

Q.1. The point P of a line PQ is 25 mm above HP while its end point Q is 15 mm in front of VP. Its plan and elevation makes 40° and 35° with xy respectively. Draw the projections; if the projector distance between the end points of line PQ is 60 mm, find the inclinations made by the line with HP & VP.

Step 1:

Draw the Front View Draw a line PQ with point P 25 mm above the horizontal plane (HP) and point Q 15 mm in front of the vertical plane (VP).

Step 2:

Draw the Plan View Draw the plan view of the line PQ, ensuring that it makes an angle of 40° with the x-axis.

Step 3:

Draw the Elevation View

Draw the elevation view of the line PQ, ensuring that it makes an angle of 35° with the y-axis.

Step 4:

Find the Inclinations

Find the inclinations made by the

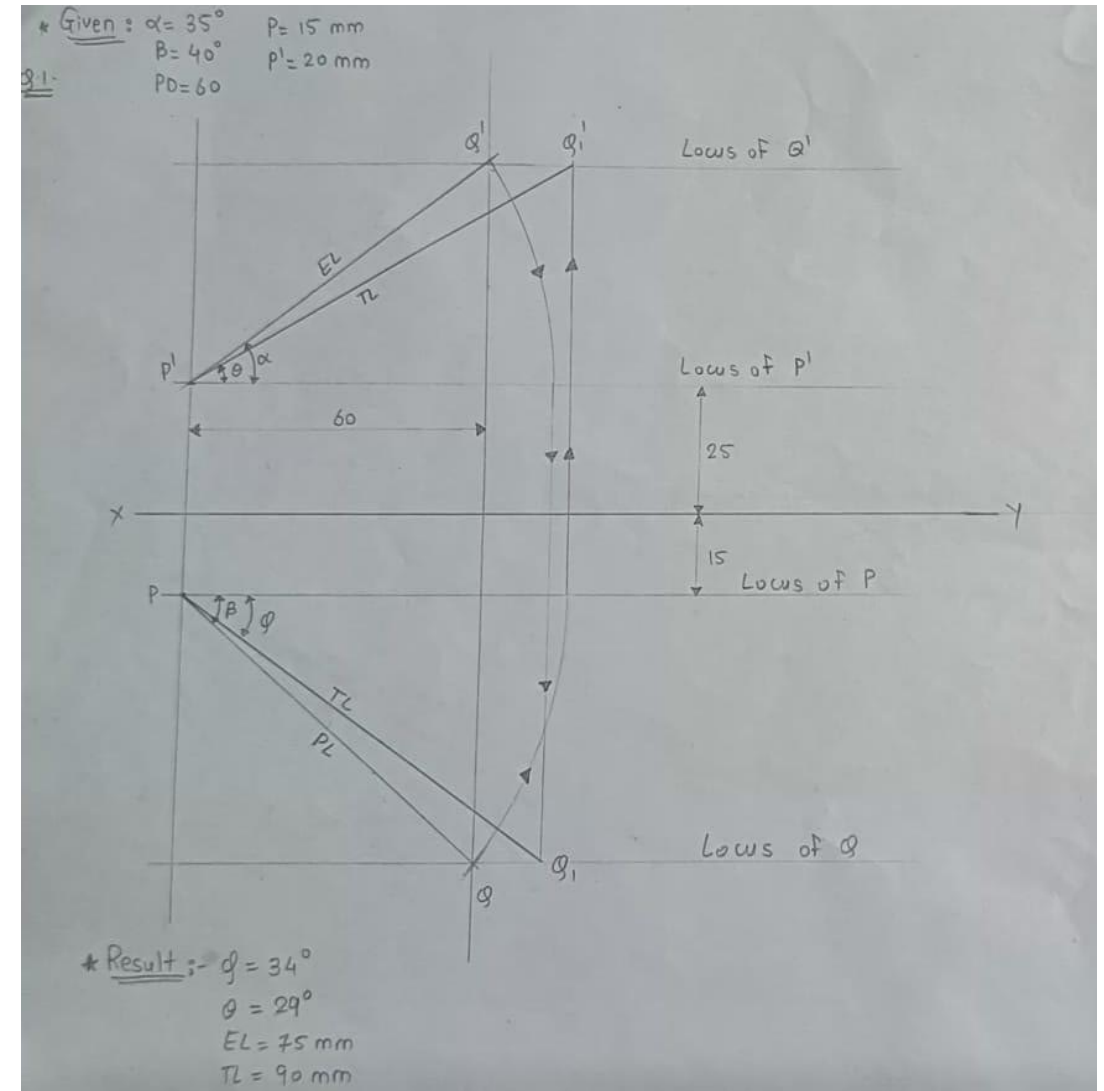
line with HP and VP:- Inclination

with HP (α) = 35° (given)- Inclination with VP

(β) = 40° (given)

Step 5:

Find the True Length



Q.2. A line AB of 90 mm long, having its endpoint A is on HP and 20 mm in front of VP. The plan length of the line AB is 70 mm and makes an angle of 40° with XY. Draw the projections of line AB. Find the inclination made by the line with HP and VP.

Step 1:

Draw the Front View Draw a line AB with endpoint A on the horizontal plane (HP) and 20 mm in front of the vertical plane (VP).

Step 2:

Draw the Plan View Draw the plan view of the line AB, ensuring that the length is 70 mm and makes an angle of 40° with the XY axes.

