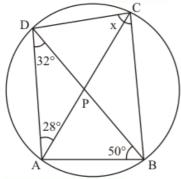


(ix) It is given that $\angle ABD = 50^{\circ}$



$$\angle DCA = \angle ABD = 50^{\circ}$$
 (1)

$$\angle ADB = \angle ACD = 32^0 \dots (2)$$

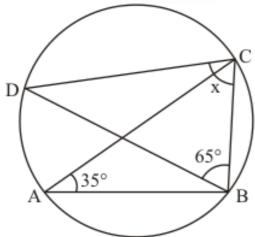
Because $\angle DCA$ and $\angle ABD$ are form on same segment AD of the circle. Now from equation (1) and (2) we have

$$\angle DCB = 50^{\circ} + 32^{\circ}$$

$$=82^{\circ}$$

Hence $x = 82^{\circ}$

(x) It is given that $\angle A = 35^{\circ}$



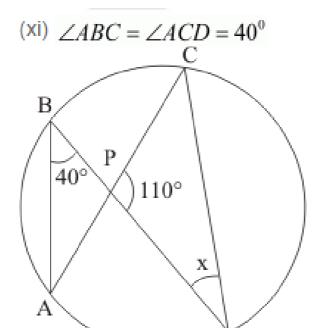
 $\angle A = \angle D = 35^{\circ}$ (Because form on same segment)

Now in $\triangle BCD$ we have

$$\angle D + \angle DBC + \angle DCB = 180^{\circ}$$

 $35^{\circ} + 65^{\circ} + \angle DCB = 180^{\circ}$
 $\angle DCB = 180^{\circ} - 100^{\circ}$
 $= 80^{\circ}$

Hence $x = 80^{\circ}$



In ΔPCD we have

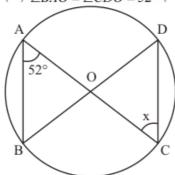
$$\angle CPD + \angle PCD + \angle PDC = 180^{\circ}$$

 $40^{\circ} + 110^{\circ} + \angle PDC = 180^{\circ}$
 $\angle PDC = 180^{\circ} - 150^{\circ}$
 $= 30^{\circ}$

D

Hence $x = 30^{\circ}$

(xii) $\angle BAO = \angle CDO = 52^{\circ}$ (Angle form on same segment of triangle)



 ΔDOC Is isosceles triangle So OD = OC (radius of triangle) Then $\angle ODC = \angle OCD = 52^{\circ}$

Hence $x = 52^{\circ}$

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