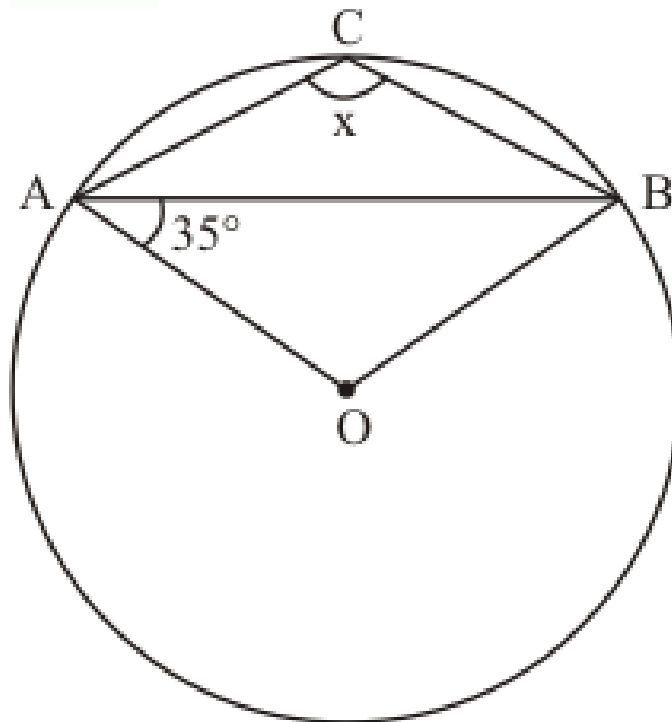




(v) It is given that $\angle OAC = 35^\circ$

$\triangle AOB$ is isosceles triangle



Therefore $\angle ABO = 35^\circ$

And

$$\angle ABO + \angle OAC + \angle AOB = 180^\circ$$

$$70^\circ + \angle AOB = 180^\circ$$

$$\begin{aligned}\angle AOB &= 180^\circ - 70^\circ \\ &= 110^\circ\end{aligned}$$

So reflexion

$$\angle AOB = 2(\angle ACB)$$

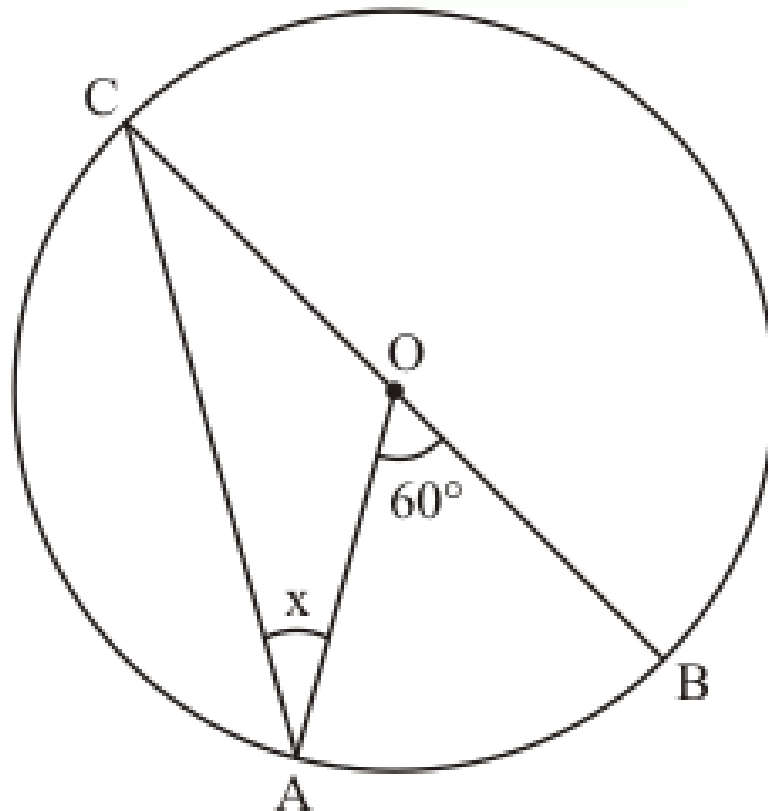
$$\angle ACB = \frac{1}{2}(360^\circ - 110^\circ)$$

