

1. (a) Construct an ellipse when the distance of its focus from its directrix is equal to 50 mm and the eccentricity is $\frac{2}{3}$. Also draw a tangent and a normal to the ellipse.

Or

(b) Make free hand sketches of the front, top and left side view of the object shown in Fig. Q 1(b).

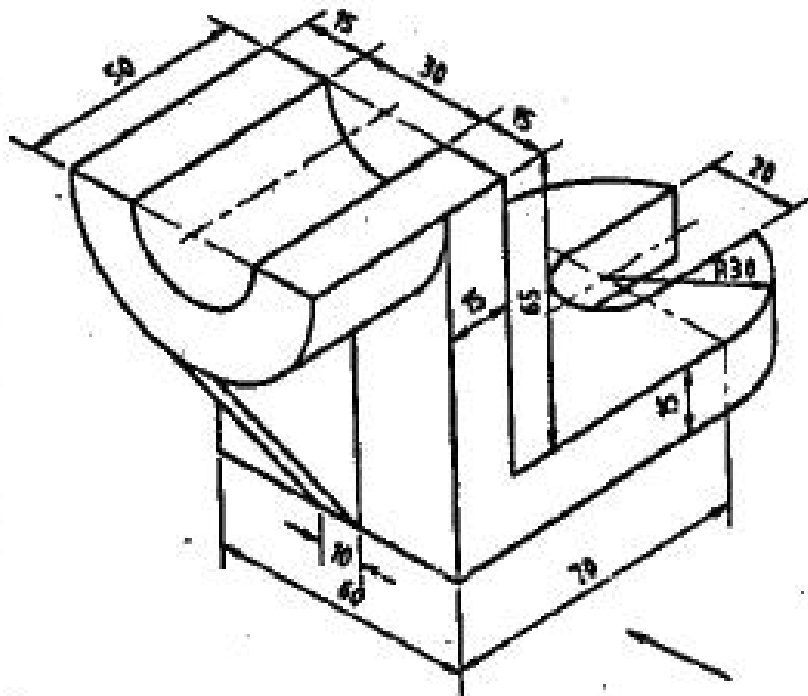


Fig. Q 1(b)

2. (a) A Line AB has its end A 15 mm above H.P and 20 mm in front of V.P. The end B is 60 mm above H.P. and the line is inclined at 30° to H.P. The distance between the end projectors of the line is 55 mm. Draw the projections and find its inclination with V.P.

Or

(b) A regular hexagonal lamina of 40 mm side is resting on one of its corner on H.P. Its surface is inclined at 45° to H.P. The plan of the diagonal through the corner which is on H.P. makes an angle of 45° with XY. Draw its projections.

3. (a) A hexagonal prism of side of base 25 mm and axis 60 mm rests on a corner of its base in H.P. with the axis of the prism inclined at 40° to H.P. and parallel to V.P. Draw its projections.

Or

(b) A pentagonal pyramid of base edge 25 mm and axis length 60 mm rests on one base side on HP such that the highest base corner is 20 mm above HP. Its axis is parallel to VP. Draw its top and front views.

4. (a) A tetrahedron of 60 mm long edges rests with one of its face on H.P. and an edge is perpendicular to V.P. A section plane perpendicular to V.P cuts the tetrahedron such that the true shape of section is an isosceles triangle of



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base 50 mm and altitude 36 mm. Draw the front view, sectional top view and the true shape of the section. Also find the inclination of the section plane.

Or

(b) A vertical cylinder of diameter 50 mm and height 80 mm is drilled by a hole of diameter 30 mm such that the axis of the hole is perpendicular to V.P. and parallel to H.P. Draw the lateral surface development of the solid.

5. (a) A hexagonal prism of base edge, 20 mm and height 60 mm rests on the H.P. on its base with two of its rectangular faces parallel to V.P. It is cut by a plane inclined at 30° to H.P cutting the axis of the prism at a height of 45 mm from its base. Draw the isometric view of the truncated prism.

Or

(b) A square prism of 55 mm edge of base and 70 mm height is placed on the ground behind the PP with its axis vertical and one of the edges of the base receding to the left at an angle of 40° to the PP. The nearest vertical edge of the solid is 20 mm behind PP and 25 mm to the left of the observer who is at a distance of 120 mm in front of PP. The height of the observer above the ground is 100 mm. Draw the perspective view of the prism.