TA 101 : Engineering Graphics 2019-20 I
Laboratory Assignment No.8
Lines and Planes

Instructions: In each drawing label each point appropriately and retain the projection lines. Each division of grid is 10X10 sq mm

Problem:

1. OP is the base of an equilateral triangle whose altitude constitutes a frontal line. Complete the top and front views of the triangle in Figure 8.1.
2. In Figure 8.2 AB and XY are the centre lines of two air ducts, whose front and top views are shown. These centre lines intersect at a point Z. Complete the top and front views of XYZ and determine the true length of BZ.
3. Draw the edge view of the plane RSP by projecting parallel to a horizontal line on RSP in FIG 8.3.
4. In Figure 8.4 Show the true size of each of the interior angles of the triangle ABC.
5. Draw the normal view of the distance from the point P to the plane ABC for Figure 8.5.
6. In Figure 8.6 find the line of intersection between the planes of the triangles MNO and RST.

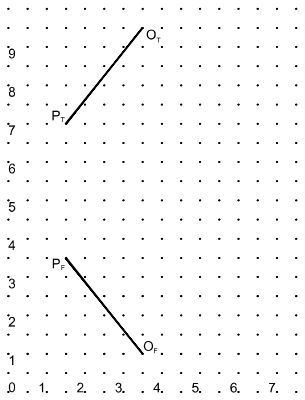

Fig 8.1

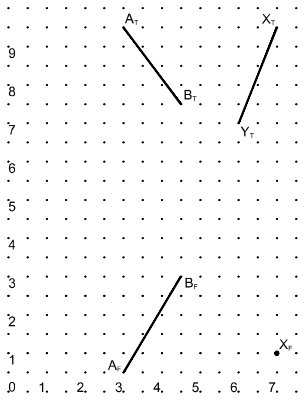

Fig 8.2

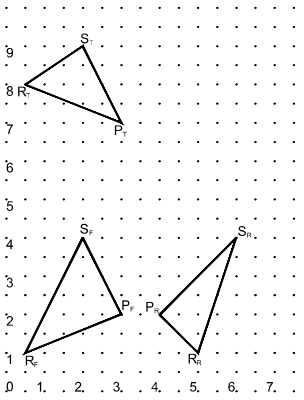

Fig 8.3

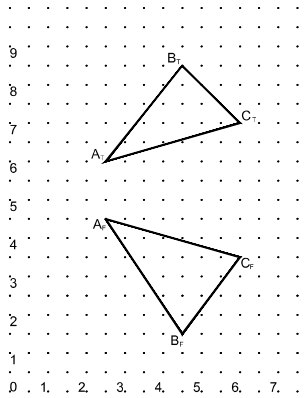

Fig 8.4

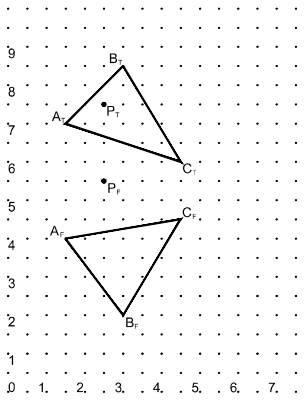

Fig 8.5

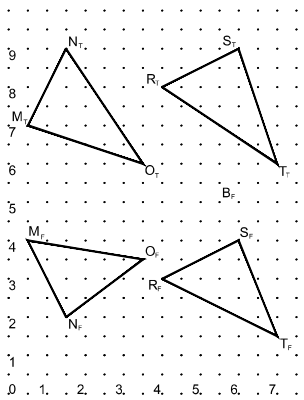

Fig 8.6

TA 101 : Engineering Graphics 2019-20
Laboratory Assignment No. 9
Relation between Lines and Planes

Instructions: Choose the front face of the oblique view carefully.

