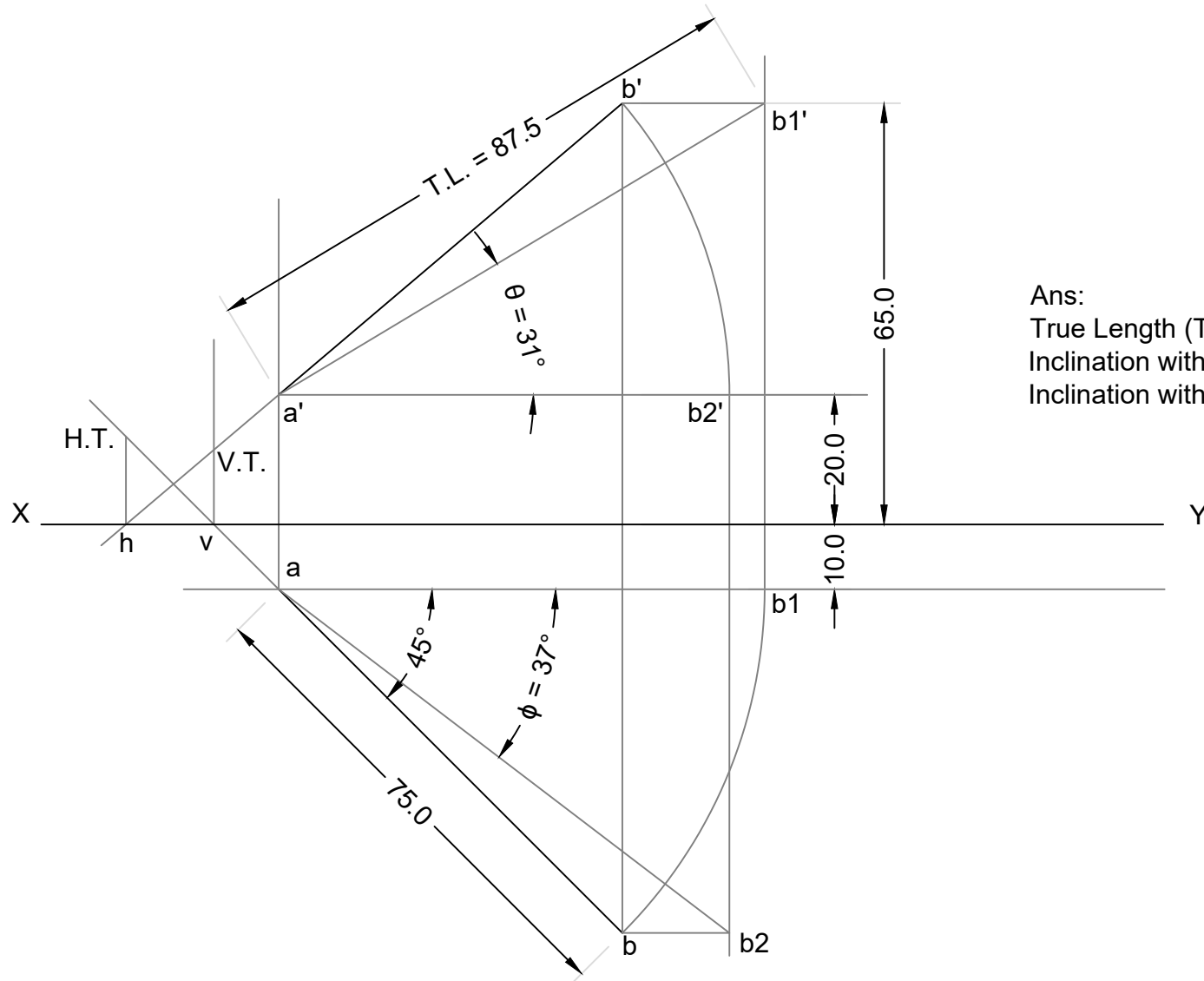
