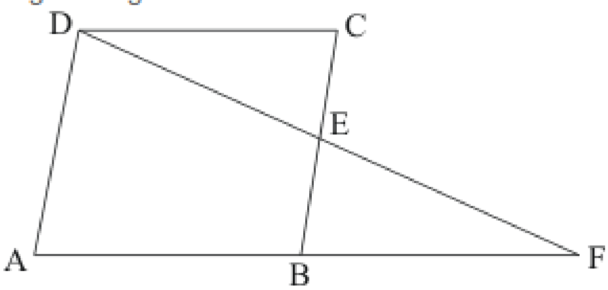
Quadrilaterals Ex 14.2 Q9

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.

$\angle DCE = EBF$

In ΔDCE and ΔBFE, we have

$\angle DCE = EBF$ (Proved above)

$CE = BE$ (Given)

$\angle DEC = \angle BEF$ (Vertically opposite angles)

Therefore,

$\Delta DCE \cong \Delta BFE$ (By ASA Congruency)

By corresponding parts of congruent triangles property, we get

DC = BF ...... (i)

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

$DC = AB$ ...... (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 no necessarily a parallelogram.
False
(viii) Statement: If all sides of a quadrilateral are equal, then it is a parallelogram.
True

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