Kinds of Quadrilaterals

Kinds of Quadrilaterals:

Quadrilateral	Properties
Parallelogram	Opposite sides are parallel and equal. Opposite angles are equal.
Rectangle	All angles = 90°. Opposite sides are equal and parallel.
Square	All sides equal, all angles = 90°. Both pairs of opposite sides parallel.
Rhombus	All sides equal. Opposite angles equal. Diagonals bisect each other at 90°.
Trapezium	Only one pair of opposite sides are parallel.
Kite	Two pairs of adjacent sides are equal. One pair of opposite angles equal.

Properties of Common Quadrilaterals:

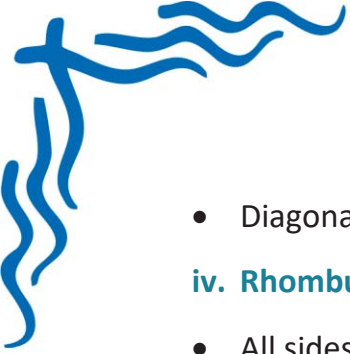**Properties of Common Quadrilaterals:**

i. Parallelogram:

- Opposite sides equal and parallel
- Opposite angles equal
- Diagonals bisect each other

ii. Rectangle:

- All angles = 90°
- Opposite sides equal and parallel
- Diagonals are equal and bisect each other

iii. Square:

- All sides equal
- All angles = 90°

- Diagonals are equal, bisect each other at 90°

iv. Rhombus:

- All sides equal
- Opposite angles equal
- Diagonals bisect each other at 90°, but not equal

v. Trapezium:

- Only one pair of opposite sides is parallel

vi. Kite:

- Two pairs of adjacent sides equal
- One diagonal bisects the other
- One pair of opposite angles equal

Example 1:

Which type of quadrilateral has all sides equal and diagonals that bisect each other at 90°?

Solution:

From the properties, a rhombus has:

All sides equal

Diagonals bisect each other at 90°

Answer: Rhombus

Example 2:

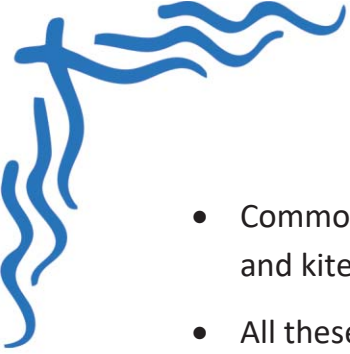One pair of opposite sides in a quadrilateral is parallel and the other is not. What type of quadrilateral is this?

Solution:

This is the definition of a trapezium.

Answer: Trapezium

Summary Points:

- Quadrilaterals are classified based on the length of sides, angles, and properties of diagonals.

- Common types include parallelogram, rectangle, square, rhombus, trapezium, and kite.

- All these shapes follow the angle sum property (sum of interior angles = 360°).

- Some quadrilaterals are special cases of others (e.g., a square is a rectangle with all sides equal).