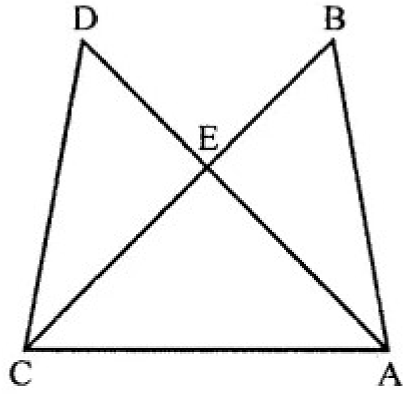
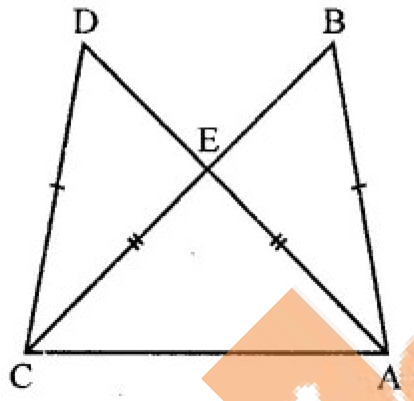
RD Sharma Class 9 Solutions Chapter 12 Heron’s Formula Ex 12.4

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

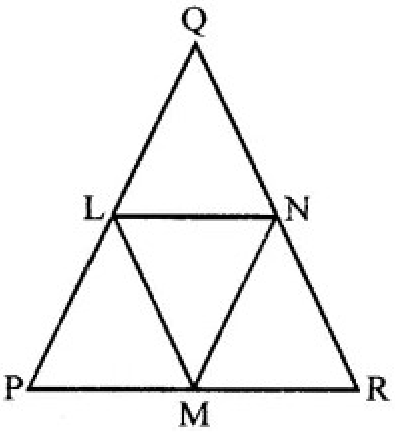


Solution:
Given : In the figure, AB = CD, AD = BC



To prove : ΔADC = ΔCBA
Proof : In ΔADC and ΔCBA
CD = AB (Given)
AD = BC (Given)
CA = CA (Common)
∴ ΔADC ≅ ΔCBA (SSS axiom)

Question 2.
In a APQR, 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 ΔPQR, PQ = QR
L, M and N are the mid-points of sides PQ, QR and RP respectively. Join LM, MN and LN



To prove : ∠PNM = ∠PLM

Proof : In ΔPQR,

∵ M and N are the mid points of sides PR and QR respectively

∴ MN || PQ and MN = 12 PQ …(i)

∴ MN = PL

Similarly, we can prove that

LM = PN

Now in ΔNML and ΔLPN

MN = PL (Proved)

LM = PN (Proved)

LN = LN (Common)

∴ ΔNML = ΔLPN (SSS axiom)

∴ ∠MNL = ∠PLN (c.p.c.t.)

and ∠MLN = ∠LNP (c.p.c.t.)

⇒ ∠MNL = ∠LNP = ∠PLM = ∠MLN

⇒ ∠PNM = ∠PLM