

Sheet No. 12 - Section of Solids

1. A pentagonal prism, side of base 50 mm and length 100 mm has a rectangular face on the H.P and the axis parallel to the V.P. It is cut by a vertical section plane, the H.T of which makes an angle of 30° with xy and bisects the axis. Draw the section front view, top view and true shape of the section.
2. A cylinder, 65 mm diameter and 90 mm long has its axis parallel to the H.P and inclined at 30° to the V.P. It is cut by a vertical plane in such a way that the true shape of the section is an ellipse having the major axis 75 mm long. Draw its sectional front view and true shape of the section.
3. A cube of 65 mm long edges has its vertical faces equally inclined to the V.P. It is cut by a section plane, perpendicular to the V.P, so that the true shape of the section is a regular hexagon. Determine the inclination of the cutting plane with the H.P and draw the sectional top view and true shape of the section.
4. A vertical hollow cylinder, outside diameter 60 mm, length 85 mm and thickness 9 mm is cut by two section planes which are normal to the V.P. and which intersects each other at the top end of the axis. The planes cuts the cylinder on opposite sides of the axis and are inclined at 30° and 45° respectively to it. Draw the front view, sectional top view and auxiliary sectional top views on planes parallel to the respective section planes.
5. A pentagonal pyramid, base 30 mm side and axis 75 mm long, has its base horizontal and an edge of the base parallel to the V.P. It is cut by a section plane, perpendicular to the V.P. inclined at 60° to the H.P. and bisecting the axis. Draw the front view, top view and sectional top view.
6. A hexagonal pyramid, base 50 mm side and axis 100 mm long, is lying on the H.P. on one of its triangular faces with the axis parallel to the V.P. A vertical section plane the H.T of which makes an angle of 30° with the reference line passes through the centre of the base and cuts the pyramid, the apex being retained. Draw top view, sectional front view, and true shape of the section.
7. A cone based 75mm diameter and axis 75mm long has its axis parallel to V.P and inclined at 45° to the H.P. A horizontal section plane cuts the cone through the mid-point of the axis. Draw the front view, sectional top view and an auxiliary top view on a plane parallel to the axis.
8. A cone, base 75 mm diameter and axis 100 mm long, has its base on the H.P. A section plane, parallel to one of the end generators and perpendicular to the V.P., cuts the cone intersecting the axis at a point 75 mm from the base. Draw the sectional top view and project another top view on a plane parallel to the section plane, showing the shape of the section clearly.