

①

to find OB

const - join OB, OA

sol -  $\angle = 90^\circ$  (angle between radius and tangent)

$$OB \perp AC$$

$AC = 2AB$  (perpendicular from the centre of  $\odot$  to the chord bisects it)

$$\Rightarrow AB = \frac{8}{2} = 4 \text{ cm}$$

In rt  $\triangle AOB$

$$OA^2 = AB^2 + OB^2 \text{ (pythagoras theorem)}$$

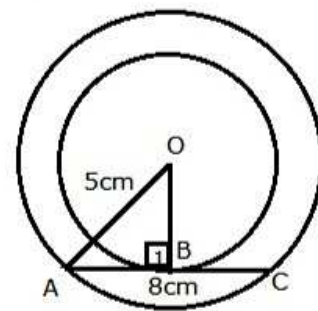
$$5^2 = 4^2 + OB^2$$

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

$$OB = \sqrt{9} = 3 \text{ cm}$$

$\therefore$  radius = 3 cm

NCERT Exemplar Solutions by Dev Anoop (Bathinda)



②  $\angle 1 = \angle 2 = 90^\circ$  ( $r \perp$  tangent)

In  $\square OQPR$

$$\angle 1 + \angle 2 + \angle 3 + \angle 4 = 360^\circ \text{ (angle sum prop. of } \square)$$

$$90^\circ + 90^\circ + \angle 3 + \angle 4 = 360^\circ$$

$$\Rightarrow \angle 3 + \angle 4 = 360^\circ - 180^\circ = 180^\circ$$

$\therefore \square OQPR$  is cyclic

