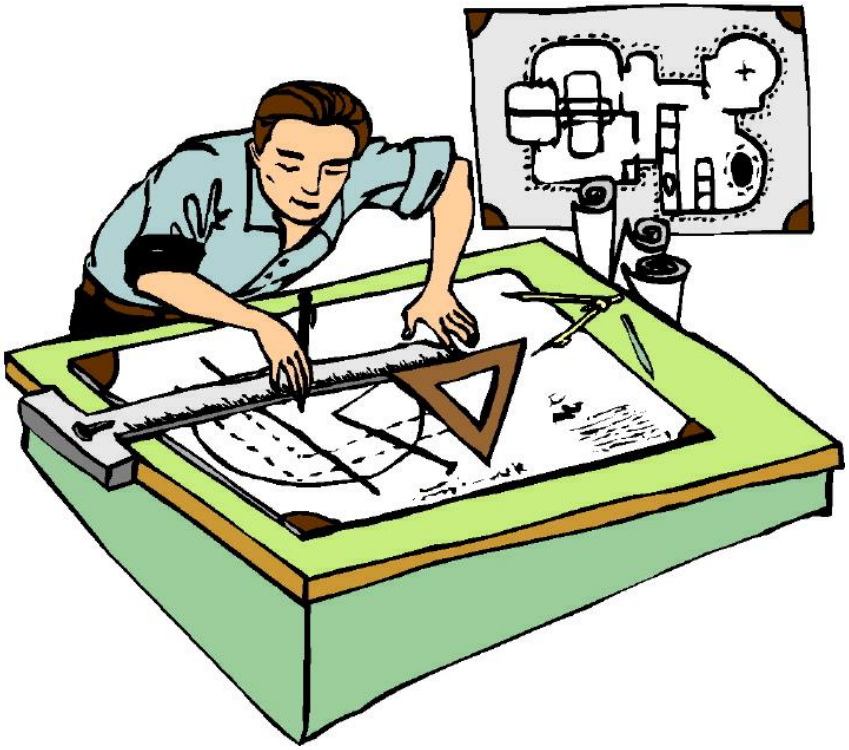
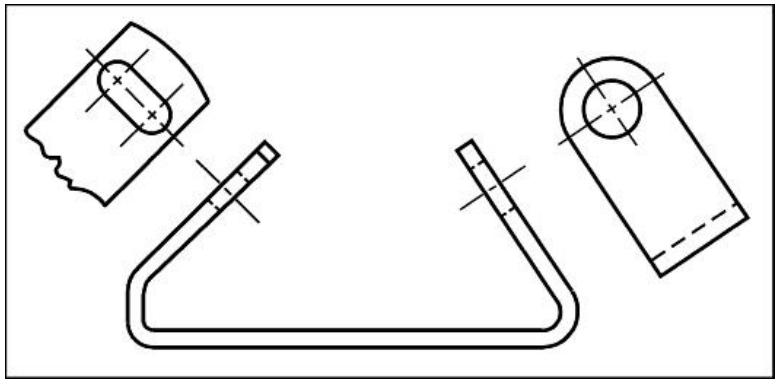
Auxiliary Views





Pre-Engineering & Computer-Aided Design
Mr. Mandl

Auxiliary Views

Learning Objectives:

- ✓ Determine the need for an Auxiliary View
- ✓ Construct / Develop Auxiliary Views
- ✓ Identify the three classifications of Auxiliary Views
- ✓ Define key terms
- ✓ Understand and demonstrate the concept of Auxiliary Views on manual (Worksheet) and CAD (AutoCAD & SW) drawings

Auxiliary Views

What is the *MAIN* purpose of Auxiliary Views?

- ✓ Auxiliary views are used to show the true size and shape of inclined or oblique surfaces

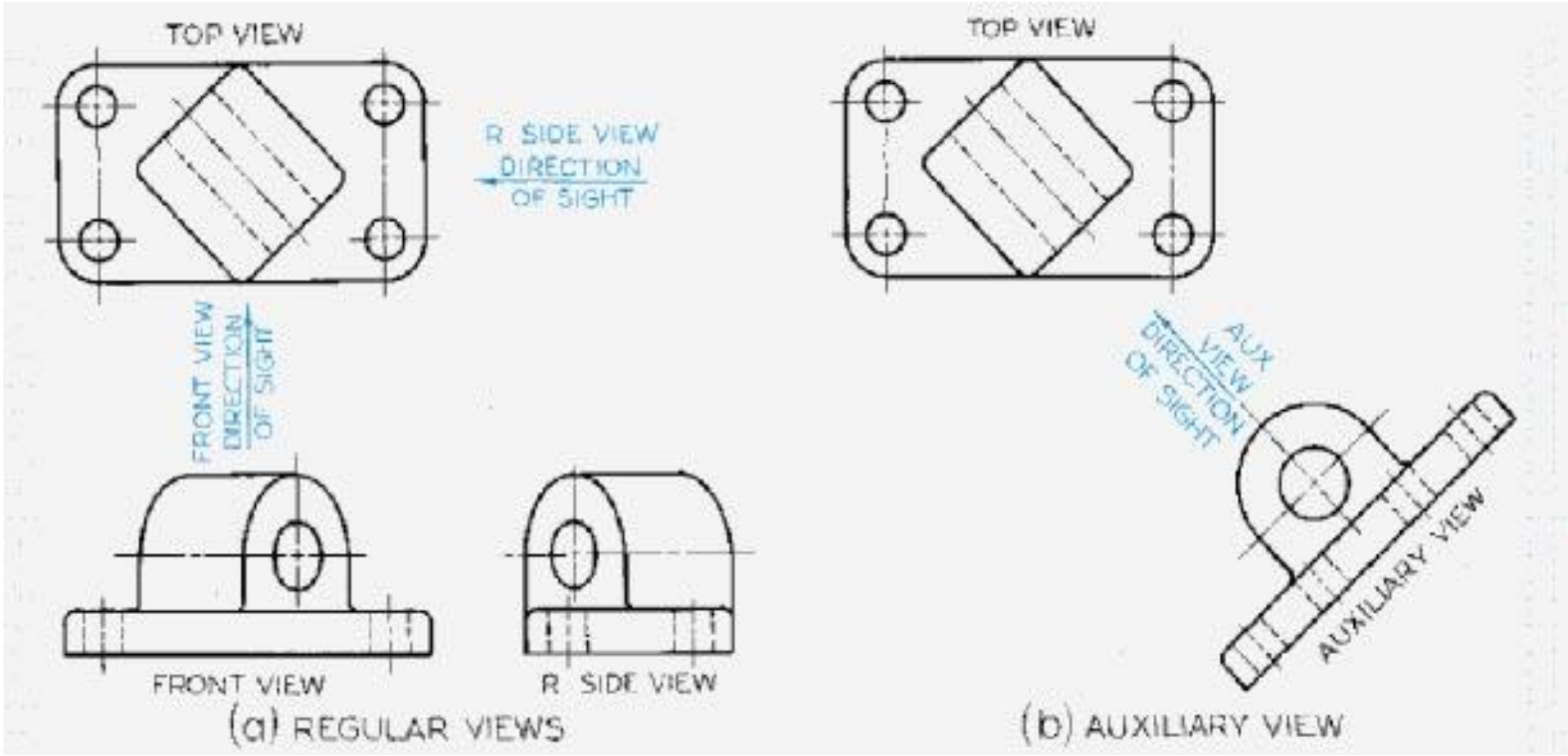
WHEN do we need to draw Auxiliary Views?

