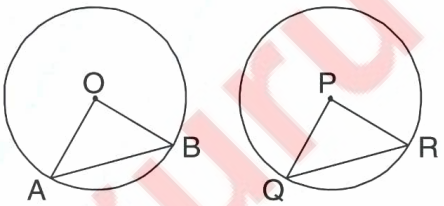
Exercise 9.1

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.*



Sol. Consider, triangles OAB and PQR,

$OA = OB = PQ = PR$ [Radii of congruent circles]

$AB = QR$ [Given]

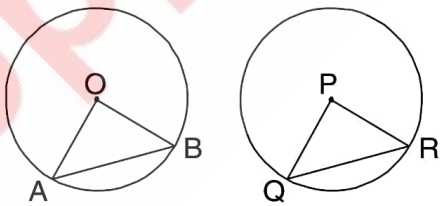
$\therefore \quad \Delta OAB \cong \Delta PQR$ [SSS]

$\therefore \quad \angle AOB = \angle QPR.$ [CPCT]

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

Sol. Consider, triangles OAB and PQR,

$OA = OB = PQ = QR$ [Radii of congruent circles]



$\angle AOB = \angle QPR.$ [Given]

$\therefore \quad \Delta AOB \cong \Delta QPR$ [SAS]

$\Rightarrow \quad AB = QR.$ [CPCT]