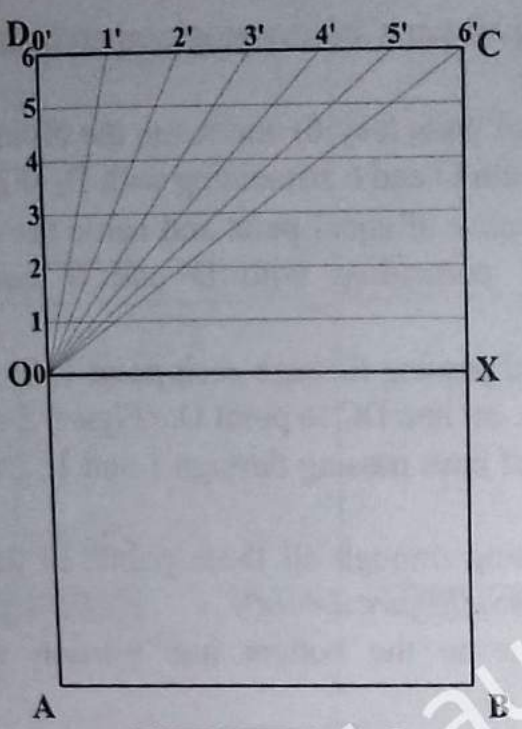

Figure 2.46(e)

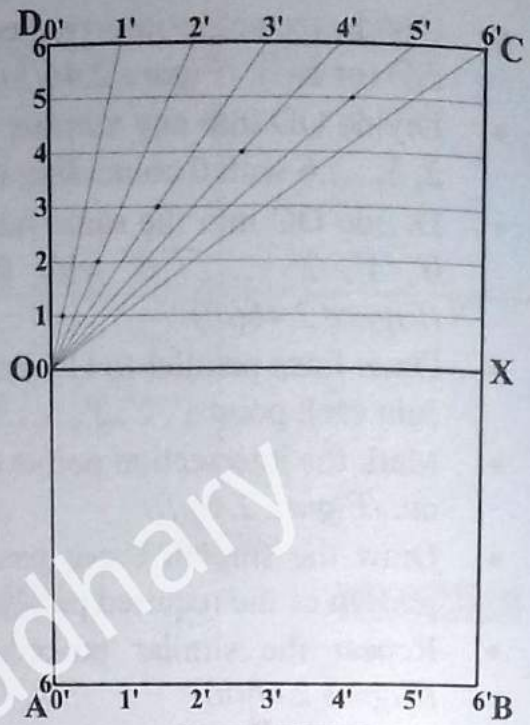

Figure 2.46(f)

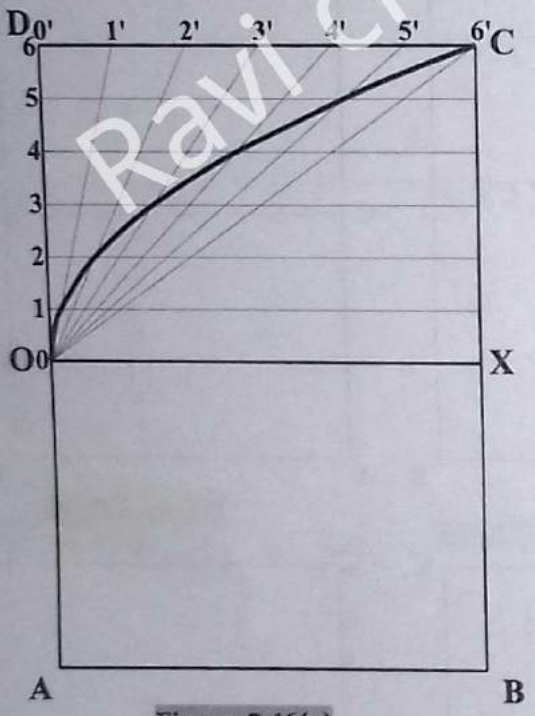

Figure 2.46(g)

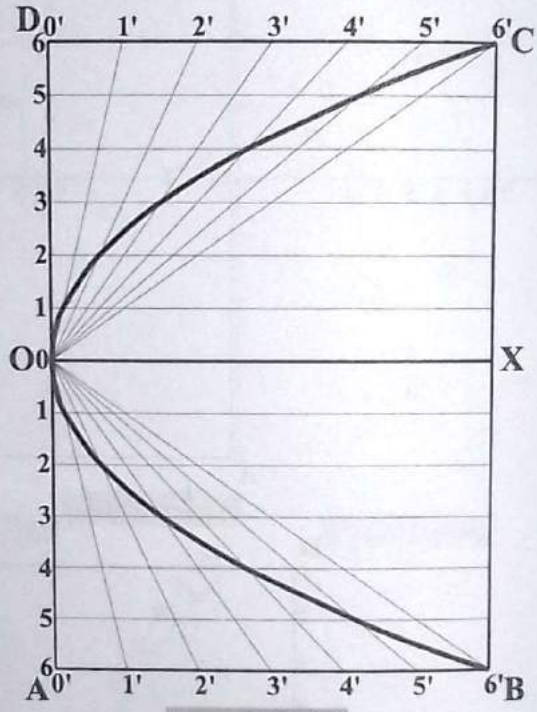

Figure 2.46(h)

