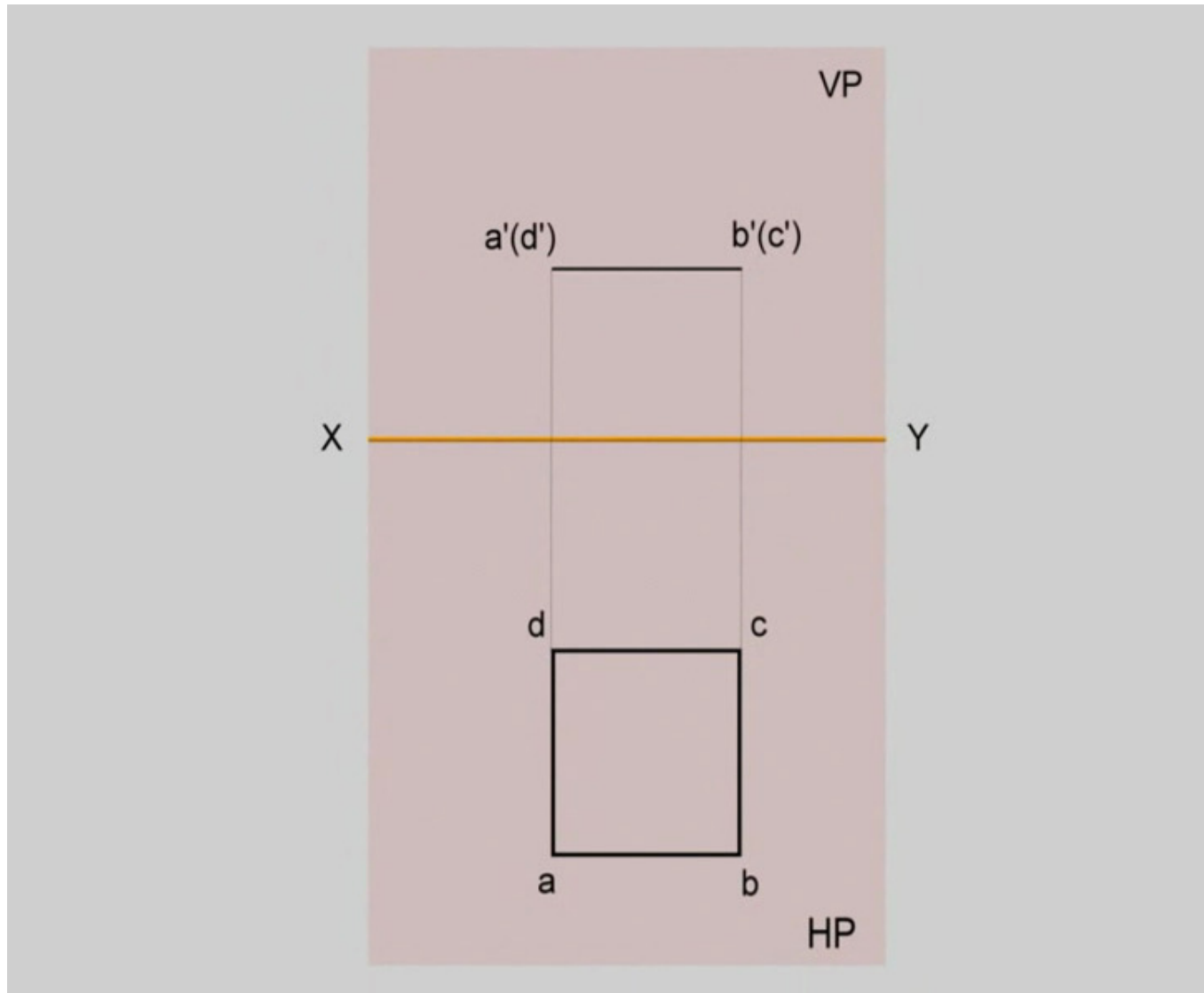# Projection of Planes

