

Mathematics

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(Chapter - 10)(Circles)

(Class - 9)

Exercise 10.2

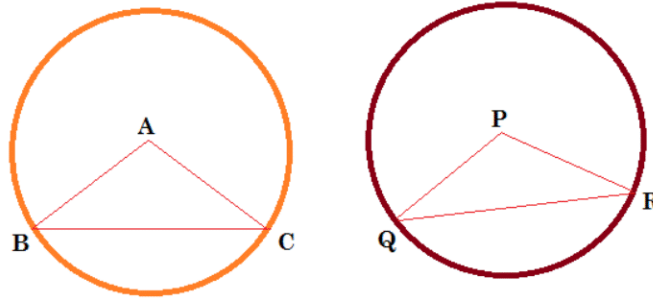
Question 1:

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.

Answer 1:

Given: Circle C (A, r) and C (P, r) are two congruent circles such that $BC = QR$.

To prove: $\angle BAC = \angle QPR$



Proof: In $\triangle ABC$ and $\triangle PQR$,

$$BC = QR \quad [\because \text{Given}]$$

$$AB = PQ \quad [\because \text{Radii of congruent circles}]$$

$$AC = PR \quad [\because \text{Radii of congruent circles}]$$

$$\text{Hence, } \triangle ABC \cong \triangle PQR \quad [\because \text{SSS Congruency rule}]$$

$$\angle BAC = \angle QPR \quad [\because \text{CPCT}]$$

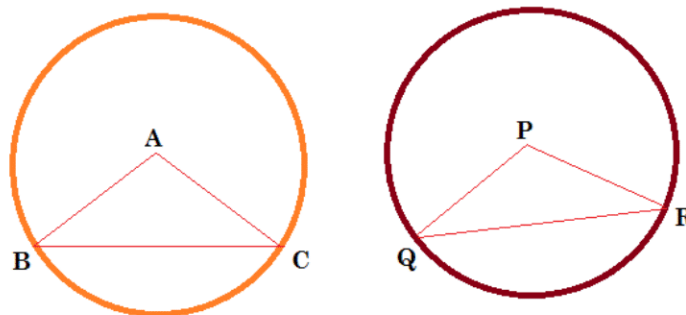
Question 2:

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

Answer 2:

Given: Circle C (A, r) and C (P, r) are two congruent circles such that $\angle BAC = \angle QPR$.

To prove: $BC = QR$



Proof: In $\triangle ABC$ and $\triangle PQR$,

$$AB = PQ \quad [\because \text{Radii of congruent circles}]$$

$$\angle BAC = \angle QPR \quad [\because \text{Given}]$$

$$AC = PR \quad [\because \text{Radii of congruent circles}]$$

$$\text{Hence, } \triangle ABC \cong \triangle PQR \quad [\because \text{SSS Congruency rule}]$$

$$BC = QR \quad [\because \text{CPCT}]$$