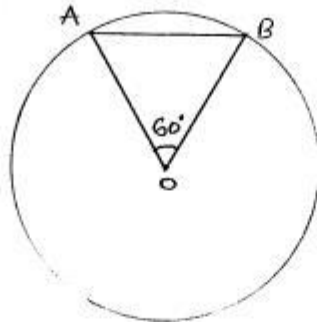


Circle

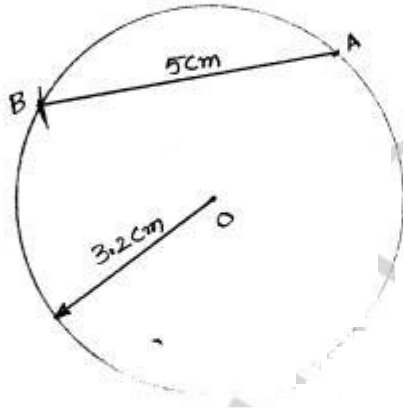
Exercise 15

1.



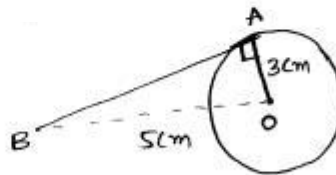
length of chord $\overline{AB} = 2.5\text{cm}$

2.



3.

Given
radius of circle = 3cm
 $\overline{OB} = 5\text{cm}$



$\triangle AOB$ is a right angled triangle

$$OB^2 = OA^2 + AB^2$$

$$5^2 = 3^2 + AB^2$$

$$25 = 9 + AB^2$$

$$AB^2 = 25 - 9 \Rightarrow AB^2 = 16$$

$$\underline{\underline{AB = 4\text{cm}}}$$

4.

2

Given

$$CP = 20 \text{ cm}$$

$$PT = 16 \text{ cm}$$

In ΔPTC

$$PC^2 = PT^2 + TC^2$$

$$20^2 = 16^2 + r^2$$

 r - radius of circle

$$r^2 = 20^2 - 16^2$$

$$= 400 - 256$$

$$r^2 = 64$$

$$r = \sqrt{64}$$

$$r = 8 \text{ cm}$$

 \therefore Radius of circle = 8 cm

5.

$$(i) \quad x = 90 - 32 = 58^\circ \quad (\because \text{Angle in Semi circle} = 90^\circ)$$

$$y = 90 - 50 = 40^\circ \quad (\because \text{Angle in Semicircle} = 90^\circ)$$

$$(ii) \quad y = 90 - 37^\circ \quad (\because \text{Angle in Rectangle})$$

$$y = 53^\circ$$

$$x = 90 - 53^\circ = 37^\circ$$

$$(iii) \quad 2x = 90^\circ \quad (\because \text{Angle in Semi circle} = 90^\circ)$$

$$x = 45^\circ$$

(iv)

(iv)

3

$$112^\circ + \angle ABC = 180^\circ$$

$$\angle ABC = 180 - 112^\circ$$

$$\angle ABC = 58^\circ$$

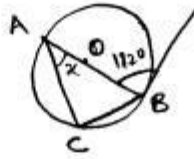
$$x + \angle ABC = 90^\circ \quad (\because \text{Angle in semi circle} = 90^\circ)$$

$$x = 90 - \angle ABC$$

$$x = 90 - 58^\circ$$

$$x = 32^\circ$$

$$\boxed{x = 32^\circ}$$



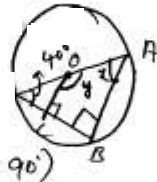
(v)

$$x + 40^\circ = 90$$

$$(\because \text{Angle in semi circle} = 90^\circ)$$

$$x = 90 - 40$$

$$\underline{\underline{x = 50^\circ}}$$



$$\text{In } \triangle ABC \quad x + y = 180 \quad (\because \text{Sum of angle in quadrilateral is equal to } 360^\circ)$$

$$x + y + 90 + 90 = 360$$

$$x + y + 180 = 360$$

$$x + y = 180$$

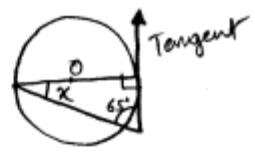
$$50 + y = 180$$

$$y = 180 - 50$$

$$\underline{\underline{y = 130^\circ}}$$

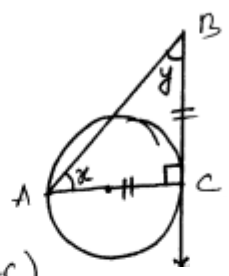
(vi)

$$\begin{aligned} x + 65 &= 90 \\ x &= 90 - 65 \\ x &= 25^\circ \end{aligned}$$



(vii)

$$\begin{aligned} \angle x &= \angle y \quad (\because) \\ \angle BAC &= \angle ABC \quad (\because BC = AC) \end{aligned}$$



$$\begin{aligned} x &= y \\ x + y &= 90 \\ 2x &= 90 \\ x &= 45^\circ \quad y = 45^\circ \end{aligned}$$

(ix)

$$\begin{aligned} \angle OCA &= 90^\circ \\ x + 36 &= 90 \\ x &= 90 - 36 \\ x &= 54^\circ \end{aligned}$$

