Projection of Planes

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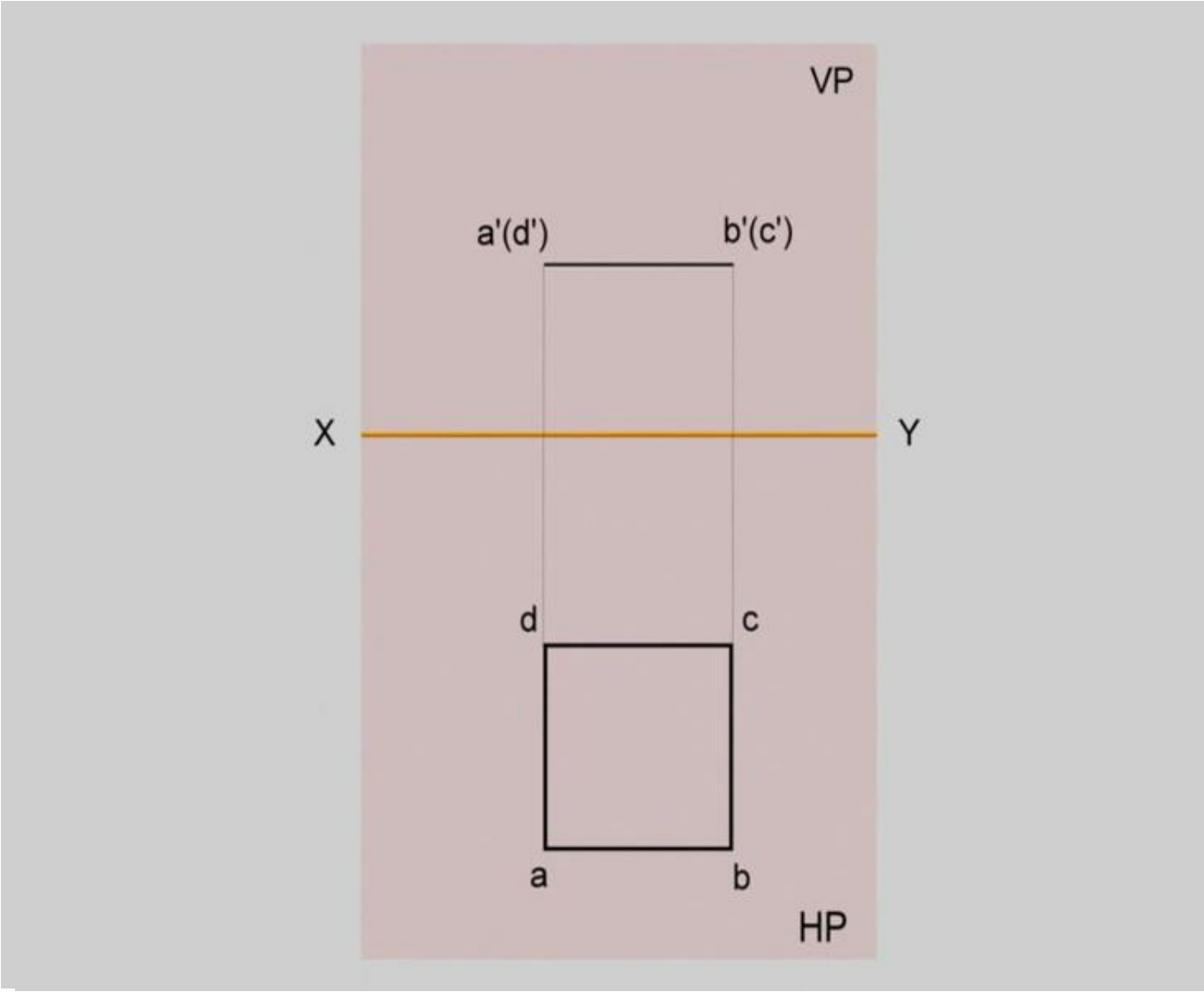
