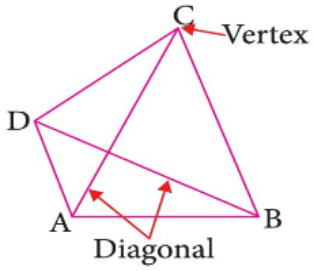
Quadrilaterals

A quadrilateral is defined as a plane closed figure with four sides.

Sides, Angles and Diagonals

- The four line segments AB, BC, CD and DA are called its sides.
- The four angles ∠DAB, ∠ABC, ∠BCD, ∠CDA are called its angles.
- A line segment joining two non-consecutive vertices is called a diagonal.

AC and BD are two diagonals of the quadrilateral ABCD.



Adjacent Sides and Opposite sides

- Two sides of a quadrilateral are said to be adjacent sides, if they have a common end point.
- Two sides of a quadrilateral are said to be opposite sides, if they are not adjacent sides.

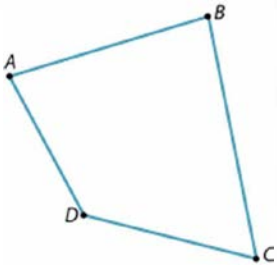
Adjacent Angles and Opposite Angles

- Two angles of a quadrilateral are said to be adjacent angles, if they have a common side.
- Two angles of a quadrilateral are said to be opposite angles, if they are not adjacent angles.

Quadrilaterals

Let us understand with an example:

Example: In the figure, ABCD is a quadrilateral.



(i) How many pairs of adjacent sides are there? Name them.

(ii) How many pairs of opposite sides are there? Name them.

(iii) How many pairs of adjacent angles are there? Name them.

(iv) How many pairs of opposite angles are there? Name them.

Solution:

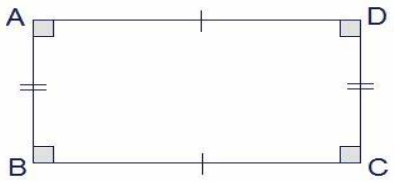
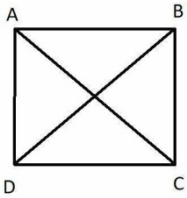
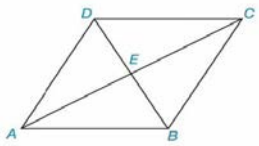
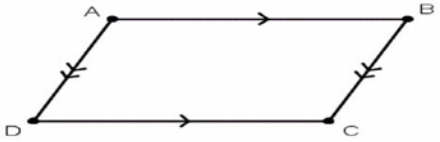
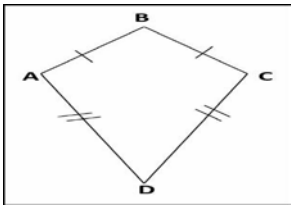
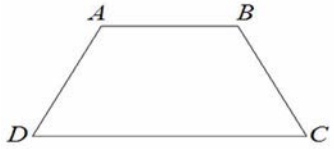
(i) There are four pairs of adjacent sides i.e., (AB, BC), (BC, CD), (CD, DA), (DA, AB)

(ii) There are two pairs of opposite sides i.e., (AB, CD); (AD, BC).

(iii) There are four pairs of adjacent angles i.e., (∠A, ∠D); (∠D, ∠C); (∠C, ∠B); (∠B, ∠A).

(iv) There are 2 pairs of opposite angles i.e., (∠A, ∠C) and (∠B, ∠D).

Types of Quadrilaterals

Name of quadrilateral	Identifying Features	Figures
1. Rectangle	A parallelogram with all angles right angles.	
2. Square	A rhombus with all angles right angles.	
3. Rhombus	A parallelogram with all sides equal.	
4. Parallelogram	A quadrilateral having 2 pairs of opposite sides parallel and equal.	
5. Kite	A quadrilateral having 2 pairs of adjacent sides equal.	
6. Trapezium	A quadrilateral having 1 pair of opposite sides equal.	
7. Isosceles Trapezium	A trapezium with a pair of non-parallel sides equal.