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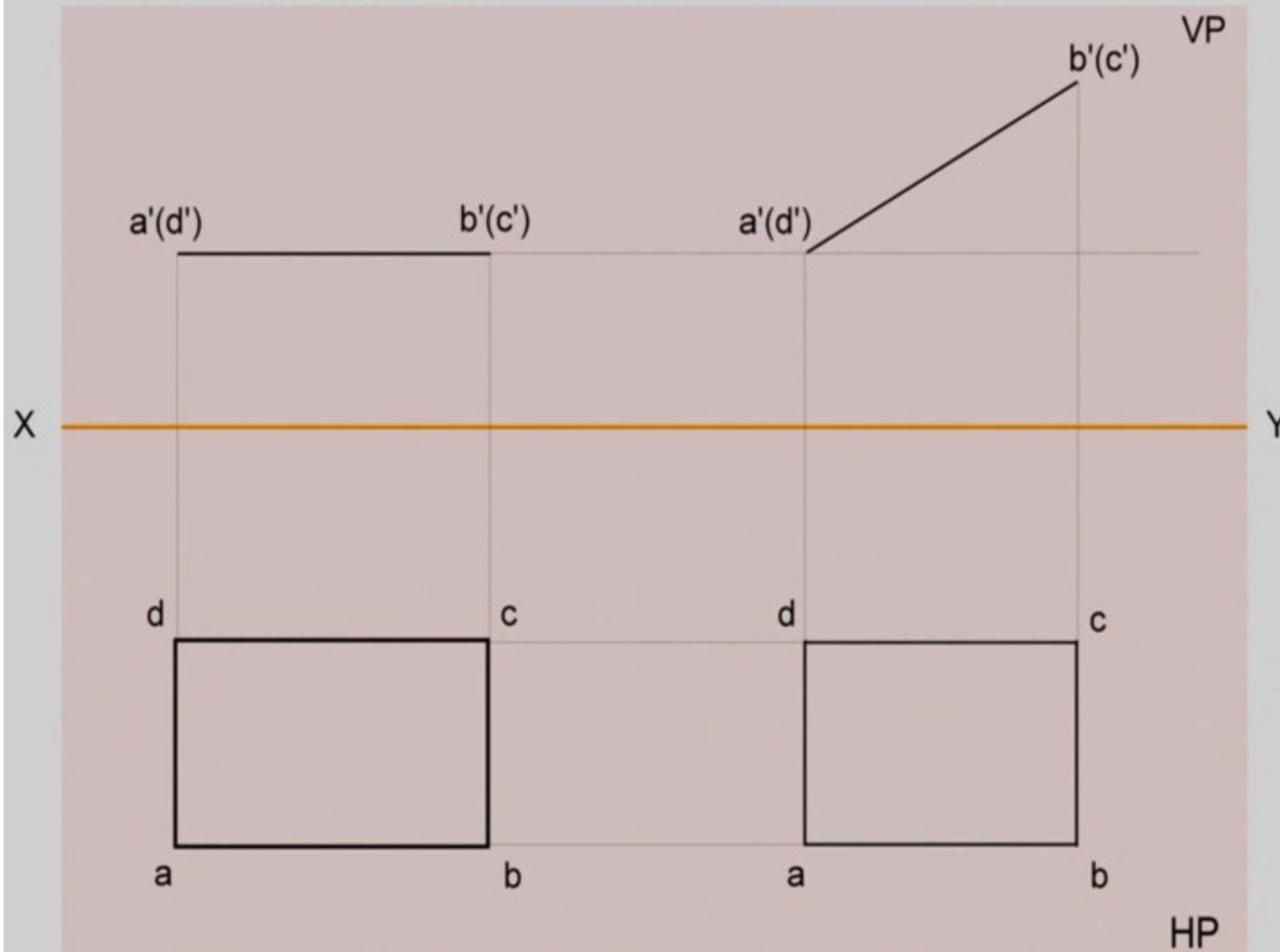