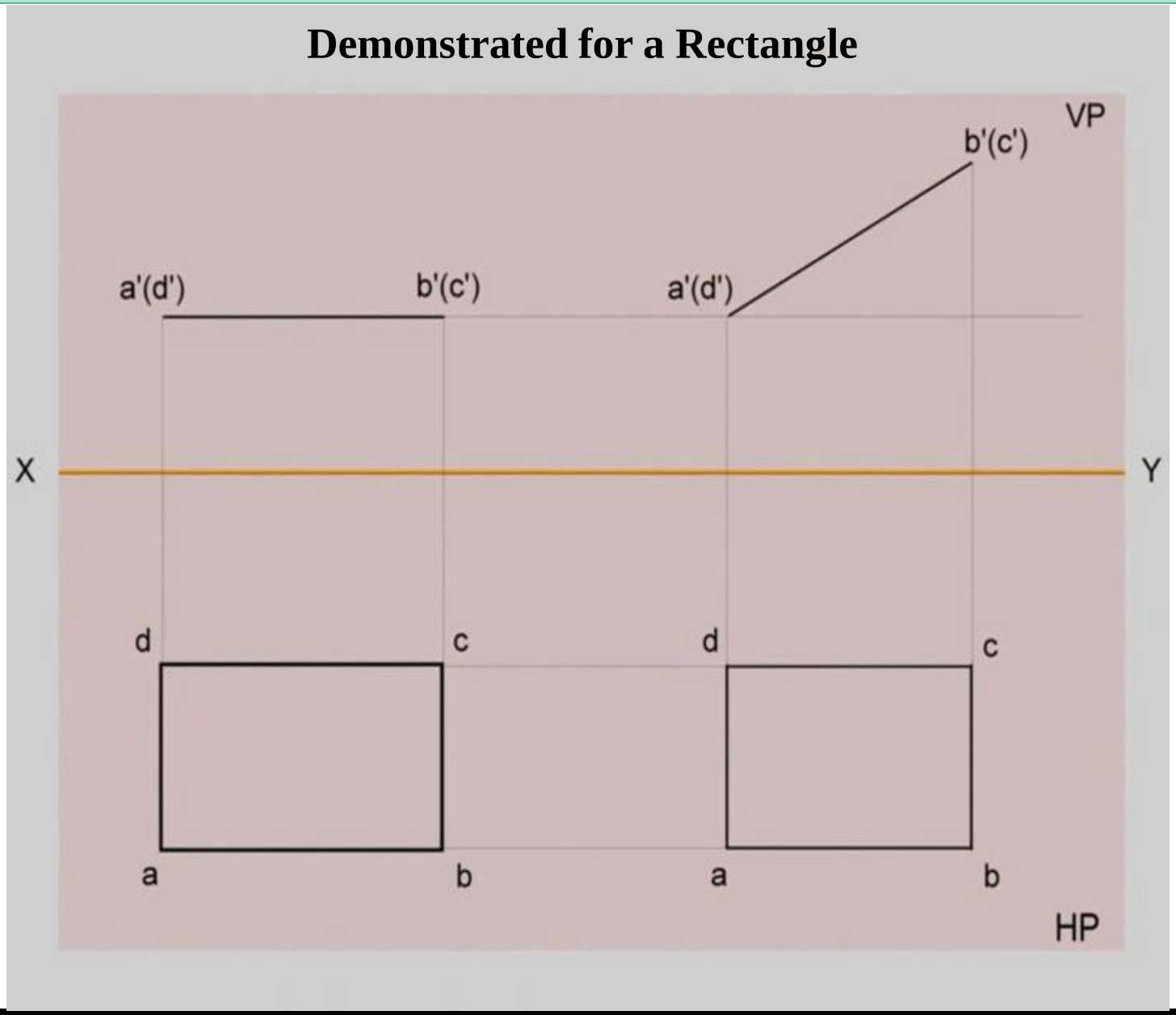
Plane figure parallel to HP and normal to VP

