Understanding shapes-III special types of quadrilaterals Ex 17.1 Q26

Answer :

(i) True, since opposite angles of a parallelogram are equal.

(ii) True, as AF is the bisector of $\angle A$.

(iii) True, as CE is the bisector of $\angle C$.

(iv) True

$\angle CEB = \angle DCE$........(i) (alternate angles)

$\angle DCE = \angle FAB$.........(ii) (opposite angles of a parallelogram are equal)

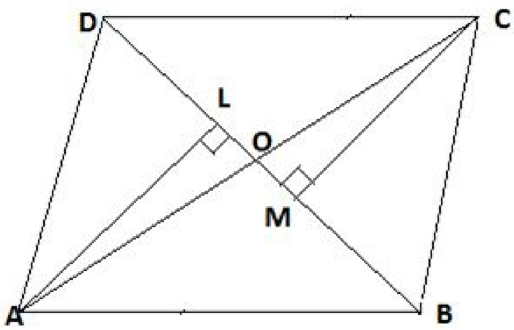
From equations (i) and (ii):

$\angle CEB = \angle FAB$

(v) True, as corresponding angles are equal ($\angle CEB = \angle FAB$).

Understanding shapes-III special types of quadrilaterals Ex 17.1 Q27

Answer :



In ΔAOL and ΔCMO :

$\angle AOL = \angle COM$ (vertically opposite angle)....(i)

$\angle ALO = \angle CMO = 90^\circ$ (each right angle).....(ii)

Using angle sum property :

$\angle AOL + \angle ALO + \angle LAO = 180^\circ$..........(iii)

$\angle COM + \angle CMO + \angle OCM = 180^\circ$......(iv)

From equations (iii) and (iv) :

$\angle AOL + \angle ALO + \angle LAO = \angle COM + \angle CMO + \angle OCM$

$\angle LAO = \angle OCM$ (from equations (i) and (ii))

In ΔAOL and ΔCMO :

$\angle ALO = \angle CMO$ (each right angle)

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

$\angle LAO = \angle OCM$ (proved above)

So, ΔAOL is congruent to ΔCMO (SAS).

$\Rightarrow AL = CM$ [cpct]

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