

Summarizing the Course “Engineering Drawing”

Over-view

To fully understand and do your exam effectively;

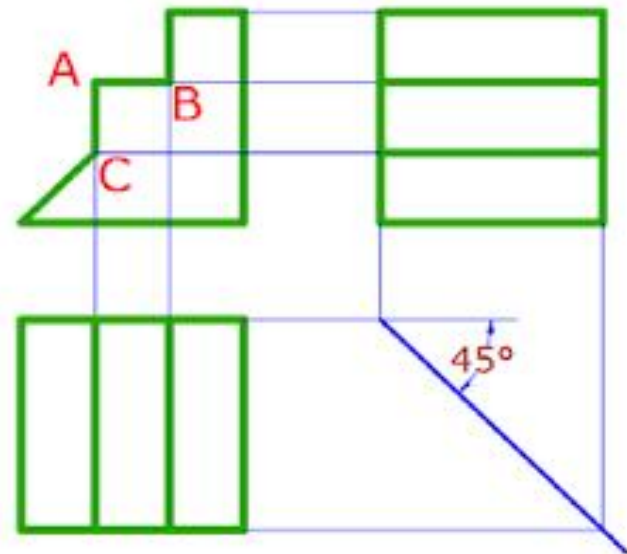
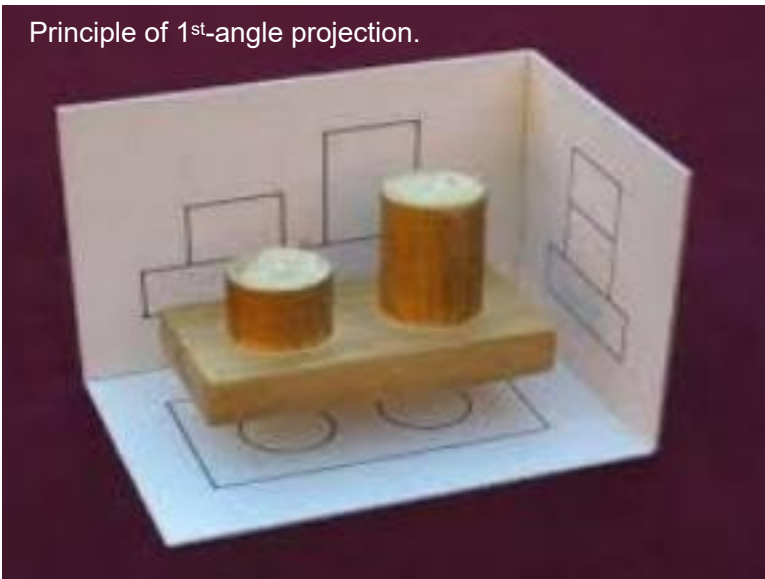
- you should keep in mind that the basics of **point**, **line** and **plane** projections in chapter-2.
- you should remind or refer your lecture materials (slides) for some specific rules and representations.
- practice again with all what we have done in class and corrections given as assignments, homeworks, quizzes and class activities.
- practice with your assignment questions and given examples.

Multi View

- The 45° principle of projection to draw the views:
 - 1st angle projection system
 - 3rd angle projection system

