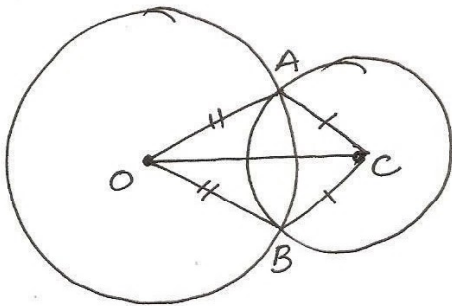


ex 10.6

①



To prove $\angle OAC = \angle OBC$

Proof In $\triangle OAC$ and $\triangle OBC$

$OA = OB$ [radii of same \odot]
 $CA = CB$ [same \odot]
 $OC = OC$

$\therefore \triangle OAC \cong \triangle OBC$ by SSS prop.

$\angle OAC = \angle OBC$ [c.p.t.]

In rt $\triangle CAO$

$$OC^2 = OA^2 + CA^2 \text{ (Py. th.)}$$

$$x^2 = (6-x)^2 + 5.5^2$$

$$\Rightarrow x^2 = 36 + x^2 - 12x + 30.25 \dots \textcircled{1}$$

From $\textcircled{1}, \textcircled{2}$

$$x^2 + 6.25 = 36 + x^2 - 12x + 30.25$$

$$\Rightarrow 12x = 60$$

$$\Rightarrow x = 5$$

Sub $\textcircled{1}$

$$x^2 = 5^2 + 6.25$$

$$= 25 + 6.25$$

$$= 31.25$$

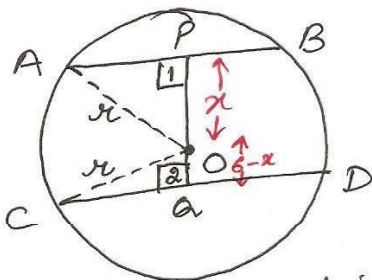
$$\Rightarrow x = \sqrt{31.25}$$

$$= \sqrt{\frac{3125}{100} \cdot \frac{125}{4}}$$

$$= \frac{\sqrt{5 \times 5 \times 5}}{\sqrt{2 \times 2}}$$

$$= \frac{5\sqrt{5}}{2} \text{ cm}$$

②



To find - radius of \odot

Const - join OA, OC

Proof - let $OP = x$ cm
 $OQ = (6-x)$ cm

In rt $\triangle OPA$

$$OA^2 = OP^2 + AP^2 \text{ [Py. th.]}$$

$$x^2 = x^2 + 2.5^2$$

$$\Rightarrow x^2 = x^2 + 6.25 \dots \textcircled{1}$$

$OP \perp AB$

$\Rightarrow AP = \frac{1}{2} AB$ [Per. from the centre of the \odot to the chord bisects it]
 $= \frac{1}{2} \times 5$
 $= 2.5$ cm

Sim. $CA = 5.5$ cm