- ✓ When a surface is not parallel to any of the six principal views – Front, Top, Right Side, Left Side, Bottom, or Rear

WHY do we need to draw Auxiliary Views?

- ✓ The surface is shown shorter than its true length

Auxiliary Views



- ✓ **The Auxiliary View shows the true size and shape of the principal face and the hole feature**

Auxiliary Views

Key Terms:

- **Auxiliary View**
  - ✓ A view used to show the true size of inclined and oblique surfaces
- **Auxiliary**
  - ✓ Additional
- **Reference Plane**
  - ✓ Lines that serve as datum planes for transferring distances from one orthographic view to the auxiliary view

Auxiliary Views

Key Terms:

- **Dihedral Angle**
  - ✓ The Angle between two planes
- **Primary Auxiliary View**
  - ✓ A view projected on a plane that is perpendicular to one of the principal planes of projection and inclined to the other views
- **Secondary Auxiliary View**
  - ✓ A view projected from the primary auxiliary view

Auxiliary Views

Three Classifications of Auxiliary Views

- ✓ Auxiliary Views are classified according to the principal dimension shown in the view

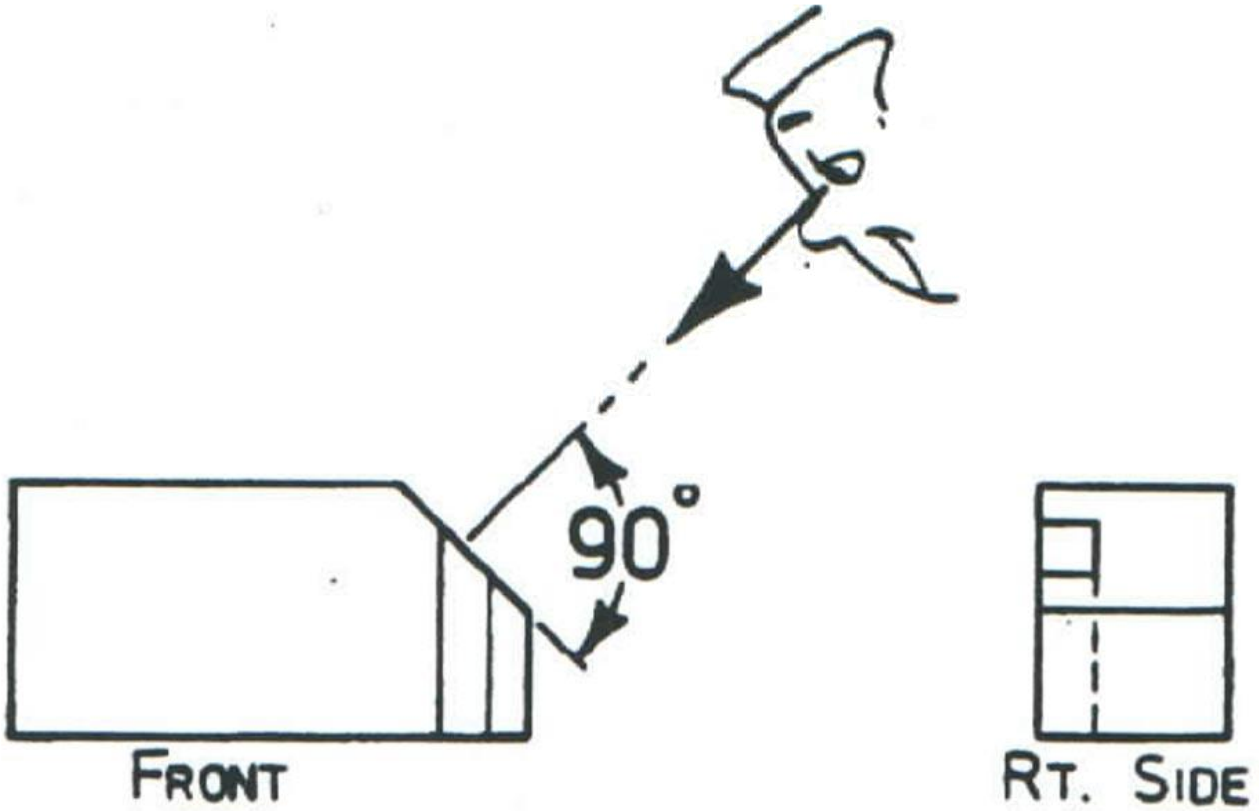
- **Depth Auxiliary View**
  - ✓ An Auxiliary View hinged to the frontal plane

- **Height Auxiliary View**
  - ✓ An Auxiliary View hinged to the horizontal plane

- **Width Auxiliary View**
  - ✓ An Auxiliary View hinged to the profile plane

Auxiliary Views

Developing Auxiliary Views



AN AUXILIARY VIEW IS DRAWN LOOKING INTO THE SURFACE AT A 90° ANGLE.

