Cones

Total Marks: 22

Question 1

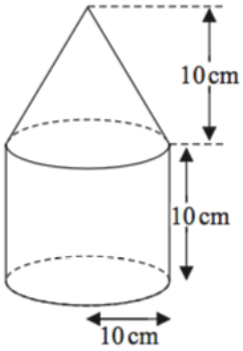

Diagram **NOT** accurately drawn

The cone has a radius of 10 cm and a height of 10 cm.
The cylinder has a radius of 10 cm and a height of 10 cm.
The centre of the base of the cone coincides with the centre of the top face of the cylinder.

Show that S$A = \left(a + b\sqrt{2}\right)\pi$ where a and b are integers to be found.

.....

(4 marks)

Question 2

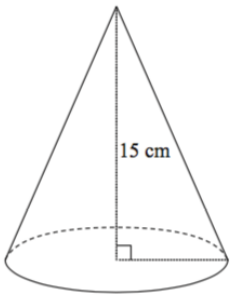

Diagram **NOT** accurately drawn

A solid cone has a height of 15 cm. The volume of the cone is 320π cm^3.

Work out the curved surface area of the cone. Give your answer correct to 3 significant figures.

..... cm^2

(5 marks)

Question 3

The diagram shows a cylinder inside a cone on a horizontal base.
The base of the cylinder lies on the base of the cone.
The circumference of the top face of the cylinder touches the curved surface of the cone.

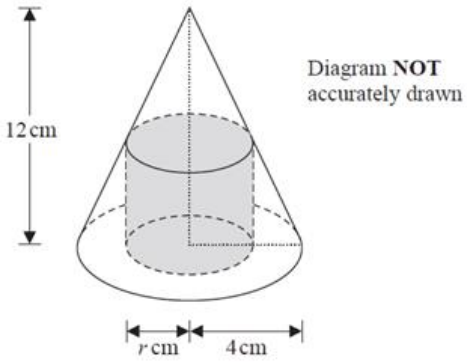

Diagram **NOT** accurately drawn

The height of the cone is 12 cm and the radius of the base of the cone is 4 cm.

Work out the curved surface area of the cone.
Give your answer correct to 3 significant figures.

..... cm ^{2}

(3 marks)

Question 4

The diagram shows a solid made from a hemisphere and a cone.

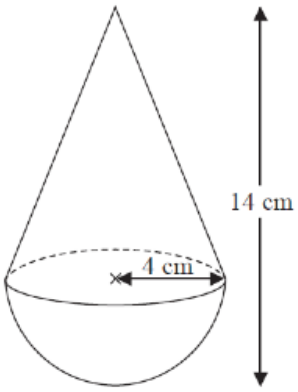

Diagram **NOT** accurately drawn

The radius of the hemisphere is 4 cm. The radius of the base of the cone is 4 cm.

Calculate the volume of the solid. Give your answer correct to 3 significant figures.

..... cm^3

Question 5

A cone has slant height 4 cm and base radius r cm.

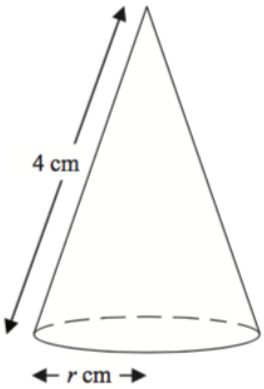

Diagram **NOT** accurately drawn

The **total** surface area of the cone is $\frac{33}{4}\pi$ cm^2.

Calculate the value of r.

$r =$ ..... cm

(4 marks)

Question 6

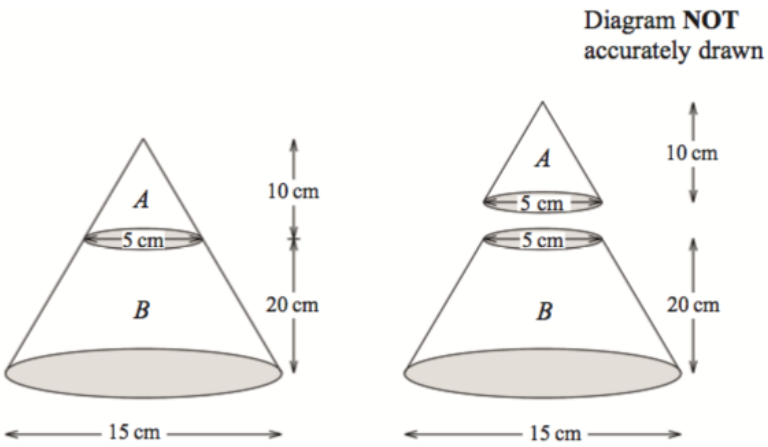

Diagram **NOT** accurately drawn

The diagram represents a large cone of height 30 cm and base diameter 15 cm.
The large cone is made by placing a small cone A of height 10 cm and base diameter 5 cm on top of a frustum B.

Calculate the volume of the frustum B.
Give your answer correct to 3 significant figures.

..... cm^3

(3 marks)