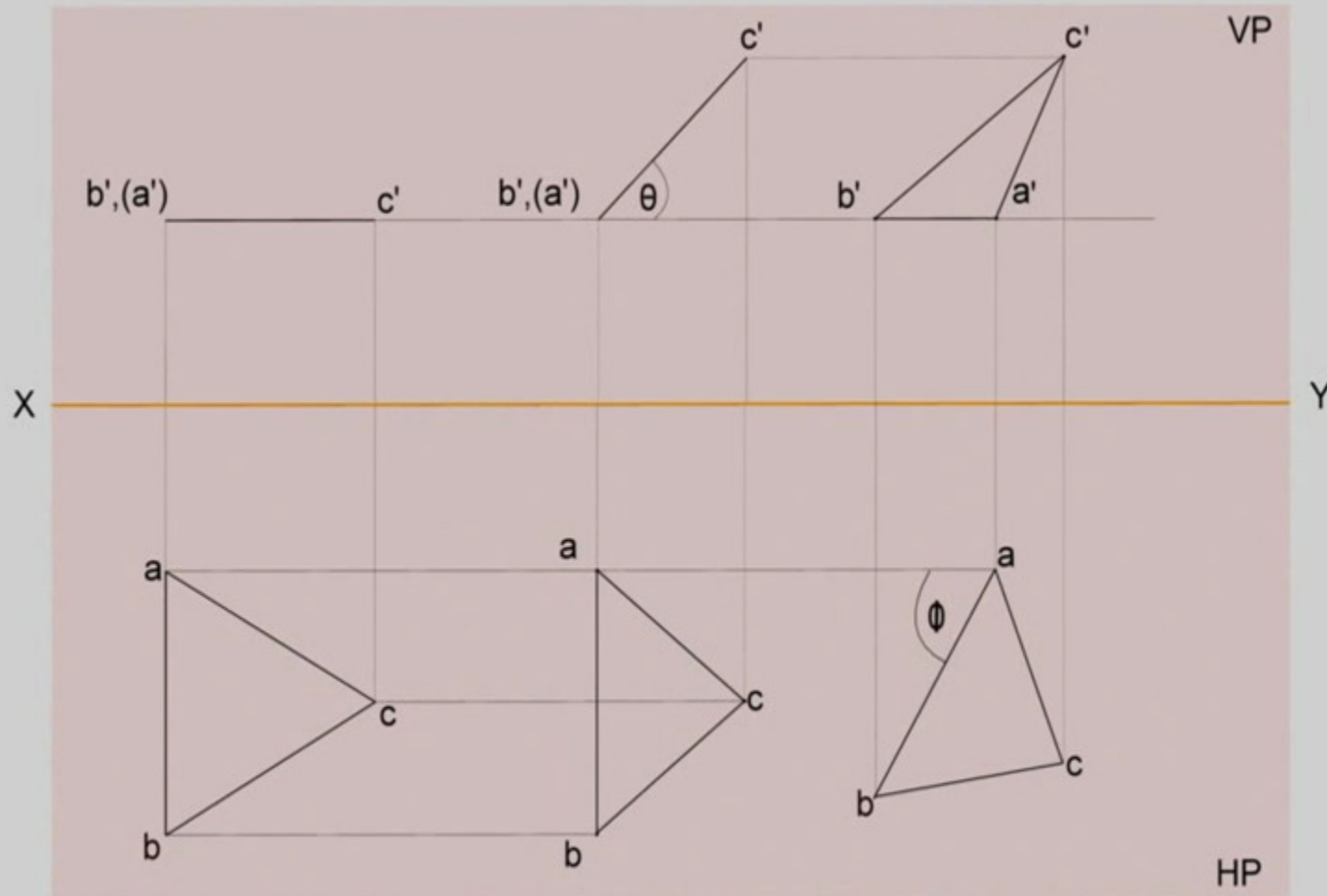
Demonstrated for Square