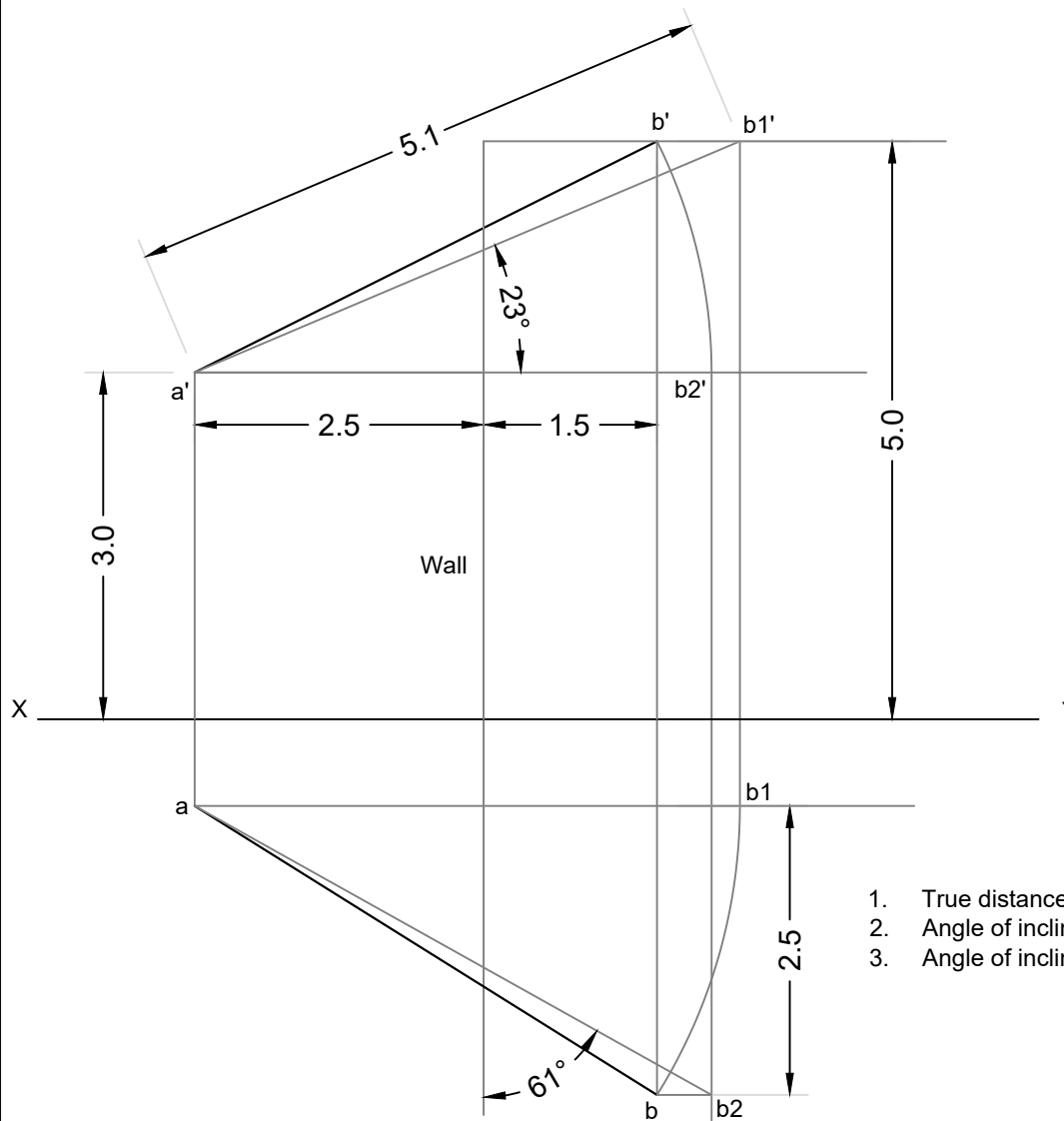