Auxiliary Views

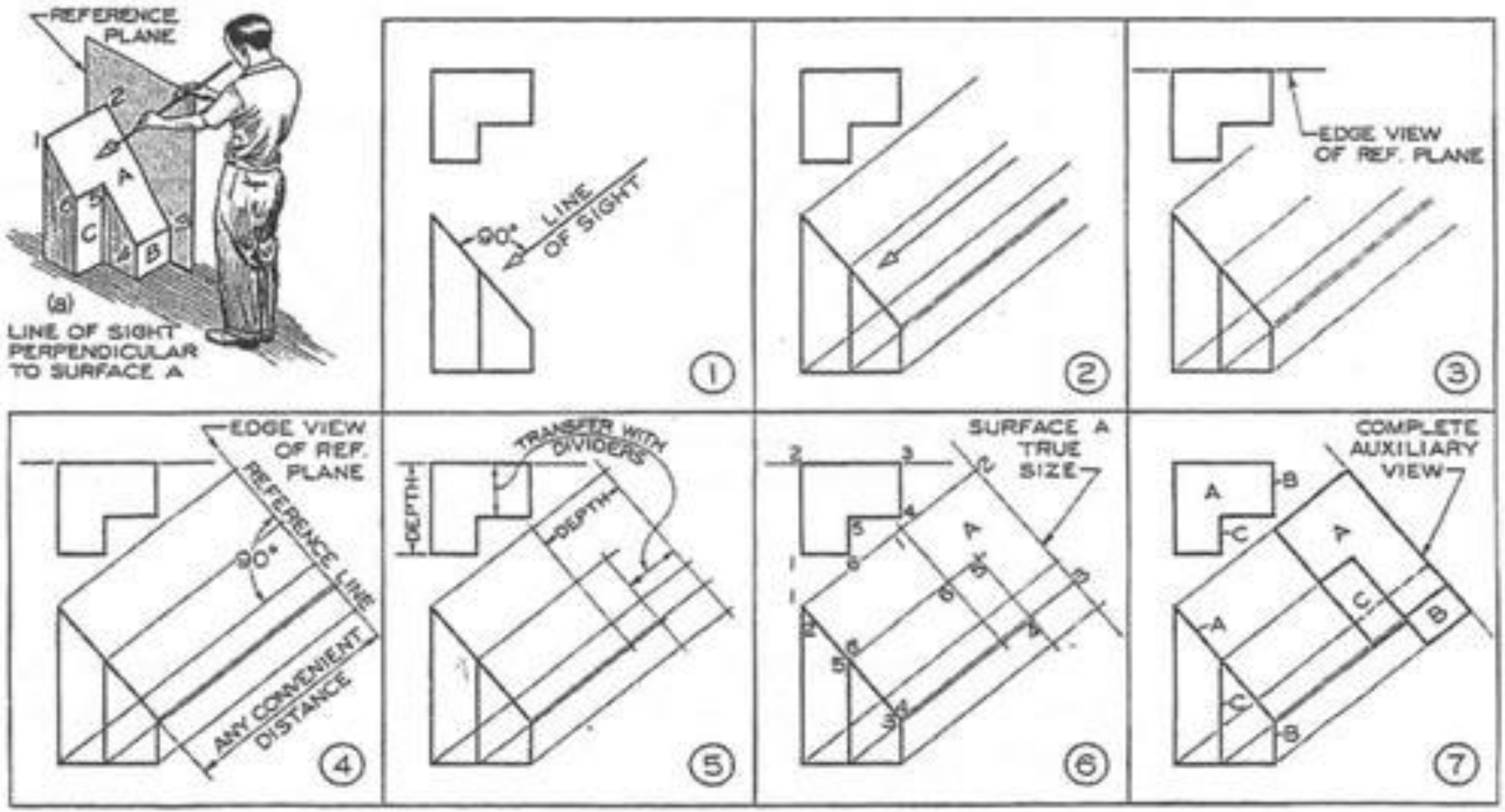
Developing Auxiliary Views

- **Reference Plane Method**
  - ✓ Involves the use of 2 reference lines
  - ✓ One reference plane on a main view
    - ❖ Measurements are taken from this plane
  - ✓ One reference plane on the Auxiliary View
    - ❖ Measurements are transferred to this plane

- **Reference Plane**
  - ✓ Lines that serve as datum planes for transferring distances from one orthographic view to the auxiliary view

