Loci

- **Locus:**

The locus is the set of all those points, which satisfy the given geometrical condition(s) or the locus of a point is the path traced out by the point moving under given geometrical condition(s).

  - Some theorems associated with locus:

Theorem 1:

The locus of a point, which is equidistant from two fixed points, is the perpendicular bisector of the line segment joining the two fixed points.

Converse:

Any point on the perpendicular bisector of a line segment joining two fixed points is equidistant from the fixed points.

Theorem 2:

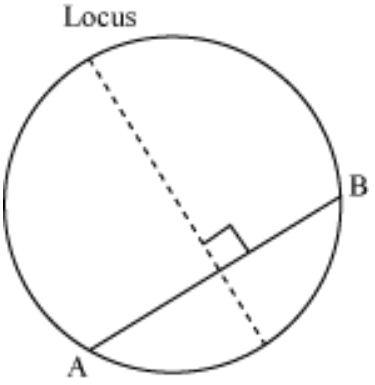
The locus of a point, which is equidistant from two intersecting straight lines, consists of a pair of straight lines, which bisect the angle between the two given lines.

Converse:

Any point on the bisector of an angle is equidistant from the arms of the angle.

  - **Locus in some standard cases:**

(1) The locus of a point, which is inside a circle and is equidistant from two different fixed points on the circle, is the diameter of the circle and it is perpendicular to the chord joining the points.



(2) If A and B are fixed points, then the locus of a point P such that ∠APB = 90° is the circle with AB as diameter.