Demonstrated for a Square



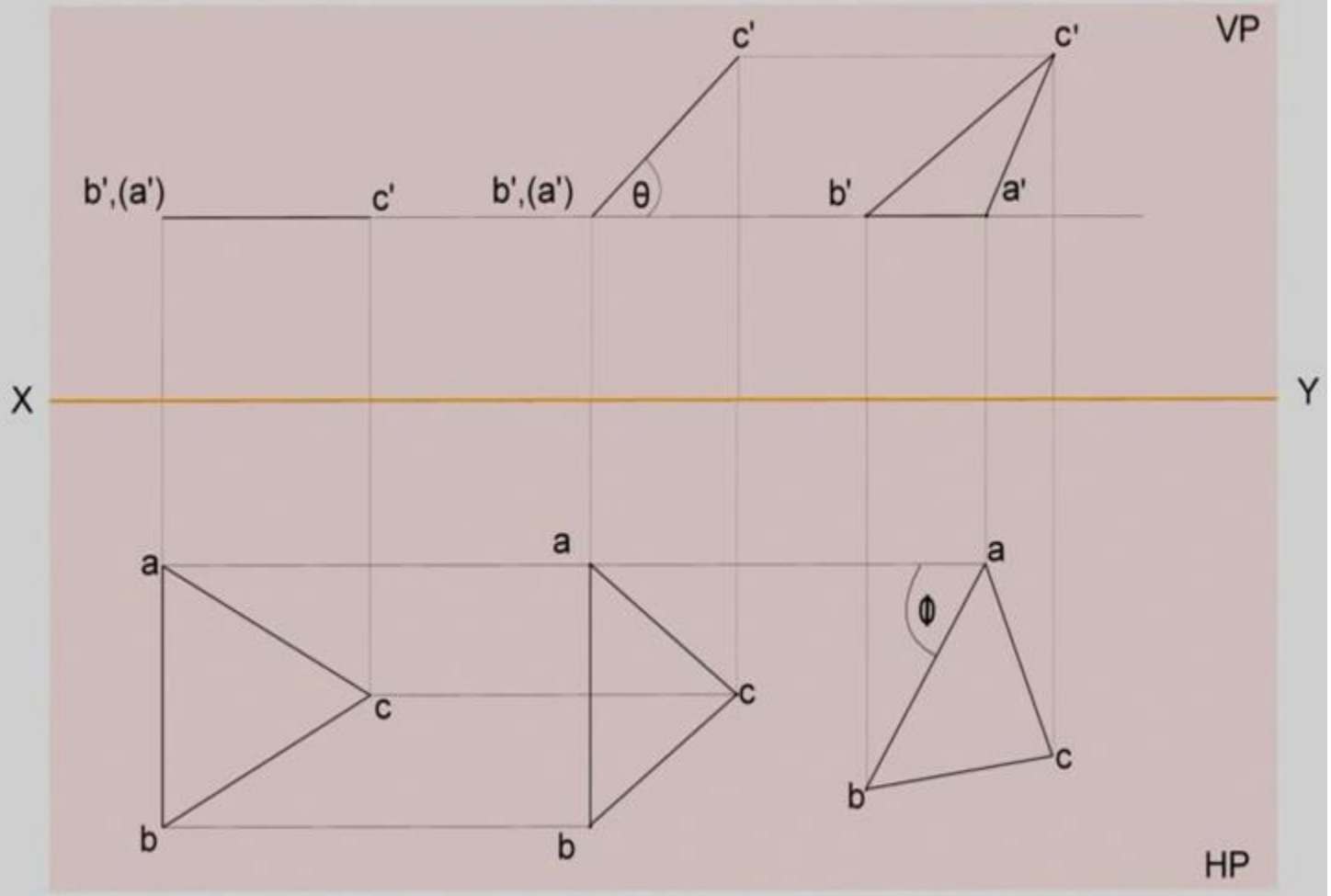
Plane figure at angle to HP and normal to VP