$$= \frac{1}{2}(250^{\circ})$$

$$= 125^{\circ}$$

Hence $x = 125^{\circ}$

(vi) It is given that $\angle AOB = 60^{\circ}$



And

$$\angle COA + \angle AOB = 180^{\circ}$$

$$\angle COA = 180^{\circ} - 60^{\circ}$$

$$= 120^{\circ}$$

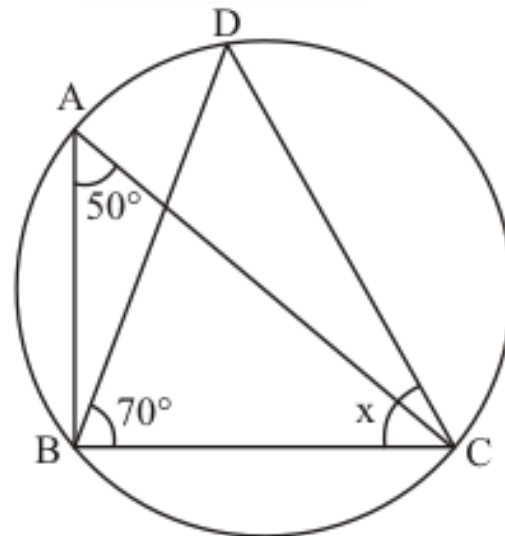
$\triangle ABO$ is isosceles triangle

So

$$\begin{aligned}\angle CAO &= \frac{1}{2}(180^{\circ} - 120^{\circ}) \\ &= 30^{\circ}\end{aligned}$$

Hence $\boxed{x = 30^{\circ}}$

(vii) $\angle BAC = \angle BDC$ (Given that $\angle BAC = 50^{\circ}$)

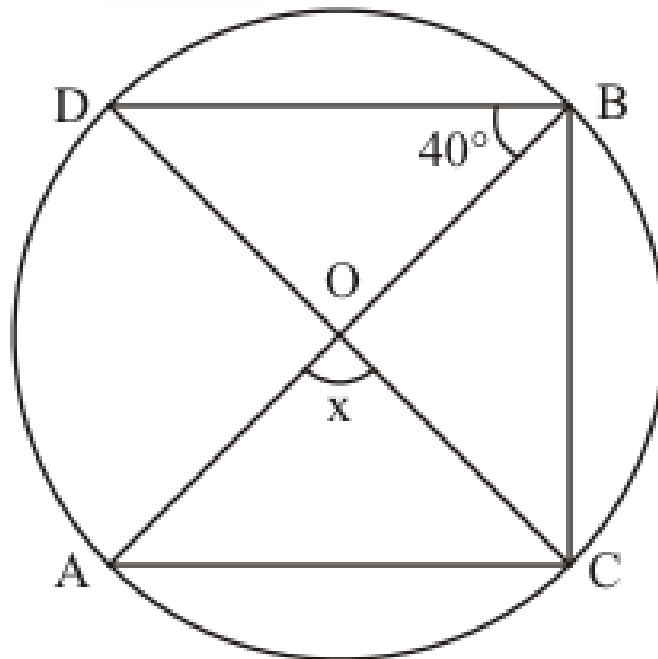


In $\triangle BDC$ we have

$$\begin{aligned}\angle DBC + \angle BDC + \angle BCD &= 180^{\circ} \\ 70^{\circ} + 50^{\circ} + \angle BCD &= 180^{\circ} \\ \angle BCD &= 180^{\circ} - 120^{\circ} \\ &= 60^{\circ}\end{aligned}$$

Hence $\boxed{x = 60^{\circ}}$

(viii) $\triangle DOB$ is isosceles triangle



Because $OD = OB$ (radius of circle)

$$\angle ODB + \angle OBD + \angle DOB = 180^\circ$$

$$40^\circ + 40^\circ + \angle DOB = 180^\circ$$

$$\angle DOB = 180^\circ - 80^\circ$$

$$= 100^\circ$$

So $\angle AOC = \angle DOB$ (vertical angle)

Hence $x = 100^\circ$

***** END *****