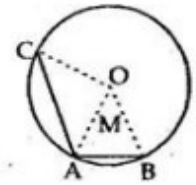
Exercise 11A

Question 20:

Given : AB and AC are two equal chords of a circle with centre O

To Prove: $\angle OAB = \angle OAC$

Construction: Join OA, OB and OC.



Proof: In ΔOAB and ΔOAC,

AB = AC	[Given]
OA = OA	[common]
OB = OC	[Radii]

Thus by Side-Side-Side criterion of congruence, we have

$\therefore \quad \Delta OAB \cong OAC$ [by SSS]

The corresponding parts of the congruent triangles are equal.

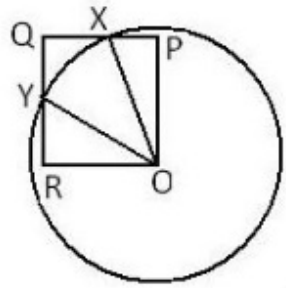
$\Rightarrow \quad \angle OAB = \angle OAC$ [by C.P.C.T.]

Therefore, O lies on the bisector of $\angle BAC$

Question 21:

Given: OPQR is a square. A circle with centre O cuts the square in X and Y.

To Prove: $QX = QY$



Construction: Join OX and OY.

Proof: In ΔOXP and ΔOYR

$\angle OPX = \angle ORY$ [Each equal to 90°]

$OX = OY$ [Radii]

$OP = OR$ [Sides of a square]

Thus by Right Angle-Hypotenuse-Side criterion of congruence, we have,

$\therefore \quad \Delta OXP \cong \Delta OYR$ [by RHS]

The corresponding parts of the congruent triangles are equal.

$\Rightarrow \quad PX = RY$ [by C.P.C.T.]

$\Rightarrow \quad PQ - PX = QR - RY$ [$\because PQ = QR$]

$\therefore \quad QX = QY.$

********** END **********