Auxiliary Views

Developing Auxiliary Views



Auxiliary Views

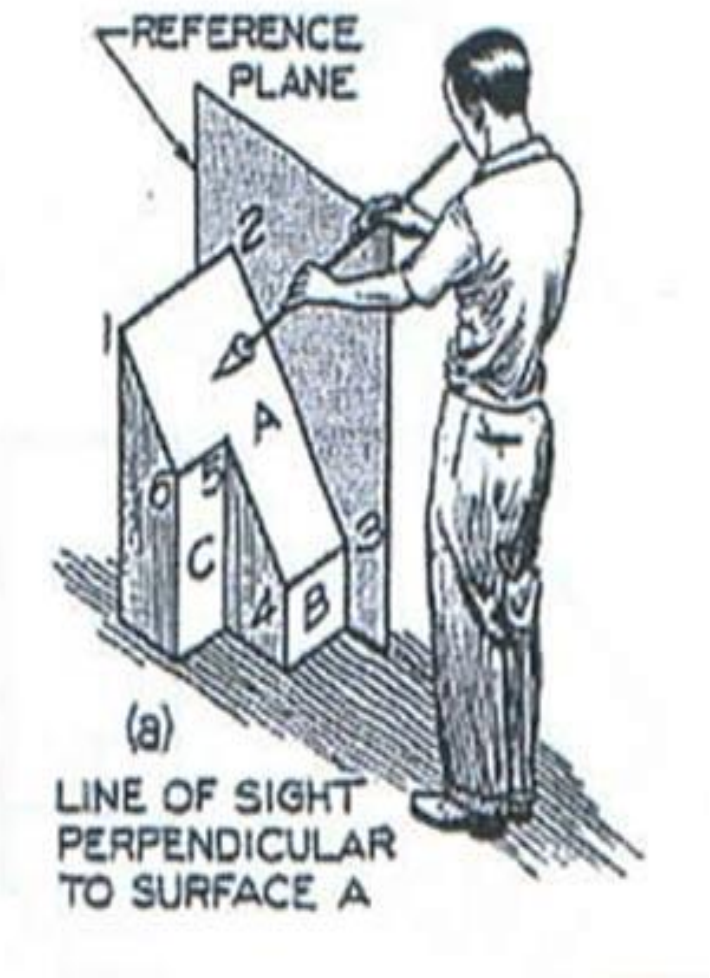
Developing Auxiliary Views

Line of Sight

90 Degrees

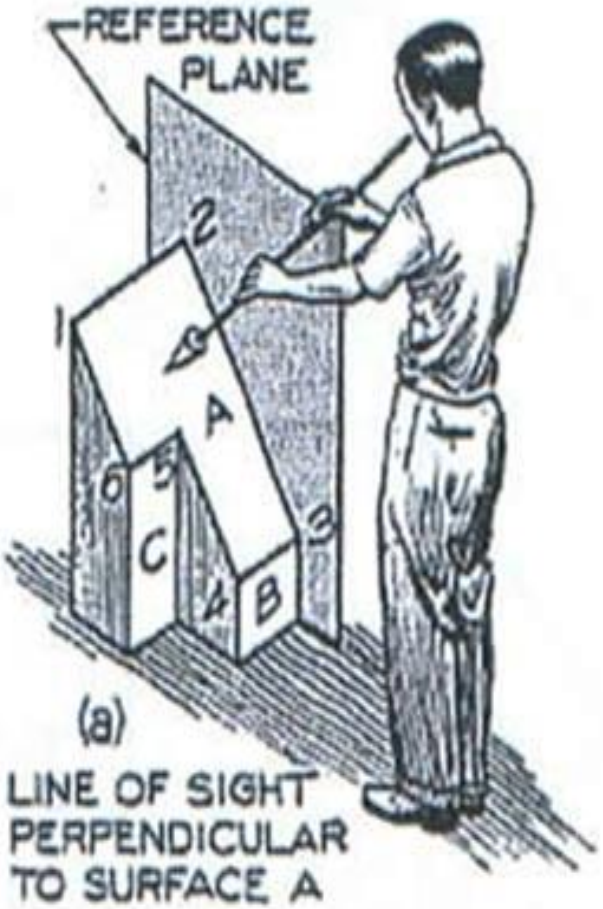
Figure has 3 surfaces

We are concerned with Surface 'A'



Auxiliary Views

Developing Auxiliary Views



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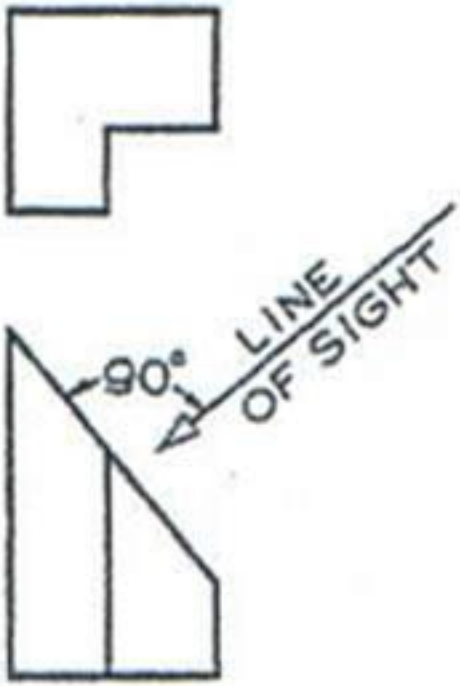
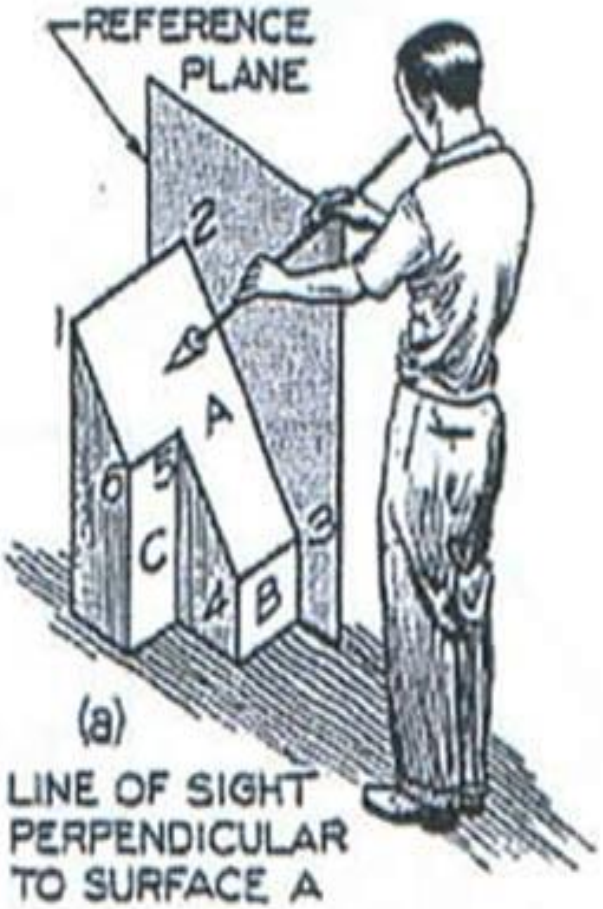