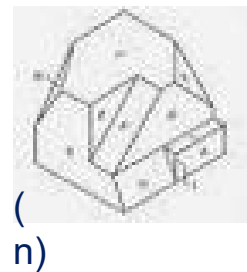
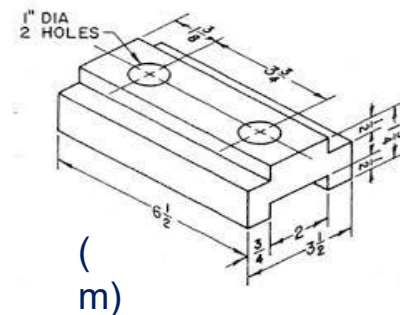
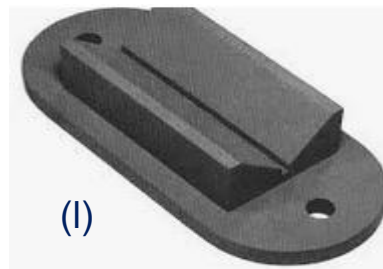
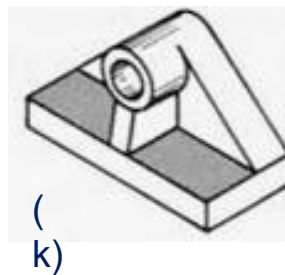
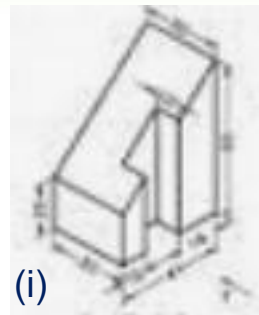
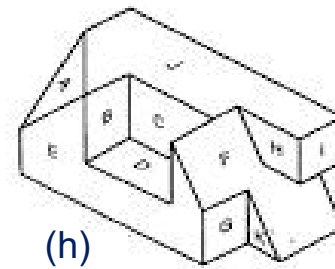
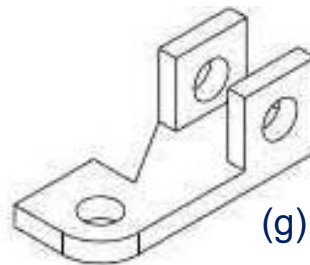
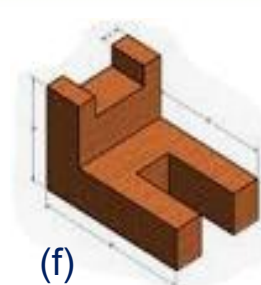
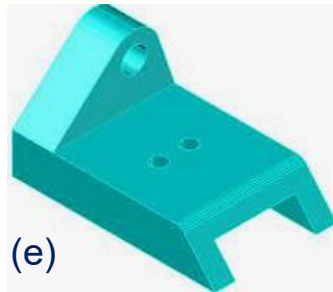
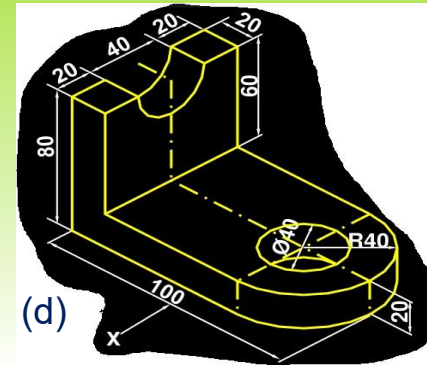
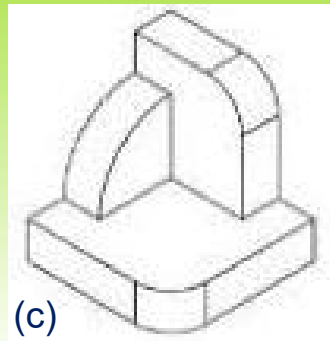
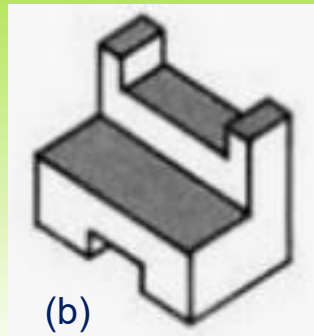
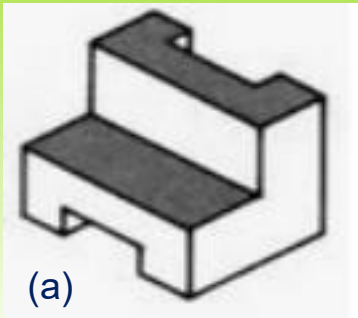
Note: Be serious in instructions, you may be asked to use one of these projection systems for your multi-view exam. Unless you need to use 1st angle projection system.

