QUADRILATERALS – DEFINITIONS

1. A **trapezoid** is a quadrilateral with exactly one pair of parallel sides.
2. A **parallelogram** is a quadrilateral in which each pair of opposite sides is parallel.
3. A **rectangle** is a parallelogram with a right angle.
4. A **kite** is a quadrilateral with two distinct pairs of congruent adjacent sides.
5. A **rhombus** is a quadrilateral with all sides congruent.
6. A **square** is a rectangle with all sides congruent.

QUADRILATERALS – PROPERTIES

1. **Trapezoid:**
   (a) Consecutive angles between parallel sides of a trapezoid are supplementary.
2. **Parallelogram:**
   (a) Consecutive angles between parallel sides of a parallelogram are supplementary.
   (b) Opposite sides of a parallelogram are congruent.
   (c) Opposite angles of a parallelogram are congruent.
   (d) The diagonals of a parallelogram bisect each other.
3. **Rectangle:**
   (a) Consecutive angles between parallel sides of a rectangle are supplementary.
   (b) Opposite sides of a rectangle are congruent.
   (c) Opposite angles of a rectangle are congruent.
   (d) The diagonals of a rectangle bisect each other.
   (e) The diagonals of a rectangle are congruent.
   (f) A quadrilateral in which all the angles are right angles is a rectangle.

4. **Kite:**

   (a) The diagonals of a kite are perpendicular.
   (b) At least one diagonal of a kite bisects the other diagonal.
   (c) There is at least one diagonal of a kite which bisects opposite angles in the kite.

5. **Rhombus:**

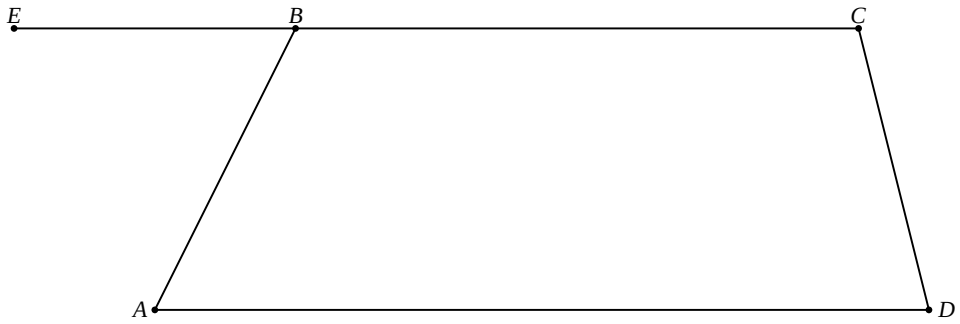
   (a) A rhombus is a parallelogram.
   (b) Consecutive angles between parallel sides of a rhombus are supplementary.
   (c) Opposite angles of a rhombus are congruent.
   (d) The diagonals of a rhombus bisect each other.
   (e) The diagonals of a rhombus are perpendicular.
   (f) Each diagonal of a rhombus bisects opposite angles in the rhombus.

6. **Square:**

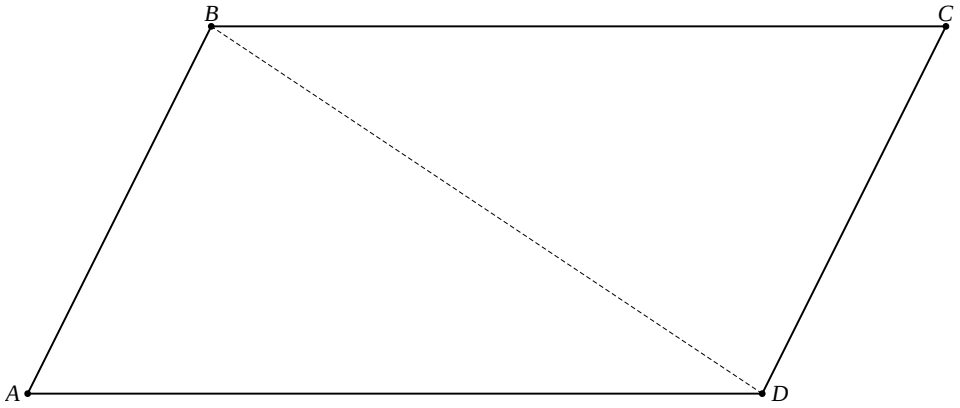
   (a) Consecutive angles between parallel sides of a square are supplementary.
   (b) The diagonals of a square bisect each other.
   (c) The diagonals of a square are congruent.
   (d) The diagonals of a square are perpendicular.
   (e) Each diagonal of a square bisects opposite angles in the square.

QUADRILATERALS – PROOFS OF SELECTED PROPERTIES

1. Consecutive angles between parallel sides of a trapezoid are supplementary.



2. Opposite sides of a parallelogram are congruent.



3. The diagonals of a kite are perpendicular.