Auxiliary Views

Developing Auxiliary Views



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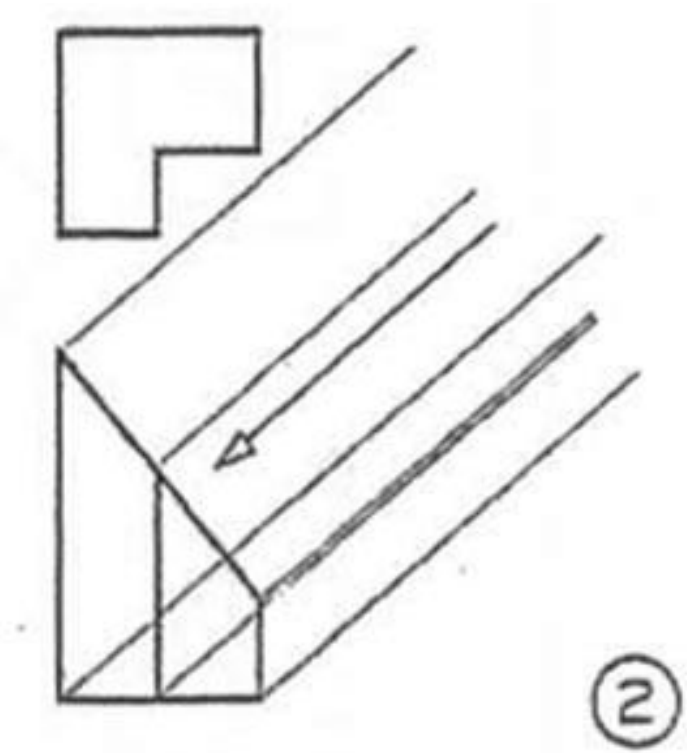
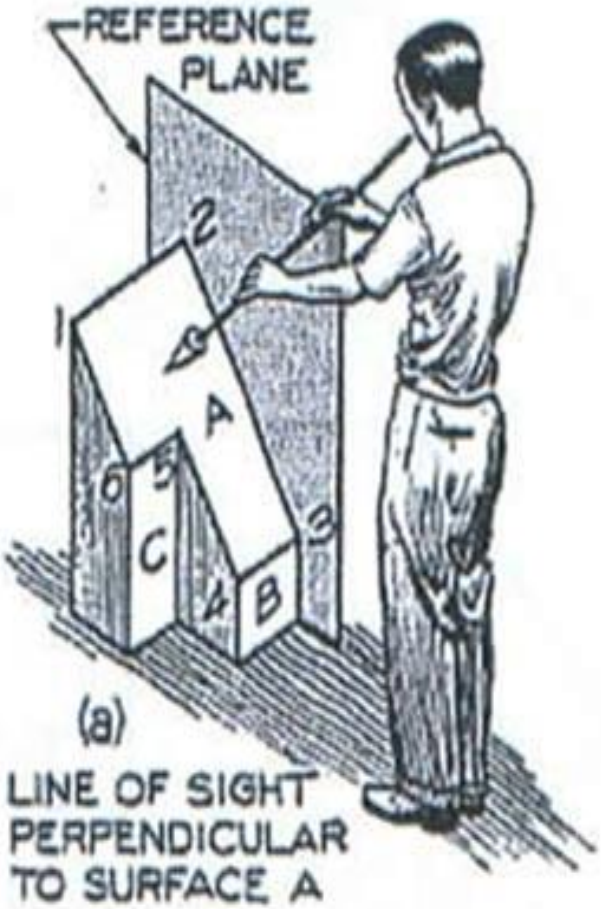


Auxiliary Views

Developing Auxiliary Views



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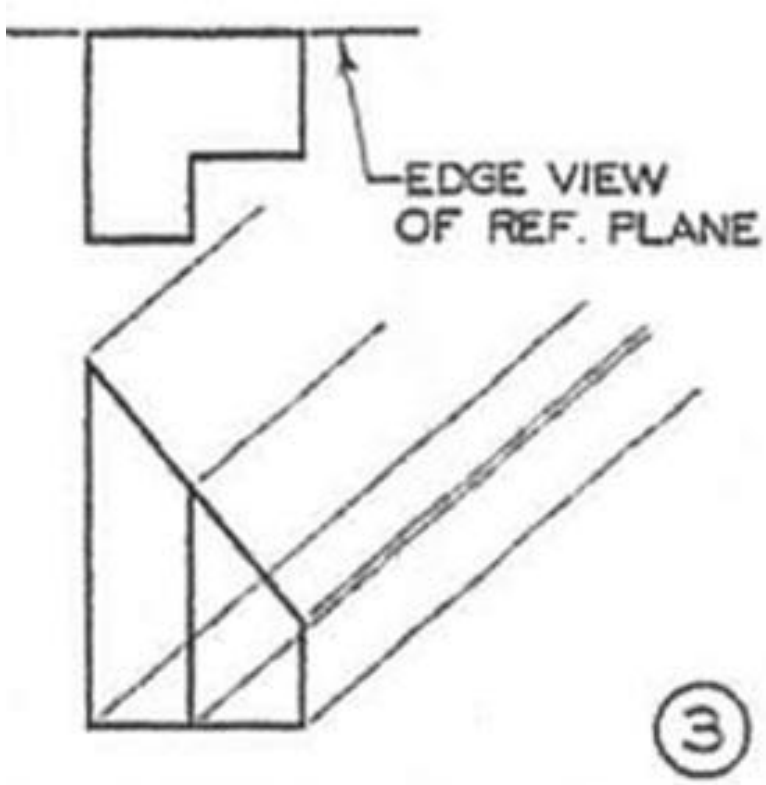
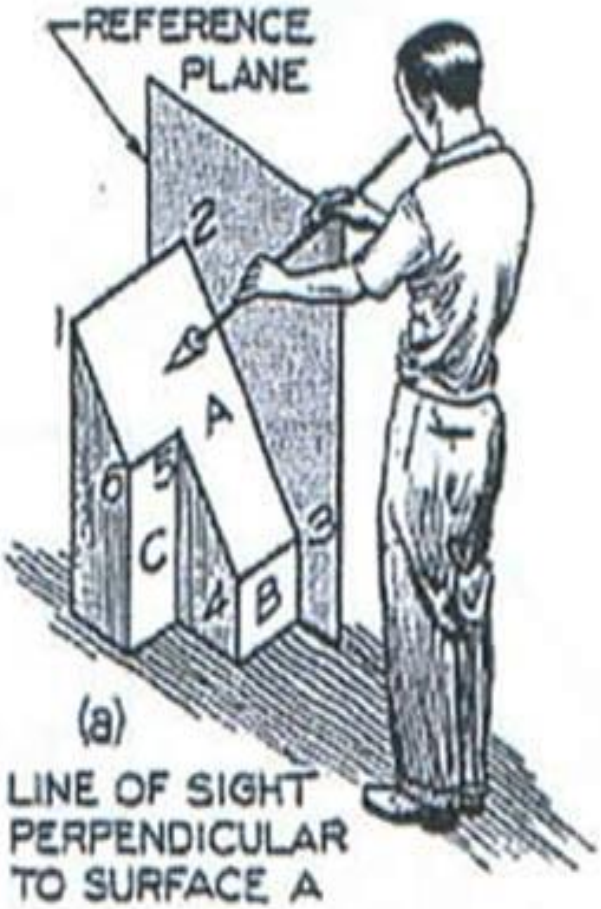


