

# Computer Aided Drawing (A8302) Projection of Planes

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# Outline

- 1 INTRODUCTION
- 2 ORIENTATION OF PLANES
- 3 Plane Parallel to H.P.
- 4 Plane Parallel to V.P.
- 5 Plane Perpendicular to both H.P. and V.P.
- 6 Inclined to H.P. and perpendicular to V.P.
- 7 Inclined to H.P. and perpendicular to V.P.

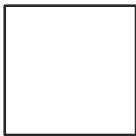


# INTRODUCTION

Two-dimensional objects are called planes.  
Planes have length, breadth and negligible thickness.



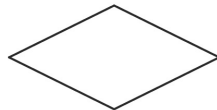
Triangle



Square



Rectangle



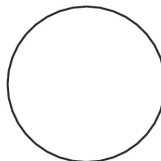
Rhombus



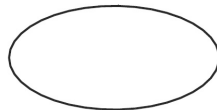
Pentagon



Hexagon



Circle



Ellipse

Figure: Planes

# ORIENTATION OF PLANES

The surface of a plane may be

- 1 Parallel to H.P. (and perpendicular to V.P.)



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# Projection of Planes - I



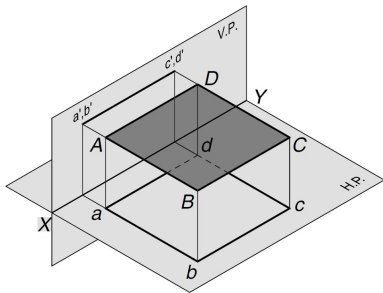
# Plane Parallel to H.P.

1. A square plane ABCD of 30 mm side has its surface parallel to H.P. and 20 mm away from it. Draw its projections of the plane when two of its sides are (i) parallel to V.P., (ii) inclined at  $30^\circ$  to V.P., and (iii) all sides are equally inclined to V.P.



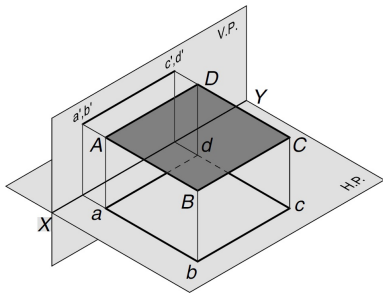
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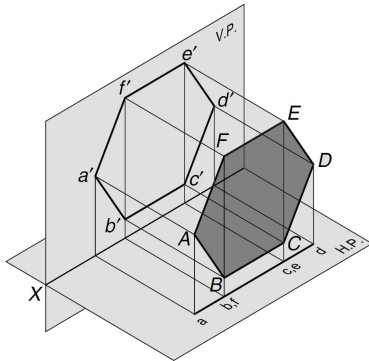
# Plane Parallel to V.P.

2. A hexagonal plane of 25 mm side has its surface parallel to and 20 mm in front of V.P. Draw its projections, when a side is (a) parallel to H.P., (b) perpendicular to H.P., (c) inclined at  $45^\circ$  to H.P.



# Plane Parallel to V.P.

2. A hexagonal plane of 25 mm side has its surface parallel to and 20 mm in front of V.P. Draw its projections, when a side is (a) parallel to H.P., (b) perpendicular to H.P., (c) inclined at  $45^\circ$  to H.P.



# Plane Perpendicular to both H.P. and V.P.

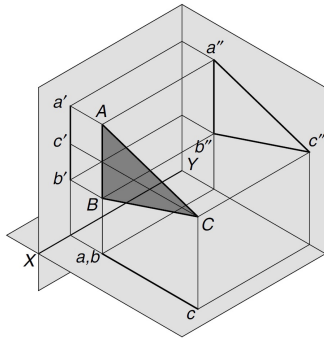
3. A triangular plane is in the form of an isosceles triangle of 30 mm side base and 40 mm long altitude. It is kept in the first quadrant such that the surface is perpendicular to both H.P. and V.P. Draw its projections when the base is parallel to the V.P.





