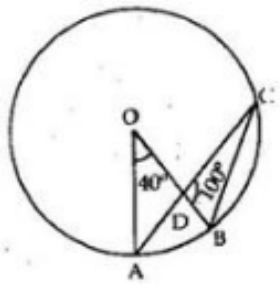
Exercise 11B

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.

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

$\Rightarrow \quad = 2\angle DCB \quad [\because \angle ACB = \angle DCB]$

$\Rightarrow \angle DCB = \frac{1}{2}\angle AOB$

$= \left(\frac{1}{2} \times 40\right) = 20°$

Consider the ΔDBC;

By angle sum property, we have

$\angle BDC + \angle DCB + \angle DBC = 180°$

$\Rightarrow \quad 100° + 20° + \angle DBC = 180°$

$\Rightarrow \quad \angle DBC = 180° - 120° = 60°$

$\Rightarrow \quad \angle OBC = \angle DBC = 60°$

$\therefore \quad \angle OBC = 60°$

Question 11:

Join OB.

$\therefore$ $OA = OB$ [Radius]

$\therefore$ $\angle OBA = \angle OAB = 25^\circ$ [base angles are equal in isosceles triangle

Now in ΔOAB, we have

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

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

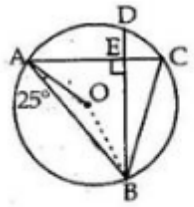
$\Rightarrow \angle AOB = 180^\circ - 50^\circ = 130^\circ$

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 ΔBEC.

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 **********