Plane figure at an angle to HP and ⊥ to VP

Demonstrated for Rectangle

Plane figure at angles to both HP and VP
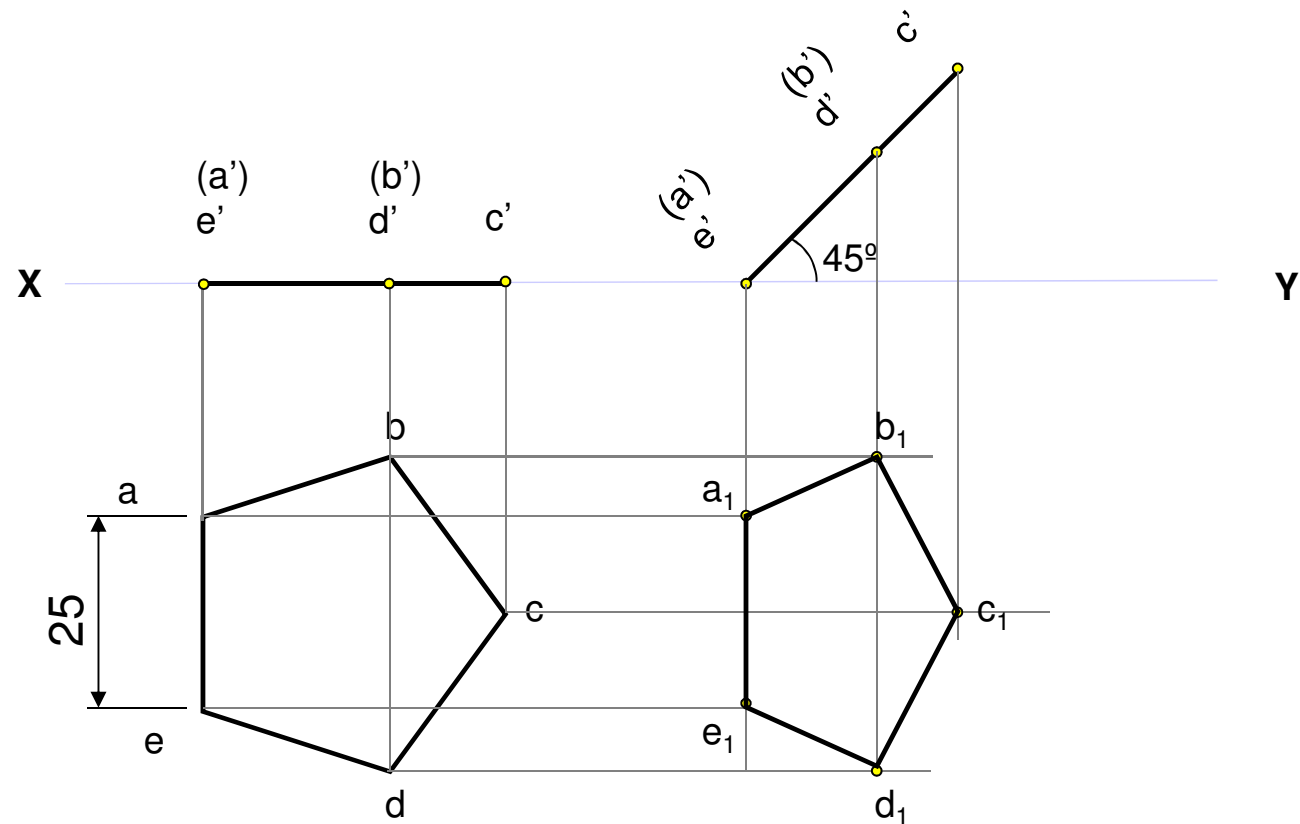