Problem:

1. Planes ABC and RST are parallel. Complete the top and front view of ABC
   R_t (1,8); S_H (2, 9.5); T_H (3.5, 7.5); A_H (5.5, 8); B_H (4,8.5); C_H (6,9.5)
   R_f (1, 4); S_f (2, 2.5); T_f (3.5, 5.5); A_f (5.5,3)

2. Plane XYZ is perpendicular to Plane ABC. Complete the front view of the plane XYZ.
   A_t (4.5,8); B_H (6, 9); C_H (7, 6.5); X_H (1, 8); Y_H (2.5, 9.5); Z_H (3.5, 8.5)
   A_f (4.5, 3); B_f (6, 5.5); C_f (7,2.5); X_f (1,4); Y_f (2.5, 3.5)

3. Find the angle between planes RSTU and STVW
   R_H (0.5,9); S_H (1.5,9); T_H (3, 7.5); U_H (2, 7.5); V_H (2.5, 9.5); W_H (4,8)
   R_f (0.5,4.5); S_f (1.5, 4); T_f (3, 2); U_f (2, 2.5); V_f (2.5, 5); W_f (4, 3)

4. Draw the front, top and any other necessary views of the shortest horizontal line between Lines AB and CD
   A_H (0.5, 8); B_H (2.5, 8.5); C_H (0.5, 9); D_H (2.5, 7)
   A_f (0.5, 1); B_f (2.5, 2); C_f (0.5, 3); D_f (2.5, 1)

5. Locate the top and the front views of P, the point where the line JK pierces the plane EFG Show the visibility of the line JK
   J_H (2.5, 8.5); K_H (5.5, 6); E_H (2,7); F_H (4.9); G_H (5.5, 6.5)
   J_f (2.5, 2); K_f (5.5, 5); E_f(2, 3): F_f (4, 5.5); G_f(5.5, 1.5)

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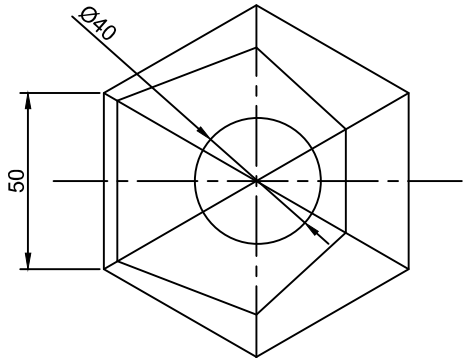
Laboratory Assignment No. 10
Auxiliary Views of solids

Instructions: Conceptualization is important before attempting auxiliary view of solids. Note down the steps carefully. Do not dimension the views.

Problem:

1. In Figure 10.1 Draw the given views and the normal view of inclined surface.
2. Draw the normal view to the inclined surface using the reference plane inclined in Figure 10.2.
3. Draw necessary views to describe the offset guide shown in Figure 10.3. Use drawn auxiliary views to complete the orthographic views.