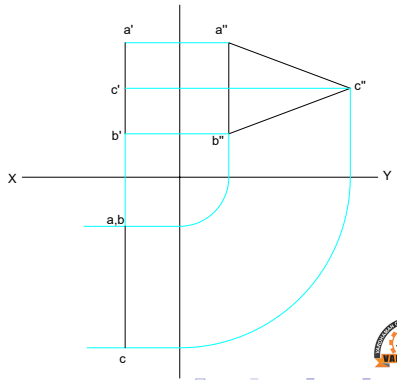
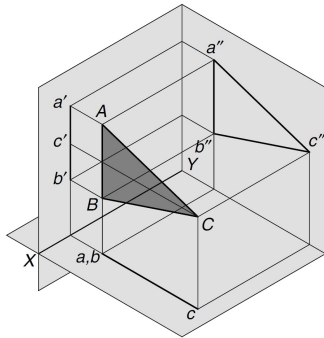
# Plane Perpendicular to both H.P. and V.P.

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## Projection of Planes - II



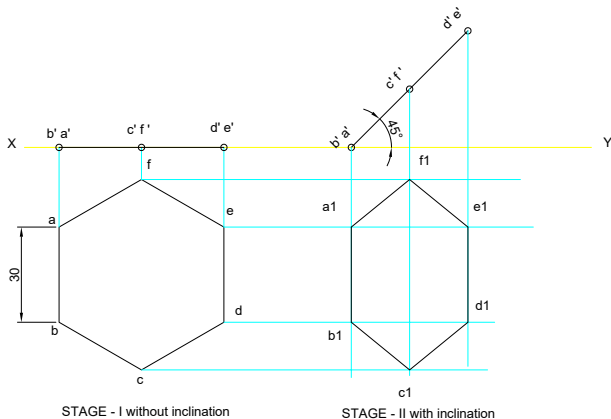
# Inclined to H.P. and perpendicular to V.P.

4. A hexagonal plane of side 30 mm has an edge on the H.P. The surface is inclined at  $45^\circ$  to the H.P. and perpendicular to the V.P. Draw its projections.



# Inclined to H.P. and perpendicular to V.P.

4. A hexagonal plane of side 30 mm has an edge on the H.P. The surface is inclined at  $45^\circ$  to the H.P. and perpendicular to the V.P. Draw its projections.



Note: All dimensions are in "mm"



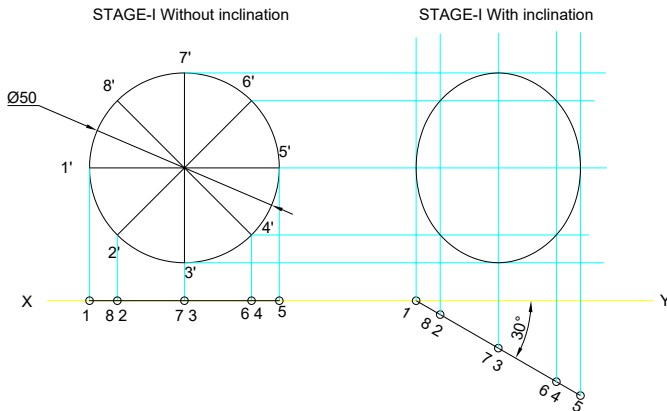
# Inclined to V.P. and perpendicular to H.P.

5. A circular plane of diameter 50 mm is resting on a point of the circumference on the V.P. The plane is inclined at  $30^{\circ}$  to the V.P. and the center is 35 mm above the H.P. Draw its projections.



# Inclined to V.P. and perpendicular to H.P.

5. A circular plane of diameter 50 mm is resting on a point of the circumference on the V.P. The plane is inclined at  $30^\circ$  to the V.P. and the center is 35 mm above the H.P. Draw its projections.



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