WEEK: 9

DATE:

CLASS: SS

TOPIC: SPECIAL CURVES (LOCI)

SPECIAL CURVES (LOCI)

Loci is defined as the path traced by a point which moves according to specific conditions. The locus moves such that it distance from a fixed straight line is constant. Some geometrical shape and curves such as Ellipse, Parabola, Hyperbola, Helix, Cycloid, Epicycloid, Hypocycloid, Involute curve, Archimedean spiral, Trochoid, Link mechanism etc. are all considered as LOCI.

Ellipse: This is defined as a point which moves such that the sum of its distance from two points called the focal points or foci are constant and equal to the major axis.

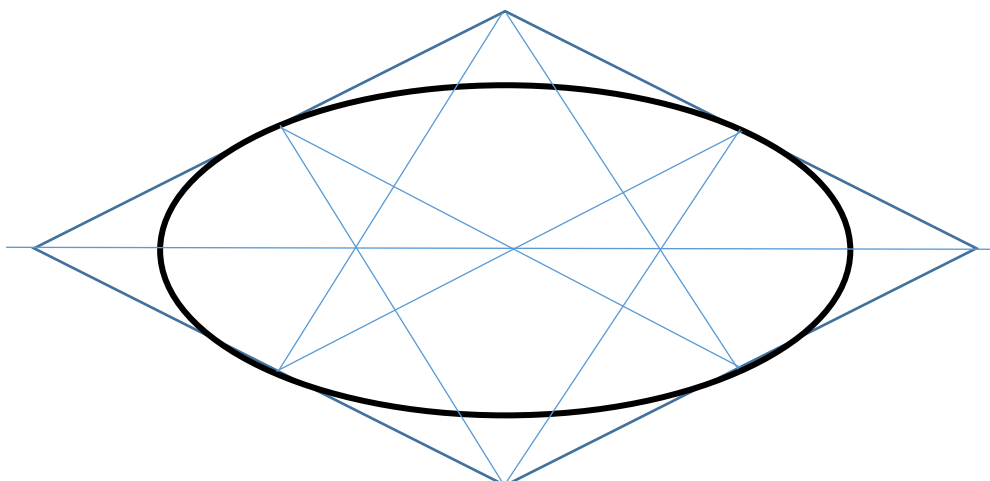The eccentricity of an ellipse is less than unity (one).

Types/ methods of constructing ellipse.

1. Rectangular or geometrical method
2. Auxiliary or concentric circle method
3. Approximate or compass method
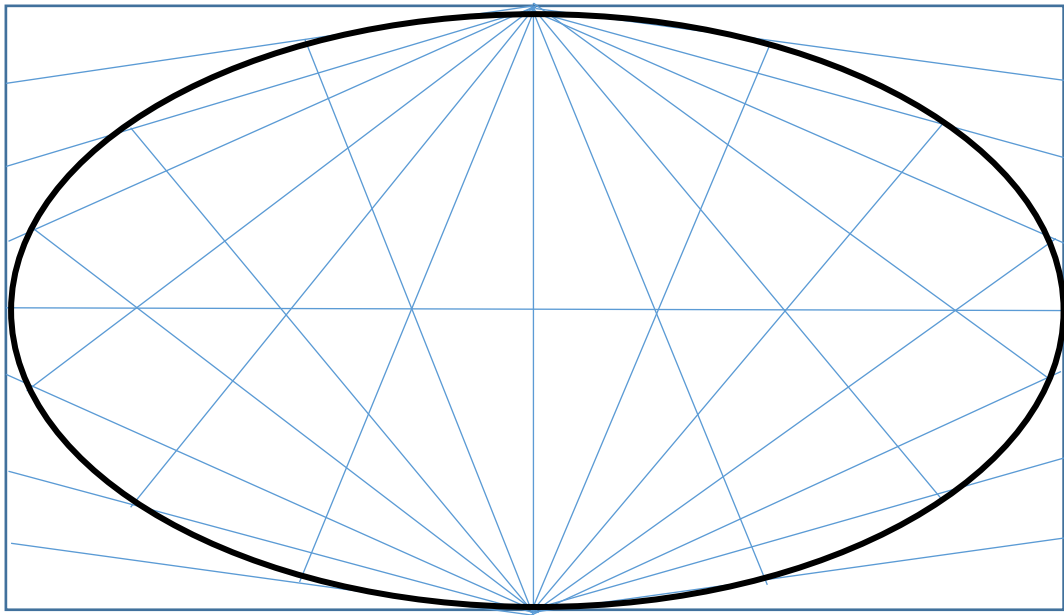4. Foci method
5. Trammel or mechanical method