Principle of 1st-angle projection.



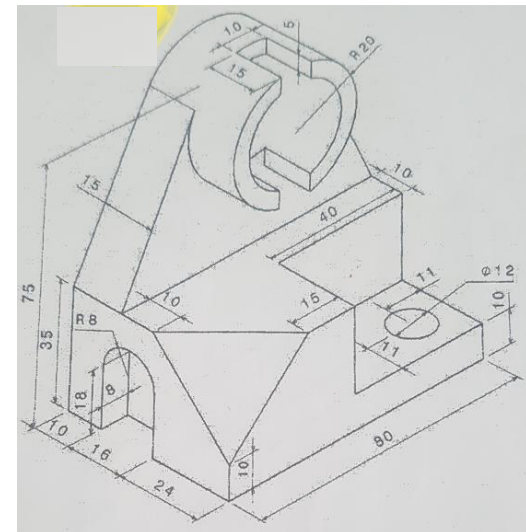
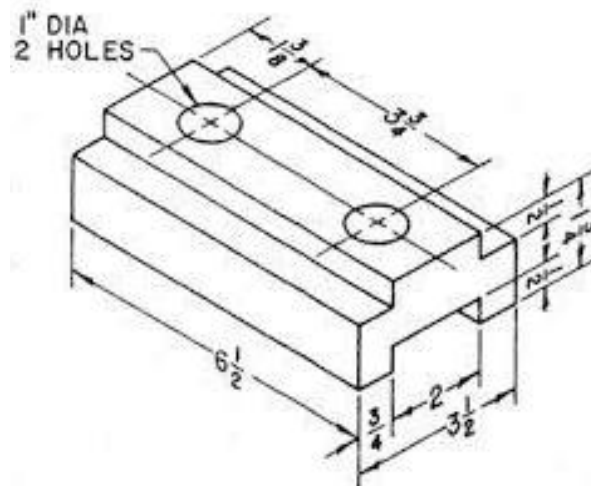
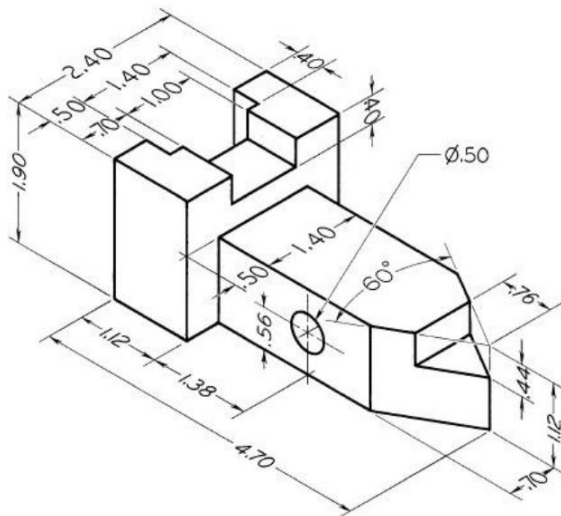
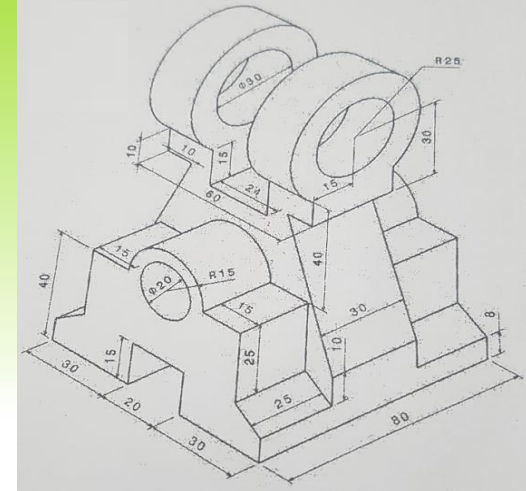
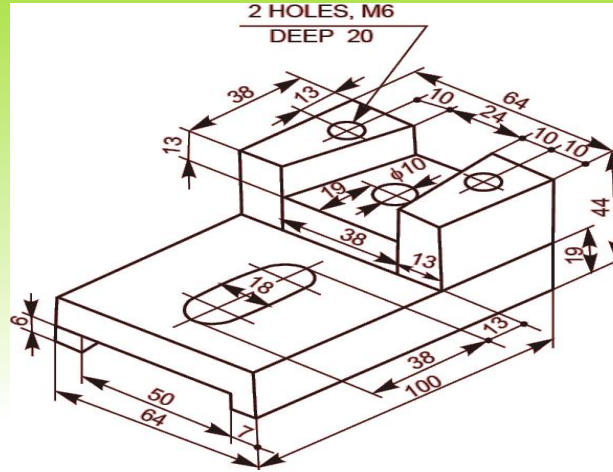
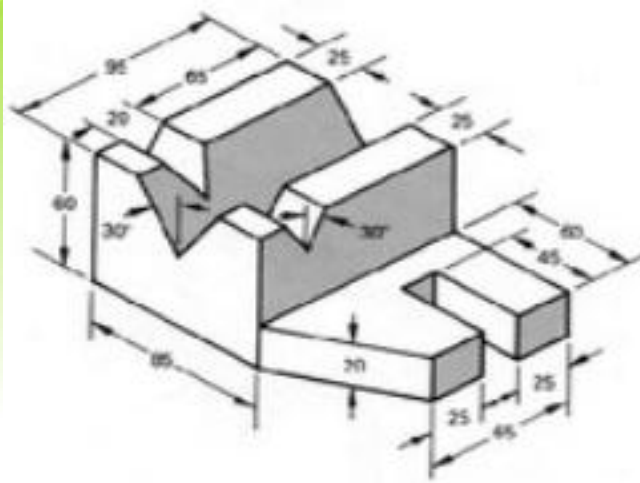
1st – angle system of projection

