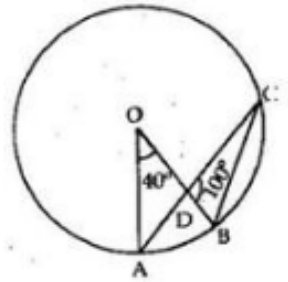




Exercise 11B

Question 10:



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.

$$\begin{aligned}\therefore \angle AOB &= 2\angle ACB \\ \Rightarrow &= 2\angle DCB \quad [\because \angle ACB = \angle DCB] \\ \Rightarrow \angle DCB &= \frac{1}{2}\angle AOB \\ &= \left(\frac{1}{2} \times 40\right) = 20^\circ\end{aligned}$$

Consider the $\triangle DBC$;

By angle sum property, we have

$$\begin{aligned}\angle BDC + \angle DCB + \angle DBC &= 180^\circ \\ \Rightarrow 100^\circ + 20^\circ + \angle DBC &= 180^\circ \\ \Rightarrow \angle DBC &= 180^\circ - 120^\circ = 60^\circ \\ \Rightarrow \angle OBC &= \angle DBC = 60^\circ \\ \therefore \angle OBC &= 60^\circ\end{aligned}$$

Question 11:

Join OB.

$$\therefore OA = OB \quad [\text{Radius}]$$

$$\therefore \angle OBA = \angle OAB = 25^\circ \quad [\text{base angles are equal in isosceles triangle}]$$

Now in $\triangle OAB$, we have

$$\Rightarrow \angle OAB + \angle OBA + \angle AOB = 180^\circ$$

$$\Rightarrow 25^\circ + 25^\circ + \angle AOB = 180^\circ$$

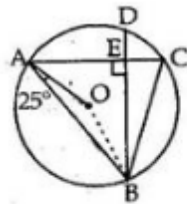
$$\Rightarrow \angle AOB = 180^\circ - 50^\circ = 130^\circ$$

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.

$$\therefore \angle AOB = 2\angle ACB$$

$$\Rightarrow \angle ACB = \frac{1}{2}\angle AOB = \frac{1}{2} \times 130 = 65^\circ$$

$$\Rightarrow \angle ECB = 65^\circ$$



Consider the right triangle $\triangle BEC$.

We know that the sum of three angles in a triangle is 180° .

$$\Rightarrow \angle EBC + \angle BEC + \angle ECB = 180^\circ$$

$$\Rightarrow \angle EBC + 90^\circ + 65^\circ = 180^\circ$$

$$\Rightarrow \angle EBC = 180^\circ - 155^\circ = 25^\circ$$

$$\therefore \angle EBC = 25^\circ$$

***** END *****