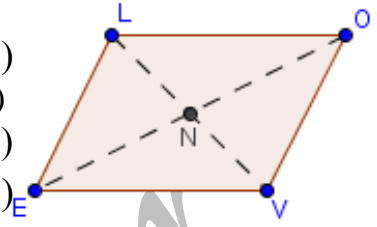


IV- LOVE is a parallelogram whose diagonals intersect at point N.

a. Complete the proof that leads to prove that the triangles LON and EVN are equal:

In triangles LON and EVN we have:

- ✓(.....)
- ✓ So, (..... sides of a parallelogram are equal)
- ✓ And,(.....)
- ✓ Then, $\hat{LON} = \hat{NEV}$ (.....)
- ✓
- ✓ So,
- ✓ Thus,



b. List the homologous elements:

-
- $\hat{LNO} = \hat{VNE}$
-

c. So, we can say that N is midpoint of both [LV] and

Note: The midpoint of both diagonals is called the center of symmetry.

Conclusion -4

Diagonals of a parallelogram bisect each other at

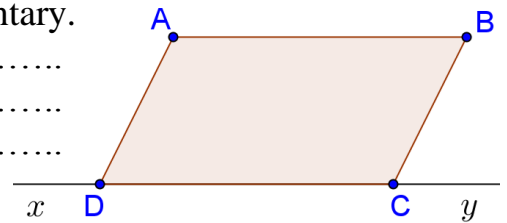
Conclusion -5

In a parallelogram intersection point of diagonals is its

V- In the adjacent figure, D & C are points on (xy) such that ABCD is a parallelogram.

a. Prove that adjacent angles in a parallelogram are supplementary.

-
-
-
-
-
-



Conclusion -6

Adjacent angles of a parallelogram are

	<p>Area is: $A = \text{base} \times \text{height}$.</p>
<p>Perimeter is: $P = \text{sum of all sides}$.</p>	



When is a quadrilateral a parallelogram?

Proving a quadrilateral to be a parallelogram Starting from

Sides

Diagonals

Angles

Definition

Two pairs of sides

A pair of sides

A quadrilateral with its diagonals bisect each other at same midpoint is a parm

A quadrilateral that admits a center of symmetry is a parm

A quadrilateral with two pairs of opposite angles equal is a parm

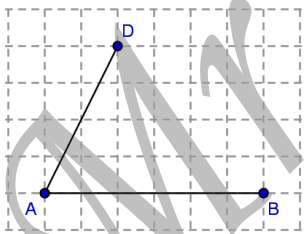
A quadrilateral with two pairs of adjacent angles supplementary is a parm

A quadrilateral with two pairs of opposite sides parallel is a parm

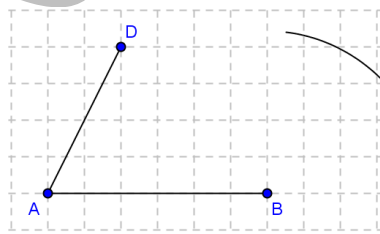
A quadrilateral with two pairs of opposite sides equal is a parm

A quadrilateral with a pair of opposite sides equal & parallel is a parm

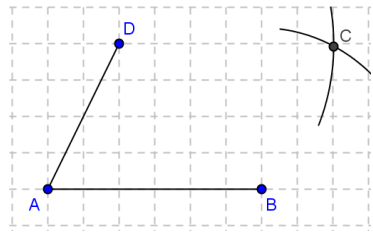
How to construct a *Par*m starting from two sides?



1- Draw the non-equal sides $[AB]$ & $[AD]$.



2- Draw from B an arc of radius $[AD]$.



3- Draw from D an arc of radius $[AB]$.

4- Drawn arcs will intersect at point C the fourth vertex of parallelogram $ABCD$

