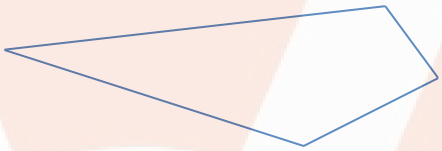
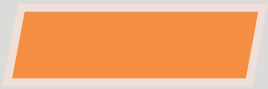
Class 9
Important Formulas

Chapter 8 - Quadrilaterals

S.no	Terms	Descriptions
1	Quadrilateral	A quadrilateral is the union of four line-segments determined by four distinct coplanar points of which no three are collinear and the line-segments intersect only at end points. For ABCD to be quadrilateral, following condition are required a) The four points A, B, C and D must be distinct and co-planar. b) No three of points A, B, C and D are co-linear. c) Line segments i.e. AB, BC, CD, DA intersect at their end points only.  *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 diagonal of a parallelogram divide into two congruent triangles  A quadrilateral is said to a parallelogram if Opposite sides are equal **OR** Opposite angles are equal **OR** Diagonal bisects each other **OR** A pair of opposite are parallel and equal
4	Trapezium	A quadrilateral which has one pair of opposite sides parallel is called a trapezium. 
5	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. 

6	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. 
7	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. 
8	Important points about quadrilaterals	a) A square is always a parallelogram. b) A square is always a rectangle. c) A rhombus can be square. e) A rectangle has four right angles.
9	Mid-point Theorems for Triangles	1)The line segment joining the mid points of the two sides of the triangle is parallel to the third side 2) A line drawn through mid-point of one side of a triangle and parallel to another side bisect the third side of the triangle