(c) Tangent Method (Given Double Ordinate and Axis Length)

- Draw a line OA as the axis of the required parabola and mark C and D such that CD is equal to the given double ordinate. *(Figure 2.47(a))*
- Extend AO and mark point E such that AO = OE. *(Figure 2.47(b))*
- Join EC and ED. *(Figure 2.47(c))*
- Divide EC and ED into any number of equal parts (say 6) and name the dividing points as shown below. *(Figure 2.47(d))*
- Join 1 and 1, 2 and 2, …. and s on. *(Figure 2.47(e))*
- Draw smooth curve all these lines 11, 22, 33, ….. as tangent lines. *(Figure 2.47(f))*

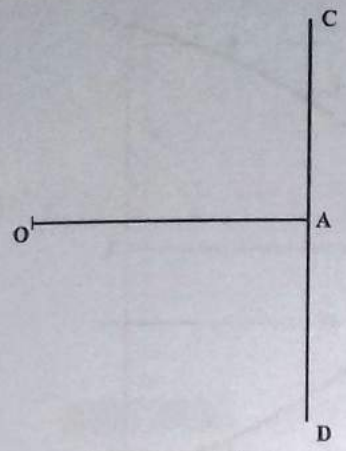

Figure 2.47(a)

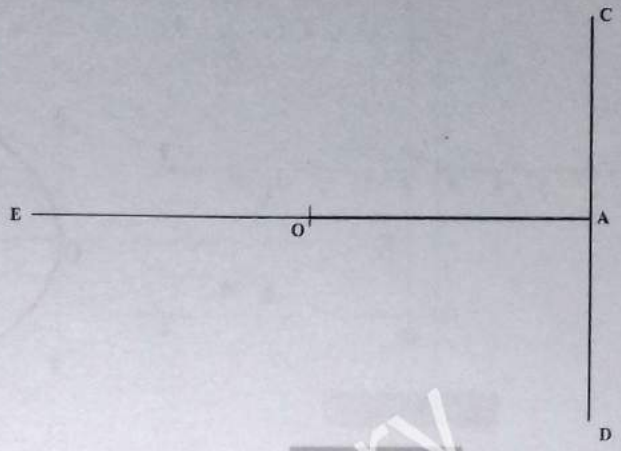

Figure 2.47(b)

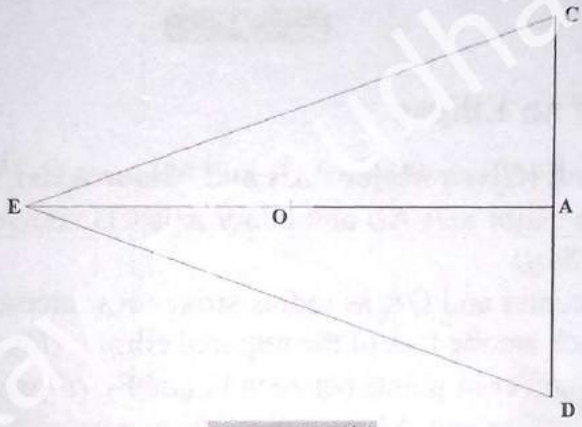

Figure 2.47(c)

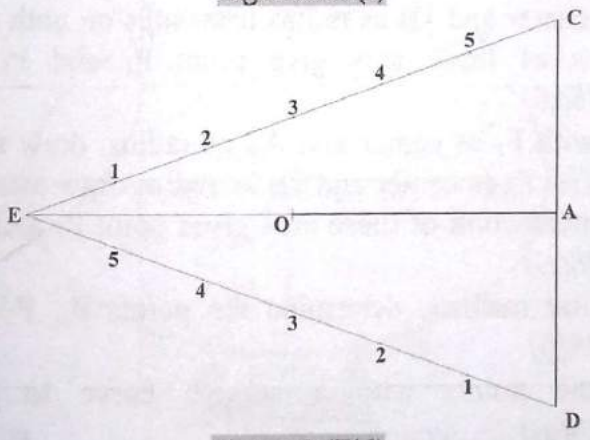

Figure 2.47(d)