- Use 1st-angle projection system:

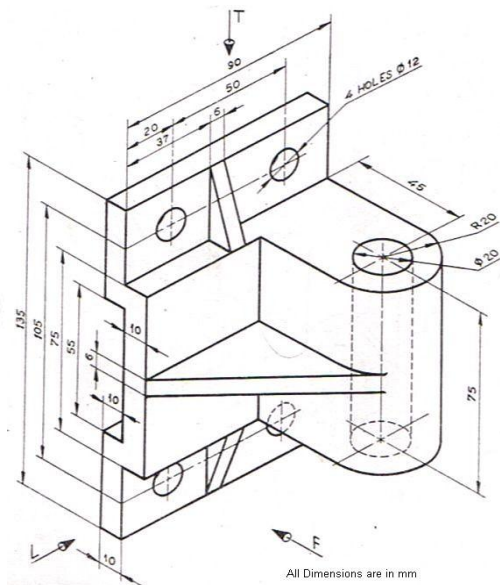
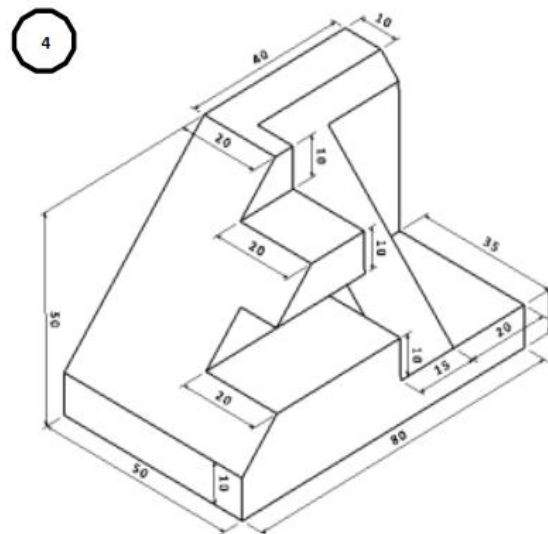
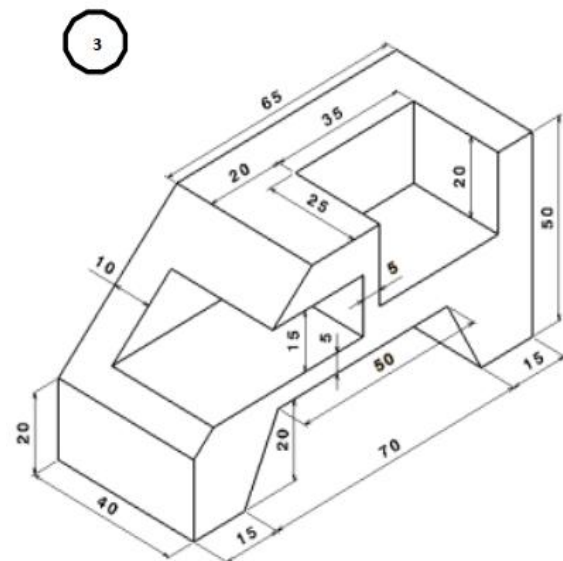
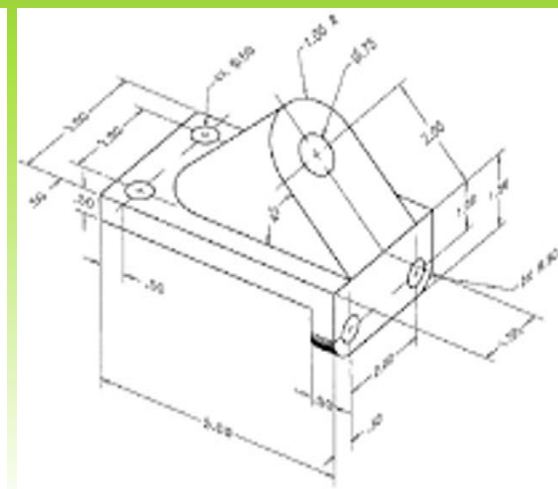
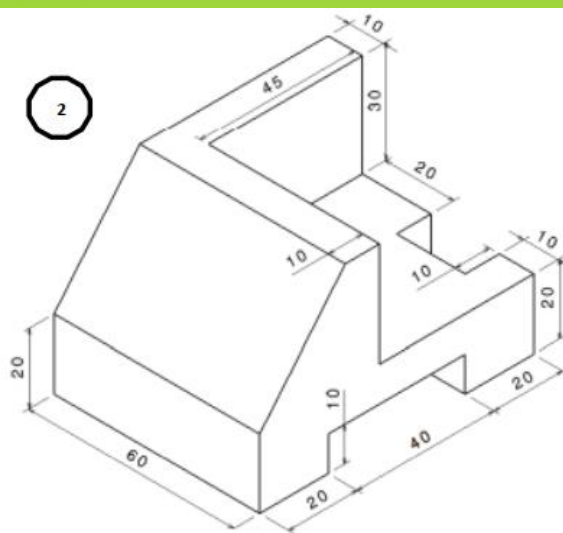
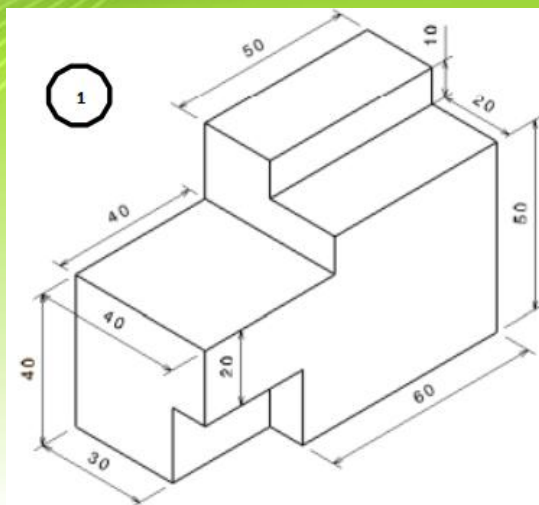