Q 1: The top view of a line is 75 mm long and inclined to XY at  $45^\circ$ . One end is 20 mm above H.P. and 10 mm in front of V.P. The other end is 65 mm above H.P. and is in front of V.P. What is the true length of the line and its inclination with H.P. and V.P. ? Also, show its traces.



Ans:  
 True Length (T.L.) = 87.5 mm  
 Inclination with H.P. ( $\theta$ ) =  $31^\circ$   
 Inclination with V.P. ( $\phi$ ) =  $37^\circ$

Q 2: Two mangoes on a tree are 5 m and 3 m above the ground and 1.5m and 2.5 m from the central plane of a wall, but on opposite sides of the wall, respectively. The distance between the mangoes measured along the ground and parallel to the wall is 2.5 m. Determine the true distance between the mangoes and the angle of inclination of the line joining the mangoes with the ground and also with the wall.

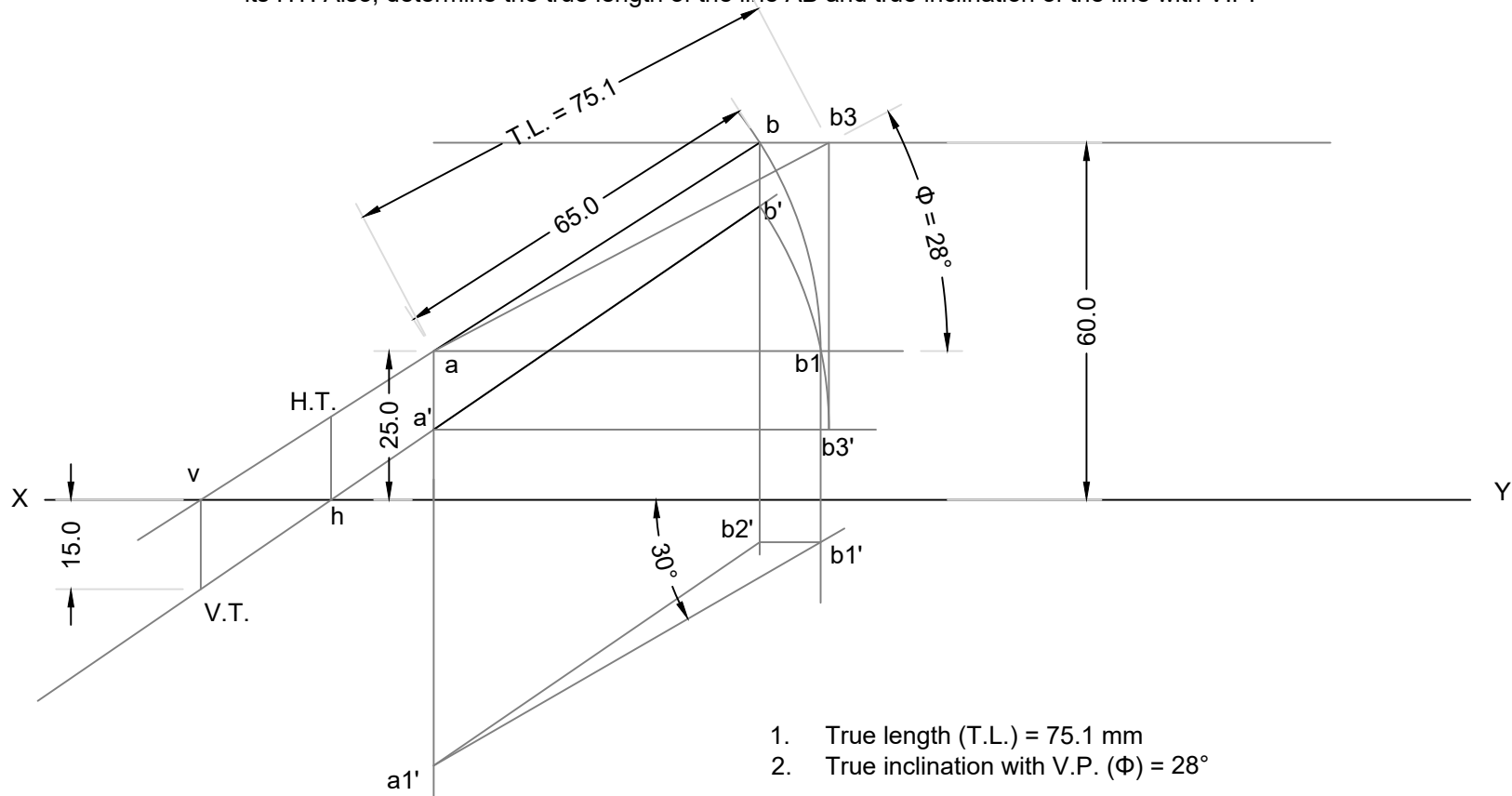


Scale: 1:50

NOTE: ALL DIMENSIONS ARE IN m.

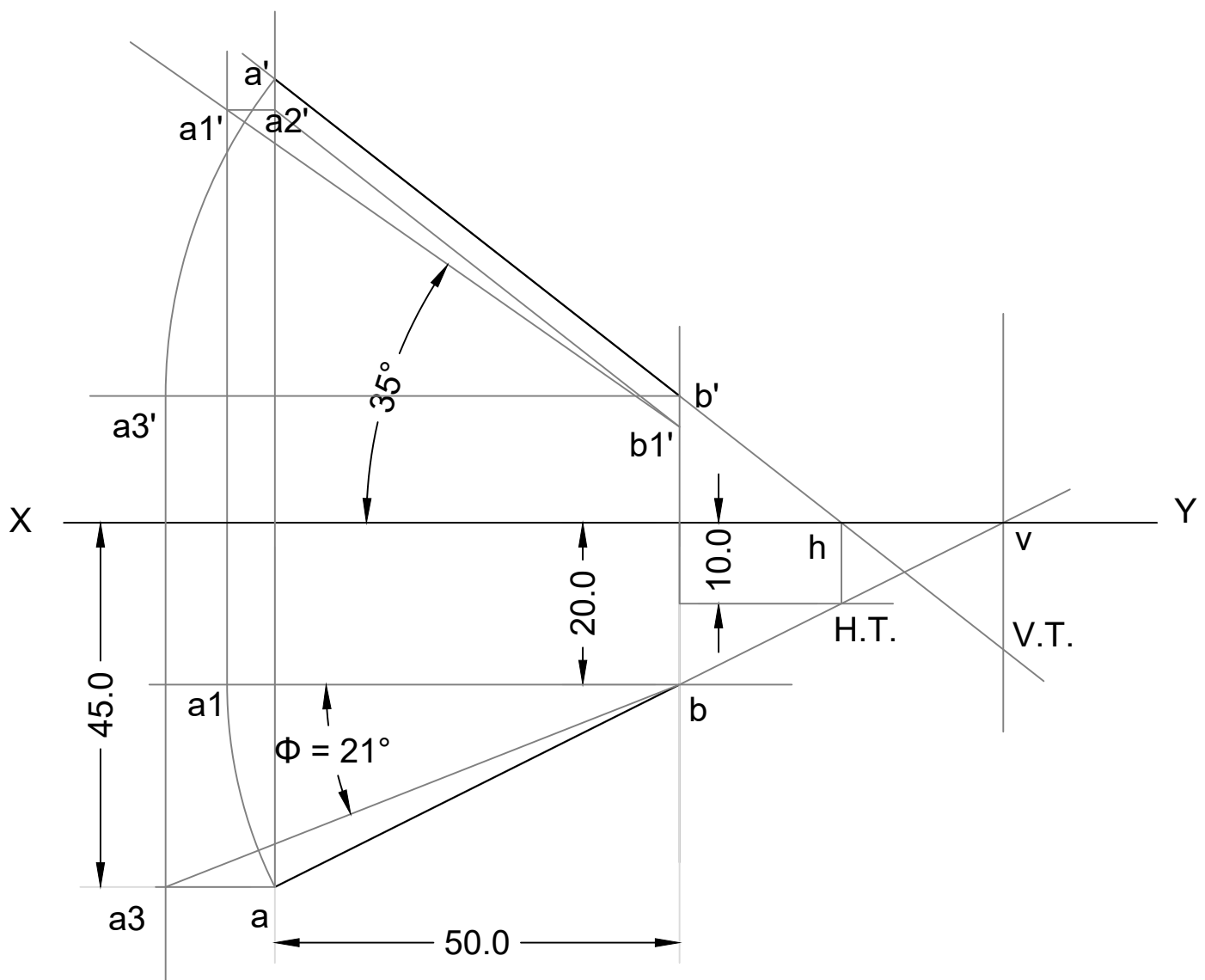
1. True distance between the mangoes =  $102 \text{ mm} \times 50 = 5.1 \text{ m}$
2. Angle of inclination of the line joining the mangoes with the ground =  $23^\circ$
3. Angle of inclination of the line joining the mangoes with the wall =  $61^\circ$