Step 3:

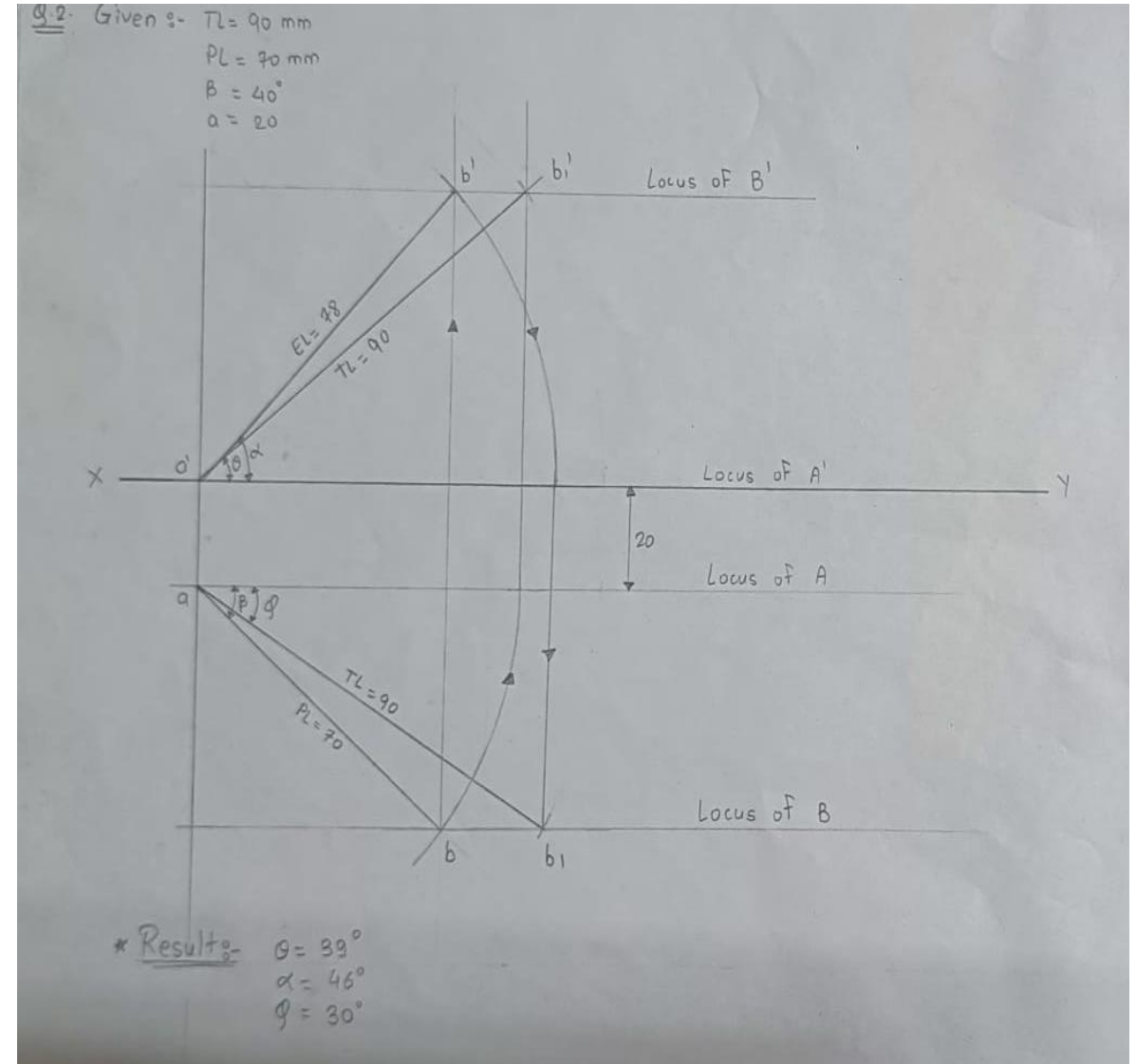
Draw the Elevation View Draw the elevation view of the line AB.

Step 4:

Find the Inclination with HP
Find the inclination made by the line with HP

Step 5:

Find the Inclination with VP
Find the inclination made by the line with VP



Q.3. The point A of line AB is in HP and 15 mm in front of VP. Its front view and top view makes 51° and 48° with HP and VP respectively. Draw the projections of line AB if its end point B is 51 mm above HP. Find its true length, true inclinations.

Step 1:

Draw the Front View Draw a line AB with point A in the horizontal plane (HP) and 15 mm in front of the vertical plane (VP).

Step 2:

Draw the Plan View Draw the plan view of the line AB, ensuring that it makes an angle of 48° with the VP

Step 3:

Draw the Elevation

View Draw the elevation view of the line AB, ensuring that it makes an angle of 51° with the HP.