Demonstrated for Triangle
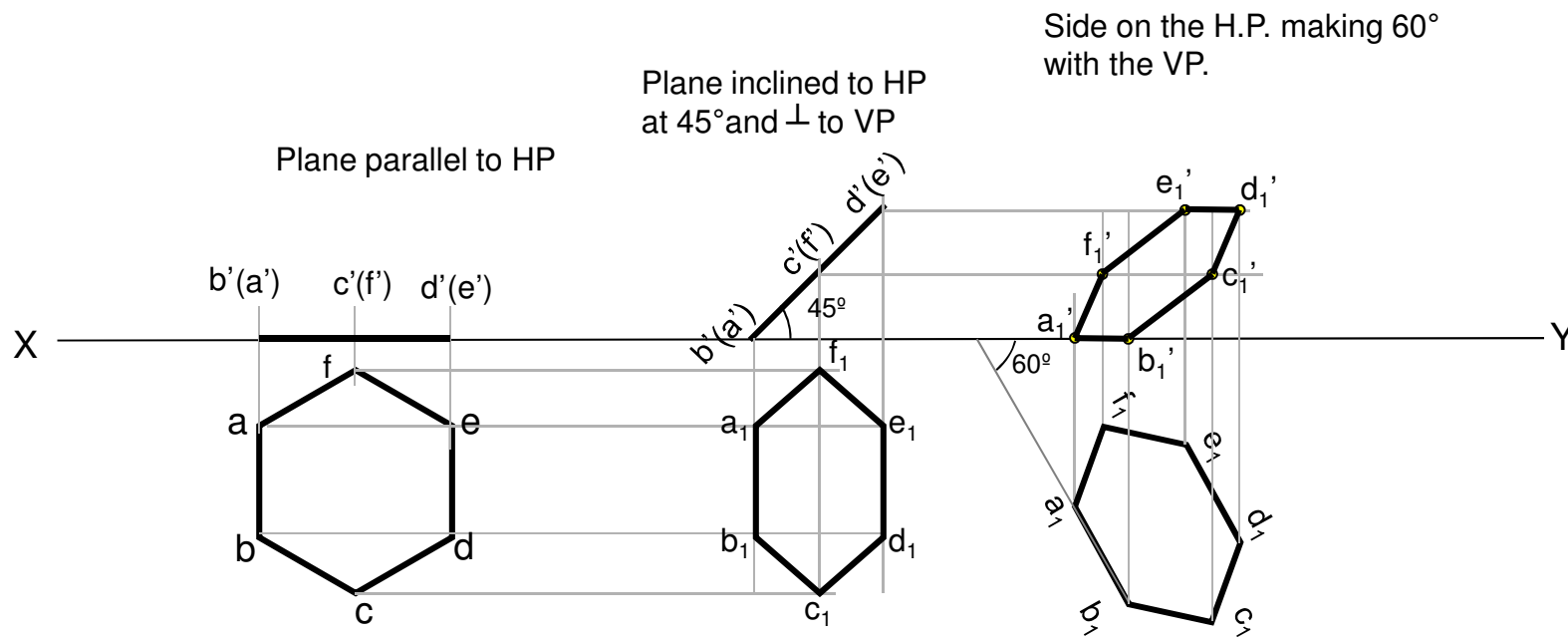
Demonstrated for Rhombus
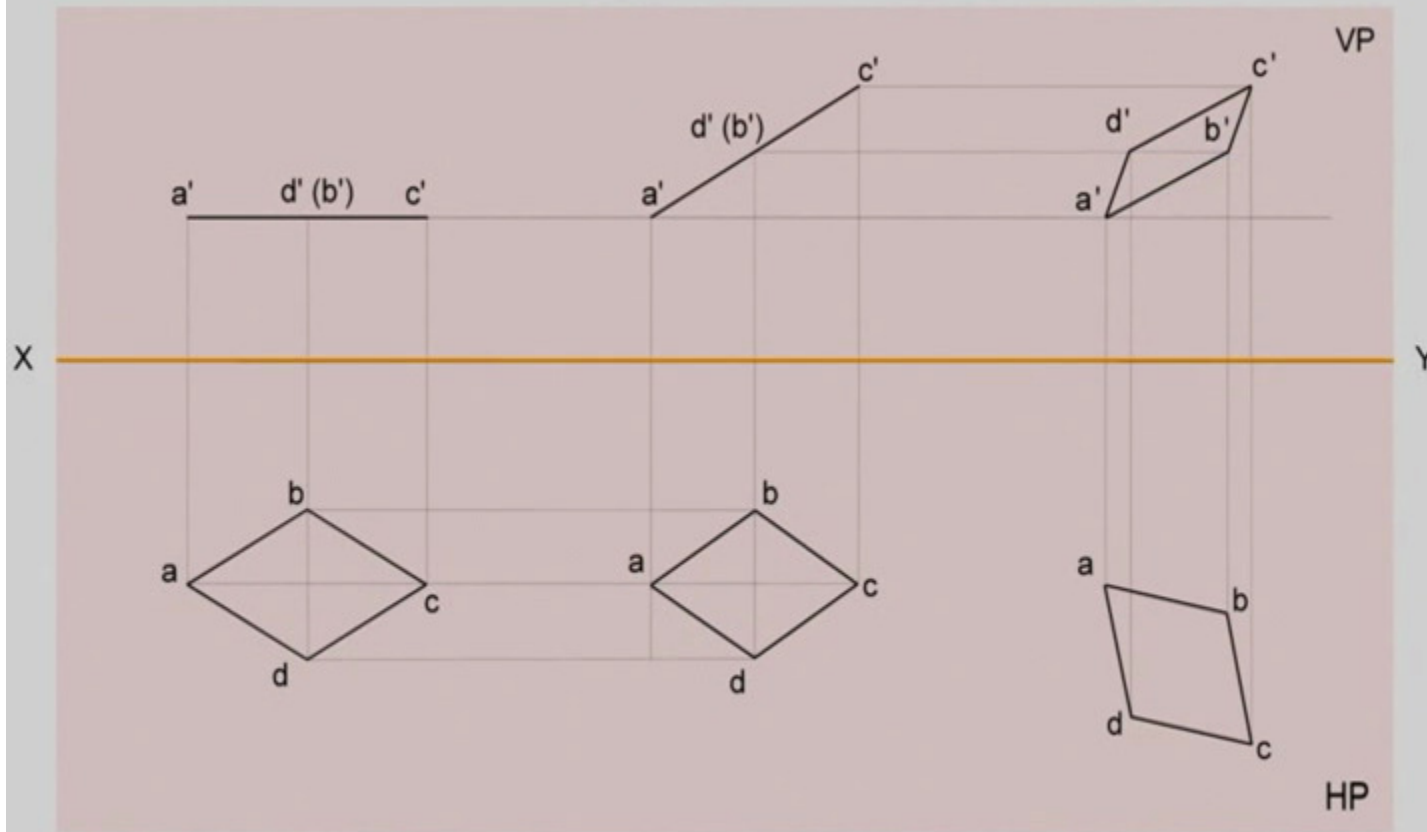
Example 1

