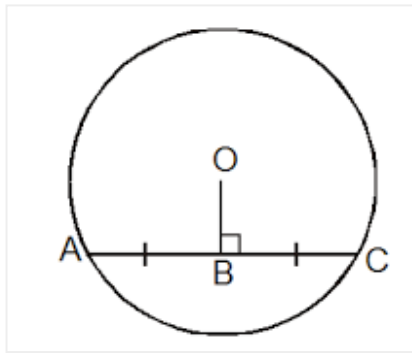


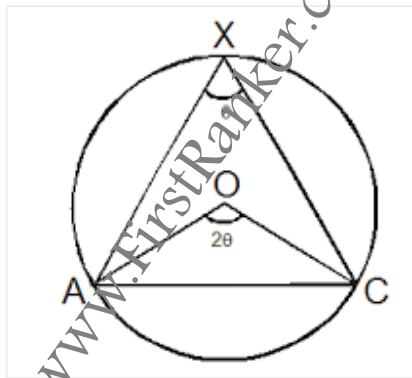
# Circles

Important Points:

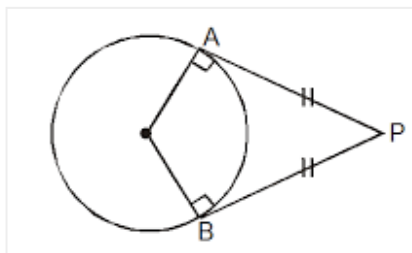
1. Perpendicular drawn to the chord always divides the chord into two equal parts



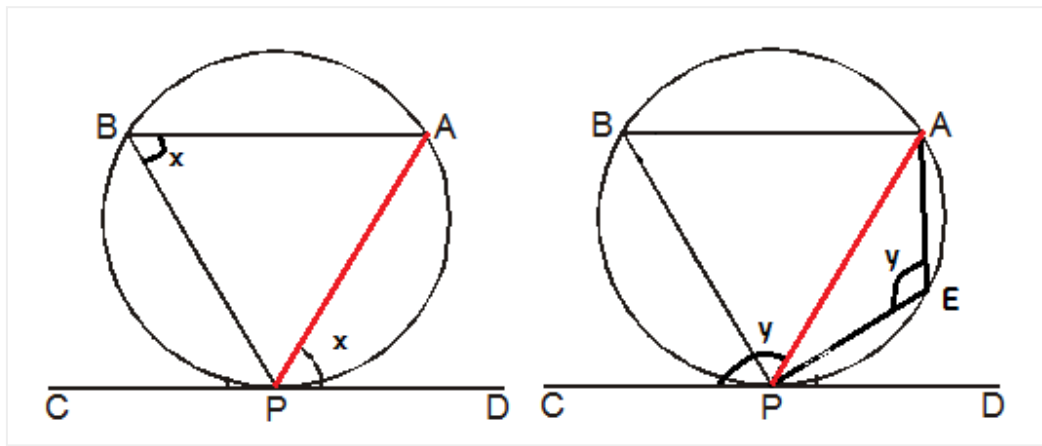
2. A chord makes an angle  $\theta$  on the circumference, it always makes double the angle ( $2\theta$ ) at the center.



3. Two tangents drawn to a circle from an external point P are always equal. Also the circle radius makes right angle with the tangent.



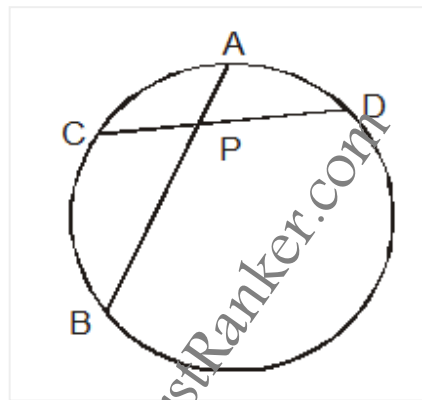
4. The angle made by a chord and tangent to the circle is equal to the angle made by the chord in the alternate segment. This is called the alternate segment theorem.



In this diagram, AP is a chord which makes angle  $x$  with the tangent and angle  $x$  in the alternate segment in the circle.

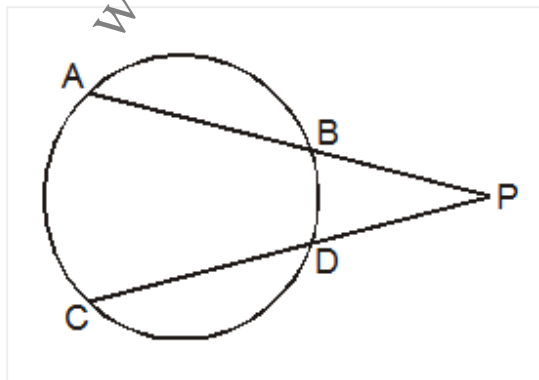
$$\angle APD = \angle ABP \quad \text{and} \quad \angle APC = \angle AEP$$

5. If two chords AB and CD intersect each other internally, then



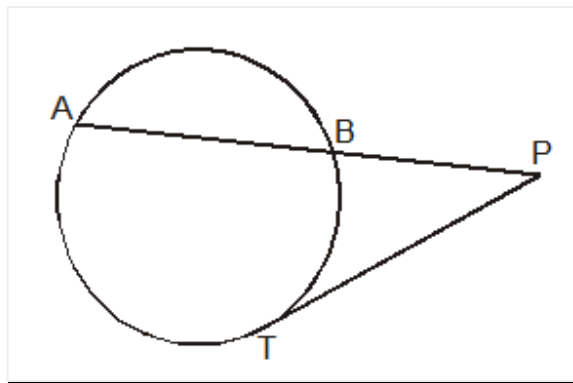
$$AP \times PB = CP \times PD$$

6. If two line segments (extended chords) PA and PC intersect each other externally, then



$$PA \times PB = PC \times PD$$

7. If PBA is a secant and PT is a tangent segment, then



$$PA \times PB = PT^2$$

8. A chord will make equal angles on the circumference

