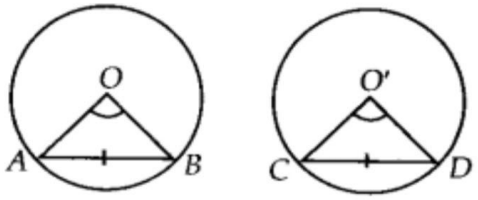
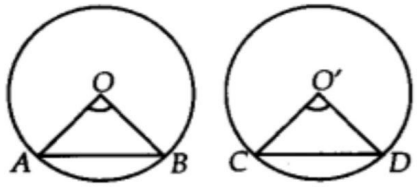
Circle Ex-10.2 (solved exercise) By-Ashish jha

Ex-10.2 Class 9 Maths Question 1.
Recall that two circles are congruent, if they have the same radii. Prove that equal chords of congruent circles subtend equal angles at their centres
Solution:



Given: Two congruent circles with centres O and O' and radii r, which have chords AB and CD respectively such that AB = CD.
To Prove: ∠AOB = ∠CO'D
Proof: In ΔAOB and ΔCO'D, we have
AB = CD [Given]
OA = O'C [Each equal to r]
OB = O'D [Each equal to r]
∴ ΔAOB ≅ ΔCO'D [By SSS congruence criteria]
⇒ ∠AOB = ∠CO'D [C.P.C.T.]

2.Prove that, if chords of congruent circles subtend equal angles at their centres, then the chords are equal.
Solution:



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To Prove: AB = CD
Proof: In ΔAOB and ΔCO'D, we have
OA = O'C [Each equal to r]
OB = O'D [Each equal to r]
∠AOB = ∠CO'D [Given]
∴ ΔAOB ≅ ΔCO'D [By SAS congruence criteria]
Hence, AB = CD [C.P.C.T.]