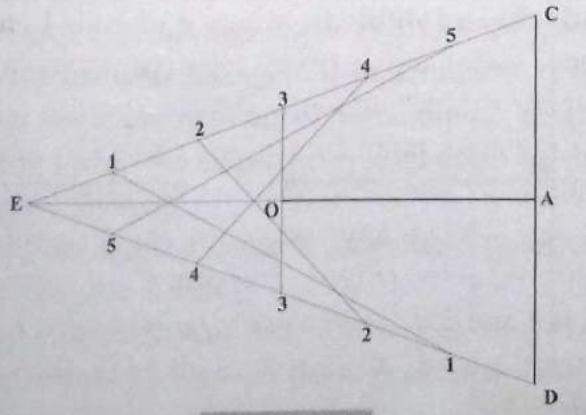

Figure 2.47(e)

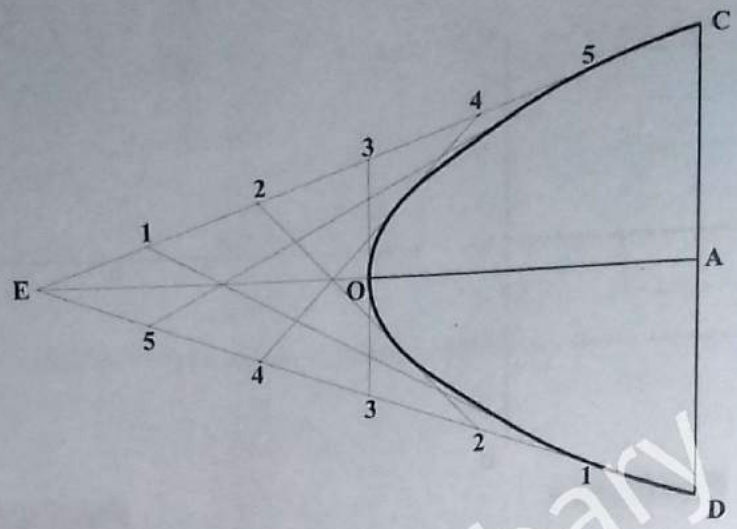

Figure 2.47(c)

2.4.3 Construction of an Ellipse

(a) Definition Method (Given Major Axis and Minor Axis)

- Draw given major axis AB and minor axis CD intersecting each other at point O. *(Figure 2.48(a))*
- With C as center and OA as radius strike arcs intersecting major axis AB and F_1 and F_2, which are the foci of the required ellipse. *(Figure 2.48(b))*
- Mark any number of points between F_1 and F_2. *(Figure 2.48(c))*
- With F_1 as center and A1 as radius, draw arcs on both sides of major axis AB. With F_2 as center and 1B as radius draw arcs on both sides of the major axis AB. Intersections of these arcs give point P_1 and P_1' of the required ellipse. *(Figure 2.48(d))*
- Similarly, with F_1 as center and A2 as radius, draw arcs on both sides of major axis AB. With F_2 as center and 2B as radius draw arcs on both sides of the major axis AB. Intersection of these arcs gives point P_2 and P_2' of the required ellipse. *(Figure 2.48(e))*
- In the similar manner, determine the points P_2, P_2', P_3, P_3', ... and so on. *(Figure 2.48(f))*
- Join all the points with a smooth curve to get the required ellipse. *(Figure 2.48(g))*

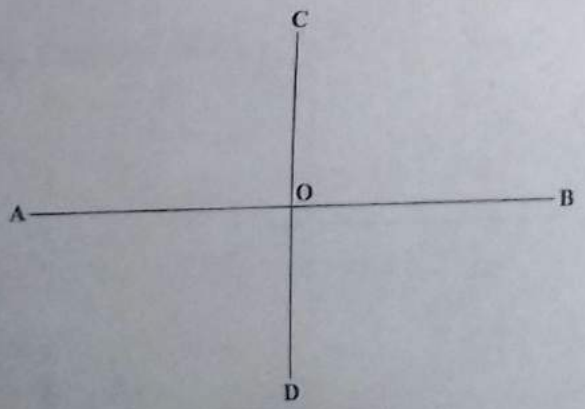

Figure 2.48(a)

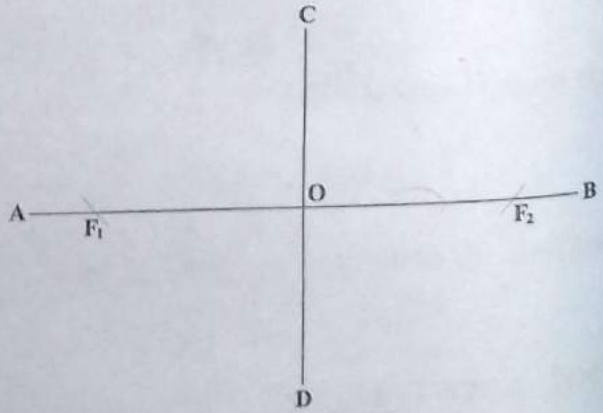

Figure 2.48(b)