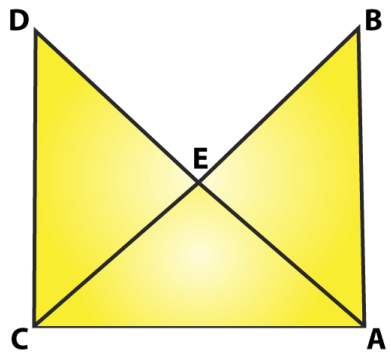
Exercise 10.4

Page No: 10.47

Question 1: In figure, It is given that AB = CD and AD = BC. Prove that ΔADC ≅ ΔCBA.



Solution:

From figure, AB = CD and AD = BC.

To prove: ΔADC ≅ ΔCBA

Consider Δ ADC and Δ CBA.

AB = CD [Given]

BC = AD [Given]

And AC = AC [Common side]

So, by SSS congruence criterion, we have

ΔADC≅ΔCBA

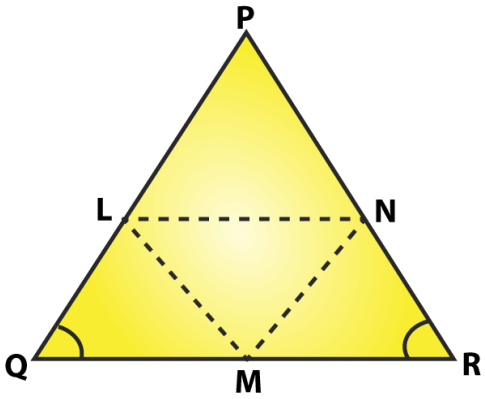
Hence proved.

Question 2: In a Δ PQR, if PQ = QR and L, M and N are the mid-points of the sides PQ, QR and RP respectively. Prove that LN = MN.

Solution:

Given: In Δ PQR, PQ = QR and L, M and N are the mid-points of the sides PQ, QR and RP respectively

To prove: LN = MN



Join L and M, M and N, N and L

We have PL = LQ, QM = MR and RN = NP

[Since, L, M and N are mid-points of PQ, QR and RP respectively]

And also PQ = QR

PL = LQ = QM = MR = PN = LR .....(i)
[Using mid-point theorem]

MN ‖ PQ and MN = PQ/2

MN = PL = LQ ……(ii)

Similarly, we have

LN ‖ QR and LN = (1/2)QR

LN = QM = MR ……(iii)

From equation (i), (ii) and (iii), we have

PL = LQ = QM = MR = MN = LN

This implies, LN = MN

Hence Proved.