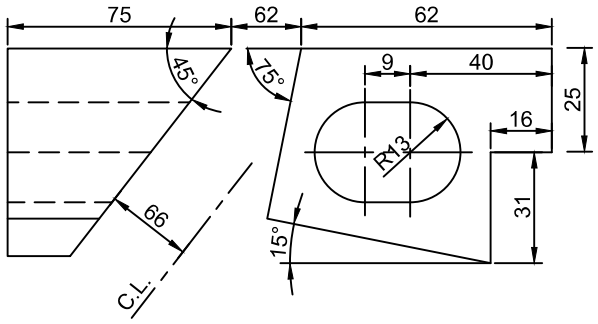


Fig 10.2

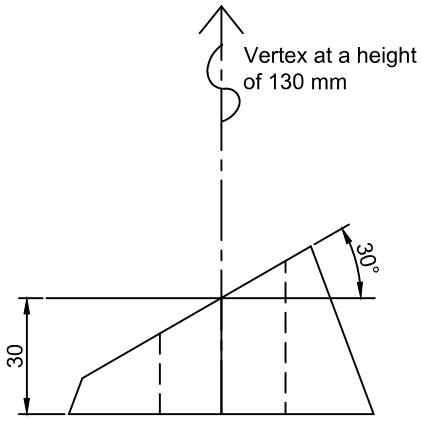


Fig 10.1

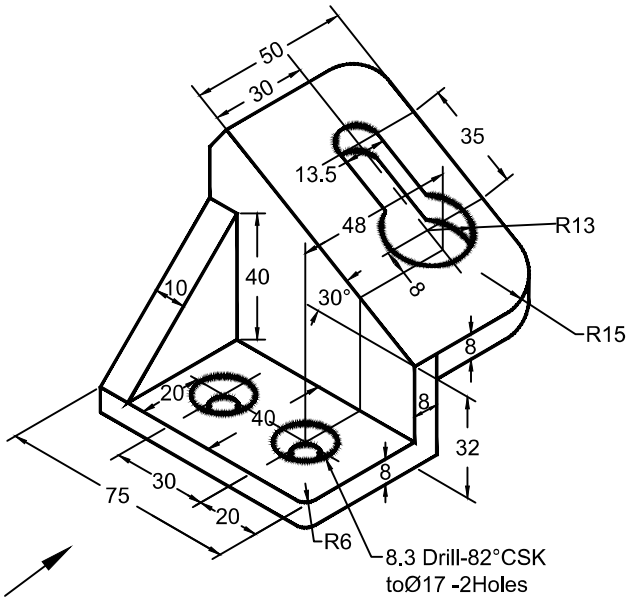


Fig 10.3

TA 101 : Engineering Graphics 2019-20 I
Laboratory Assignment No. 11
Intersections

Instructions: Problems on intersection require visualization prior to attempting solutions.
Each division of grid is 5X5 sq mm.

Problem:

1. Find the intersection of the horizontal right prism and vertical right prism in Figure 11.1.
2. Complete the views of cylinders in Figure 11.2 by showing their line of intersection.
3. With the references to Figure 11.3, draw the top and front views of the line of intersection between plane ABC and cone VO. Show visibility.
4. Find the curves of intersection between pipes of Figure 11.4.

