RA2011031010006
Anas Ahmed Ather.

SRM INSTITUTE OF SCIENCE & TECHNOLOGY

1. Exercise : 4

2. Date: 03.11.2020

3. Title :Orthographic multi-view projections - lines and planes inclined to both the planes

4. Aim : To draw the orthographic projections of straight lines and planes inclined to both the planes.

5. Software used: Auto CAD

6. Introduction:

i. About Orthographic projection of lines inclined to both the planes:

→ First of all we have to find out the inclination with H.P. Here inclination with H.P. is constant from that, - its length in T.V. remain constant.

- In F.V the dist. between loci of its end remain constant.

→ Now we have to find out the inclination with V.P. The inclination with the V.P constant.

- Its length in F.V. remain constant.

- In T.V. the dist. between loci of its ends remains constant.

ii. Projection of planes inclined to both the planes :

We keep the plane parallel to the principal plane from which it is to be inclined. Then we keep the edge perpendicular to the principle plane from which it is to be inclined. First the plane is inclined then the edge is inclined. Hence we get projection of planes inclined to both planes.

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7. **Procedure** (for solving question #)

7.1 Question outline : Projection of lines.

7.2 Object :

7.3 Conditions (if any) : Inclined to HP and V.P.

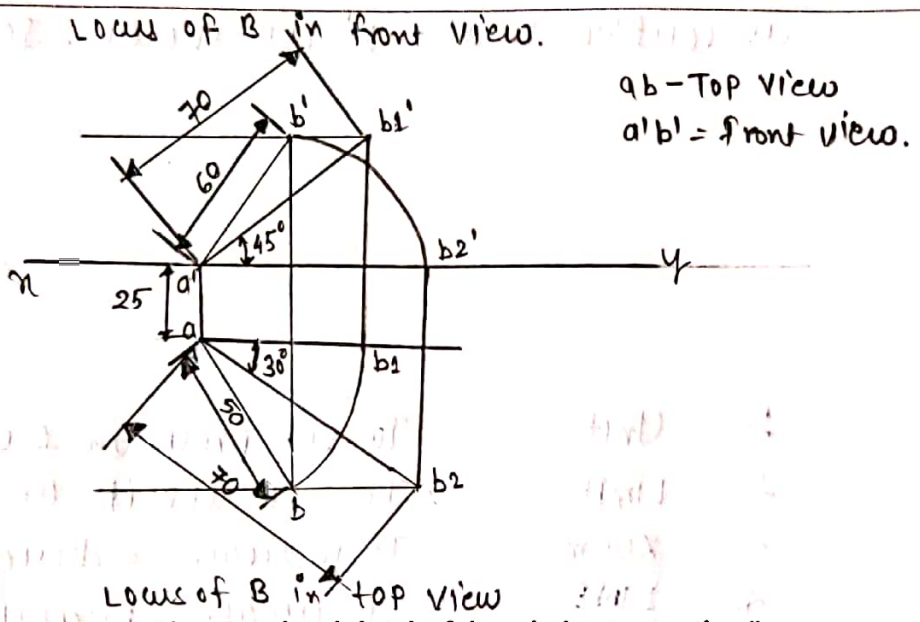

Fig. Free hand sketch of the solution to question #

7.4 **Drawing Procedure:**

→ **Step 1.**
Draw xy line and one projector.

→ **Step 2:-** Locate a' on xy and a 25 mm below xy line.

→ **Step 3:-** Draw locus of from these points.

→ **Step 4:-** Draw a 70mm inclined line at ∠45° to HP from (a).

→ **Step 5:-** Similarly, Draw a 70 mm inclined line at ∠ 30° to VP from (a)

→ **Step 6:-** Draw the locus from point b2 (in horizontal) similarly, draw the horizontal locus from point (b1') and (a).

→ **Step 7:-** Then draw a line vertically from point b1' continues it to b1. & then mark an arc extend it up to locus of (a) & rotating (a) as centre locate b as shown.
Join (a b) as T.V.

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Step 8:- Similarly, Draw a vertical line from point (b2) continues it to be (b2'). then mark an arc extend it to be locus a' and rotating a' as centre locate b' as shown. Join (a' b') as F.V.

8. Commands used:

S.N.	Command	Use
1.	Units	To set precision & unit scale
2.	Limit	To set limit of grid.
3.	Zoom	To increase & decrease the size.
4.	Line	To create straight line.
5.	Arc	To draw arcs
6.	Text	To write text.
7.	Style	To change/modify text style.
8.	Dim	To make dimensions
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

9. Result:

We have successfully drawn the projections of line AB of length 70 mm inclined 45° to HP & 30° to V.P with end a on HP & 25mm in front of V.P. by using AutoCAD software.

