

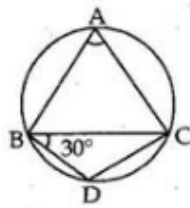


Exercise 11C

Question 6:

$$BD = DC$$

$$\therefore \angle BCD = \angle CBD = 30^\circ$$



In $\triangle BCD$, we have

$$\angle BCD + \angle CBD + \angle CDB = 180^\circ$$

$$\Rightarrow 30^\circ + 30^\circ + \angle CDB = 180^\circ$$

$$\Rightarrow \angle CDB = 180^\circ - 60^\circ \\ = 120^\circ$$

The opposite angles of a cyclic quadrilateral are supplementary.

$ABCD$ is a cyclic quadrilateral and thus,

$$\begin{aligned} \angle CDB + \angle BAC &= 180^\circ \\ &= 180^\circ - 120^\circ [\because \angle CDB = 120^\circ] \\ &= 60^\circ \end{aligned}$$

$$\therefore \angle BAC = 60^\circ$$

Question 7:

Angle subtended by an arc is twice the angle subtended by it on the circumference in the alternate segment.

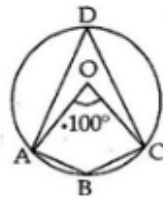
Here arc ABC makes $\angle AOC = 100^\circ$ at the centre of the circle and $\angle ADC$ on the circumference of the circle

$$\therefore \angle AOC = 2\angle ADC$$

$$\Rightarrow \angle ADC = \frac{1}{2}(\angle AOC)$$

$$\Rightarrow \quad = \frac{1}{2} \times 100^\circ \quad [\angle AOC = 100^\circ]$$

$$\Rightarrow \angle ADC = 50^\circ$$



The opposite angles of a cyclic quadrilateral are supplementary, ABCD is a cyclic quadrilateral and thus,

$$\begin{aligned}\angle ADC + \angle ABC &= 180^\circ \\ &= 180^\circ - 50^\circ \quad [\because \angle ADC = 50^\circ] \\ &= 130^\circ\end{aligned}$$

$$\therefore \quad \angle ABC = 130^\circ$$

$$\therefore \angle ADC = 50^\circ \quad \text{and} \quad \angle ABC = 130^\circ$$

***** END *****