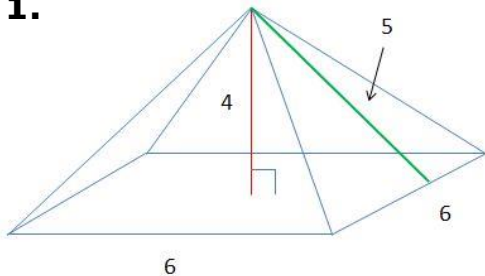## Calculators are permitted but working must be shown.

Round answers to **3 significant figures** where necessary.
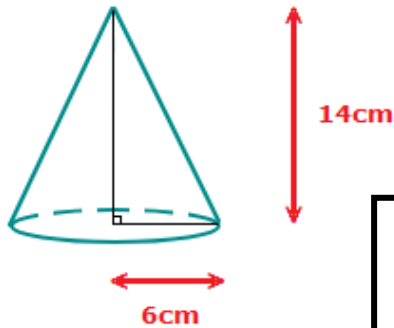
Unit Level:

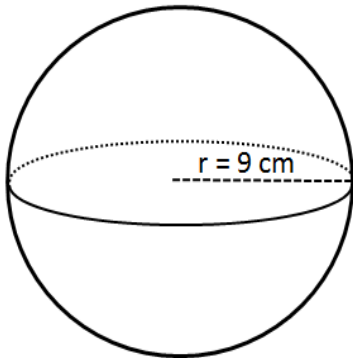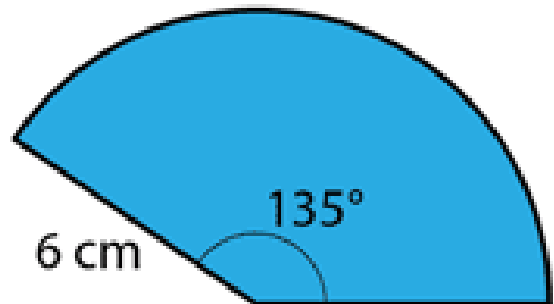Calculate the **volume** of each solid in Q1 to 3:

1.

5

4

6

6

2.

14cm

6cm

Volume
Cone:
$$V = \frac{1}{3}\pi r^2 h$$

Sphere:
$$V = \frac{4}{3}\pi r^3$$

Pyramid:
$$V = \frac{1}{3}Ah$$
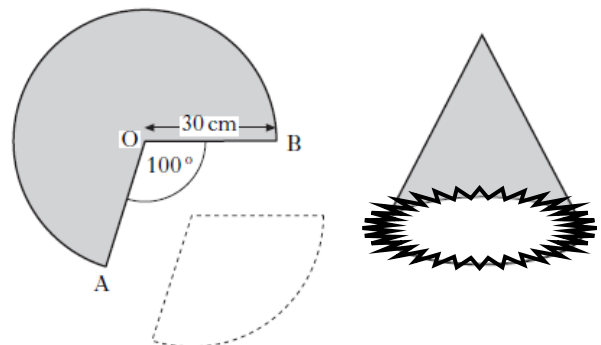
3.

r = 9 cm

4. Calculate the **arc length and the area** of the sector shown:

6 cm   135°

5. Lizzie is making paper hats from cardboard. She uses the template shown opposite.
(a) What is the length of the major arc AB?
(b) Lizzie decides to put tinsel around the base of each hat. If she has a 5 metre roll of tinsel, how many hats can she make?
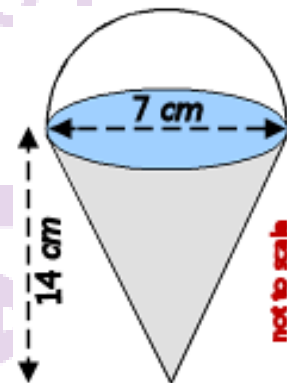
O ←30 cm→ B
100°
A

PTO

6. John has a 500cm³ bar of chocolate that he is going to melt and make chocolate balls with. If each ball has a radius of 1.5cm, how many can he make?

Assessment level:

7. Calculate the volume of the solid shown.

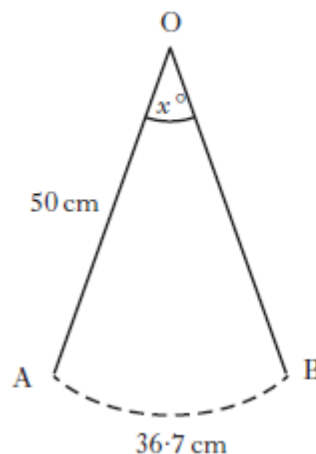7 cm

14 cm

not to scale

8. As the pendulum of a clock swings, its tip moves through an arc of a circle.

The length of the pendulum is 50cm.

The length of the arc is 36.7cm

O

$x\,°$

50 cm

A

B

36·7 cm

Calculate $x°$, the angle through which the pendulum swings

9. A candle in the shape of a cone with a circular base of diameter 14cm and height h cm has a volume of $1180cm^3$.

Calculate h

h

14 cm