Demonstrated for a Rectangle



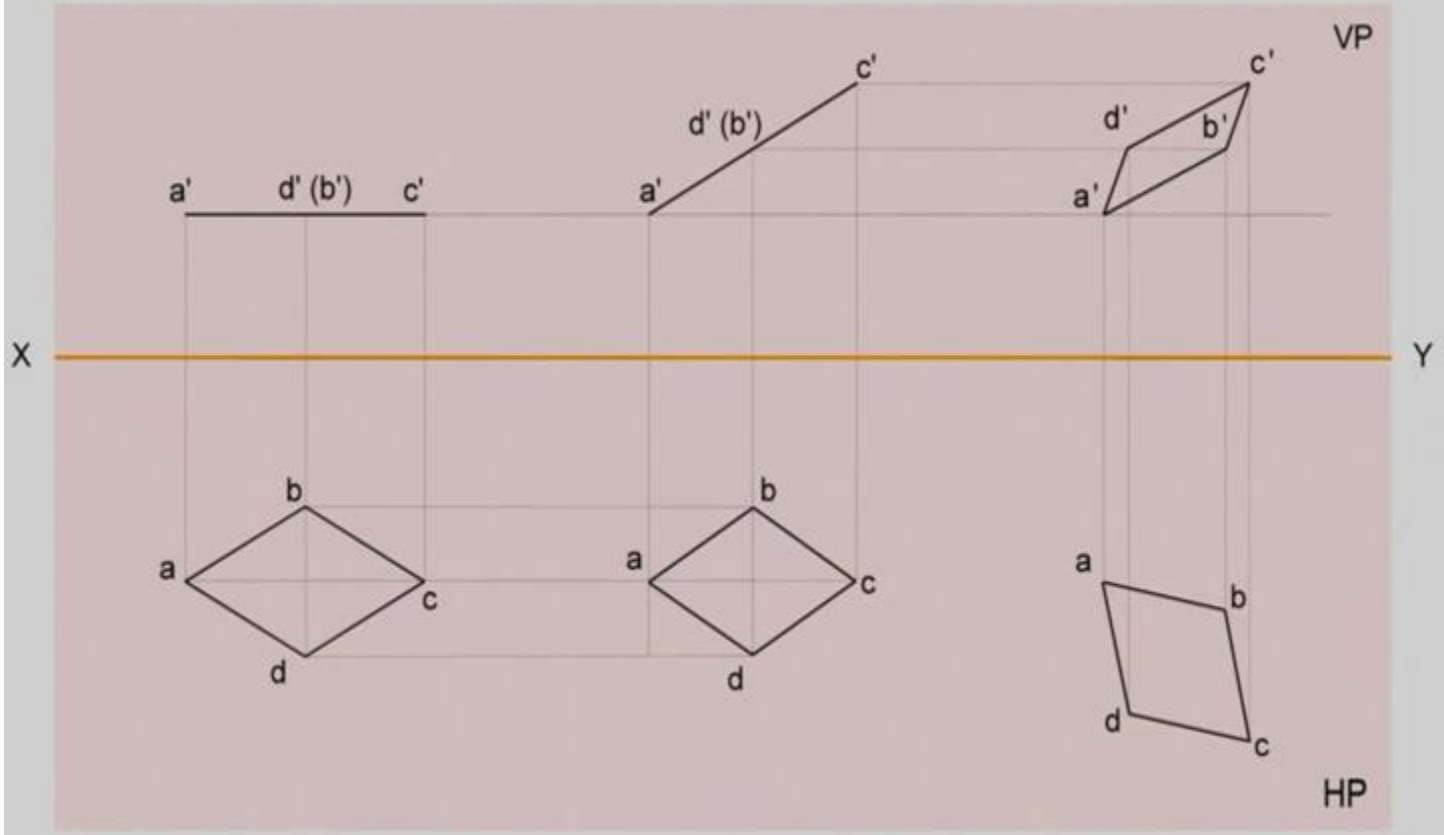
Plane figure at angles to both HP and VP