Auxiliary Views

Developing Auxiliary Views



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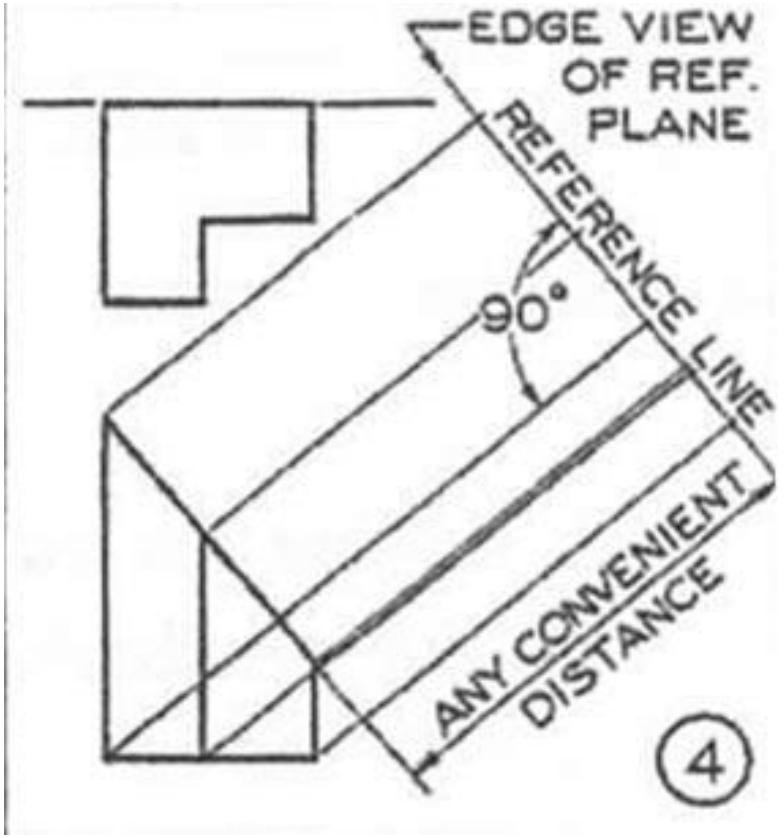
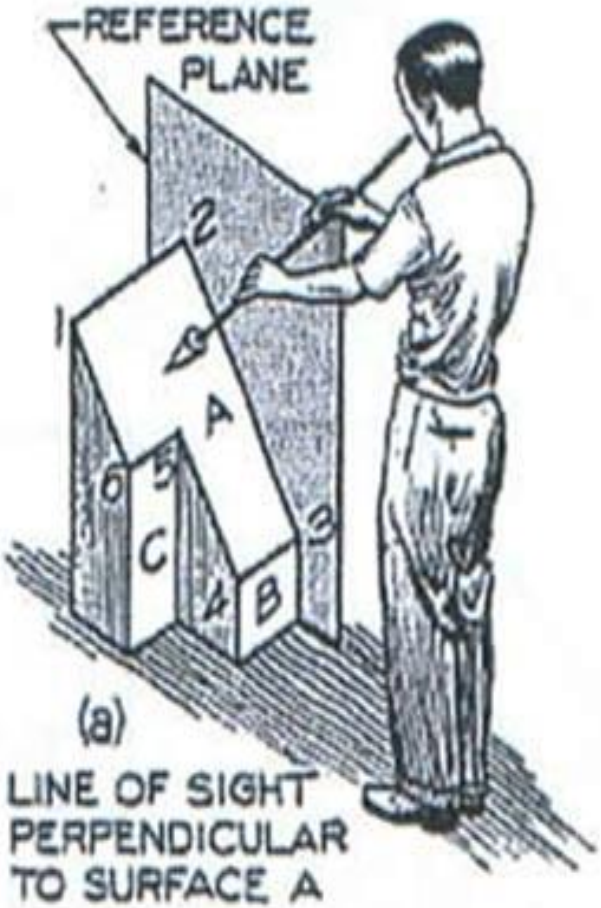


