



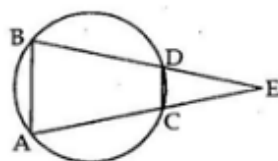
### Exercise 11C

Question 28:

Given:  $AB$  and  $CD$  are two parallel chords of a circle  $BDE$  and  $ACE$  are straight lines which intersect at  $E$ .

If one side of a cyclic quadrilateral is produced then the exterior angle is equal to the interior opposite angle.

$\therefore \text{Ext}\angle EDC = \angle A$  and  $\text{Ext}\angle DCE = \angle B$



Also,  $AB \parallel CD$

$\Rightarrow \angle EDC = \angle B$

and  $\angle DCE = \angle A$

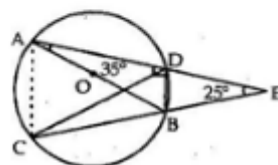
$\therefore \angle A = \angle B$

$\therefore \triangle AEB$  is isosceles.

Question 29:

$AB$  is a diameter of a circle with centre  $O$ .  $ADE$  and  $CBE$  are straight lines, meeting at  $E$ , such that  $\angle BAD = 35^\circ$  and  $\angle BED = 25^\circ$ .

Join  $BD$  and  $AC$ .



(i) Now,  $\angle BDA = 90^\circ = \angle EDB$  [angle in a semi circle]

$$\begin{aligned} \Rightarrow \angle EBD &= 180^\circ - (\angle EDB + \angle BED) \\ &= 180^\circ - (90^\circ + 25^\circ) \\ &= 180^\circ - 115^\circ = 65^\circ \end{aligned}$$

$$\begin{aligned} \therefore \angle DBC &= (180^\circ - \angle EBD) \\ &= 180^\circ - 65^\circ = 115^\circ \end{aligned}$$

$$\therefore \angle DBC = 115^\circ$$

(ii) Again,  $\angle DCB = \angle BAD$  [angle in the same segment]

Since,  $\angle BAD = 35^\circ$

$$\therefore \angle DCB = 35^\circ$$

$$\begin{aligned} \text{(iii)} \quad \angle BDC &= 180^\circ - (\angle DBC + \angle DCB) \\ &= 180^\circ - (\angle DBC + \angle BAD) \\ &= 180^\circ - (115^\circ + 35^\circ) \\ &= 180^\circ - 150^\circ = 30^\circ \end{aligned}$$

$$\therefore \angle BDC = 30^\circ$$

\*\*\*\*\* END \*\*\*\*\*