Demonstrated for a Triangle



Plane figure at angles to both HP and VP

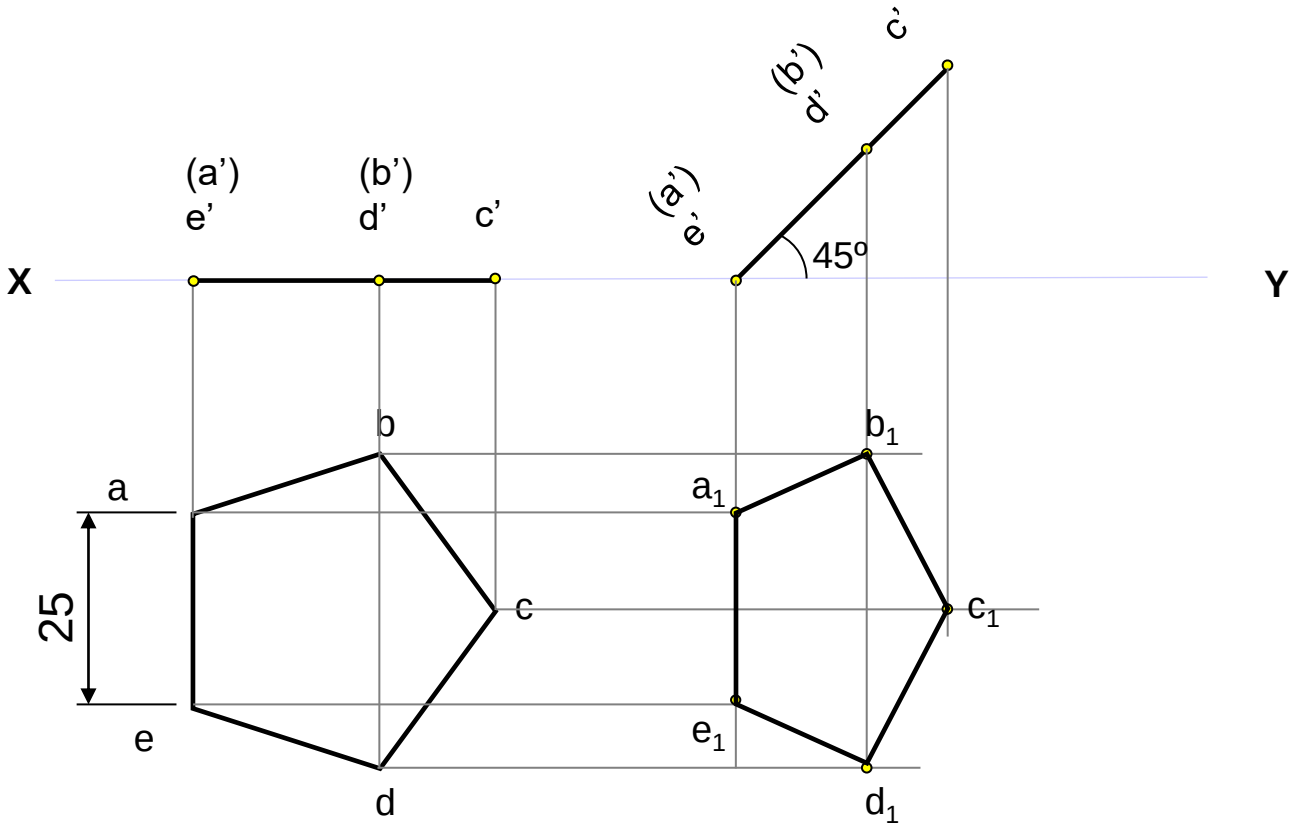
Demonstrated for a Rhombus



Example 1

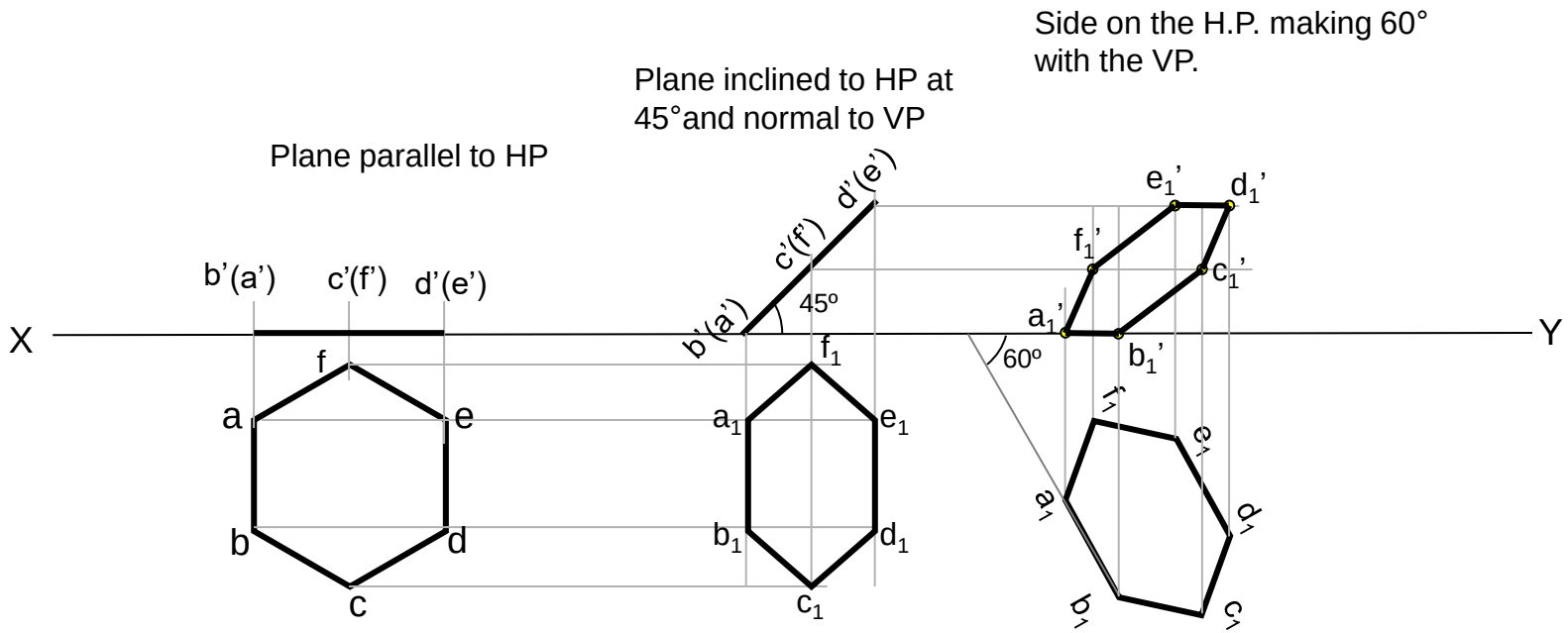
Problem: A *regular* pentagon of 25mm side has one side on the ground. Its plane is inclined at 45º to the HP and perpendicular to the VP. Draw its projections.