Auxiliary Views

Developing Auxiliary Views



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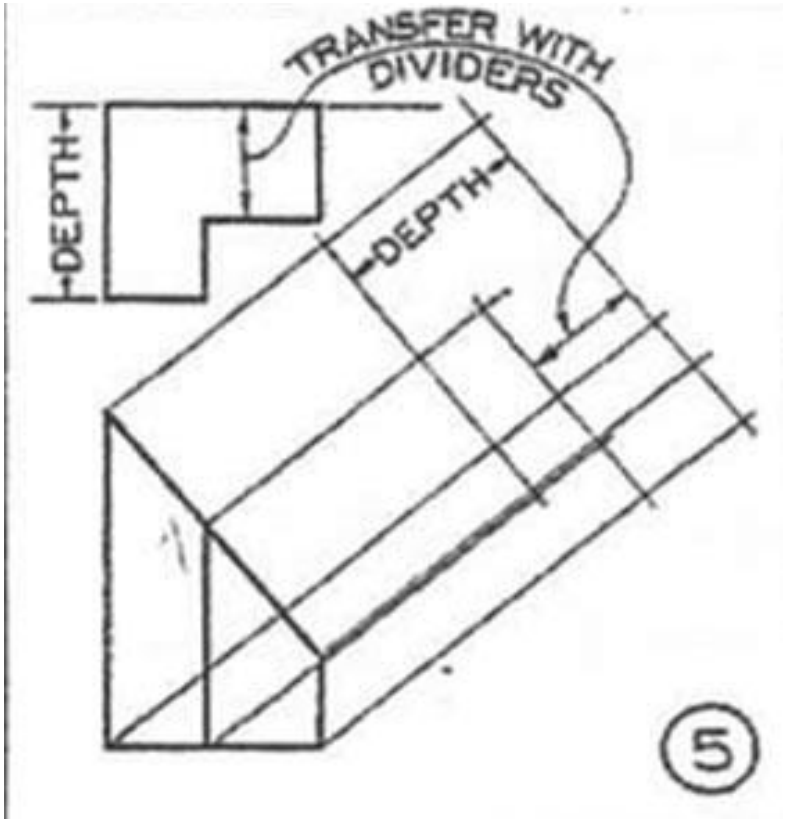
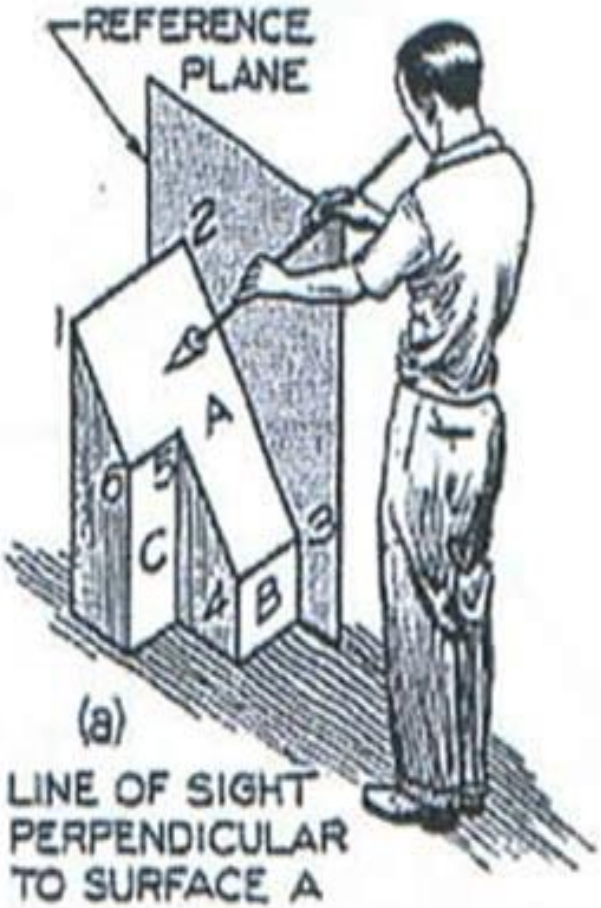


Auxiliary Views

Developing Auxiliary Views



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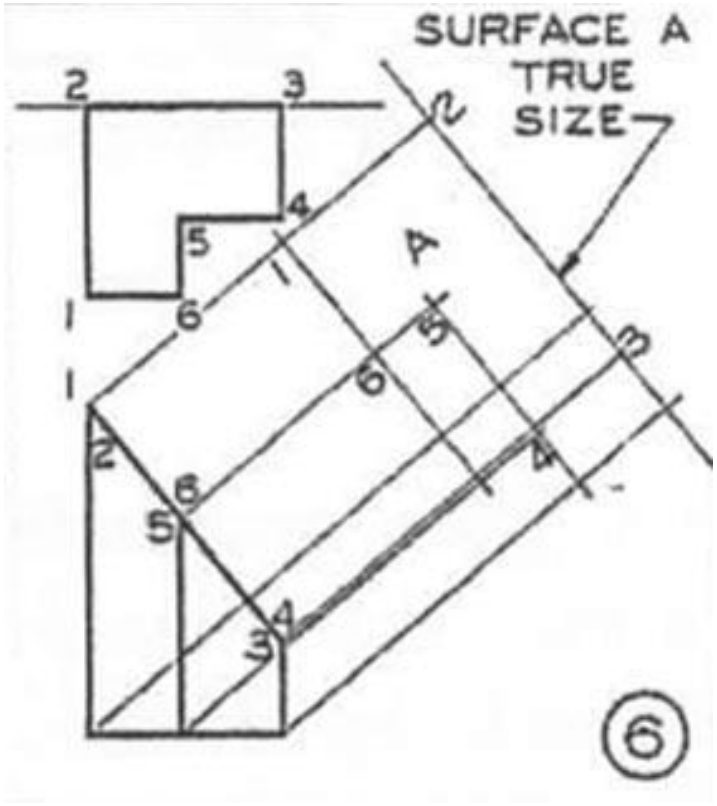
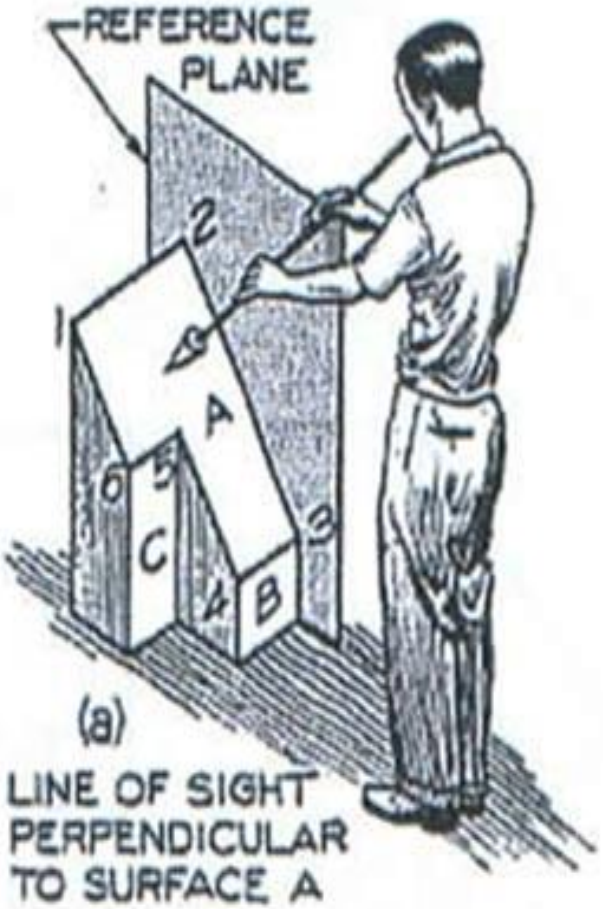