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, it should be kept parallel to HP with one edge ⊥ 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.

Plane parallel to HP

Plane inclined to HP at 45°and ⊥ to VP

Side on the H.P. making 60° with the VP.

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**

Hint: SURFACE AND SIDE INCLINATIONS ARE DIRECTLY GIVEN.

Read problem and answer following questions

1. Surface inclined to which plane? ------- *HP*
2. Assumption for initial position? ------ *// to HP*
3. So which view will show True shape? --- *TV*
4. Which side will be vertical? -------- *any side.*
   Hence begin with TV, draw pentagon below X-Y line, taking one side vertical.
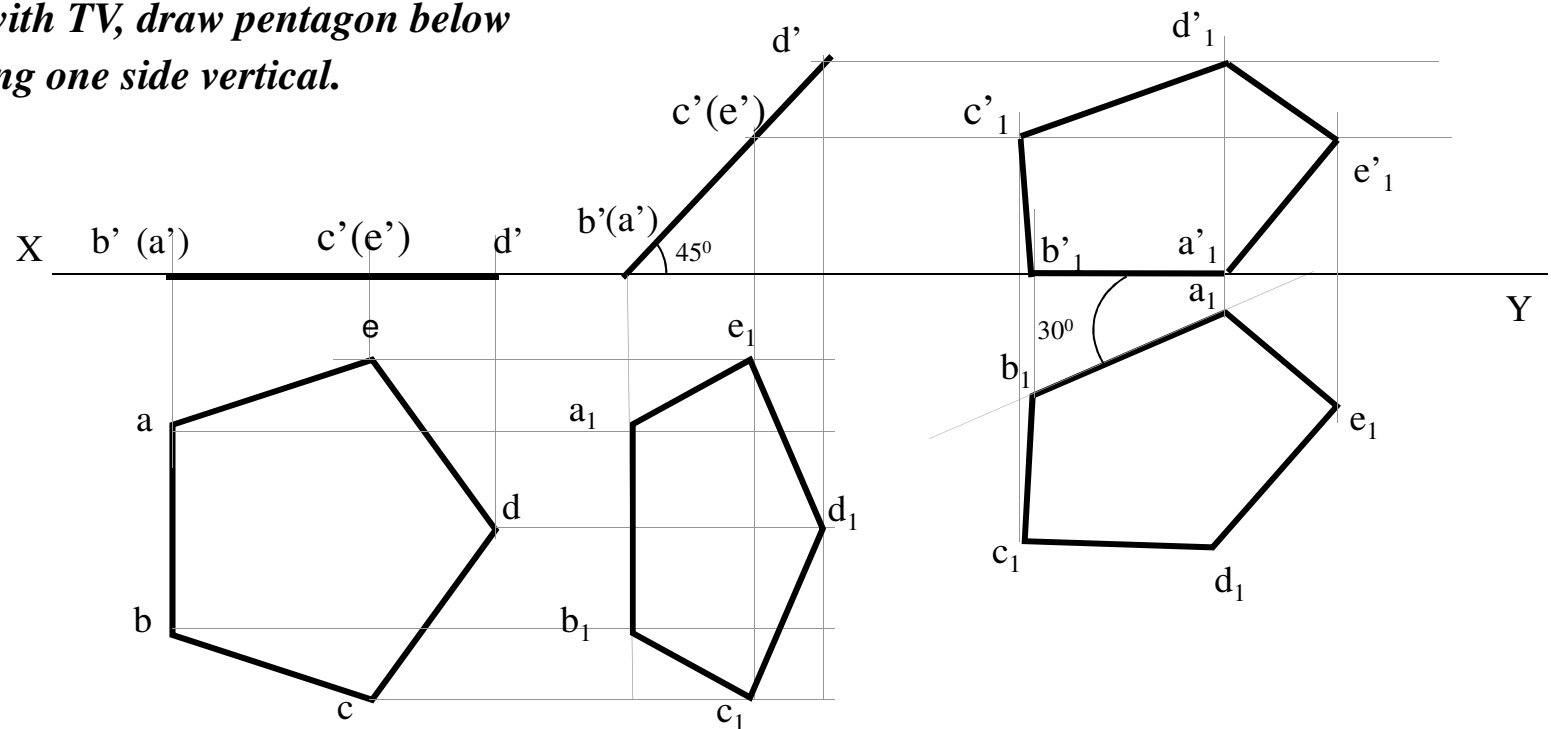
Example 4

Problem: 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.

