Exercise 11C

Question 12:

ABCD is a cyclic quadrilateral.

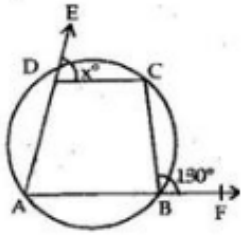
We know that in a cyclic quadrilateral exterior angle = interior opposite angle.

$\therefore \quad \angle CBF = \angle CDA = (180° - x)$

$\Rightarrow \quad 130° = 180° - x$

$\Rightarrow \quad x = 180° - 130° = 50°$

$x = 50°$



Question 13:

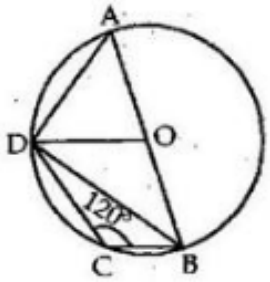
AB is a diameter of a circle with centre O and DO ∥ CB,
$\angle BCD = 120°$

(i) Since ABCD is a cyclic quadrilateral

$\therefore \quad \angle BCD + \angle BAD = 180°$

$\Rightarrow \quad 120° + \angle BAD = 180°$

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



(ii) $\angle BDA = 90°$ [angle in a semi circle]

In ΔABD we have

$\angle BDA + \angle BAD + \angle ABD = 180°$

$\Rightarrow \quad 90° + 60° + \angle ABD = 180°$

$\Rightarrow \quad \angle ABD = 180° - 150° = 30°$

(iii) $OD = OA.$

$\Rightarrow \quad \angle ODA = \angle OAD = \angle BAD = 60°$

$\therefore \quad \angle ODB = 90° - \angle ODA$

$= 90° - 60° = 30°$

Since DO ∥ CB, alternate angles are equal

$\Rightarrow \quad \angle CBD = \angle ODB$

$= 30°$

(iv) $\angle ADC = \angle ADB + \angle CDB$

$= 90° + 30° = 120°$

Also, in ΔAOD, we have

$\angle ODA + \angle OAD + \angle AOD = 180°$

$\Rightarrow \quad 60° + 60° + \angle AOD = 180°$

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

Since all the angles of ΔAOD are of 60° each

$\therefore$ Δ AOD is an equilateral triangle.

********** END **********