



(b) A point P moves in such a way that its distance from a fixed straight line is 9 units while its distance from a fixed point is always 7 units. Draw the curve by choosing at least 10 points. Assume that the distance between the fixed straight line is 30 mm from that the fixed point.

2. (a) The end P of a line PQ is 30 mm above HP and 35 mm in front of VP. The line is inclined at  $35^\circ$  to the HP. Its top view is 70 mm long and inclined at  $40^\circ$  to XY. Draw the projections of the straight line. Locate the traces. Find the true length and inclination of the line with the VP.

Or

(b) A hexagonal plate of side 20 mm rests on the HP on one of its sides inclined at  $45^\circ$  to the VP. The surface of the plate makes an angle of  $30^\circ$  with the HP. Draw the front and top views of the plate.

3. (a) A cylinder of diameter 30 mm and axis length 50 mm is resting on the HP on a point so that its axis is inclined at  $45^\circ$  to the HP and parallel to the VP. Draw its top and front views.

Or

(b) A square pyramid of base side 60 mm and altitude 100 mm lies on the HP on one of its triangular faces with its axis parallel to the VP. Draw its projections.

4. (a) A pentagonal pyramid of base side 20 mm and altitude 45 mm rests on its base on the HP with an edge of the base perpendicular to the VP. It is cut by a plane perpendicular to both the HP and VP. The cutting plane cuts the object at 8 mm from the axis in the top view. Draw the front, top and right end views of the pyramid.

Or

(b) A hexagonal prism of base edge 25 mm and height 60 mm rests on one of its ends on the HP with a vertical face parallel to the VP. A horizontal hole of diameter 36 mm is drilled centrally right through the prism with its axis perpendicular to the VP. Draw the development of the lateral surfaces of the prism with the hole.

5. (a) Draw the isometric view of a frustum of a cone of height 30 mm, base diameter 34 mm, top diameter 20 mm when it is centrally placed over a square slab of side 50 mm and thickness 10 mm.

Or

(b) A square prism of base  $25 \times 25$  mm and height 40 mm rests on the GP on one of its ends with a rectangular face receding away from the PP towards right making  $60^\circ$  with PP. The corner nearest to the PP is 40 mm to the left of the station point and 20 mm behind the PP. The station point is 60 mm above the GP and 50 mm in front of the PP. Draw the perspective view of the prism by visual ray method. Use the top view and the front view.