Read problem and answer following questions
1. Surface inclined to which plane? ------- **HP**
2. Assumption for initial position? ------ **// to HP**
3. So which view will show True shape? --- **TV**
4. Which diameter horizontal? ---------- **AC**

Problem: 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 inclined to Vp. Draw its projections.
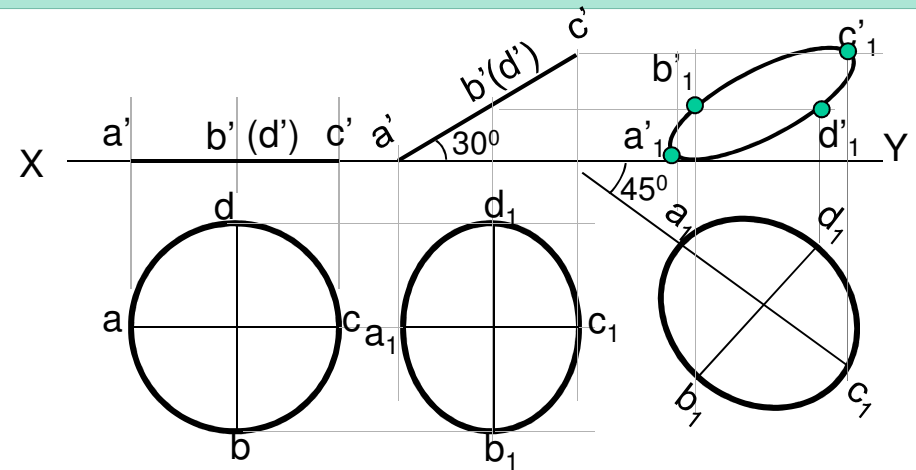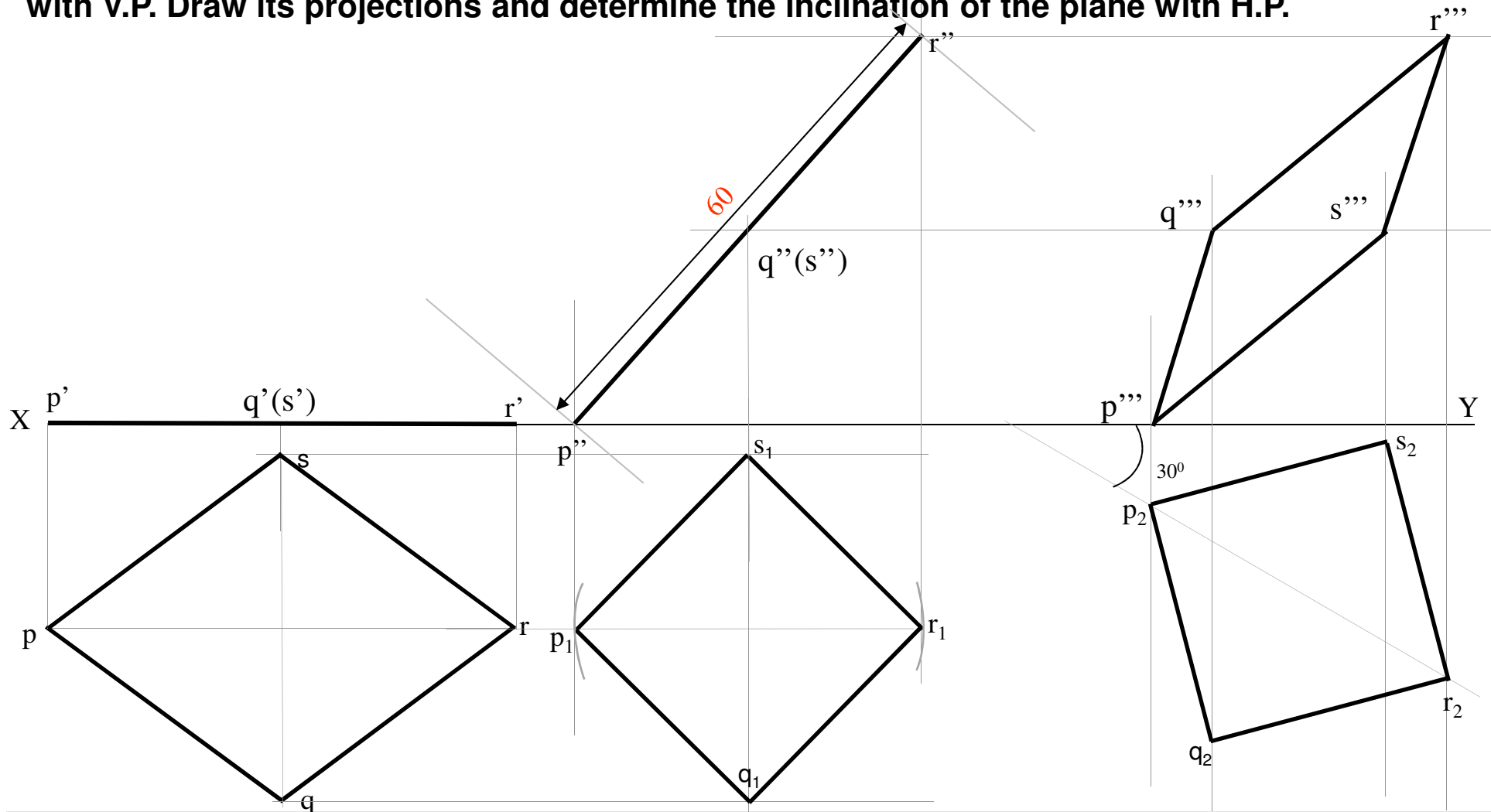
The difference in these two problems is in step 3 only. In the first problem inclination of Tv of