Multi View

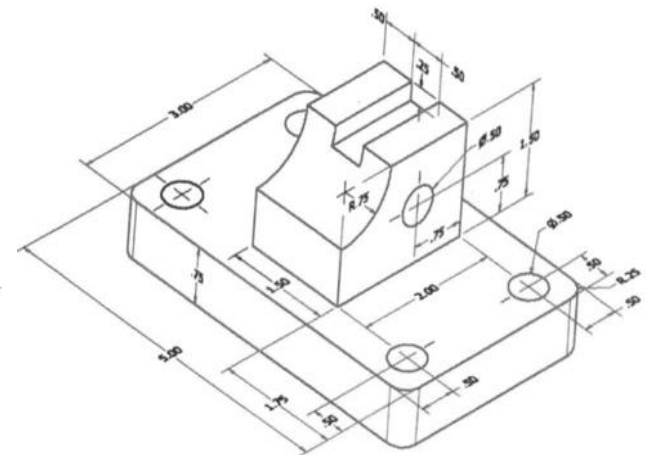
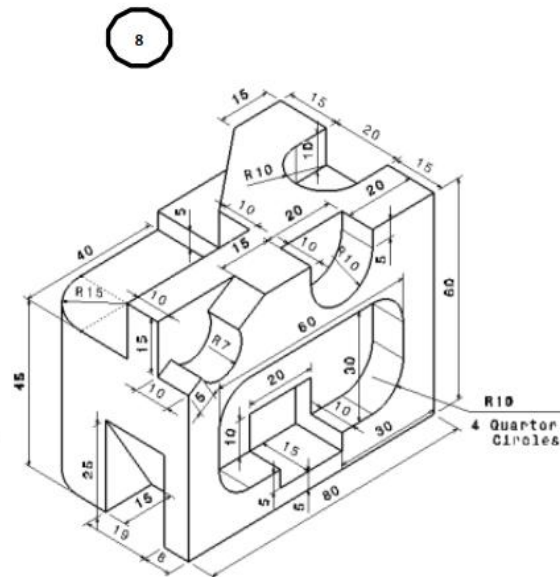
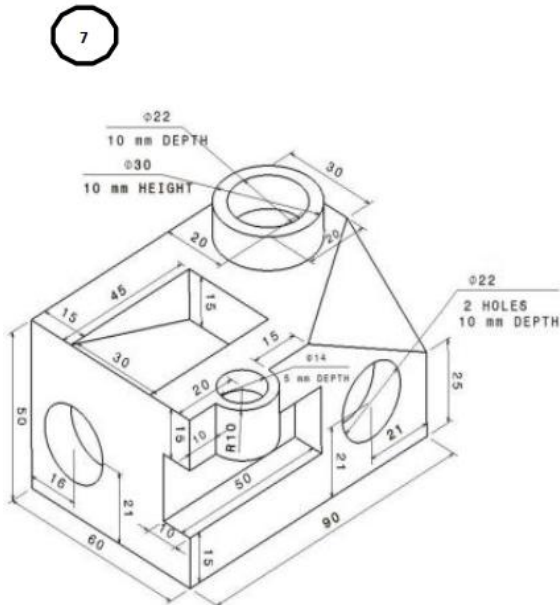
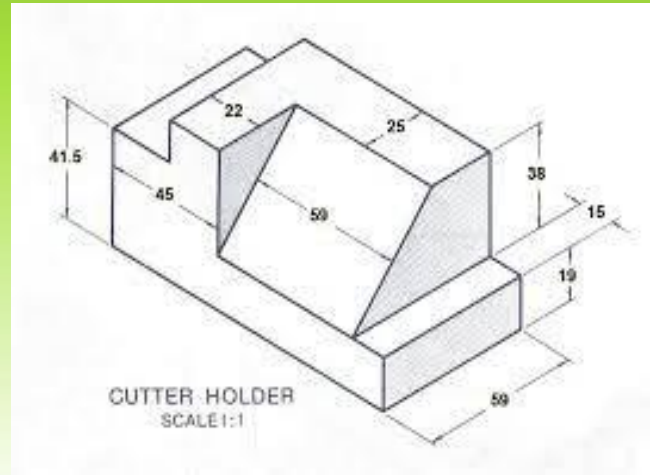
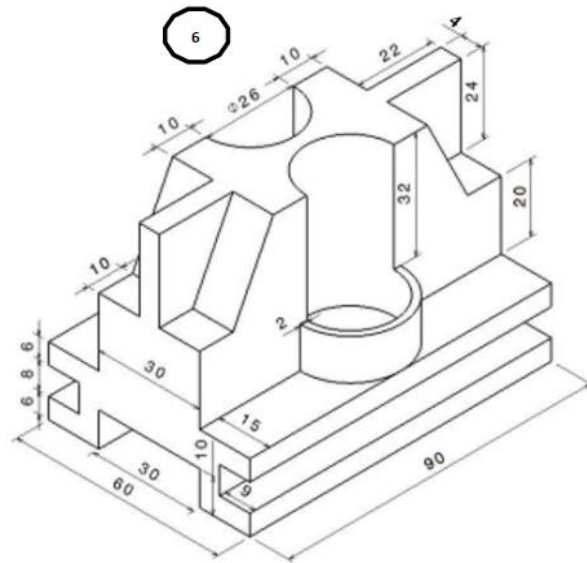
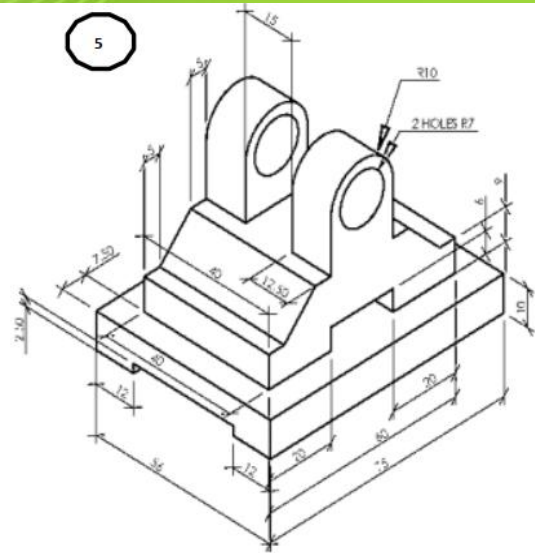
- Use 1st-angle projection system:



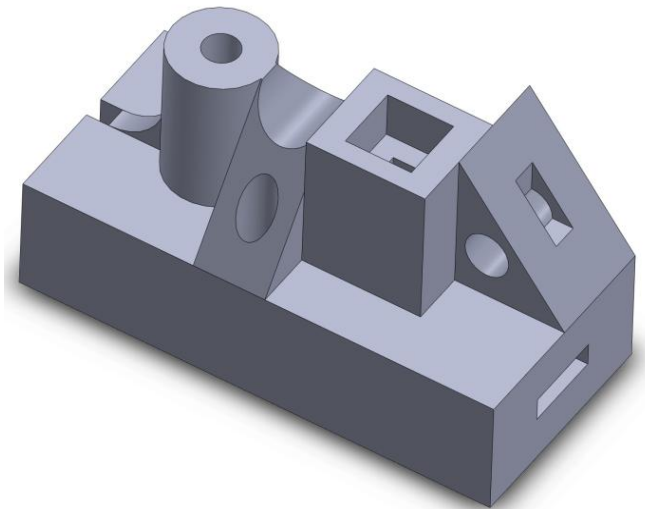
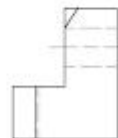
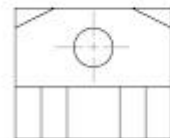
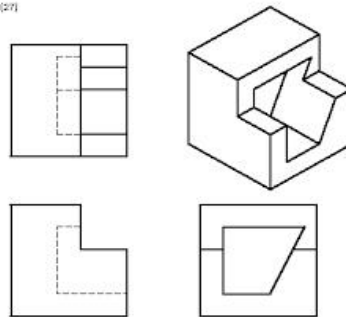
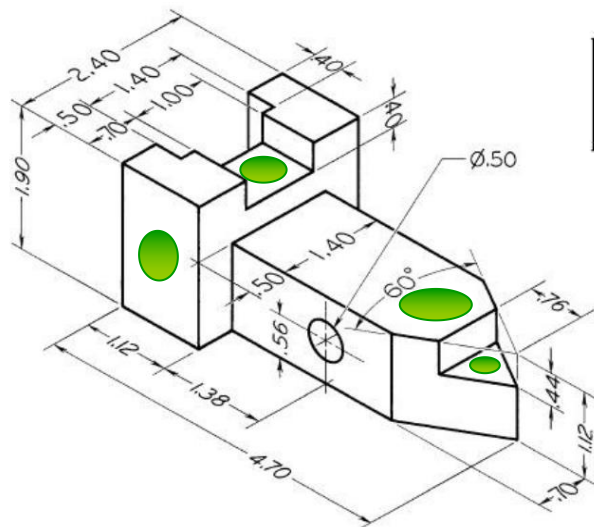
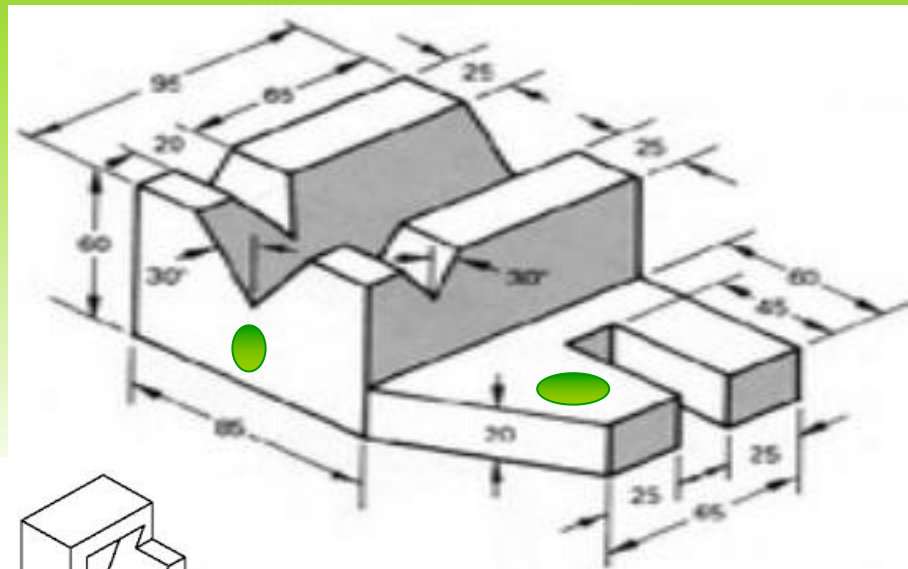
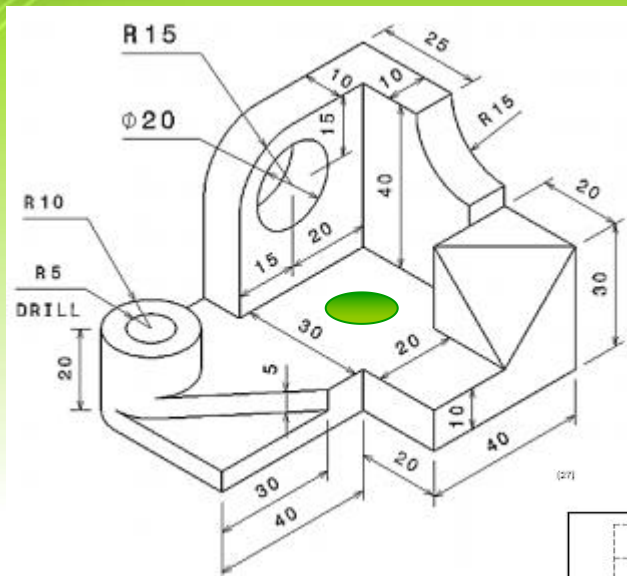
Multi View



