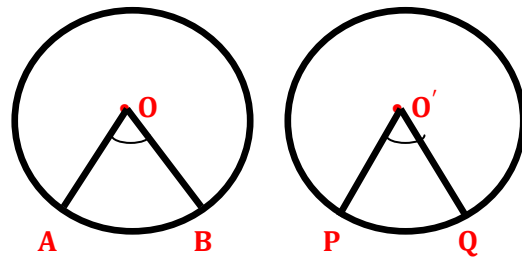


General directions for students: whatever be the notes provided, everything must be copied in the Maths copy and then do the HOME WORK in the same copy.

Arc and chord properties of circles

Axioms of equal arcs : In equal circles, if two arcs subtend equal angles at the centres then they are equal.

i.e. If $\angle AOB = \angle PO'Q$, then arc AB = arc PQ



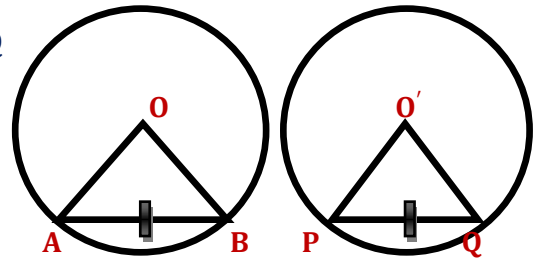
Conversely. In equal circles, if two arcs are equal then they subtend equal angles at the centres.

i.e. If arc AB = arc PQ, then $\angle AOB = \angle PO'Q$

Theorem 15.6

Statement: In equal circles, equal chords cut off equal arcs.

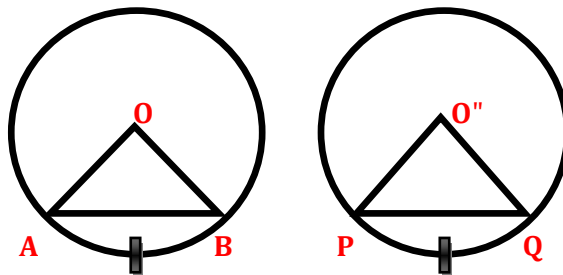
i.e. If chord AB = chord PQ, then arc AB = arc PQ



Theorem 15.7 (Converse of theorem 15.6)

Statement: In equal circles, if two arcs are equal then their chords are equal.

i.e. If arc AB = arc PQ, then chord AB = chord PQ.



EXERCISE – 15.2

3. Prove that the angle subtended at the centre of a circle is bisected by the radius passing through the mid point of the arc.

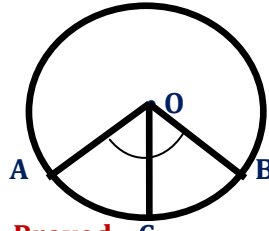
Given : AB is the arc of the circle with centre O and C is the mid point of AB

To prove: OC bisects $\angle AOB$ i.e. $\angle AOC = \angle BOC$

Proof: \because C is the mid point of AB

$$\therefore \text{arc AC} = \text{arc BC}$$

$$\therefore \angle AOC = \angle BOC \quad \text{i.e. OC bisects } \angle AOB \quad \text{Proved}$$



CHAPTER TEST

5(b) In the figure, two equal chords AB and CD of a circle with centre O intersect at right angles at P. If M and N are mid – points of the chords AB and CD respectively, prove that NOMP is a square.

Given: Two chords AB and CD intersect each other at P at right angles in the circle.

M and N are mid – points of the chords AB and CD respectively.

To prove: NOMP is a square

Proof: \because M and N are mid – points of the chords AB and CD respectively.

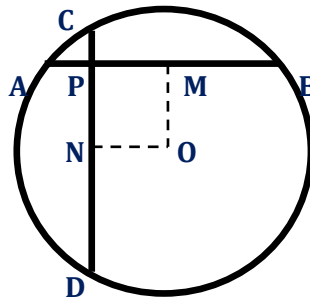
$$\therefore OM \perp AB \text{ and } ON \perp CD$$

$$\therefore OM = ON \quad [\text{Equal chords are at equal distance from the centre}]$$

$$\because AB \perp CD$$

$$\therefore OM \perp ON$$

Hence, NOMP is a square **Proved**



HOMEWORK

EXERCISE – 15.2

QUESTION NUMBERS: 1 and 4

CHAPTER TEST: 1, 2, 3 and 6