

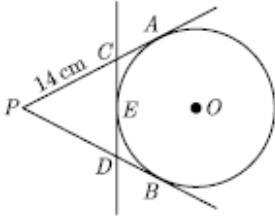
SELF ASSESSMENT TEST SOLUTIONS

1. Here, $\angle OAP = 90^\circ$ and $\angle AOP = 180^\circ - 115^\circ = 65^\circ$

Now $\angle APO = 180^\circ - (90^\circ + 65^\circ) = 25^\circ$

So (a) is the correct option.

2.



Here $PA = PB = 14$ cm

Also $CA = CE$ and $DB = DE$

Now, perimeter of $\triangle PCD = PC + CD + PD = PC + CE + ED + PD$
 $= PC + CA + PD + DB$
 $= PA + PB = 14 + 14 = 28$ cm

So (c) is the correct option.

3. Here $\triangle OBA \cong \triangle OCA$ [RHS congruence criterion]

So, $\angle OAB = \angle OAC = \frac{1}{2} \times 120^\circ = 60^\circ$

In $\triangle OBA$, $\cos 60^\circ = \frac{AB}{OA}$
 $\frac{1}{2} = \frac{AB}{OA}$
 $OA = 2AB$

So (a) is the correct option.

4. Let radii of the circles with centres P, Q and R are p, q and r respectively.

Then, $PQ = p - q = 10$... (1)

$PR = p - r = 8$... (2)

and $QR = q + r = 12$... (3)

(2) + (3) $\Rightarrow p + q = 20$... (4)

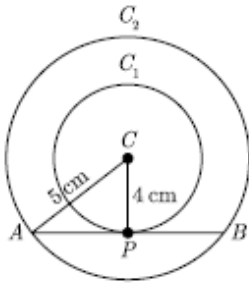
(1) + (4) $\Rightarrow 2p = 30$

ie. diameter of the largest circle = $2p = 30$ cm.

So (a) is the correct option.

SELF ASSESSMENT TEST SOLUTIONS

5.



By Pythagoras theorem, $AP^2 = AC^2 - PC^2 = 5^2 - 4^2 = 25 - 16 = 9$

$$\Rightarrow AP = 3 \text{ cm}$$

So, length of chord, $AB = 2AP = 2 \times 3 = 6 \text{ cm}$

So (b) is the correct option.

6. Join OC

Consider $\triangle APO$ and $\triangle ACO$

$$AP = AC \quad [\text{tangents from A}]$$

$$AO = AO \quad [\text{common}]$$

$$PO = CO \quad [\text{radii of same circle}]$$

$$\therefore \triangle APO \cong \triangle ACO \quad [\text{SSS congruency}]$$

$$\Rightarrow \angle PAO = \angle OAC \quad [\text{CPCT}]$$

$$\Rightarrow \angle OAB = \frac{1}{2} \angle PAB \quad \rightarrow(1)$$

Similarly we can prove that $\angle OBA = \frac{1}{2} \angle QBA \quad \rightarrow(2)$

Now $\angle PAB + \angle QBA = 180^\circ$ [sum of the interior angles on the same side of transversal is 180°]

$$\frac{\angle PAB}{2} + \frac{\angle QBA}{2} = \frac{180^\circ}{2}$$

$$\angle OAB + \angle OBA = 90^\circ \quad [\text{From (1) \& (2)}] \quad \rightarrow(3)$$

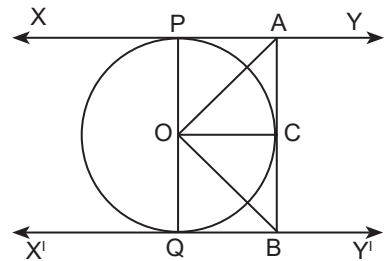
In $\triangle AOB$,

$$\angle OAB + \angle OBA + \angle AOB = 180^\circ \quad [\text{Angle sum property}]$$

$$90^\circ + \angle AOB = 180^\circ \quad [\text{From (3)}]$$

$$\angle AOB = 90^\circ$$

7. In $\triangle PAO$, $\angle PAO = 90^\circ$

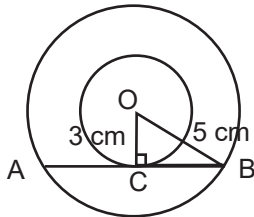


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$$\angle POA = 180^\circ - 115^\circ = 65^\circ$$

$$\therefore \angle APO = 180^\circ - [90 + 65^\circ] = 25^\circ$$

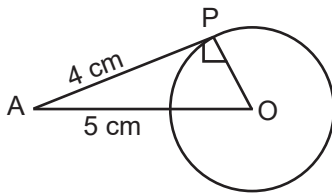
8.



$$\text{In } \triangle OCB, BC = \sqrt{5^2 - 3^2} = 4 \text{ cm}$$

$$AB = 2 \times BC = 8 \text{ cm}$$

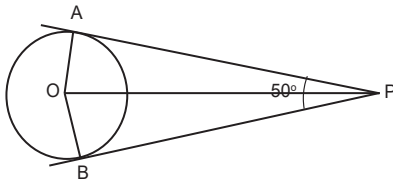
9.



$$OP = \sqrt{5^2 - 4^2} = \sqrt{9} = 3 \text{ cm}$$

$$\therefore \text{Diameter} = 6 \text{ cm}$$

10.



$$\begin{aligned} \angle AOP &= \frac{180^\circ - 50^\circ}{2} \\ &= \frac{130}{2} = 65^\circ. \end{aligned}$$