1 A sector of a circle has angle 1.5 radians and area 27 cm^2. Find the perimeter of the sector. **[4]**

2

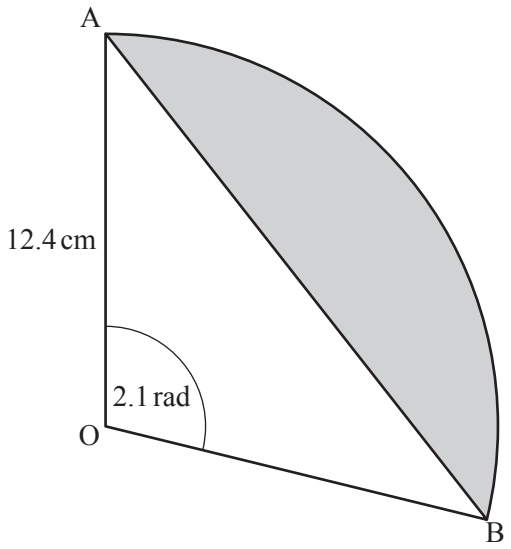

Fig. 6

A circle with centre O has radius 12.4 cm. A segment of the circle is shown shaded in Fig. 6. The segment is bounded by the arc AB and the chord AB, where the angle AOB is 2.1 radians. Calculate the area of the segment. **[4]**

3 A sector of a circle has angle 1.6 radians and area 45 cm^2. Find the radius and perimeter of the sector. **[5]**

4 Fig. 13.1 shows a greenhouse which is built against a wall.

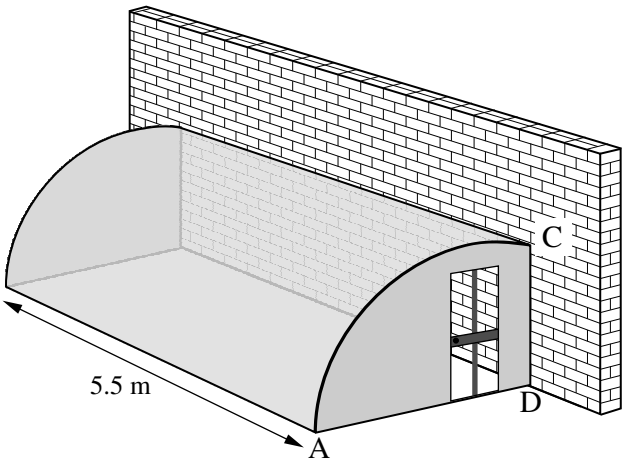

Fig. 13.1

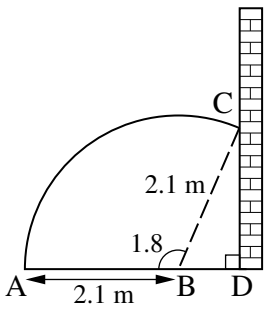

Fig. 13.2

The greenhouse is a prism of length 5.5 m. The curve AC is an arc of a circle with centre B and radius 2.1 m, as shown in Fig. 13.2. The sector angle ABC is 1.8 radians and ABD is a straight line. The curved surface of the greenhouse is covered in polythene.

(i) Find the length of the arc AC and hence find the area of polythene required for the curved surface of the greenhouse. **[4]**

(ii) Calculate the length BD. **[3]**

(iii) Calculate the volume of the greenhouse. **[5]**

5 A sector of a circle of radius 18.0 cm has arc length 43.2 cm.

(i) Find in radians the angle of the sector. **[2]**

(ii) Find this angle in degrees, giving your answer to the nearest degree. **[2]**

6 Express $\frac{7\pi}{6}$ radians in degrees. [2]

7

Not to scale

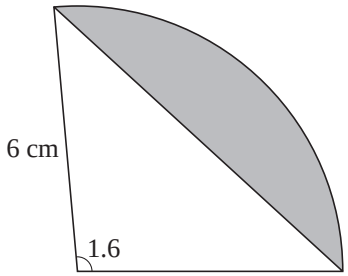

Fig. 7

A sector of a circle of radius 6 cm has angle 1.6 radians, as shown in Fig. 7.

Find the area of the sector.

Hence find the area of the shaded segment. [5]

8 **(i)** State the exact value of $\tan 300°$. [1]

(ii) Express 300° in radians, giving your answer in the form $k\pi$, where k is a fraction in its lowest terms. [2]

9 A sector of a circle of radius 5 cm has area 9 cm^2.

Find, in radians, the angle of the sector.

Find also the perimeter of the sector. [5]