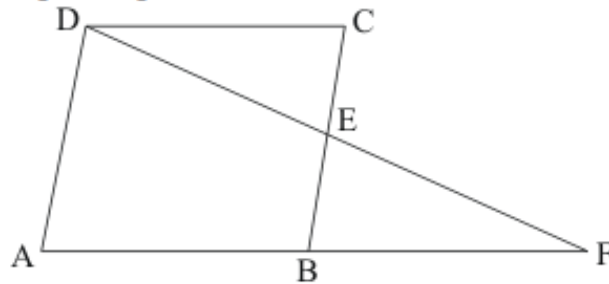




Quadrilaterals Ex 14.2 Q9

Answer :

Figure is given as follows:



It is given that $ABCD$ is a parallelogram.

$$CE = BE$$

DE and AB when produced meet at F .

We need to prove that $AF = 2AB$

It is given that $DC \parallel AB$

Thus, the alternate interior opposite angles must be equal.

$$\angle DCE = \angle EBF$$

In $\triangle DCE$ and $\triangle BFE$, we have

$$\angle DCE = \angle EBF \text{ (Proved above)}$$

$$CE = BE \text{ (Given)}$$

$$\angle DEC = \angle BEF \text{ (Vertically opposite angles)}$$

Therefore,

$$\triangle DCE \cong \triangle BFE \text{ (By ASA Congruency)}$$

By corresponding parts of congruent triangles property, we get

$$DC = BF \dots\dots (i)$$

It is given that $ABCD$ is a parallelogram. Thus, the opposite sides should be equal. Therefore,

$$DC = AB \dots\dots (ii)$$

But,

$$AF = AB + BF$$

From (i), we get:

$$AF = AB + DC$$

From (ii), we get:

$$AF = AB + AB$$

$$\boxed{AF = 2AB}$$

Hence proved.

Quadrilaterals Ex 14.2 Q10

Answer :

(i) Statement: In a parallelogram, the diagonals are equal.

False

(ii) Statement: In a parallelogram, the diagonals bisect each other.

True

(iii) Statement: In a parallelogram, the diagonals intersect each other at right angles.

False

(iv) Statement: In any quadrilateral, if a pair of opposite sides is equal, it is a parallelogram.

False

(v) Statement: If all the angles of a quadrilateral are equal, then it is a parallelogram.

True

(vi) Statement: If three sides of a quadrilateral are equal, then it is not necessarily a parallelogram.

False

(vii) Statement: If three angles of a quadrilateral are equal, then it is not necessarily a parallelogram.

False

(viii) Statement: If all sides of a quadrilateral are equal, then it is a parallelogram.

True

***** END *****