



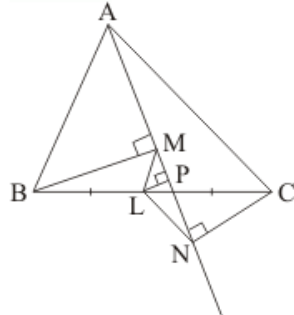
Quadrilaterals Ex 14.4 Q18

Answer :

In $\triangle ABC$, BM and CN are perpendiculars on any line passing through A .

Also,

$$BL = LC$$



We need to prove that $ML = NL$

From point L let us draw $LP \perp AN$

It is given that $BM \perp AN$, $LP \perp AN$ and $CN \perp AN$

Therefore,

$$BM \parallel LP \parallel CN$$

Since, L is the mid points of BC ,

Therefore intercepts made by these parallel lines on MN will also be equal

Thus,

$$MP = NP$$

Now in $\triangle LMN$,

$$MP = NP$$

And $LP \perp AN$. Thus, perpendicular bisects the opposite sides.

Therefore, $\triangle LMN$ is isosceles.

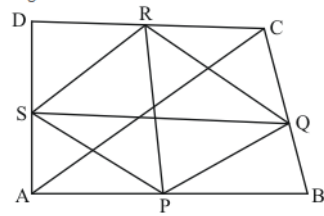
Hence $ML = NL$

Hence proved.

Quadrilaterals Ex 14.4 Q19

Answer :

Figure can be drawn as:



Let $ABCD$ be a quadrilateral such that P, Q, R and S are the mid-points of side AB, BC, CD and DA respectively.

In $\triangle ABC$, P and Q are the mid-points of AB and BC respectively.

Therefore,

$$PQ \parallel AC \text{ and } PQ = \frac{1}{2} AC$$

Similarly, we have

$$RS \parallel AC \text{ and } RS = \frac{1}{2} AC$$

Thus,

$$PQ \parallel RS \text{ and } PQ = RS$$

Therefore, $PQRS$ is a parallelogram.

Since, diagonals of a parallelogram bisect each other.

Therefore, PR and QS bisect each other.

Hence proved.

***** END *****