Step 4:

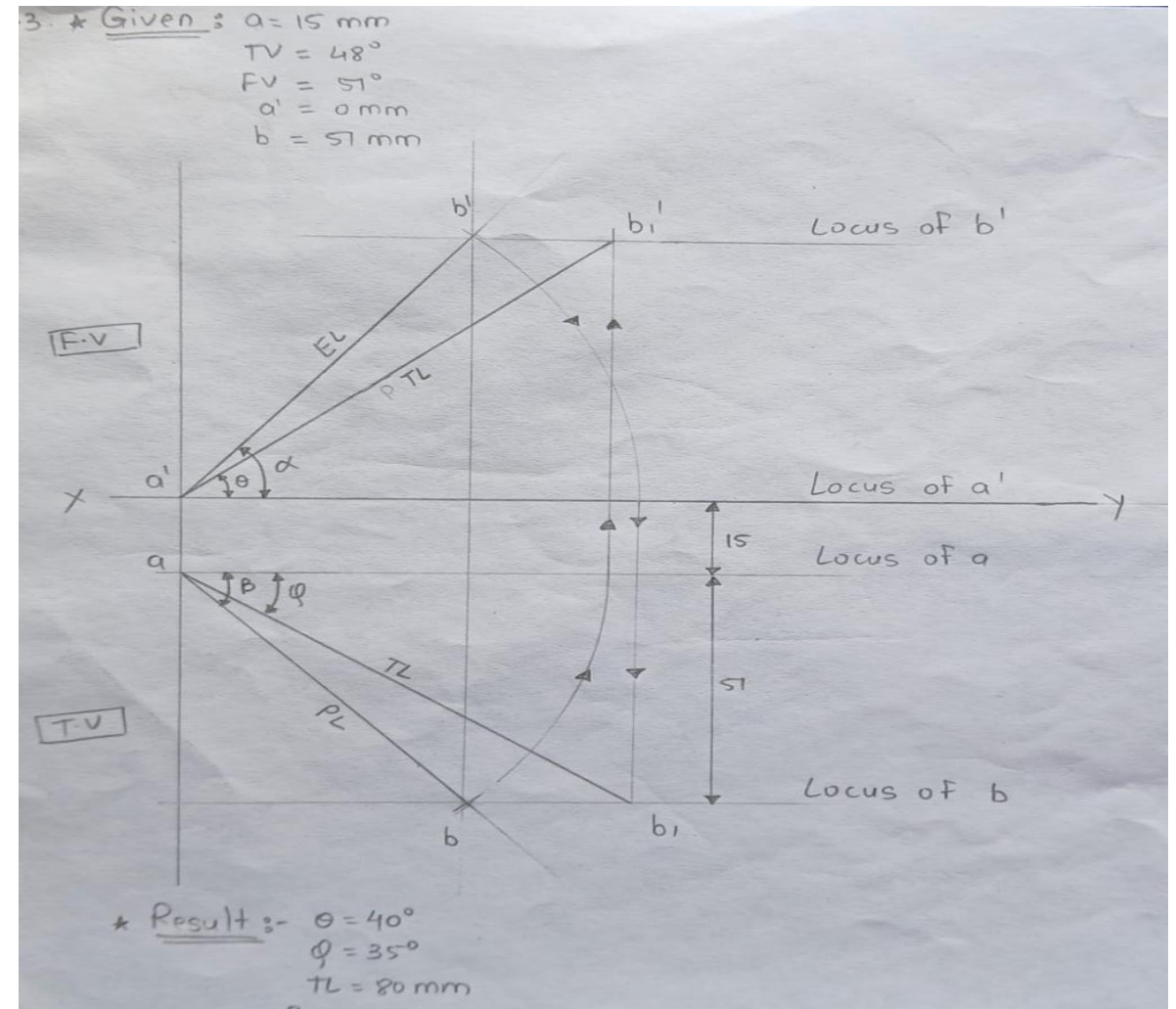
Find the True Length Find the true length of the line AB

Step 5:

Find the True Inclinations Find the true inclinations made by the line with HP and

VP:- Inclination with HP (α) = 51° (given)- Inclination

with VP (β) = 48° (given) The final answer is : True Length (L): 80.29 mm Inclination with HP (α): 51° Inclination with VP (β): 48°



Q.4. The point P of line PQ is in HP while its other end Q is 50 mm above HP and 20 mm in front of VP. The line is inclined to VP at an angle of 40° . Draw the projections of line if its front view measures 78 mm. Find true length of line and the inclination made by the line with HP.

Step 1:

Draw the Front View Draw a line PQ with point P in the horizontal plane (HP) and point Q 50 mm above HP and 20 mm in front of the vertical plane (VP).

Step 2:

Draw the Plan View Draw the plan view of the line PQ, ensuring that it makes an angle of 40° with the VP.

Step 3:

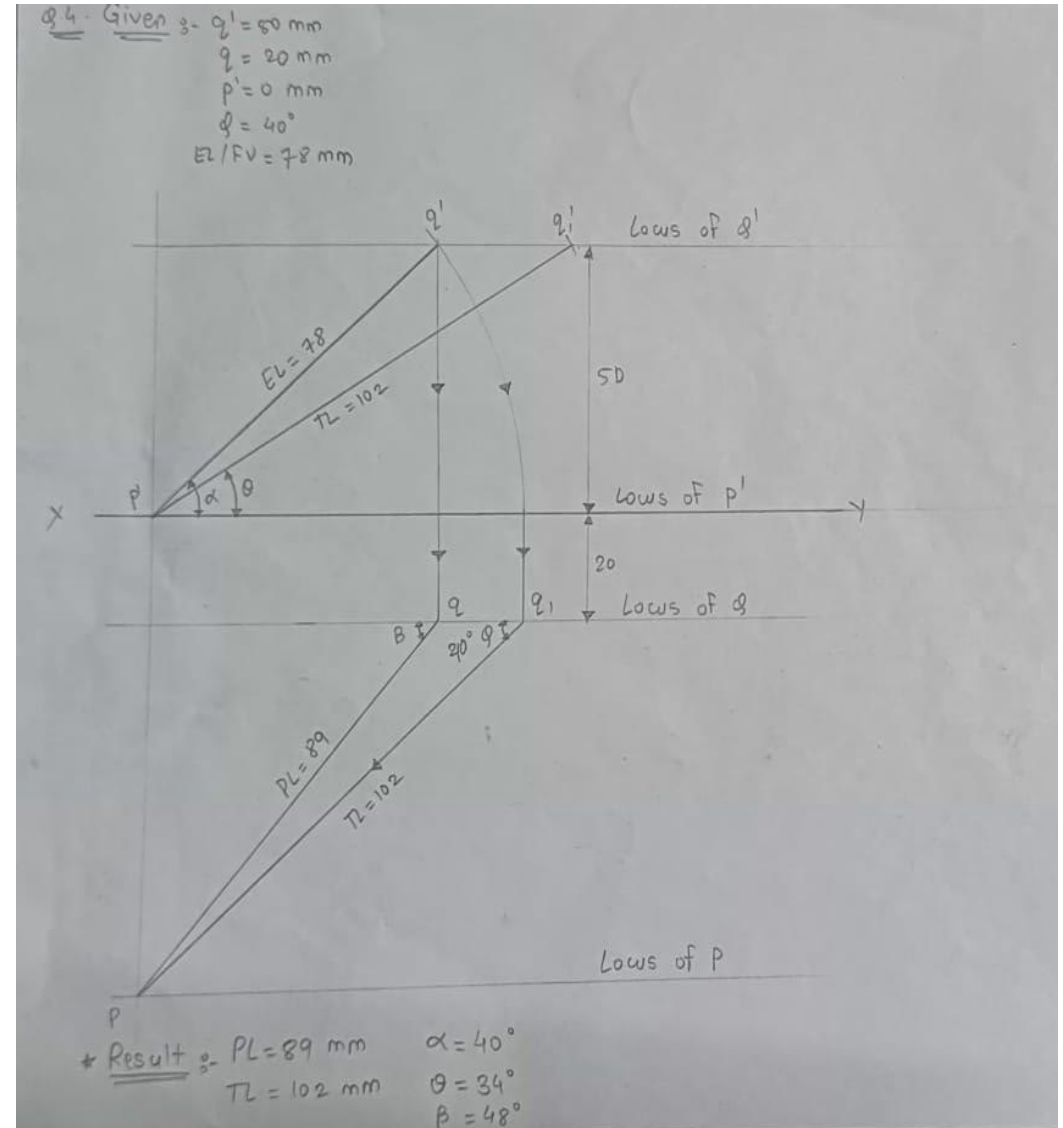
Draw the Elevation View Draw the elevation view of the line PQ, ensuring that the front view measures 78 mm.

Step 4:

Find the True Length Find the true length of the line PQ

Step 5:

Find the Inclination with HP
Find the inclination made by the line with HP The final answer is : True Length (L): 102 mm Inclination with HP (α): 39.9°



Q.5. A line AB of 65 mm is inclined to HP at an angle of 45° . Its end point A is 15 mm above HP and 25 mm in front of VP. Line AB is contained by a vertical plane making an angle of 45° to the VP. Draw projections of the line. Find inclination of line with VP.

Step 1:

Draw the Front View Draw a line AB with endpoint A 15 mm above the horizontal plane (HP) and 25 mm in front of the vertical plane (VP).

Step 2:

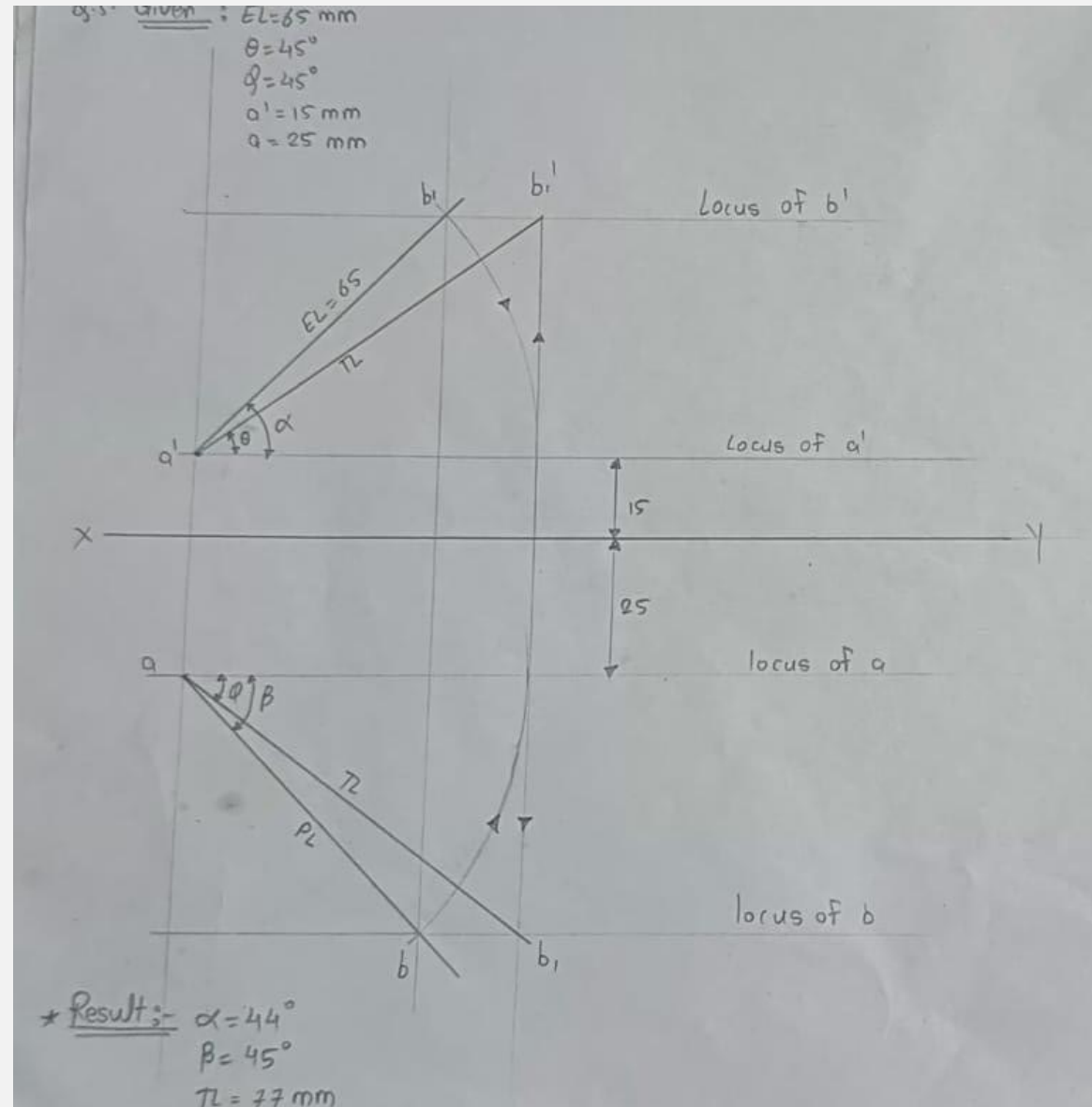
Draw the Plan View Draw the plan view of the line AB, ensuring that it makes an angle of 45° with the VP.

Step 3:

Draw the Elevation View Draw the elevation view of the line AB, ensuring that it makes an angle of 45° with the HP.

Step 4:

Find the Inclination with VP Find the inclination made by the line with VP



PROJECTION OF PLANS

Q.1. A circular plate of diameter 60mm is resting on H.P. so that the point opposite to resting point is 40mm above H.P. Draw the projections if the plane of diameter line passing through resting point makes 35° with XY.

Step 1:

Draw the Front View Draw a circle representing the circular plate with a diameter of 60 mm, resting on the horizontal plane (HP).

Step 2:

Draw the Plan View

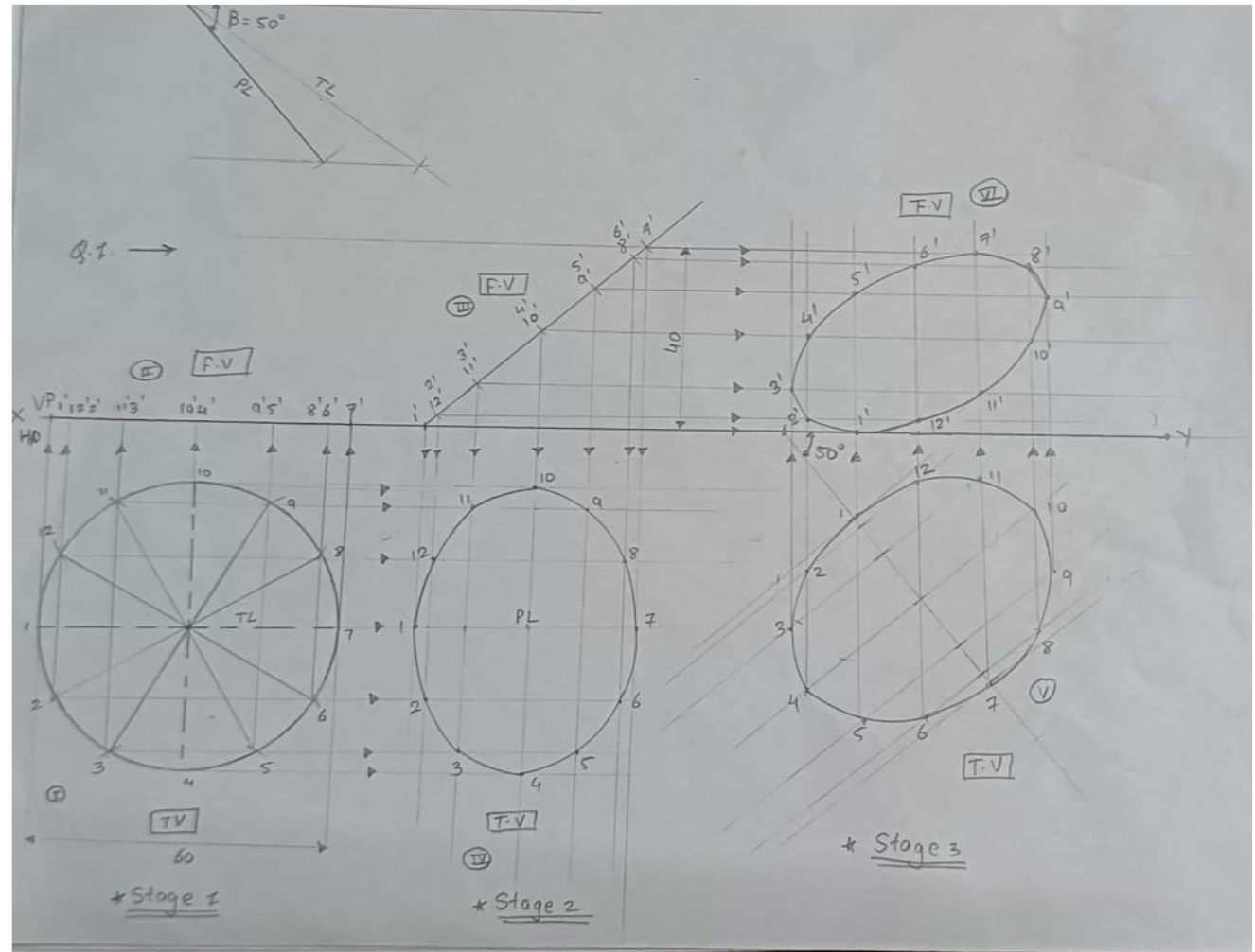
Draw the plan view of the circular plate, ensuring that the diameter line passing through the resting point makes an angle of 35° with the XY axes.