Faculty Name		Date of Submission	
Signature		Marks	

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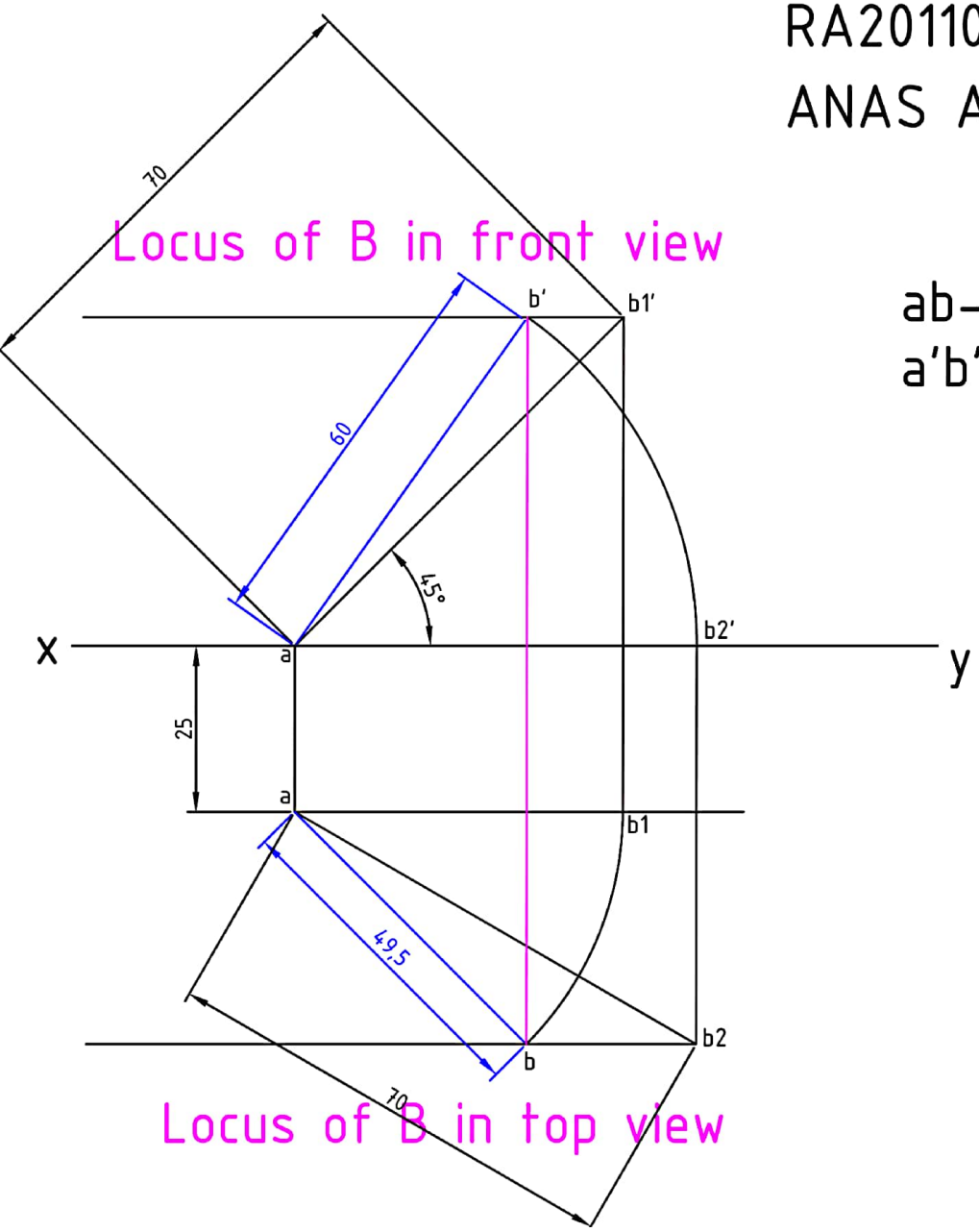
ab-Top view

a'b'-Front view



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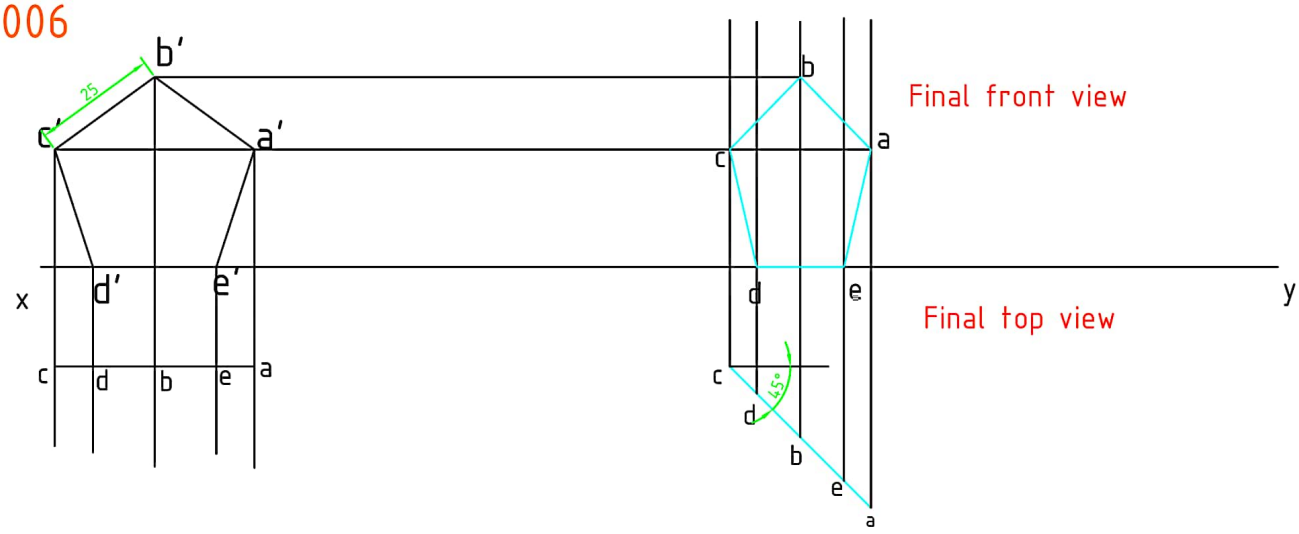