Q 3: A line AB inclined at 30 deg to the HP has its ends A and B, 25 mm and 60 mm behind the VP, respectively. The length of the top view is 65 mm and its VT is 15 mm below the HP. Draw the projections of the line and locate its HT. Also, determine the true length of the line AB and true inclination of the line with V.P.



NOTE: ALL DIMENSIONS ARE IN mm.

Q 4: A line AB has its ends A and B, 45 mm and 20 mm in front of the VP, respectively. The end projectors of the line AB, when measured parallel to the line of intersection of HP and VP, are 50 mm apart. The HT of the line is 10 mm in front of VP. The line AB is inclined at  $35^\circ$  to the HP. Draw the projections of the line AB and locate the VT. Find the distance of the VT of the line from the HP and the inclination of the line with the VP.



NOTE: ALL DIMENSIONS ARE IN mm.

True inclination with the V.P. ( $\Phi$ ) =  $21^\circ$

### Steps for Assignment 2 Q4:

1. Using the distances of points A and B from VP, draw the loci of points a and b in TV.
2. The end projectors are 50 mm apart. So, draw two projection lines separated by 50 mm. The intersections of these projectors with the loci of points a and b will give us points a and b as shown.
3. Now draw a line passing through points a and b. This is the final TV of the line.
4. Extend this line ab till it intersects line XY. Name the intersection point as v and draw vertical projector through v.
5. To locate H.T., draw a line at 10 mm below V.P. It's intersection with extension of line ab will give us H.T.
6. Now draw a vertical projector through H.T. to get point h.
7. Now rotate the line ab about point b such that it becomes parallel to V.P. Join a1b.
8. Draw a vertical projector passing through a1.
9. Now to obtain F.V. of the line, it is given that line AB is inclined at  $35^\circ$  w.r.t. H.P.
10. Take any point b1' on projectors passing through point b and draw a line inclined at  $35^\circ$  with XY line.
11. The intersection of this line with the projector passing through a will give us point a1. Join a1'b1'.
12. Now to get the F.V. of the line AB, draw locus of point A as horizontal line passing through point a1'. The intersection of this locus with the projector passing through point a will give point a2'. Join a2'b1'. Thus, a2'b1' is the F.V. of the line AB. **However, remember that this is not the final F.V.**
13. We know that when we extend final F.V., it's intersection with line XY will give us point h. So, to obtain final F.V., draw a line parallel to line a2'b1' such that the line passes through point h.
14. Intersection of this line with the projectors passing through point a and b will give us points a' and b'. Join a'-b'. This is the final F.V. of the line AB.
15. Thus, we got final F.V. as line a'-b' and final T.V. as a-b.
16. The V.T. and true inclination with V. P. can be found by usual method.