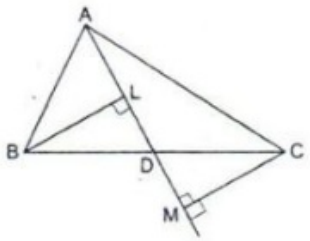
Exercise 5A

Question 19:

Given: A Δ in which D is the mid point of BC and BL $\perp$ AD and CM $\perp$ AD.



To Prove: BL =CM

Proof: In ΔBLD and ΔCMD

$\angle BLD = \angle CMD = 90^0$ [Given]

$\angle BDL = \angle MDC$ [Vertically opposite angles]

? BD = DC [Given]

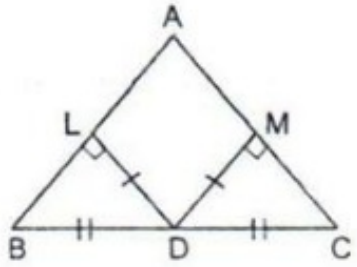
Thus by Angle-Angle-Side criterion of congruence, we have

$\Delta BLD = \Delta CMD$ [By AAS]

The corresponding parts of the congruent triangles are equal

So, BL = CM [C.P.C.T]

Question 20:



Given: In a ΔABC, D is the mid point of BC and $DL \perp AB$ and $DM \perp AC$. Also, DL = DM

To prove: AB = AC

Proof: In right angled triangles ΔBLD and ΔCMD

$\angle BLD = \angle CMD = 90^0$

Hypt.BD = Hypt.CD [Given]

DL = DM [Given]

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

$\Delta BLD = \Delta CMD$ [By RHS]

The corresponding parts of the congruent triangles are equal.

$\therefore \quad \angle ABD = \angle ACD$ [C.P.C.T]

In ΔABC, we have

$\angle ABD = \angle ACD$

$\Rightarrow \quad AB = AC$

[$\because$ sides opposite to equal angles are equal]

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