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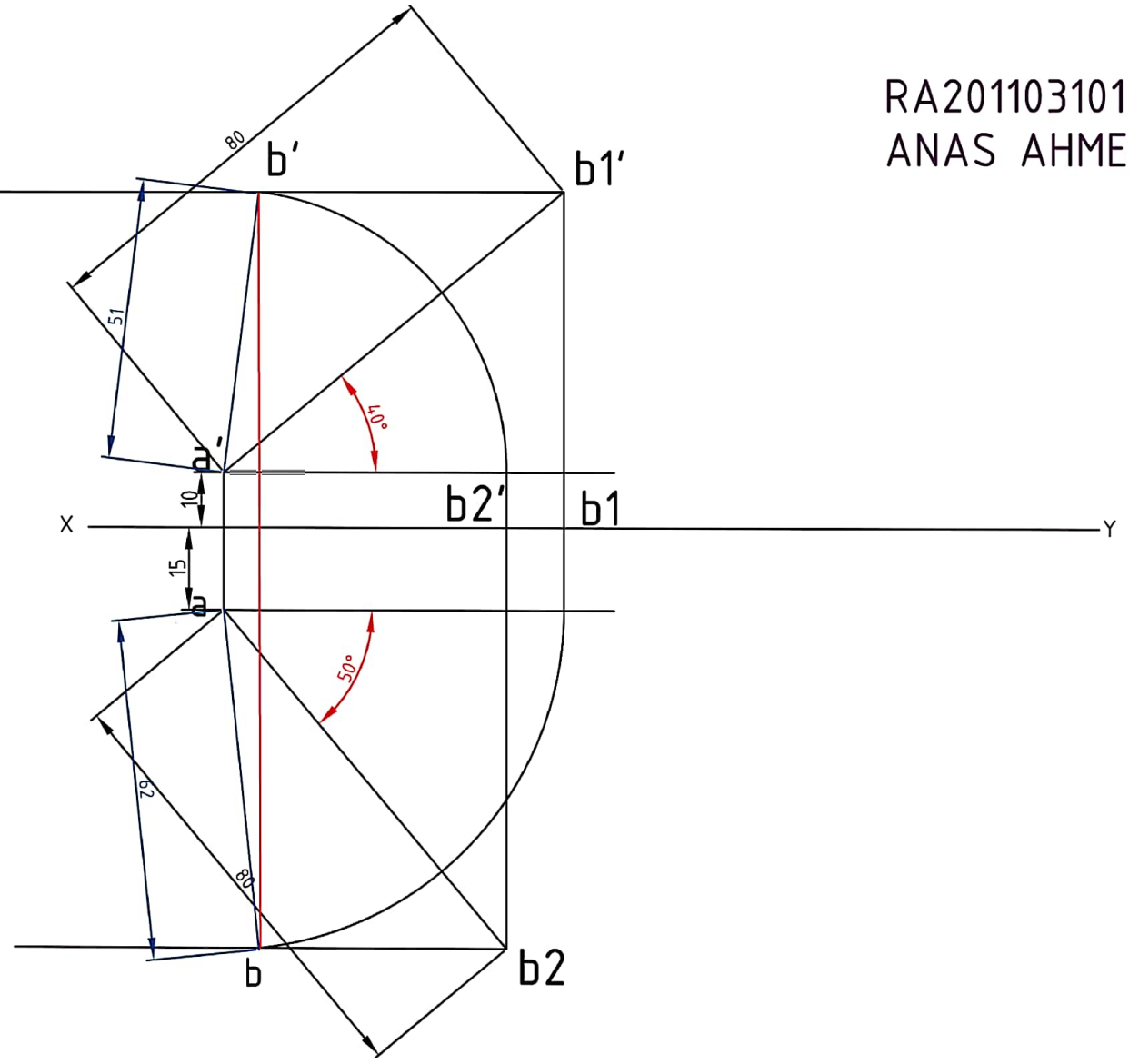

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