

## Chapter 8

### Quadrilaterals

- **Angle Sum Property of a Quadrilateral**
- **Types of Quadrilaterals**
- **Properties of a Parallelogram**
- **The Mid-Point Theorem**

- (1) Sum of the angles of a quadrilateral is  $360^\circ$
  - (2) A diagonal of a parallelogram divides it into two congruent triangles.
  - (3) In a parallelogram
    - (a) diagonals bisect each other.
    - (b) opposite angles are equal.
    - (c) opposite sides are equal
  - (4) Diagonals of a square bisect each other at right angles and are equal, and vice-versa.
  - (5) A line through the mid-point of a side of a triangle parallel to another side bisects the third side. (mid-point theorem)
  - (6) The line through the mid points of sides of a  $\triangle$  is parallel to third side and half of it.
  - (7) A quadrilateral is a parallelogram, if
    - (a) its opposite angles are equal.
    - (b) its opposite sides are equal.
    - (c) its diagonals bisect each other.
    - (d) a pair of opposite sides is equal and parallel.
  - (8) Diagonals of a rectangle bisect each other and are equal and vice-versa.
  - (9) Diagonals of a rhombus bisect each other at right angles and vice-versa.
  - (10) A line through the mid-point of a side of a triangle parallel to another side bisects the third side.
  - (11) The line-segment joining the mid-points of any two sides of a triangle is parallel to the third side and is half of it.
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