

DUE DATE _____

NAME _____

ENGR/DRAFT 105 Assignment #12, Auxiliary Views – Part 1

Draw mechanically the 3 auxiliary view assignments listed below:

- Sheet labeled “Exercises 8.1 & 8.2”
- Sheet labeled “Exercise 9.1”
- Sheet labeled “Exercise 9.4”

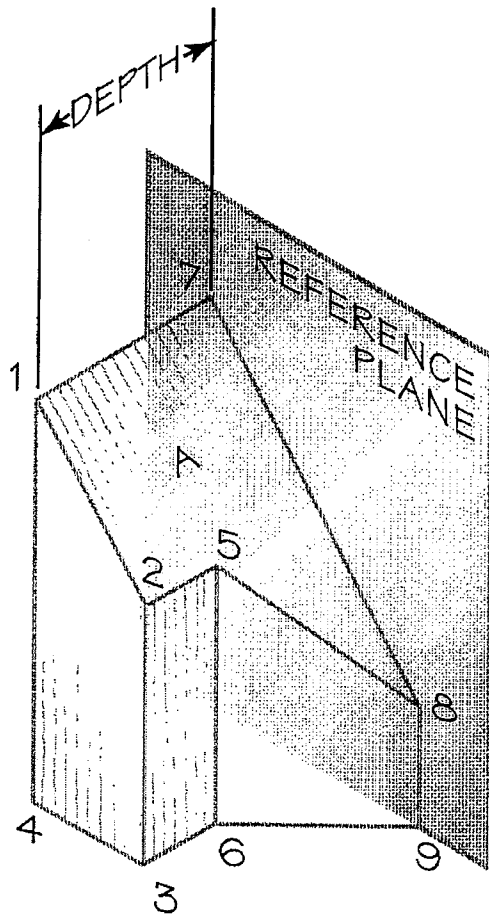
Note the 2 important rules of **Auxiliary Views**:

1. Adjacent Views share projection lines.
2. Alternate views share distances from reference planes (or fold lines).

Note the 4 important rules of **Descriptive Geometry**:

1. A plane shows **true size and shape** in a view parallel to (perpendicular projection lines) an **edge view** of the plane. That is to say, the line of sight (and therefore the projection lines) are perpendicular to the edge view of the plane.
2. In order to get an **edge view** of a plane, **get any line** in that plane to appear as a **point**.
3. In order to get a **point view** of a **line** (i.e., in order to get a line to appear as a **point**), take a view perpendicular to (one parallel projection line) the **true length** of the **line**. That is to say, the line of sight (and therefore the projection lines) are parallel to the true length of the line.
4. In order to get the **true length** of a **line**, get a view parallel to (perpendicular projection lines) any view of **the line**.

Staple this sheet to the front of your drawings in the correct order. Write your name at the top of the page. Write your name on each drawing.



Hands On 8.1

Projecting auxiliary views using a reference plane

1. Draw two views of the object and determine the direction of sight needed to produce a view which will show the true size of surface A. This step has been completed for you.
2. Next sketch projection lines parallel to the direction of sight. Some of them have been drawn in for you. Complete all of the projection lines.
3. Establish a reference plane parallel to the back surface of the object. The reference lines in the top and auxiliary views are at right angles to the projection lines and have been drawn for you. These are the edge views of the reference plane.

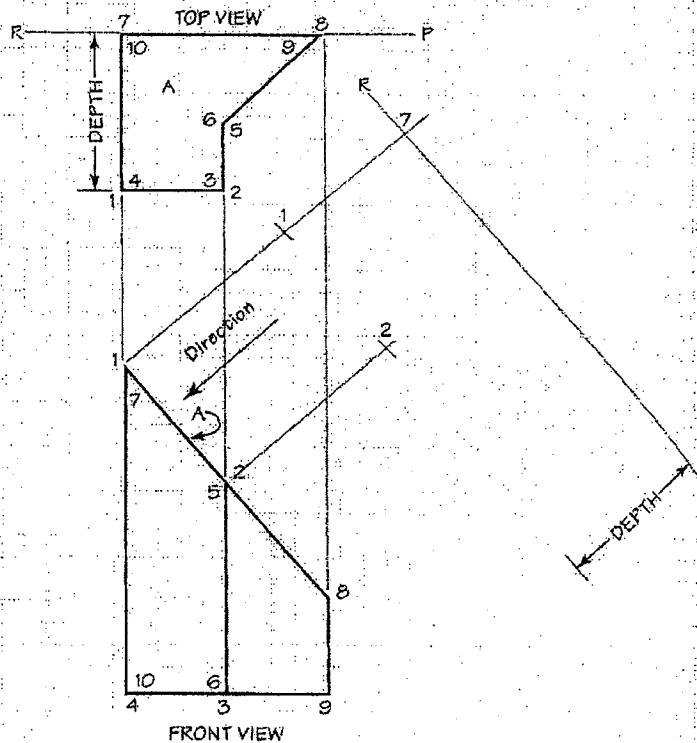
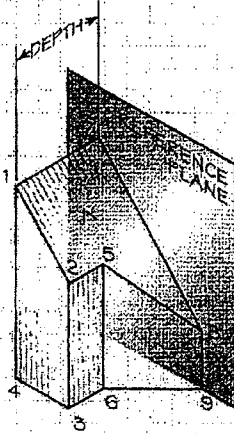