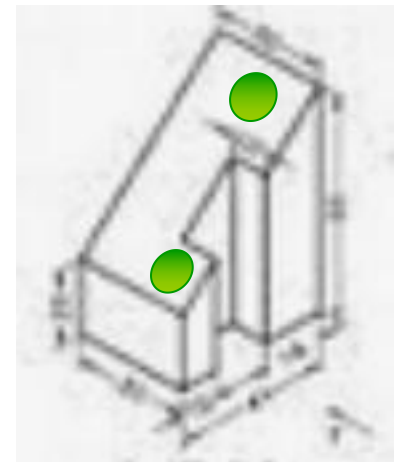
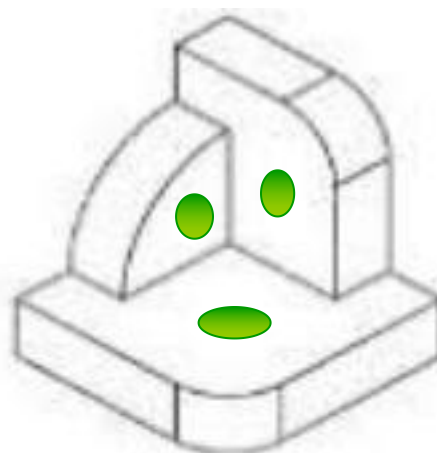
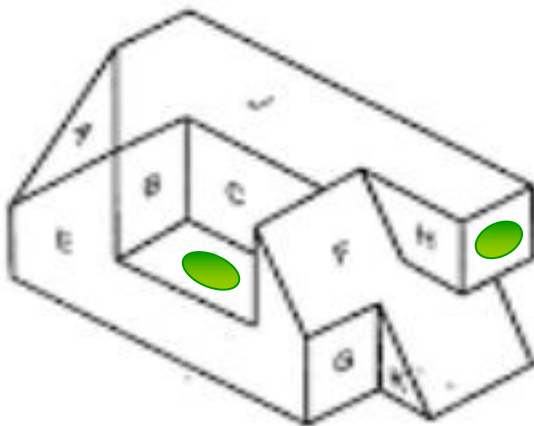
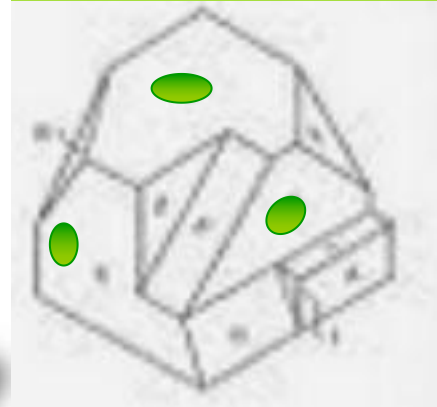
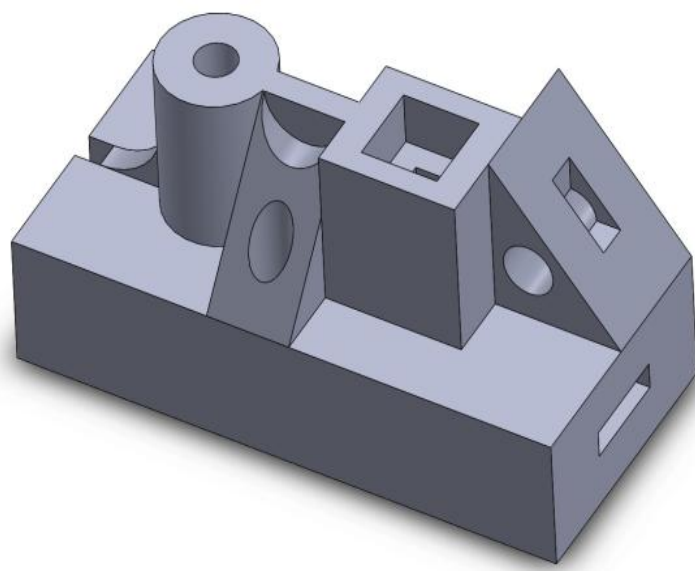
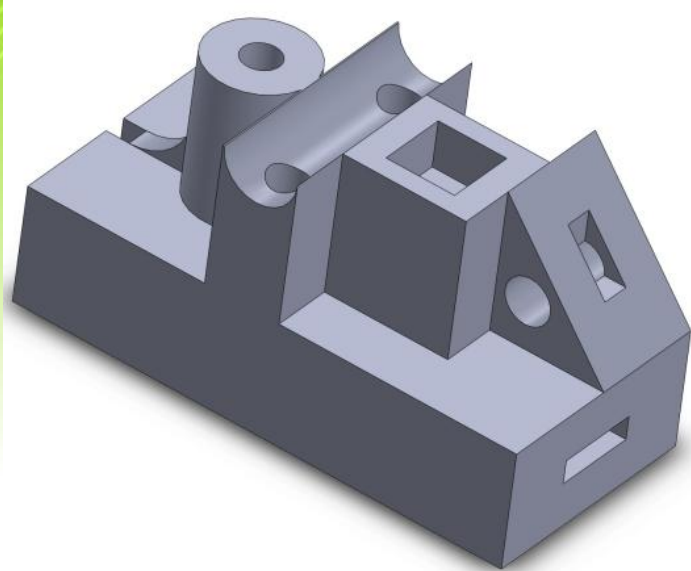
Multi View