that AC is given, It could be drawn directly as shown in 3rd step. *While in the second problem angle of AC itself (i.e. its TL) is given. Hence here angle of TL is taken, locus of c_1 is drawn and then LTV i.e. $a_1 c_1$ is marked and final TV was completed. Study illustration carefully.*
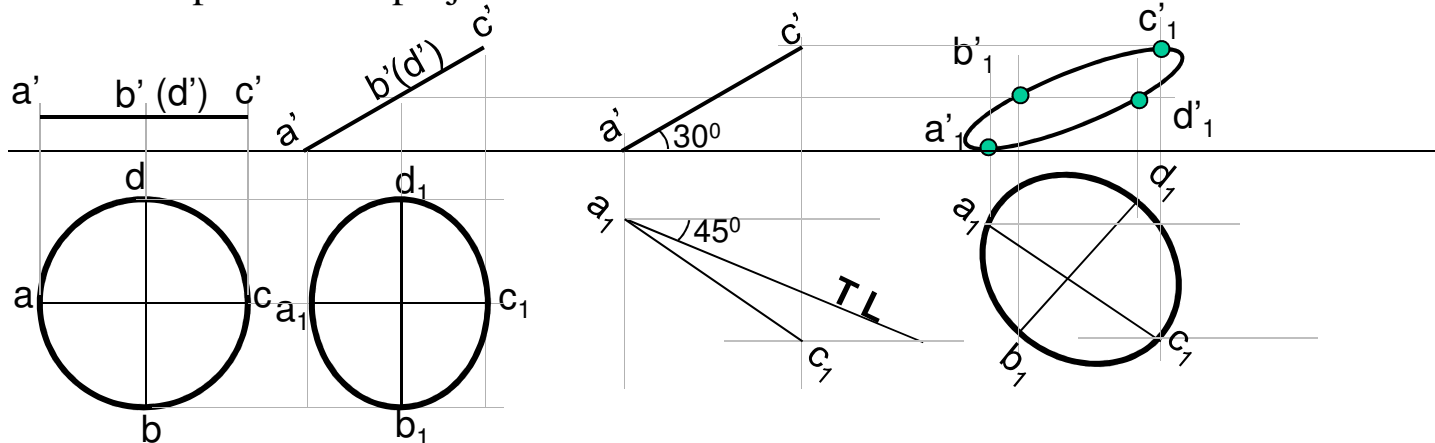
Example 5

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.

X — Y

p'   q'(s')   r'

r"

q"(s")

60

p"

s

p   r

q

p₁   s₁   r₁

q₁

r""

q""   s""

p"""

30⁰

p₂   s₂

r₂

q₂

Thank you