

I CONSTRUCTION OF PARABOLA BY ECCENTRICITY METHOD

EXAMPLE 1

To draw a parabola with the distance of the focus from the directrix at 50mm

(Eccentricity method)

Construction:

1. Draw the axis AB and the directrix CD at right angles to it:
2. Mark the focus F on the axis at 50mm.
3. Locate the vertex V on AB such that $AV = VF$
4. Draw a line VE perpendicular to AB such that $VE = VF$
5. Join A, E and extend. Now, $VE/VA = VF/VA = 1$, the eccentricity.
6. Locate number of points 1, 2, 3, etc., to the right of V on the axis, which need not be equidistant.
7. Through the points 1, 2, 3, etc., draw lines perpendicular to the axis and to meet the line AE extended at 1',2',3' etc.
8. With centre F and radius 1-1', draw arcs intersecting the line through 1 at P1 and P`1
9. Similarly, locate the points P2, P`2, P3, P`3 etc., on either side of the axis. Join the points by smooth curve, forming the required parabola.

To draw a normal and tangent through a point 40mm from the directrix.

To draw a tangent and normal to the parabola. locate the point M which is at 40 mm from the directrix. Then join M to F and draw a line through F, perpendicular to MF to meet the directrix at T. The line joining T and M and extended is the tangent and a line NN, through M and perpendicular to TM is the normal to the curve.

