



Maths-it Podcast H-18

Higher GCSE Revision

Length, area and volume

Topics

Volume and surface area of cylinders, cones and spheres – Perimeter and area of 2-D shapes
Enlargement of area and volume

Questions

1.

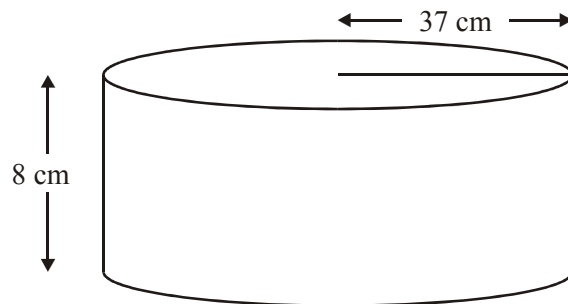


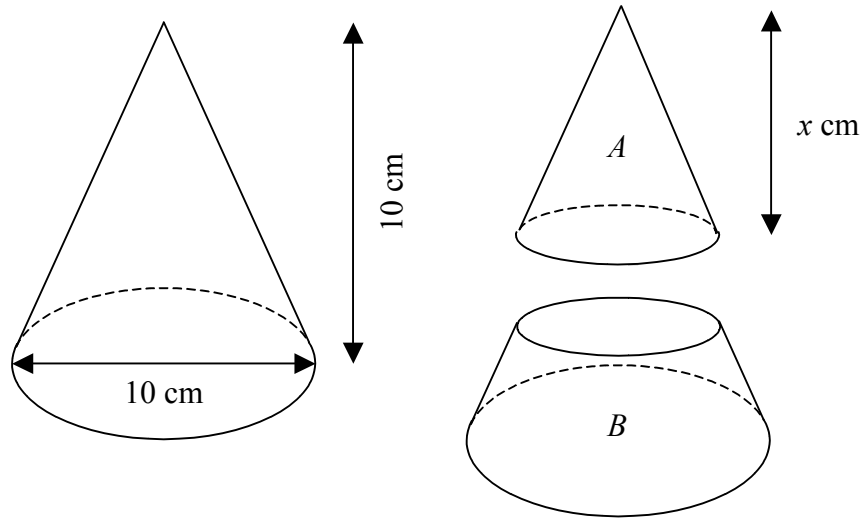
Diagram **NOT**
accurately drawn

The diagram shows a solid cylinder.
The radius of the cylinder is 37 cm.
The height of the cylinder is 8 cm.

Calculate the curved surface area of the cylinder.
Give your answer correct to three significant figures.

.....
(Total 3 marks)

2.



The diagram represents a cone of height 10 cm and base diameter 10 cm.

The cone is cut to form a small cone A and a frustum B . Cone A and frustum B have equal volumes

- (a) Calculate the height of the cone A .
 Give your answer correct to 3 significant figures.

.....cm³



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Two mathematically similar cones have heights of 15 cm and 24 cm.

The surface area of the smaller cone is 350 cm^2 .

(b) Calculate the surface area of the larger cone.

..... cm^2

(2)

(Total 8 marks)

3. The wing of a model aeroplane is shown in the diagram below.

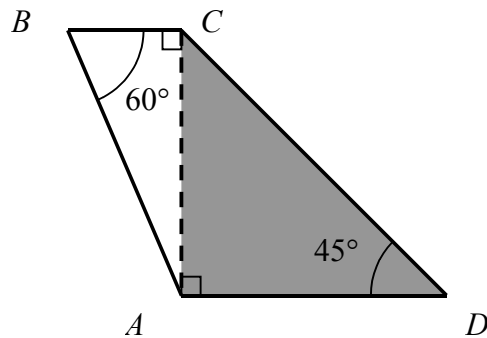


Diagram **NOT** accurately drawn

$BCEF$ is a trapezium.

EC is parallel to FDB .

CD is parallel to EF .

Angle $CBA = 60^\circ$. Angle $CDA = 45^\circ$. Angle $CAD = 90^\circ$.

$BC = 10 \text{ cm}$.

(a) Calculate the length of CA .

.....

(3)



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(b) Calculate the area of trapezium $ABCD$.

.....

(5)

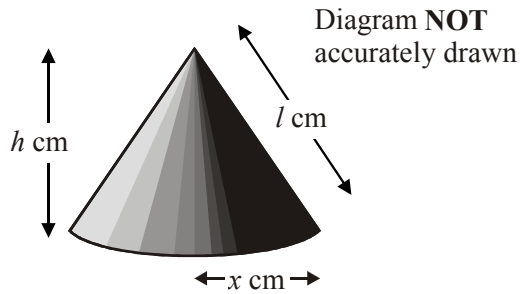
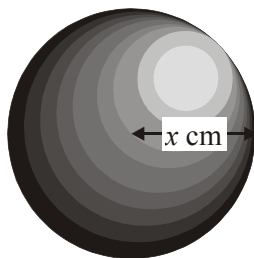
(c) Work out the percentage of the trapezium $ABCD$ that is **not** shaded.

..... %

(3)

(Total 11 marks)

4.



The radius of a sphere is x cm.
 The radius of the base of a cone is also x cm.
 The volume of the sphere is equal to the volume of the cone.

(a) Find an expression, in terms of x , for the height of the cone, h cm.

..... cm

(2)



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- (b) Show that the slant length of the cone, l cm, is given by $\frac{5}{3}\pi$.

..... cm

(2)

- (c) Find an expression, in terms of x and π , for the **total** surface area of the cone.

..... cm

(4)

(Total 8 marks)

5.

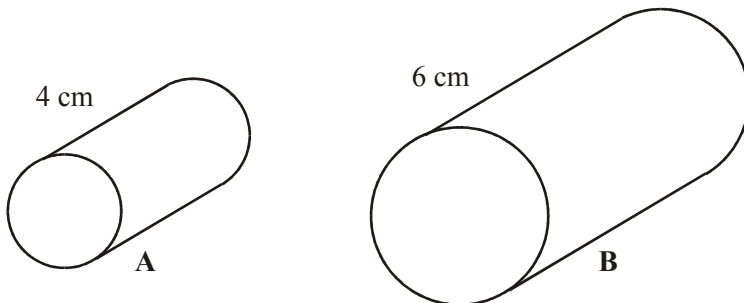


Diagram **NOT** accurately drawn

Cylinder **A** and cylinder **B** are mathematically similar.
The length of cylinder **A** is 4 cm and the length of cylinder **B** is 6 cm.
The volume of cylinder **A** is 80 cm^3 .

Calculate the volume of cylinder **B**.



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..... cm^3
(Total 3 marks)