Step 3:

Draw the Elevation View Draw the elevation view of the circular plate, ensuring that the point opposite to the resting point is 40 mm above HP.

Step 4:

Find the Angle Made by the Plate with HP



Q.2. A pentagonal plate of 25mm side has one of its side in the H.P. making an angle 45° to the V.P. Draw its projections if its surface is inclined at 45° to the H.P.

Step 1:

Draw the Front View Draw a pentagon representing the pentagonal plate with one of its sides in the horizontal plane (HP) and making an angle of 45° to the vertical plane (VP).

Step 2:

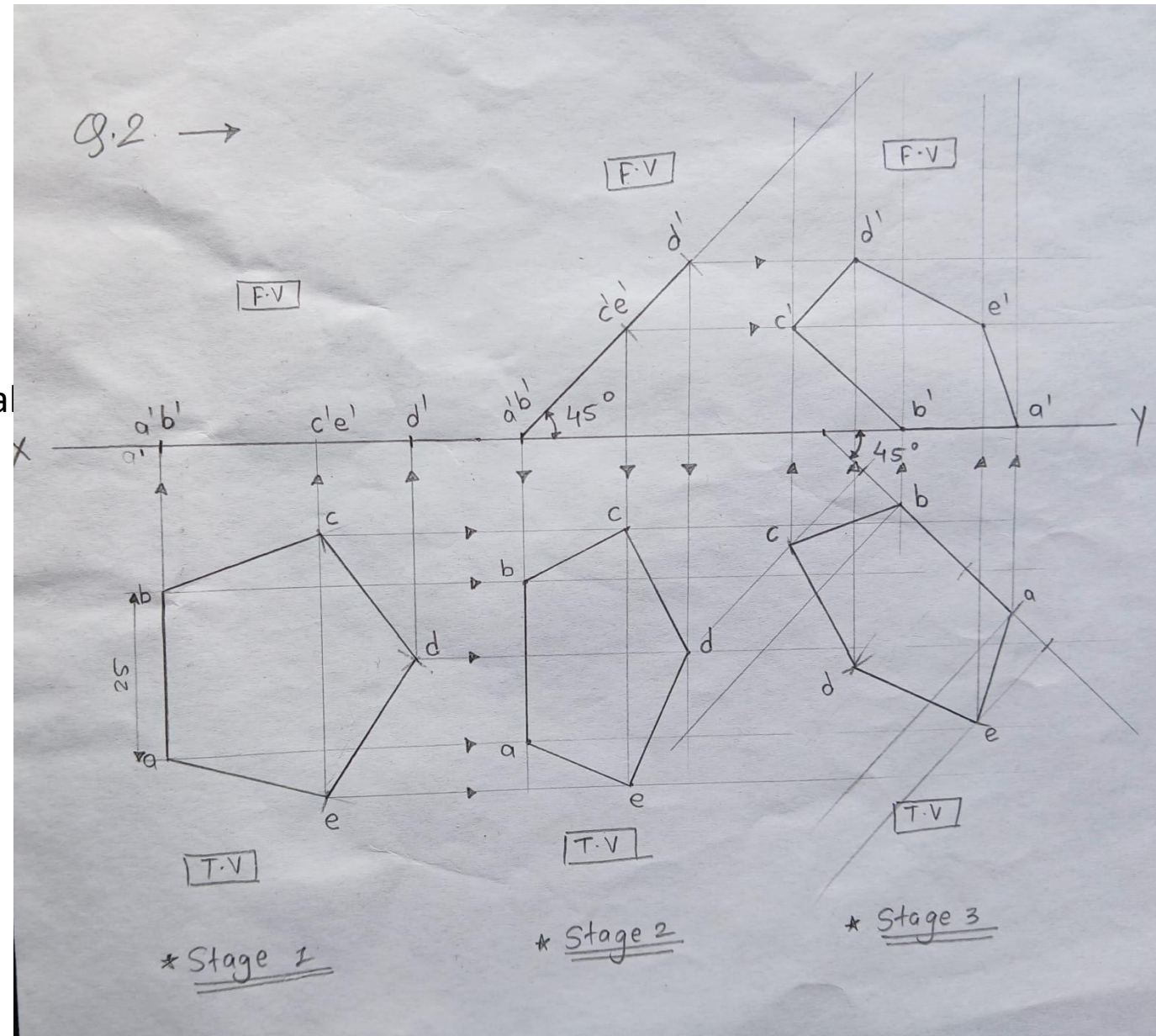
Draw the Plan View Draw the plan view of the pentagonal plate, ensuring that one of its sides is in the HP and makes an angle of 45° to the VP

