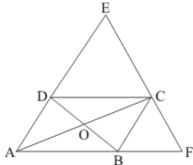


Quadrilaterals Ex 14.3 Q9

Answer:

ABCD is a parallelogram, AD produced to E such that DE = DC.



Also, AB produced to F.

We need to prove that BF = BC

In $\triangle ACE$, D and O are the mid-points of AE and AC respectively.

By using Mid-point Theorem, we get:

 $DO \parallel EC$

Since, BD is a straight line and O lies on AC.

And, C lies on EF

 $OB \parallel CF$

Therefore,

AB = BF (i)

Also, ABCD is a parallelogram with AB = DC.

Thus,

DC = BF

In ΔEDC and ΔCBF ,we have:

DC = BF

 $\angle EDC = \angle CBF$

 $\angle ECD = \angle CFB$

So, by ASA Congruence criterion, we have:

 $\Delta EDC \cong \Delta CBF$

By corresponding parts of congruence triangles property, we get:

DE = BC

DC = BC

AB = BC

From (i) equation, we get:

BF = BC

Hence proved.

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