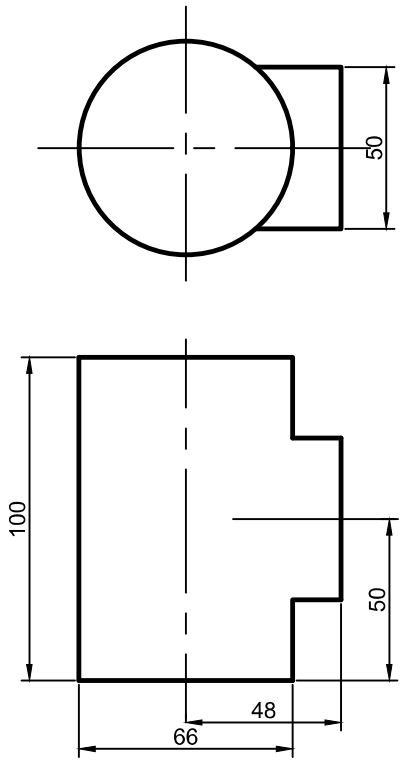


Fig 11.1

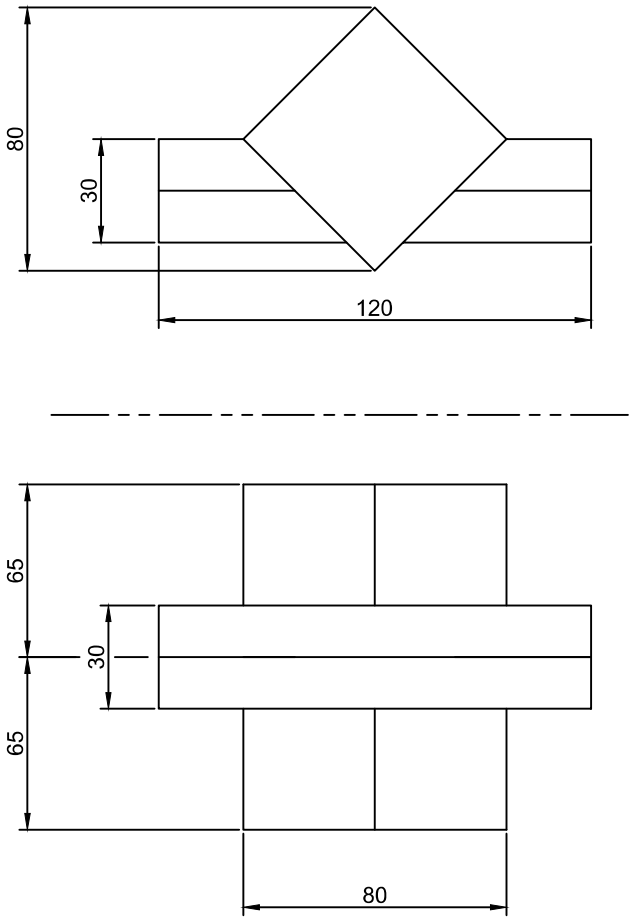


Fig 11.2

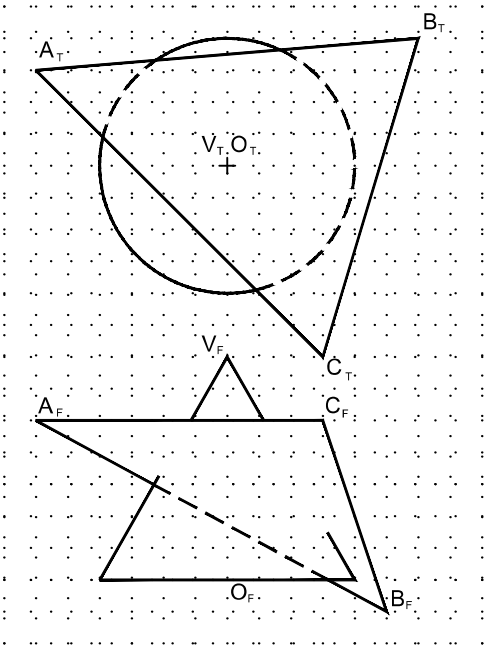


Fig 11.3

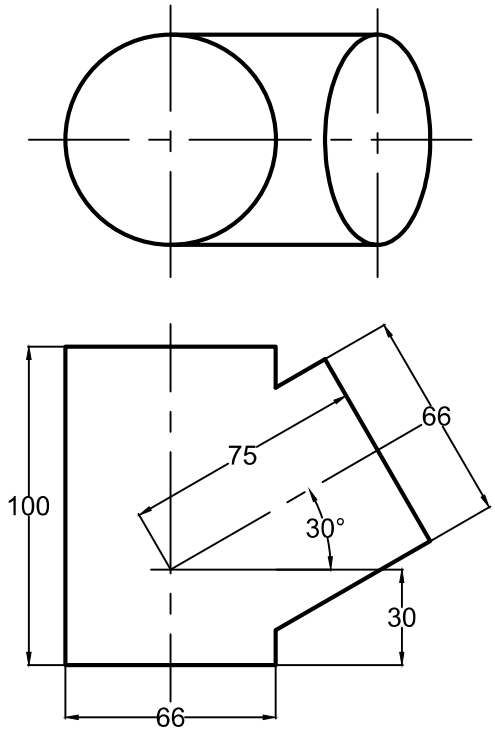


Fig 11.4

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Laboratory Assignment No. 12
Development of Surfaces

Instructions: Draw projection lines carefully and label all points. Some problems may require establishing the curves of intersection before developments.

Problem:

1. Draw the lateral surface of the cropped cylinder shown in Figure 12.1.
2. Draw the lateral surface of the regular hexagonal prism shown in Figure 12.2.
3. Develop the lateral surface of a transition piece whose front and top views are given in Figure 12.3.
4. Draw the lateral surface of the hopper shown in Figure 12.4.

