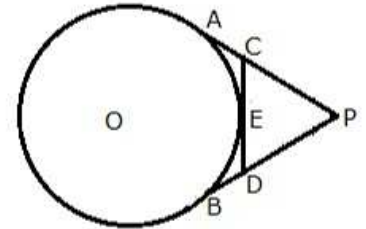


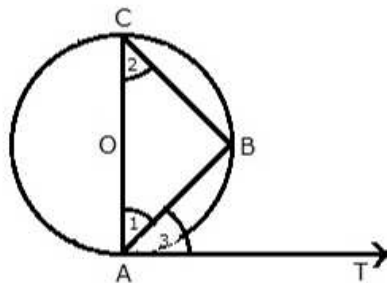
③ given - In figure $AP = 10\text{ cm}$
to find - perimeter of $\triangle PCD$



solution - Perimeter of $\triangle PCD$
 $= PC + CD + PD$
 $= PC + CE + ED + PD$
 $= PC + CA + DB + PD$
 $= PA + PB$
 $= PA + PA$
 $= 2PA$
 $= 2 \times 10$
 $= 20\text{ cm}$

[$\because CD = CE + ED$]
 [$CE = CA, DE = DB$]
 [tangents from same external point]
 $PA = PB$
 [tangents from same external point]

④



to prove $\angle BAT = \angle ACB$

proof $\angle B = 90^\circ$ (angle in semi \odot)

In $\triangle ABC$
 $\angle B + \angle 1 + \angle 2 = 180^\circ$ (angle sum prop. of \triangle)
 $90^\circ + \angle 1 + \angle 2 = 180^\circ$
 $\Rightarrow \angle 1 + \angle 2 = 180^\circ - 90^\circ$
 $\Rightarrow \angle 1 + \angle 2 = 90^\circ \dots \textcircled{1}$
 $\angle CAT = 90^\circ$ (radius \perp tangent)
 $\angle 1 + \angle 3 = 90^\circ \dots \textcircled{2}$
 From $\textcircled{1}, \textcircled{2}$ $\angle 1 + \angle 2 = \angle 1 + \angle 3$ | $\Rightarrow \angle ACB = \angle BAT$
 $\Rightarrow \angle 2 = \angle 3$