✱ Formulae for "Circle Theorem" ⇒ Chapter 8 and 9

Maths-D (4024)

✱ Different parts of a Circle ✱ :

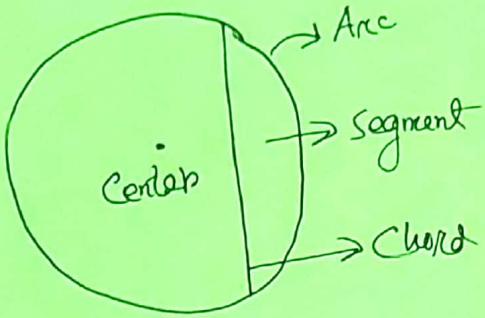


Figure 1:

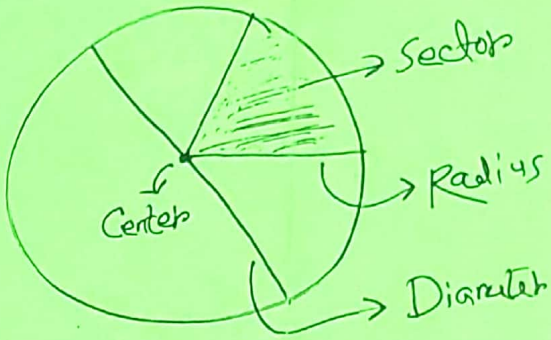
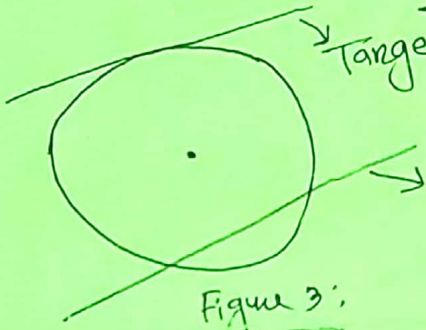


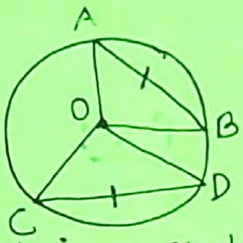
Figure 2:



Secant : A chord extended out of the circle.

Figure 3:

F-1 :

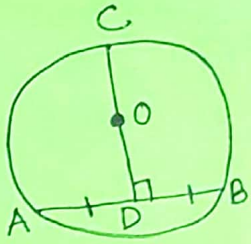


⇒ If 2 chords in a circle are congruent/equal, then 2 angles at the center are identical.

$AB = CD$ [equal chords]

$\therefore \angle AOB = \angle COD$

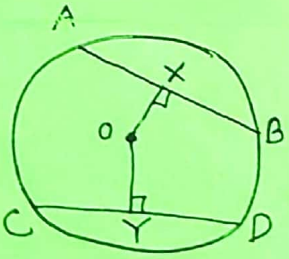
F-2 :



⇒ Perpendicular bisector of a chord passes through the centre.

$AD = DB$

F-3 :

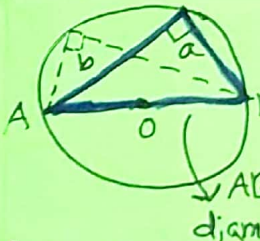


⇒ 2 equal chords in a Circle are the same distance from Centre.

$AB = CD$ [equal chords]

$\therefore OX = OY$

F-4 :

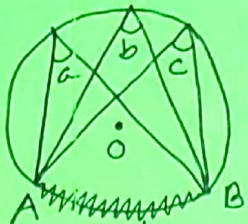


⇒ Angle in a Semi-circle is right angle.

$\therefore \angle a = \angle b = 90^\circ$

Formulae for Circle Theorem.

F-5:

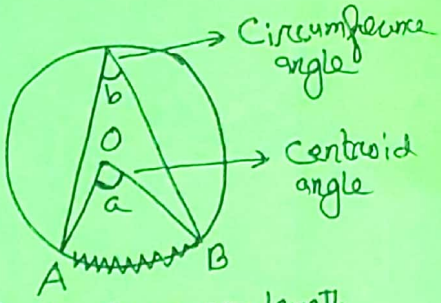


↳ Same arc length AB

⇒ Angles in the same arc length/ Same segment are equal.

$\therefore \angle a = \angle b = \angle c$

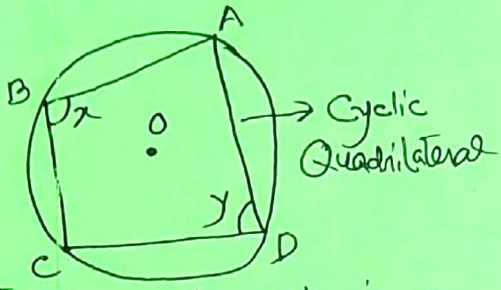
F-6:



⇒ In the same arc length Centroid angle is twice of Circumference angle.

$\therefore \angle a = 2 \times \angle b$

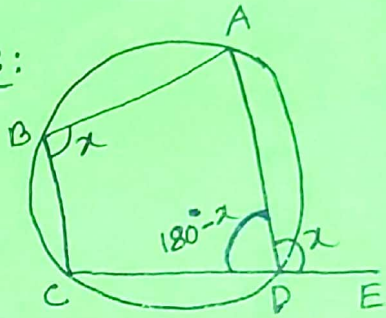
F-7:



⇒ The interior opposite angles in a cyclic Quadrilateral are supplementary.

$\therefore \angle x + \angle y = 180^\circ$

F-8:



⇒ In a cyclic quadrilateral Ext∠ is equal to the interior opposite angle.

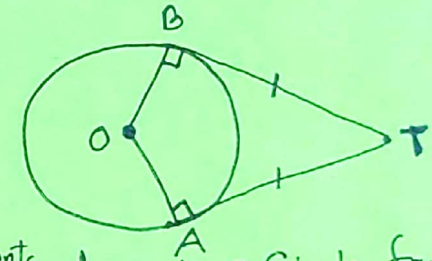
$\therefore \angle ADE = \angle CBA = x^\circ$

F-9:

⇒ Angle between tangent and radius of a circle is 90°

$\therefore \angle a = 90^\circ$

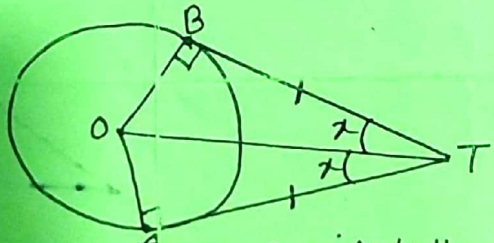
F-10:



⇒ Tangents drawn to a circle from an external point are equal in length.

$\therefore$ AT = BT

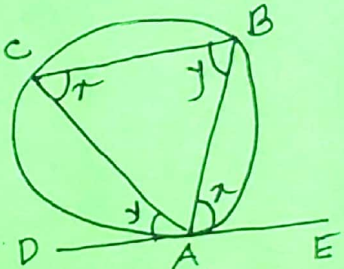
F-11:



⇒ Line joining external point to the centre bisects the angle between the tangents.

$\therefore \angle OAT = \angle OTB = x^\circ$

F-12: Alternate segment Theorem:



⇒ Angle between chord and tangent is equal to the angle in the alternate segment.

$\angle BAE = \angle ACB = x^\circ$

$\angle CAD = \angle CBA = y^\circ$