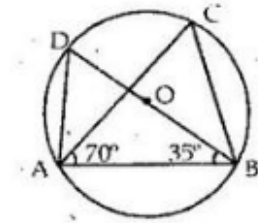




Exercise 11B

Question 4:



It is clear that, BD is the diameter of the circle.

Also we know that, the angle in a semicircle is a right angle.

$$\therefore \angle BAD = 90^\circ$$

Now consider the triangle, $\triangle BAD$

$$\Rightarrow \angle ADB = 180^\circ - (\angle BAD + \angle ABD) \quad [\text{Angle sum property}]$$

$$\Rightarrow \quad = 180^\circ - (90^\circ + 35^\circ) \quad [\angle BAD = 90^\circ \text{ and } \angle ABD = 35^\circ]$$

$$\Rightarrow \quad = 180^\circ - 125^\circ$$

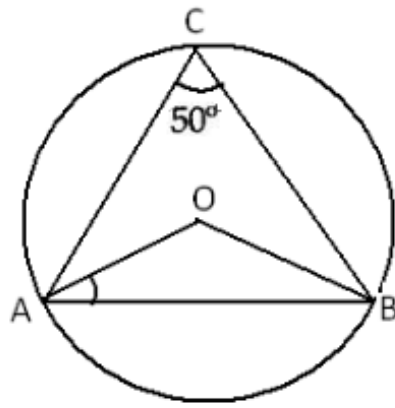
$$\Rightarrow \angle ADB = 55^\circ$$

Angles in the same segment of a circle are equal.

$$\therefore \angle ACB = \angle ADB = 55^\circ$$

$$\therefore \angle ACB = 55^\circ$$

Question 5:



The angle subtended by an arc of a circle at the centre is double the angle subtended by the arc at any point on the circumference.

$$\begin{aligned}\therefore \quad \angle AOB &= 2\angle ACB \\ &= 2 \times 50^\circ \quad \text{[Given]} \\ \Rightarrow \quad \angle AOB &= 100^\circ \quad \dots(1)\end{aligned}$$

Consider the triangle $\triangle OAB$

$$\begin{aligned}OA &= OB && \text{[radius of the circle]} \\ \angle OAB &= \angle OBA && \text{[base angles of an isosceles triangle are equal]}\end{aligned}$$

Thus we have

$$\angle OAB = \angle OBA \quad \dots(2)$$

By angle sum property, we have

$$\text{Now } \angle AOB + \angle OAB + \angle OBA = 180^\circ$$

$$\Rightarrow 100^\circ + 2\angle OAB = 180^\circ \quad \text{[from (1) and (2)]}$$

$$\Rightarrow 2\angle OAB = 180^\circ - 100^\circ = 80^\circ$$

$$\Rightarrow \angle OAB = \frac{80^\circ}{2} = 40^\circ$$

$$\therefore \quad \angle OAB = 40^\circ$$

***** END *****