Properties of an ellipse

1. It has major axis
2. It has minor axis
3. It is oval in shape
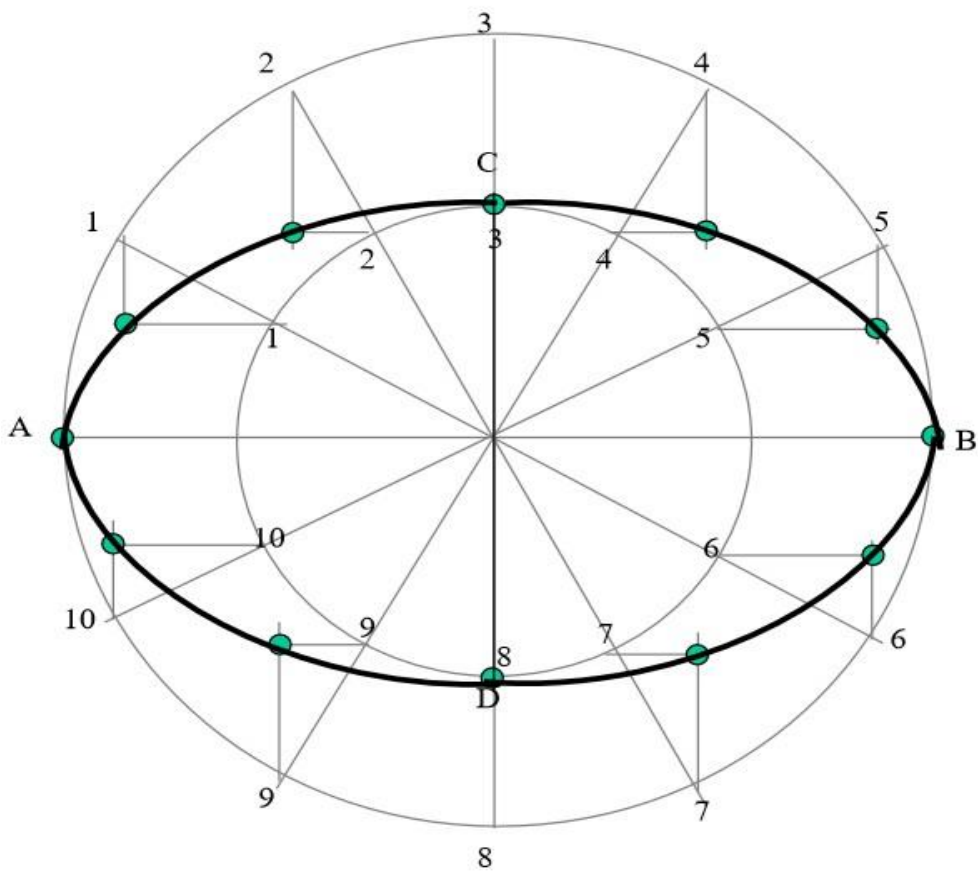4. It has two focal points
5. Its eccentricity is less than unity.

Construction of an ellipse using the compass or approximate method.

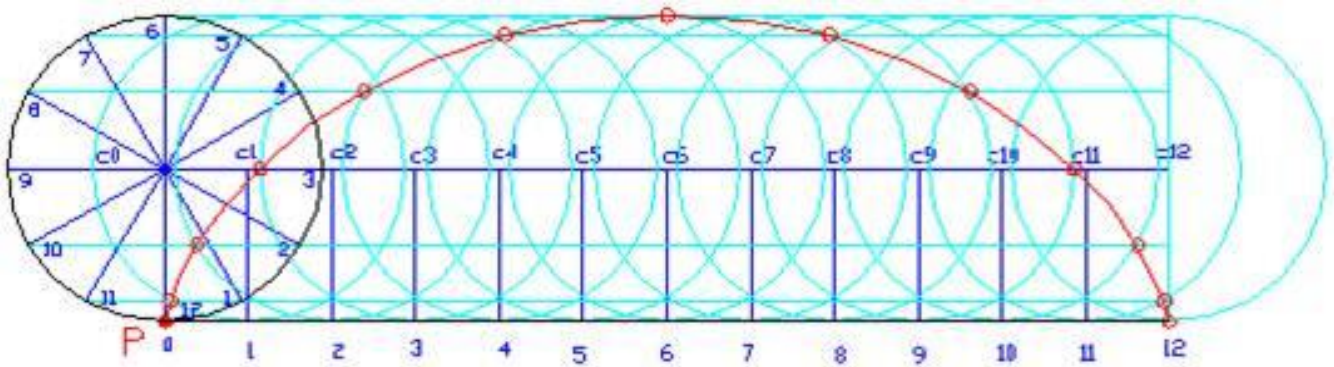**To construct an ellipse using the rectangular or geometrical method.**

To construct an ellipse using the auxiliary or concentric circle method

Cycloid

Cycloid is defined as the locus of a point on the circumference of a circle which rolls without slipping along a fixed straight line.

To construct a cycloid from a circle of radius 15mm

The construct of trochoid is the same with cycloid, except that we have superior and inferior trochoids.

ASSIGNMENT:

1. **What is surface development?**
2. **List and explain any three types of surface development.**