Step 3:

Draw the Elevation View Draw the elevation view of the pentagonal plate, ensuring that its surface is inclined at 45° to the HP

Step 4:

Find the Angle Made by the Plate with VP



Q.3. A rhombus ABCD with diagonal AC = 100 mm and BD = 60 mm is resting on corner A in the Horizontal plane. Its corner B is 25 mm above Horizontal plane. Draw the projections of the plane, when top view of diagonal AC is inclined at an angle of 30° with the vertical plane.

Step 1:

Draw the Front View Draw a rhombus ABCD with diagonal AC = 100 mm and BD = 60 mm, resting on corner A in the horizontal plane (HP).

Step 2:

Draw the Plan View Draw the plan view of the rhombus, ensuring that the top view of diagonal AC is inclined at an angle of 30° with the vertical plane (VP).

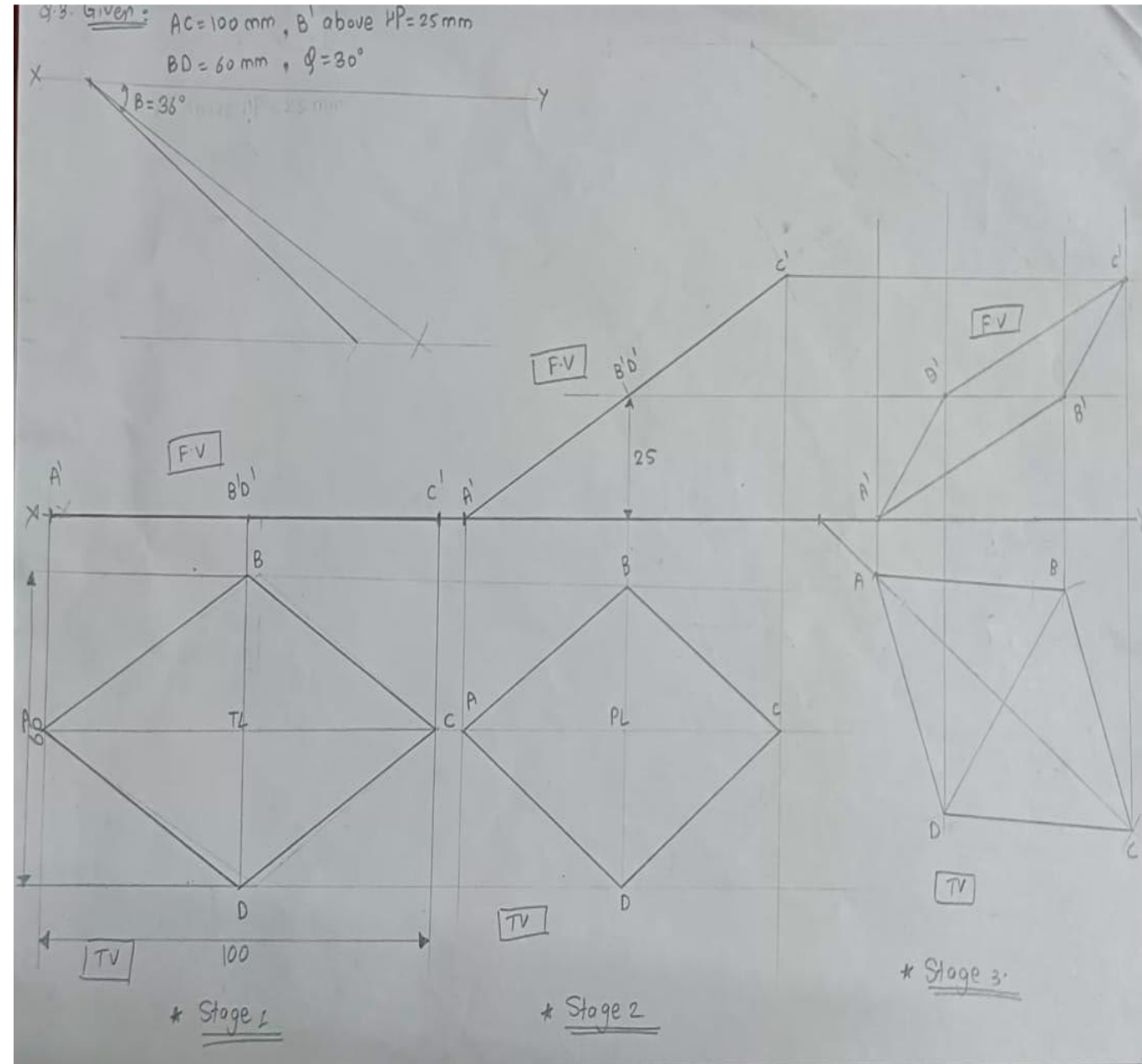
Step 3:

Draw the Elevation View Draw the elevation view of the rhombus, ensuring that corner B is 25 mm above the horizontal plane .

Step 4:

Find the Inclination with HP

Step 5: Find the Inclination with VP



Q.4. A hexagonal plate of 35mm side is resting on one of its corner on the H.P. Draw projections of the plate when the plate surface makes an angle of 35° to H.P. and the diagonal passing through resting corner makes 22° inclination to V.P.