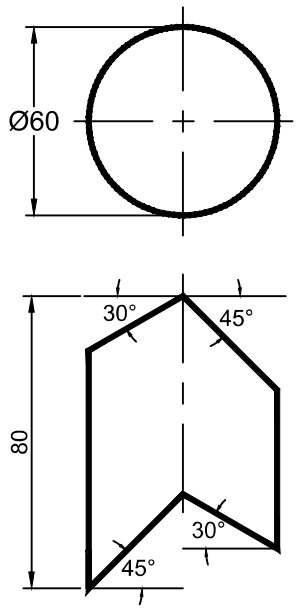

Fig 12.1

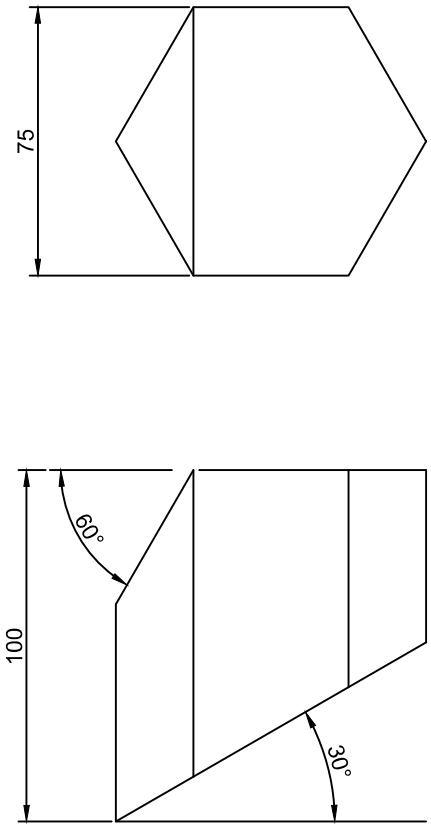

Fig 12.2

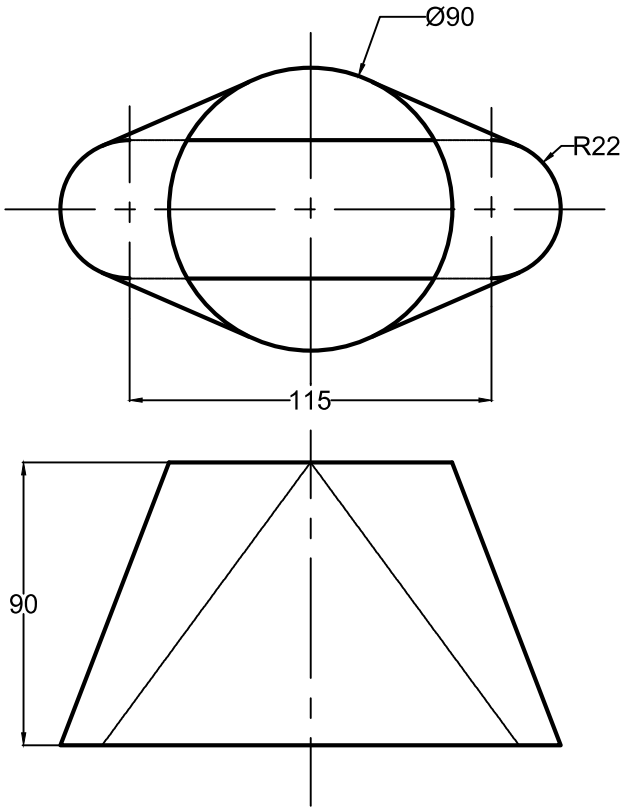

Fig 12.3

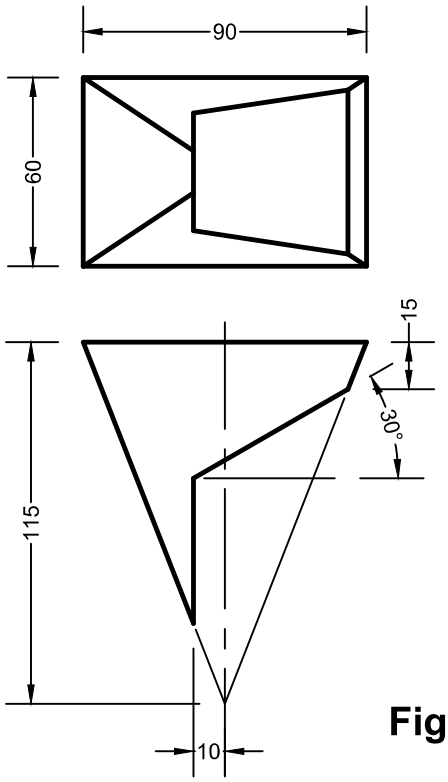

Fig 12.4