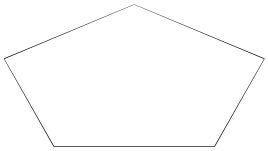
Understanding Quadrilaterals

Polygons

A simple closed curve made up of only line segments is called a polygon.

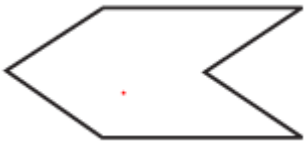
Convex Polygon

We have all the diagonals inside the Polygon



Concave Polygon

We don't have all the diagonals inside the Polygon



Regular and Irregular Polygons

A regular polygon is both 'equiangular' and 'equilateral'.

So all the sides and angles should be same

a) So square is a regular polygon but rectangle is not

b) Equilateral triangle is a regular polygon

Angle Sum in the Polygons

The Sum of the angles in the polygon is given by

$=(n-2) \times 180^0$

For Triangle, n=3

So Total $=180^0$

For quadrilateral, n=4

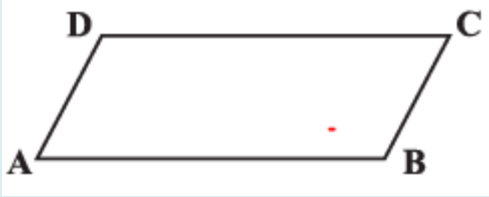
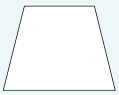
So total $=360^0$

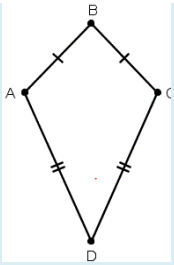
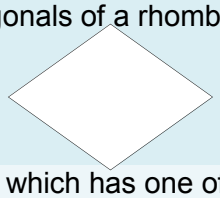
Classification of polygons

We classify polygons according to the number of sides (or vertices)

Number of sides	Classification
3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon
7	Heptagon
8	Octagon
9	Nonagon

S.no	Terms	Descriptions
1	Quadrilateral	 A quadrilateral is a four-sided polygon with four angles. There are many kinds of quadrilaterals. The five most

		common types are the parallelogram, the rectangle, the square, the trapezoid, and the rhombus.
2	Angle Property of Quadrilateral	1) Sum of all the interior angles is 360^0 2) Sum of all the exterior angles is 360^0
3	Parallelogram	A quadrilateral which has both pairs of opposite sides parallel is called a parallelogram. Its properties are: • The opposite sides of a parallelogram are equal. • The opposite angles of a parallelogram are equal. • The diagonals of a parallelogram bisect each other. • The adjacent angles in a parallelogram are supplementary. 
4	Trapezium	A quadrilateral which has one pair of opposite sides parallel is called a trapezium. 
5	Kite	It is a quadrilaterals having exactly two distinct consecutive pairs of sides of equal length Here ABCD is a Kite

		 AB=BC AD=CD
6	Rhombus	Rhombus is a parallelogram in which any pair of adjacent sides is equal. Properties of a rhombus: • All sides of a rhombus are equal • The opposite angles of a rhombus are equal • The diagonals of a rhombus bisect each other at right angles. 
7	Rectangles	A parallelogram which has one of its angles a right angle is called a rectangle. Properties of a rectangle are: • The opposite sides of a rectangle are equal • Each angle of a rectangle is a right-angle. • The diagonals of a rectangle are equal. • The diagonals of a rectangle bisect each other. 
8	Square	A quadrilateral, all of whose sides are equal and all of whose angles are right angles. Properties of square are: • All the sides of a square are equal. • Each of the angles measures 90°. • The diagonals of a square bisect each other at right angles. The diagonals of a square are equal.