Auxiliary Views

Developing Auxiliary Views



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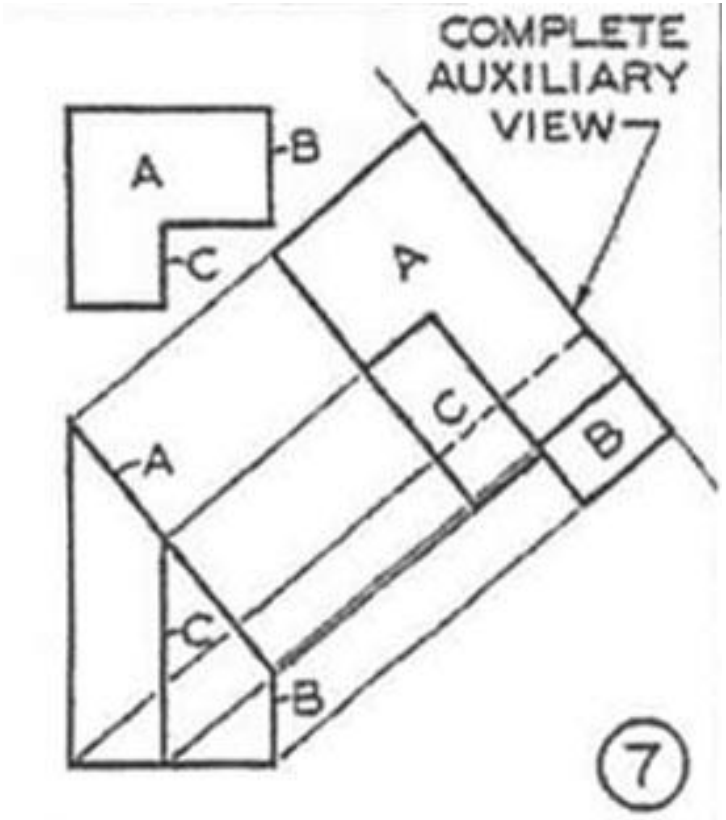
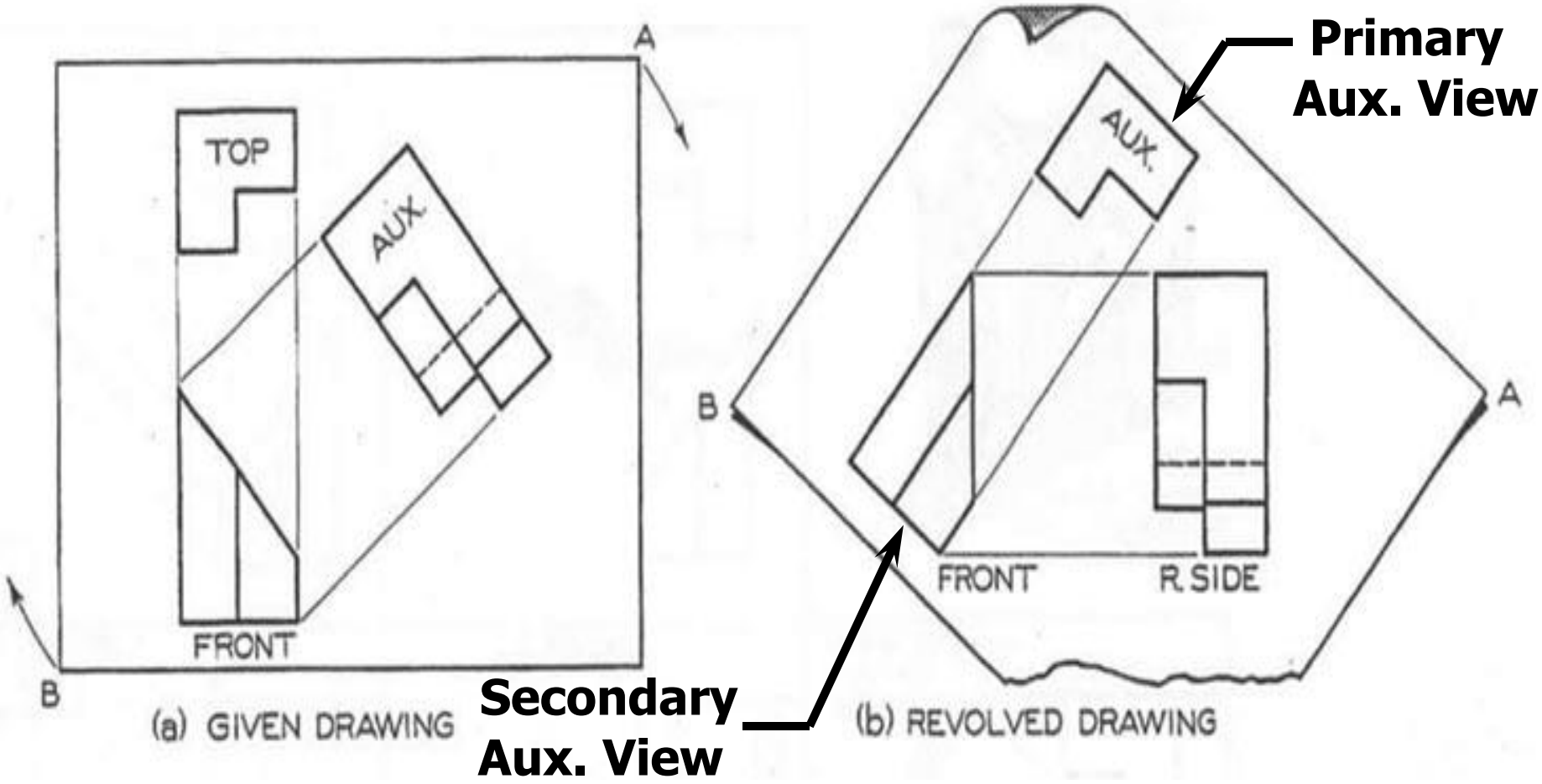


Auxiliary Views

Rotating Auxiliary View Drawings



Auxiliary Views

Summary

- ✓ Auxiliary views show true size and shape of inclined or oblique surfaces
- ✓ Used when a surface is not parallel to any of the six principal views
- ✓ When not parallel, the surface is shown shorter than its true length

Auxiliary Views

Summary

- ✓ The three classifications of Aux Views are Width, Height, and Depth.
- ✓ Auxiliary Views are classified according to the principal dimension shown in the view