Hands On 8.1

Projecting auxiliary views using a reference plane

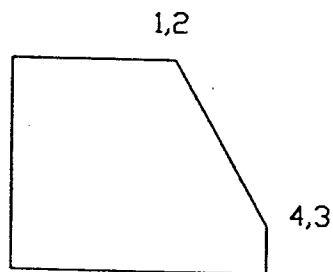
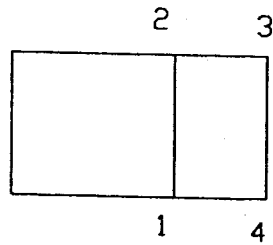
The object has been numbered for you in the pictorial view at right. To create the auxiliary view:

1. Draw two views of the object and determine the direction of sight needed to produce a view which will show the true size of surface A. This step has been completed for you.
2. Next sketch projection lines parallel to the direction of sight. Some of them have been drawn in for you. Complete all of the projection lines.
3. Establish a reference plane parallel to the back surface of the object. The reference lines in the top and auxiliary views are at right angles to the projection lines and have been drawn for you. These are the edge views of the reference plane.
4. Draw auxiliary view of surface A. It will be true size and shape because the direction of sight was taken perpendicular to that surface. Transfer depth measurements from the top view to the auxiliary view with dividers or a scale. Each point in the auxiliary view will be on its projection line from the front view and will be the same distance from the reference line as it is in the top view to the corresponding reference line. Points 1, 2, and 7 have been projected for you. Finish projecting points 5 and 8. Draw surface A true size in the auxiliary view by connecting the vertices in the same order as they are shown connecting in the top view (1-7-8-5-2-1). Note that two surfaces of the object appear as lines in the auxiliary view.
5. Complete the auxiliary view by adding other visible edges and surfaces of the object. Each numbered point in the auxiliary view lies on its projection line from the front view and is the same distance from the reference line as it is in the top view.

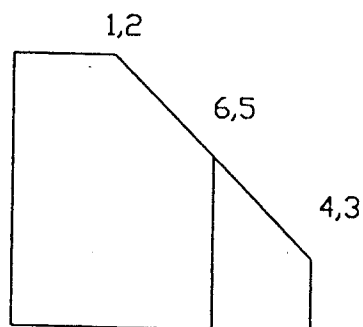
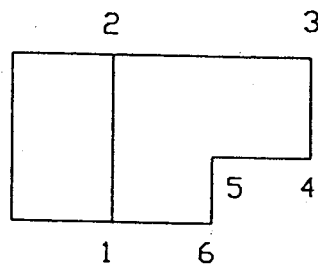


EXERCISES 8-1 AND 8-2

Draw an auxiliary view from the *front* view of each of the drawings shown below. You will be drawing what are called *front-adjacent* auxiliary views, since the auxiliary view is drawn perpendicularly to the front view. The numbers are provided only to assist beginning drafters. They are never shown on an industrial drawing.



EXERCISE 8-1 - Use a reference plane parallel to the front surface.



EXERCISE 8-2 - Use a reference plane parallel to the back surface.

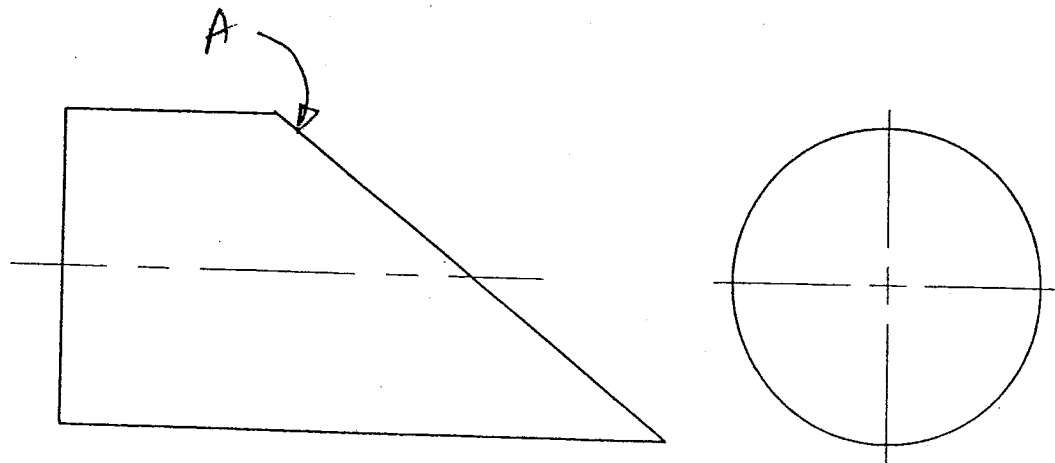
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EXERCISE 9-1

The drawing below shows the front and right side views of an object containing a circular feature on a sloping surface. In the space provided, draw the front-adjacent auxiliary view (the auxiliary view drawn from the front view) *of surface A only.*

- Use a centered, symmetrical reference plane.
- Locate the major and minor axes of the true size ellipse.
- Project several points from the side view to the auxiliary view by transferring distances from the reference plane.



DRAWN BY _____

DATE _____

EXERCISE 9-4

In the space provided, draw the top-adjacent auxiliary view of the object shown below.
Use a reference plane parallel to the bottom or top surface.

