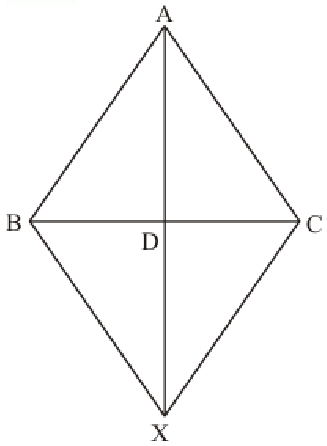
Quadrilaterals Ex 14.4 Q4

Answer :

ΔABC is given with *AD* as the median extended to point *X* such that $AD = DX$



Join *BX* and *CX*.

We get a quadrilateral ABXC, we need to prove that it's a parallelogram.

We know that *AD* is the median.

By definition of median we get:

$BD = CD$

Also, it is given that

$AD = DX$

Thus, the diagonals of the quadrilateral *ABCX* bisect each other.

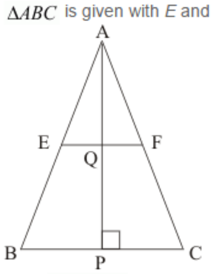
Therefore, quadrilateral *ABXC* is a parallelogram.

Hence proved.

Quadrilaterals Ex 14.4 Q5

Answer :

ΔABC is given with *E* and *F* as the mid points of sides *AB* and *AC*.



Also, $AP \perp BC$ intersecting *EF* at *Q*.

We need to prove that $AQ = QP$

In ΔABC, *E* and *F* are the mid-points of *AB* and *AC* respectively.

Theorem states, the line segment joining the mid-points of any two sides of a triangle is parallel to the third side and equal to half of it.

Therefore, we get: $EF \parallel BC$

Since, *Q* lies on *EF*.

Therefore, $FQ \parallel BC$

This means,

Q is the mid-point of *AP*.

Thus, $AQ = QP$ (Because, F is the mid point of AC and $FQ \parallel BC$)

Hence proved.

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