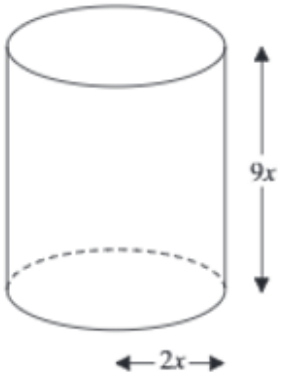
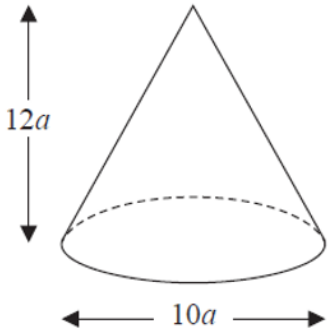


The cylinder has base radius 2x and height 9x
The cylinder is melted down and made into a sphere of radius r

Find an expression for r in terms of x

7 The diagram shows a solid cone
The diameter of the base of the cone is 10a cm
The height of the cone is 12a cm



The total surface area of the cone is 360π
The volume of the cone is $k\pi$

Find the value of k