Hint: As the plane is inclined to HP, place it with one edge parallel to HP and normal to VP.



Example 2

Problem: Draw the projections of a regular hexagon of 25mm sides, having one of its side in the H.P. and inclined at 60º to the V.P. and its surface making an angle of 45º with the H.P.



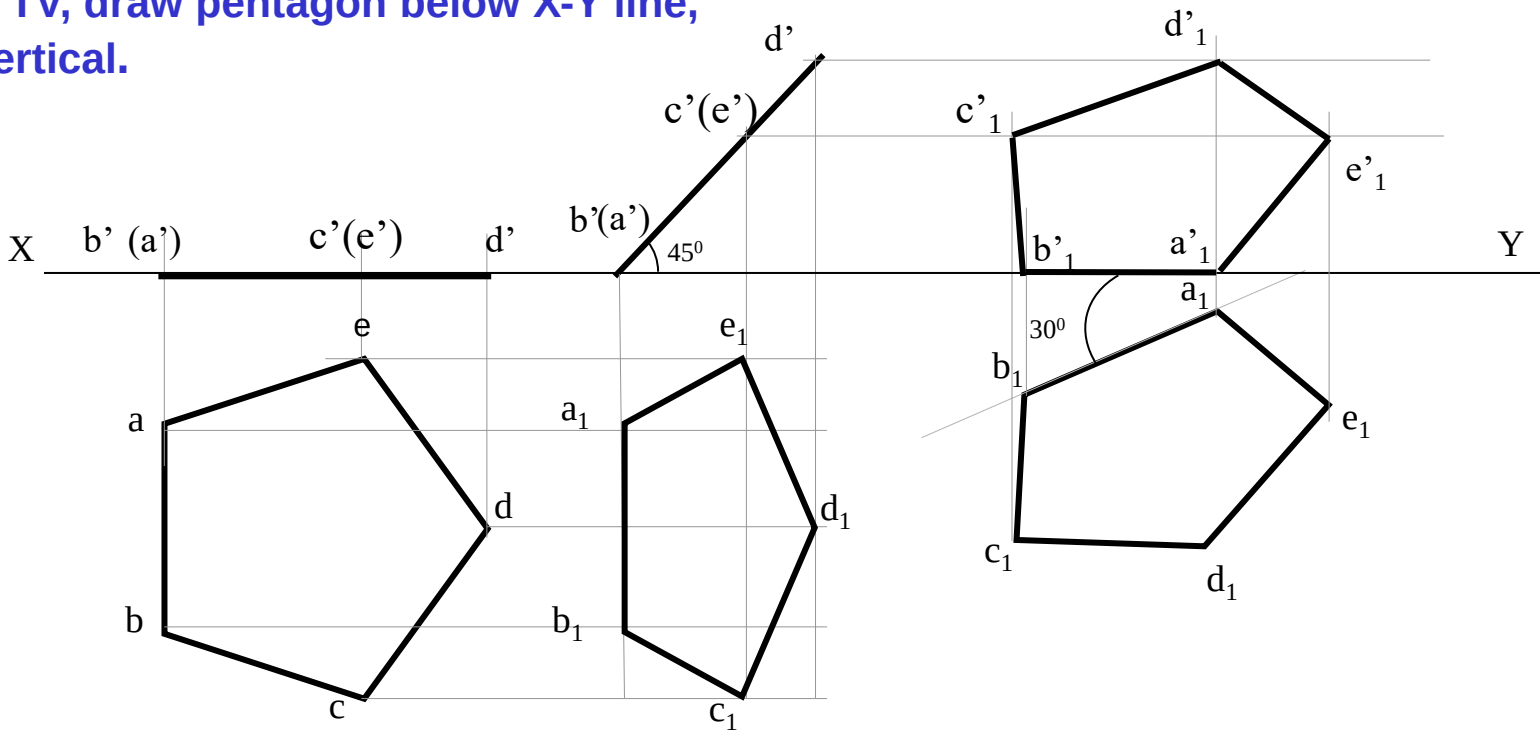
Example 3

Problem: **A pentagonal plane with a 30 mm side rests on HP on an edge such that the surface is inclined at 45^0 to the HP and the edge on which it rests is inclined at 30^0 to the VP. Draw its projections.** **Note: Surface and side inclinations are directly given.**

Answer the following questions:

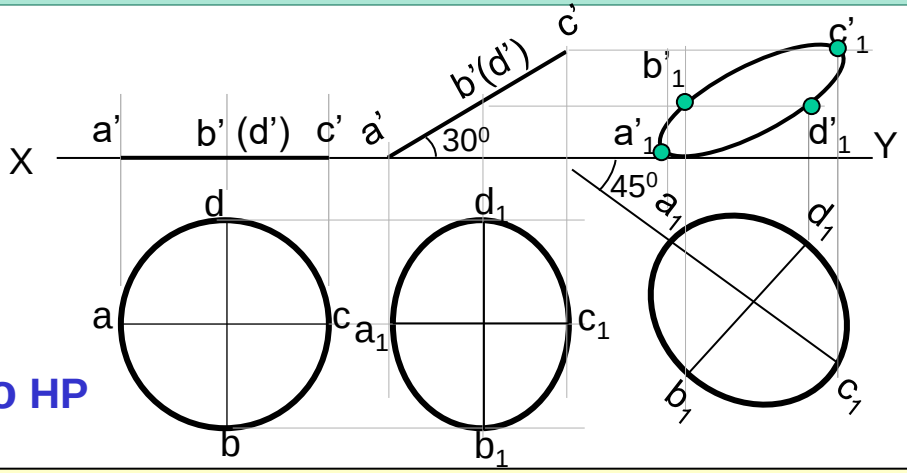
1. To which plane is the surface inclined? **HP**
2. What assumption can be made for the initial position? **Parallel to HP**
3. Which view will show the true shape? **TV**
4. Which side can be vertical? **Any side**

Hence begin with TV, draw pentagon below X-Y line, taking one side vertical.



Example 4

Problem 4A: A circle of 50 mm diameter is resting on HP on end A of its diameter AC which is 30^0 inclined to HP while its TV is 45^0 inclined to VP. Draw its projections.

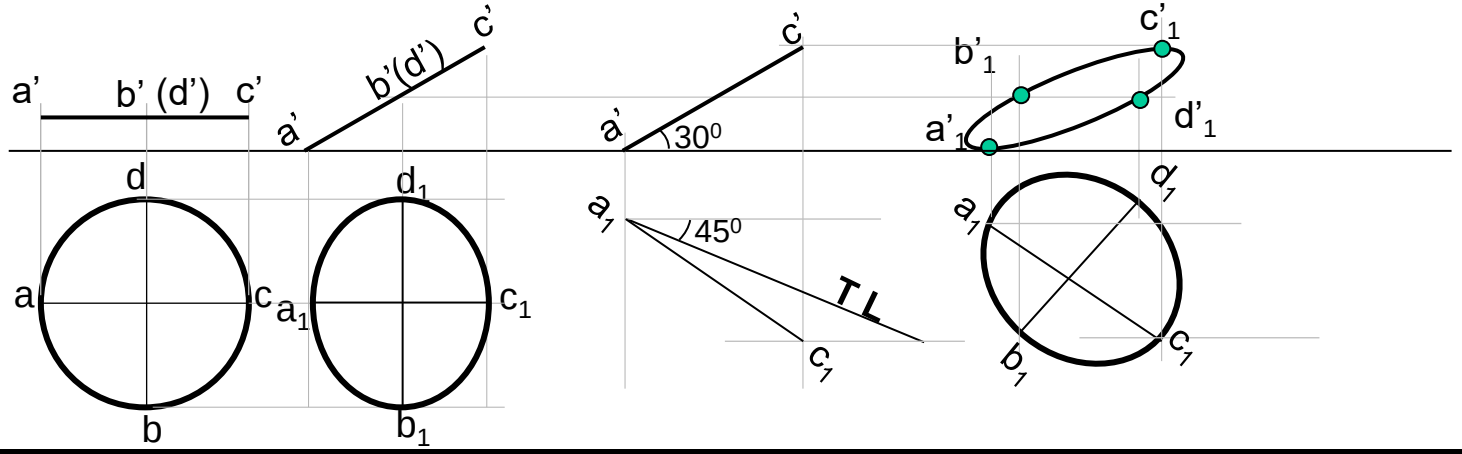


Answer the following questions:

1. To which plane is the surface inclined? **HP**
2. Assumption for the initial position? **Parallel to HP**
3. Which view will show the true shape? **TV**
4. Which diameter is horizontal? **AC**

