Understanding Quadrilaterals

Curve:

1.Open Curve: A curve whose starting and endpoint are not the same is called an open curve.

2.Closed Curve: A curve whose starting and the endpoint is the same is called a closed curve.

3. Simple closed Curve: A curve that does not intersect itself is called a simple closed curve.

Polygons: A simple closed curve made of three or more line segments is called a polygon.

1.Convex Polygons: A polygon in which each interior angle is less than 180° is called a convex polygon.

2.Concave Polygons: A polygon in which at least one interior angle is more than 180° is called concave polygon.

3.Regular Polygons: A polygon is said to be regular if its sides and angles are equal.

4.Irregular Polygons: A polygon is said to be irregular if it is not regular.

Properties of a Regular Polygon:

1.Each exterior angle=(360°/n)

2.Each interior angle=[(n-2)X180°]/n

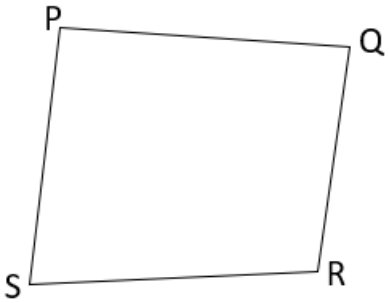
3.Number of diagonals=[n(n-3)]/2

Notes: "In a convex polygon of n sides"

i)Sum of all exterior angles =360°

ii)Sum of all interior angles=(n-2)×180°

Quadrilaterals: Four-sided closed figure is known as Quadrilaterals.



Vertices: The corner most points of the quadrilaterals are called vertices.

Classification of Quadrilaterals:

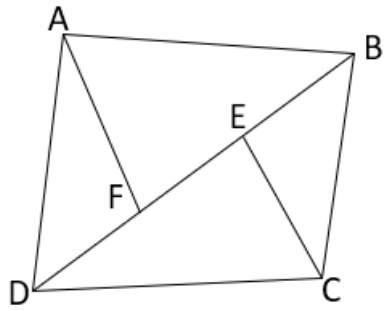
i)Parallelogram

ii)Rectangle

iii)Rhombus

iv)Square

v)Trapezium



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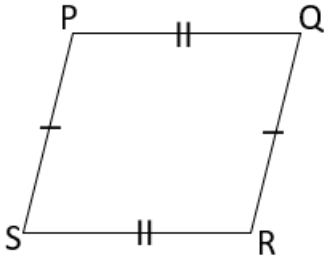
Properties of a Parallelogram



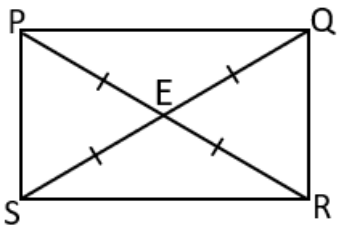
i)Opposite sides are equal

ii) Opposite angles are equal.

iii) Diagonals bisect each other.

iv) Adjacent angles are supplementary.

Properties of a Rectangle:

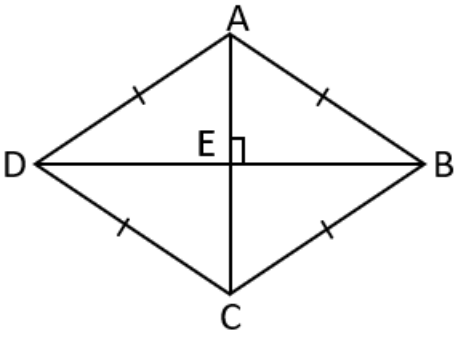


It has all the properties of a parallelogram in addition to the following properties:

i) All angles are right angles.

ii) Its diagonals are equal and bisect each other.

Properties of a Rhombus:



It has all the properties of a parallelogram in addition to the following properties:

i) All sides are equal.

ii) Opposite angles are equal.

iii) Diagonals bisect each other at right angles.

Properties of a Square:

It has all the properties of the parallelogram in addition to the following properties:

i) All sides are equal.

ii) All angles are equal to 90°.

iii) Diagonals are equal.

iv) Diagonals bisect each other at right angles.

Cyclic Quadrilateral:

A quadrilateral is said to be a cyclic quadrilateral if all of its vertices lie in the boundary of a circle. Opposite angles of a cyclic quadrilateral are supplementary.