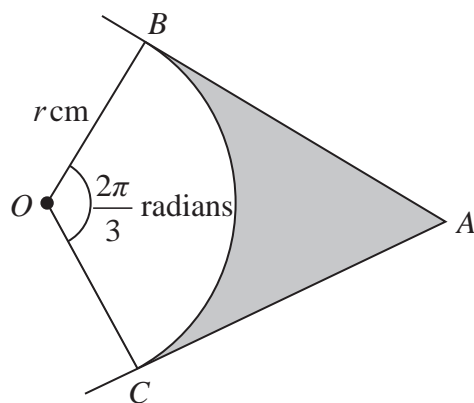**5**

Diagram **NOT** accurately drawn

Figure 2

In Figure 2, AB and AC are tangents to a circle with centre O and radius r cm.

The points B and C lie on the circle so that OBC is a sector of this circle and $\angle BOC = \dfrac{2\pi}{3}$ radians.

Given that the area of the shaded region is $10\,\text{cm}^2$,

find, to 3 significant figures, the value of r.

(8)

Question 5 continued

(Total for Question 5 is 8 marks)