Step 1:

Draw the Front View Draw a hexagon representing the hexagonal plate with one of its corners resting on the horizontal plane (HP).

Step 2:

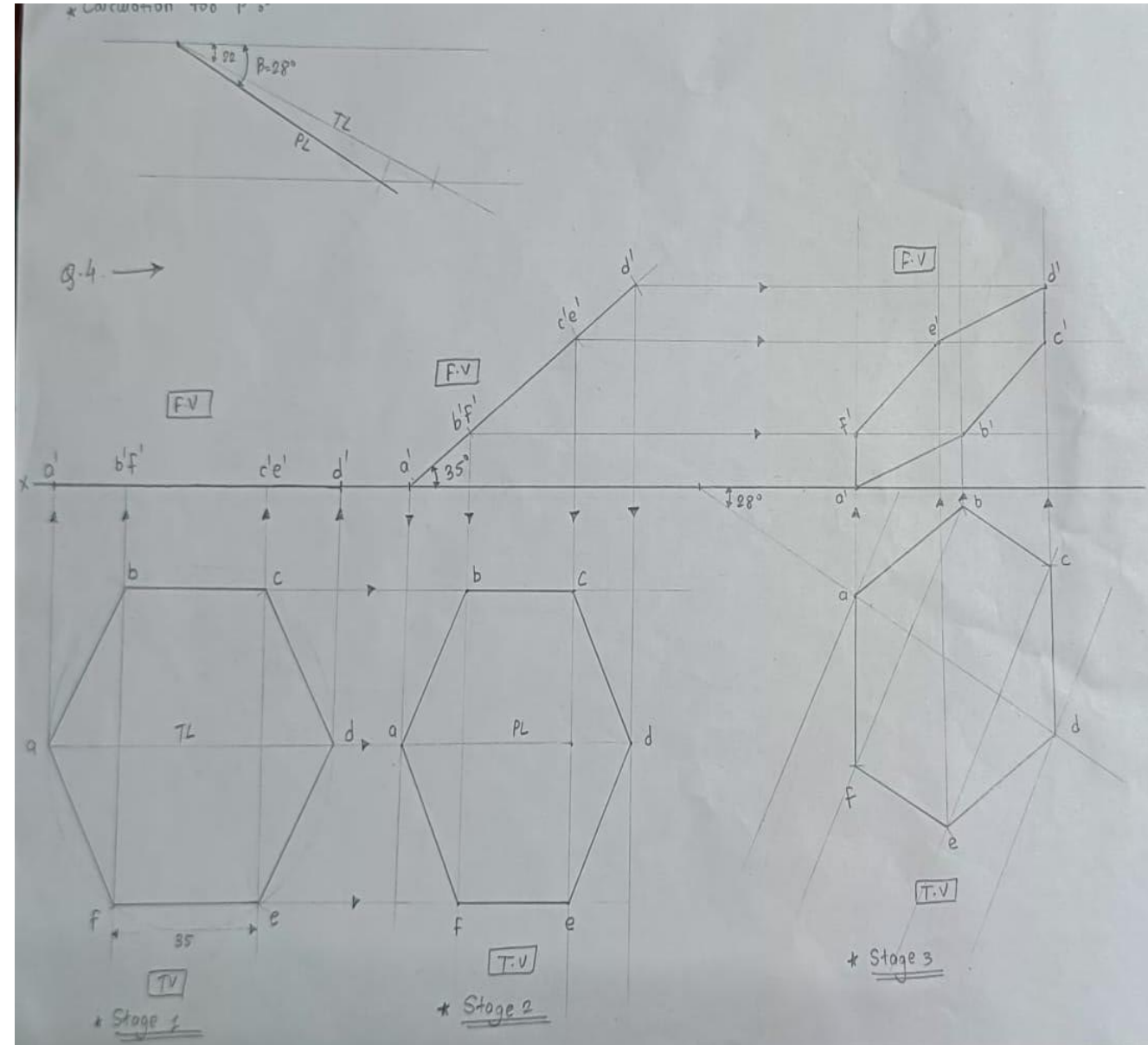
Draw the Plan View Draw the plan view of the hexagonal plate, ensuring that the diagonal passing through the resting corner makes an angle of 22° with the vertical plane (VP).

Step 3:

Draw the Elevation View Draw the elevation view of the hexagonal plate, ensuring that its surface makes an angle of 35° with the HP.

Step 4:

Find the Angle Made by the Plate with VP



Q.5. An isosceles triangle, base 50mm and altitude 80mm, is resting in HP on its base. Its surface is inclined to HP so that the corner opposite to the resting side is 50mm above HP. Draw the projections if its resting side is inclined to VP at an angle of 45° . Find the inclinations made by the plane with HP and VP.

Step 1:

Draw the Front View Draw an isosceles triangle with a base of 50 mm and an altitude of 80 mm, resting on its base in the horizontal plane (HP).

Step 2:

Draw the Plan View Draw the plan view of the triangle, ensuring that the resting side is inclined to the vertical plane (VP) at an angle of 45° .

Step 3:

Draw the Elevation View Draw the elevation view of the triangle, ensuring that the corner opposite to the resting side is 50 mm above HP.

Step 4:

Find the Inclination with HP .

Step 5:

Find the Inclination with VP.

