11

Diagram **NOT** accurately drawn

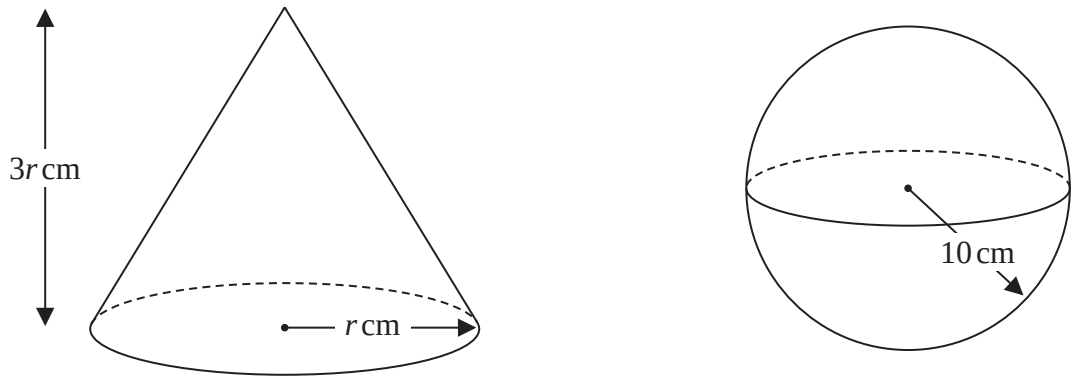

Figure 4

Figure 4 shows a solid right circular cone of radius r cm and height $3r$ cm and a sphere of radius 10 cm.

The total surface area of the cone is equal to the surface area of the sphere.

(a) Calculate the value, to one decimal place, of r

(4)

$$\left[\begin{array}{c}\textbf{Curved surface area of cone} = \pi rl \\ \textbf{Surface area of sphere} = 4\pi r^2\end{array}\right]$$

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Question 11 continued

Question 11 continues on page 34

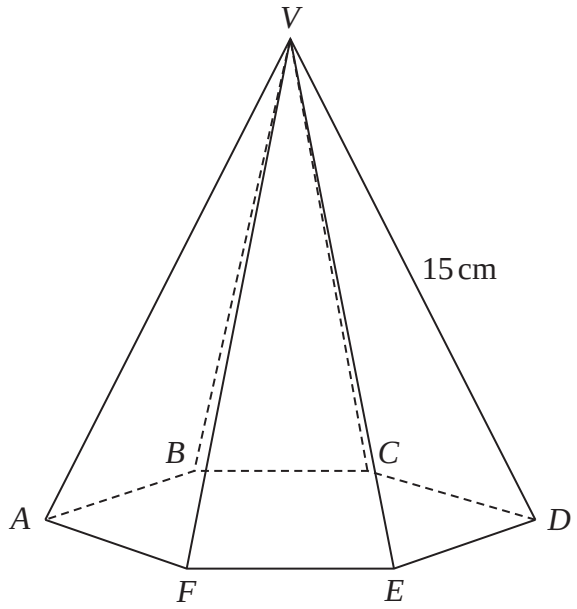

Diagram **NOT** accurately drawn

Figure 5

Figure 5 shows a right pyramid.

The base $ABCDEF$ of the pyramid is a regular hexagon and the vertex V of the pyramid is such that
$AV = BV = CV = DV = EV = FV = 15\,\text{cm}$ and $\angle AVD = 40°$

(b) Calculate the volume, in cm^3 to 3 significant figures, of the pyramid.

(5)

$$\left[\begin{array}{c}\textbf{Area of triangle} = \frac{1}{2}ab\sin C \\ \textbf{Volume of pyramid} = \frac{1}{3} \times \text{base area} \times \text{height}\end{array}\right]$$

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Question 11 continued

Question 11 continued

(Total for Question 11 is 9 marks)

TOTAL FOR PAPER IS 100 MARKS

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA