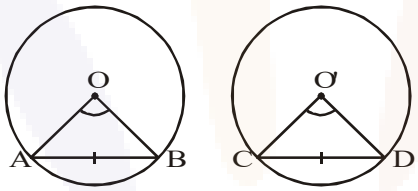
CLASS IX: MATHS
Chapter 9: Circles

Questions and Solutions | Exercise 9.1 - NCERT Books

Q1. 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.

Sol. **Given :** Two congruent circles C(O, r) and C(O', r) which have chords AB and CD respectively such that AB = CD.



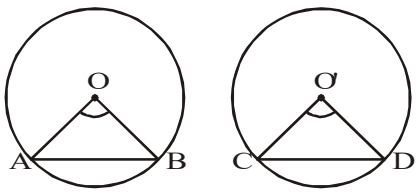
To prove : $\angle AOB = \angle CO'D$

Proof : From ΔAOB and $\Delta CO'D$, we have

	AB = CD	[Given]
	OA = O'C	[Each equal to r]
	OB = O'D	[Each equal to r]
$\therefore$	$AOB \cong \Delta CO'D$	[By SSS-congruence]
$\Rightarrow$	$\angle AOB = \angle CO'D$	[C.P.C.T.]

Q2. Prove that if chords of congruent circles subtend equal angles at their centres, then the chords are equal.

Sol. **Given :** Two congruent circle C(O, r) and C(O', r) which have chords AB and CD respectively, such that $\angle AOB = \angle CO'D$



To prove : AB = CD

Proof : In Δ AOB and Δ CO'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 - criterion]
Hence, AB = CD		[C.P.C.T.]