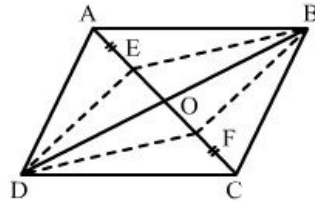




Understanding shapes-III special types of quadrilaterals Ex 17.1 Q28

**Answer :**



In the  $\square^{gm}$  ABCD :

$AO = OC$ ..... (i) (diagonals of a parallelogram bisect each other)

$AE = CF$ ..... (ii) (given)

Subtracting (ii) from (i) :

$$AO - AE = OC - CF$$

$$EO = OF$$
..... (iii)

In  $\triangle DOE$  and  $\triangle BOF$  :

$$EO = OF \text{ (proved above)}$$

$$DO = OB \text{ (diagonals of a parallelogram bisect each other)}$$

$$\angle DOE = \angle BOF \text{ (vertically opposite angles)}$$

By SAS congruence :

$$\triangle DOE \cong \triangle BOF$$

$$\therefore DE = BF \text{ (c.p.c.t)}$$

In  $\triangle BOE$  and  $\triangle DOF$  :

$$EO = OF \text{ (proved above)}$$

$$DO = OB \text{ (diagonals of a parallelogram bisect each other)}$$

$$\angle DOF = \angle BOE \text{ (vertically opposite angles)}$$

By SAS congruence :

$$\triangle DOE \cong \triangle BOF$$

$$\therefore DF = BE \text{ (c.p.c.t)}$$

Hence, the pair of opposite sides are equal. Thus, DEBF is a parallelogram.

\*\*\*\*\* END \*\*\*\*\*