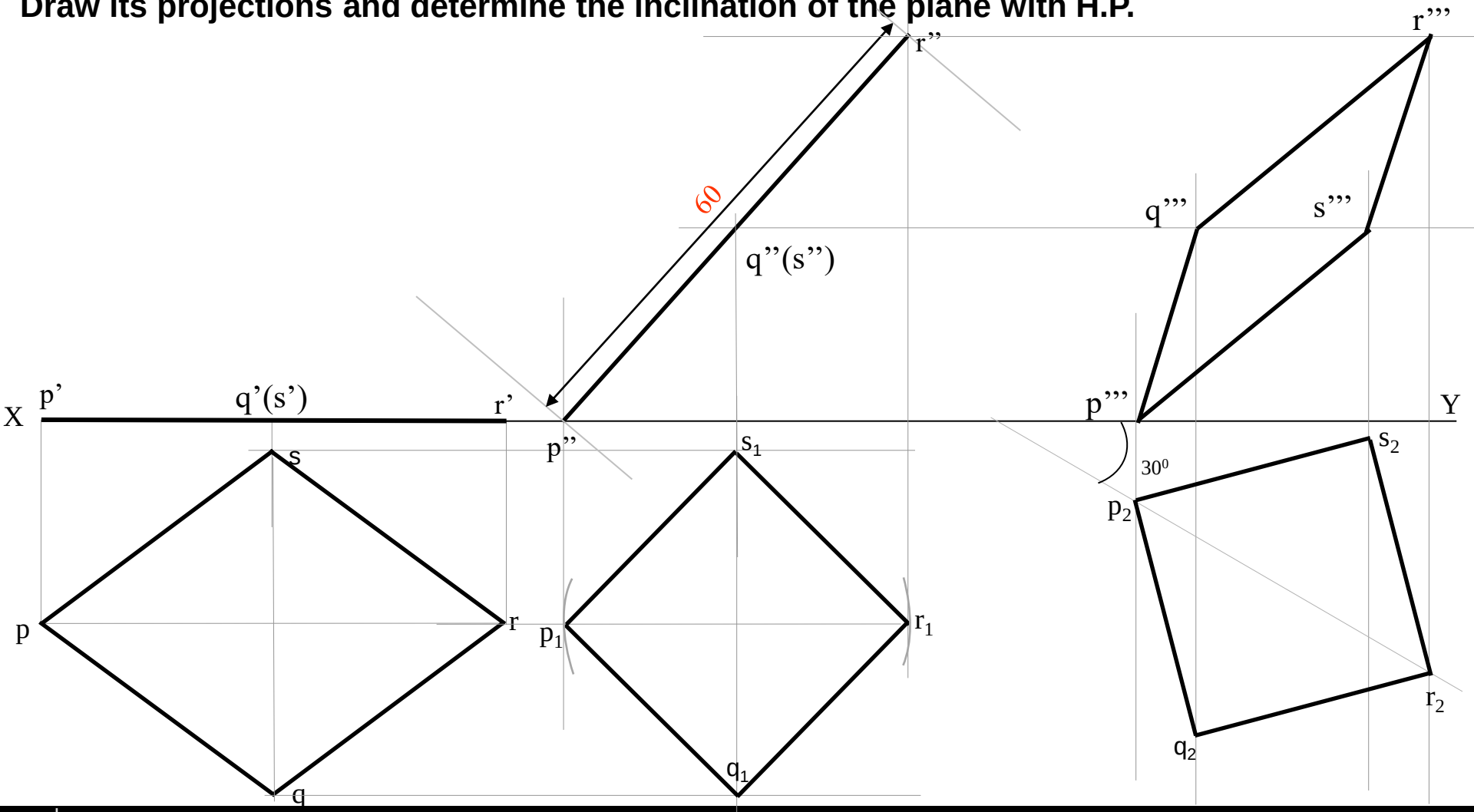
Problem 4B: A circle of 50 mm diameter is resting on HP on end A of its diameter AC which is 30^0 inclined to HP while it makes 45^0 to the VP. Draw its projections.

The difference in these two problems is in step 3 only. In the first problem inclination of TV of that AC is given, It could be drawn directly as shown in 3rd step. *While in the second problem, angle of AC itself (i.e., its TL) is given. Hence, here angle of TL is taken, locus of c_1 is drawn and then LTV i.e., a_1c_1 is marked and final TV is completed. Study illustration carefully.*



Example 5

Problem: ***PQRS*** **is a rhombus having diagonal *PR* = 60 mm and *QS* = 40 mm and these diagonals are perpendicular to each other. The plane of the rhombus is inclined with H.P. such that its top view appears to be square. The top view of *PR* makes 30° with V.P. Draw its projections and determine the inclination of the plane with H.P.**



Thank you