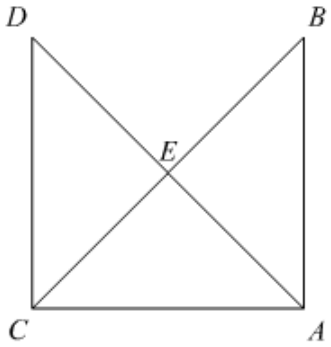
Congruent Triangles Ex 10.4 Q1

Answer :

It is given that

$AB = CD$

$AD = BC$



We have to prove that $\Delta ADC \cong \Delta CBA$.

Now in triangles ADC and CBA we have

$AB = CD$ (Given)

$AD = BC$ (Given)

So $AC = AC$ (common)

Each side of ΔADC is equal to ΔCBA.

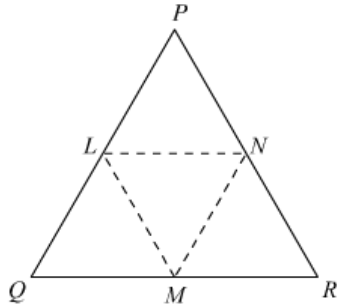
Hence, by SSS congruence criterion we have $\boxed{\Delta ADC \cong \Delta CBA}$ Proved.

Congruent Triangles Ex 10.4 Q2

Answer :

It is given that

$PQ = QR$ and L, M, N are the mid points of sides PQ, QR, and RP respectively.



We have to prove that $LN = MN$

Now using the mid point theorem, we have

$MN \parallel PQ$

And $MN = \frac{1}{2}PQ$

$MN = PL$

Similarly we have

$LM = PN$

In triangle NML and LPN we have

$MN = PL$ (Proved above)

$LM = PN$ (Proved above)

And $LN = NL$ (common)

So, by SSS congruence criterion, we have

$\Delta NML \cong \Delta LPN$

$\angle MNL = \angle PLN$

And $\angle MLN = \angle LNP$

Then $\angle MNL = \angle LNP = \angle PLM = \angle MLN$

$\Rightarrow \angle PNM = \angle PLM$

Hence $\boxed{LN = MN}$ Proved.

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