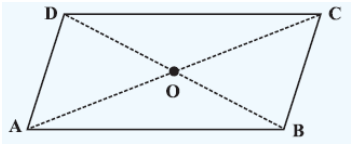
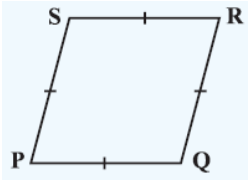
Chapter – 3
Understanding Quadrilaterals

- **Parallelogram:** A quadrilateral with each pair of opposite sides parallel.
  (1) Opposite sides are equal.
  (2) Opposite angles are equal.
  (3) Diagonals bisect one another.

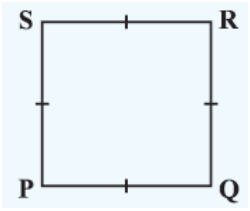


- **Rhombus:** A parallelogram with sides of equal length.
  (1) All the properties of a parallelogram.
  (2) Diagonals are perpendicular to each other.

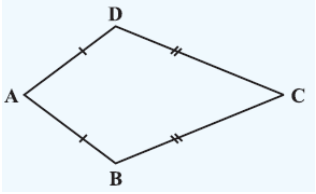


- **Rectangle:** A parallelogram with a right angle.
  (1) All the properties of a parallelogram.
  (2) Each of the angles is a right angle.
  (3) Diagonals are equal.

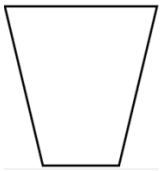
- **Square:** A rectangle with sides of equal length.
  (1) All the properties of a parallelogram, rhombus and a rectangle.



- **Kite:** A quadrilateral with exactly two pairs of equal consecutive sides
  (1) The diagonals are perpendicular to one another
  (2) One of the diagonals bisects the other.
  (3) In the figure $m\angle \mathrm{B} = m\angle \mathrm{D}$ but $m\angle \mathrm{A} \neq m\angle \mathrm{C}$.



- **Trapezium:** A quadrilateral having exactly one pair of parallel sides.



- **Diagonal:** A simple closed curve made up of only line segments. A line segment connecting two non-consecutive vertices of a polygon is called diagonal.

- **Convex:** The measure of each angle is less than $180°$.
- **Concave:** The measure of at least one angle is more than $180°$
- **Quadrilateral:** Polygon having four sides.
- **Element of quadrilateral:**
  (i) **Sides:** Line segments joining the points.
  (ii) **Vertice:** Point of intersection of two consecutive sides.
  (iii) **Opposite sides:** Two sides of a quadrilateral having no common end point.
  (iv) **Opposite Angles:** Two angles of a quadrilateral not having a common arm.
  (v) **Diagonals:** Line segment obtained by joining the opposite vertices.
  (vi) **Adjacent Angles:** Two angles of a quadrilateral having a common arm.
  (vii) **Adjacent Sides:** Two sides of a quadrilateral having a common end point.