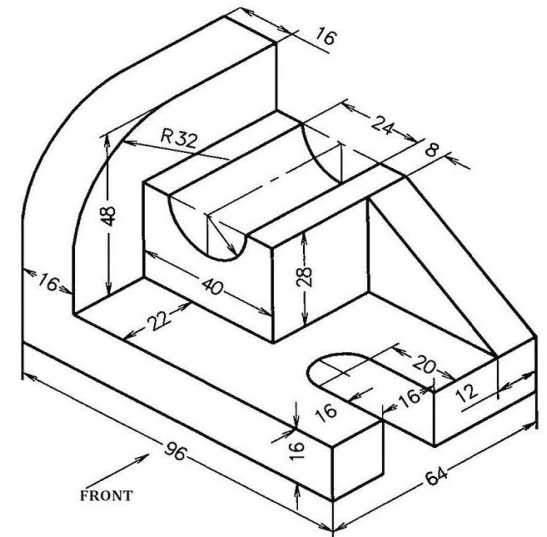
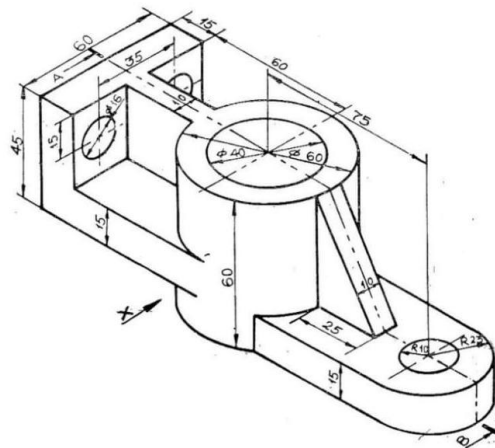
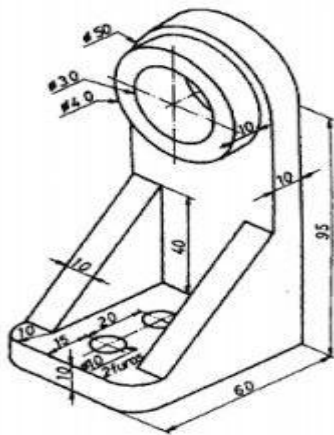
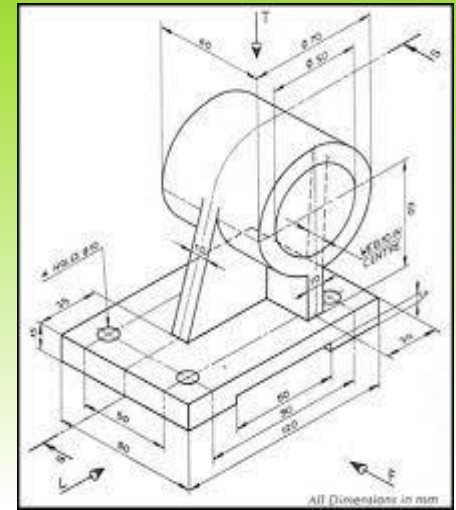
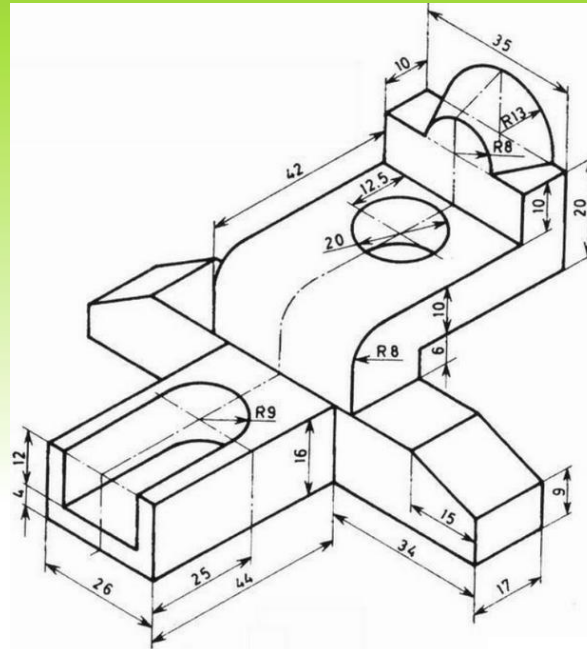
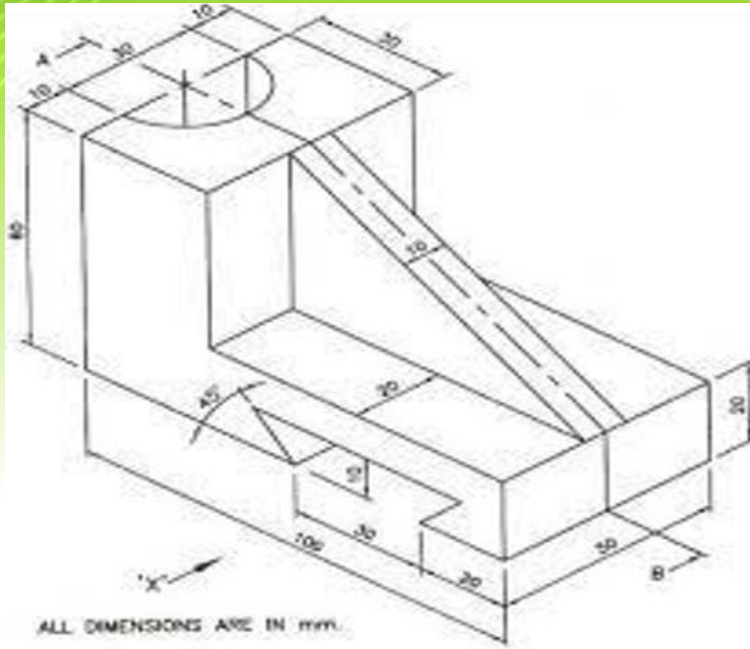
Multi View



Multi View



Multi View



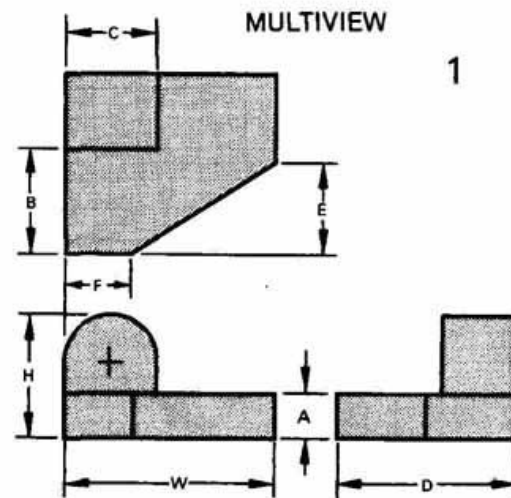
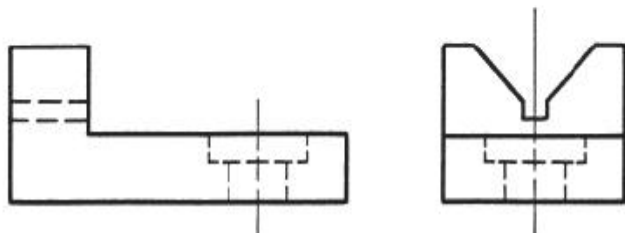
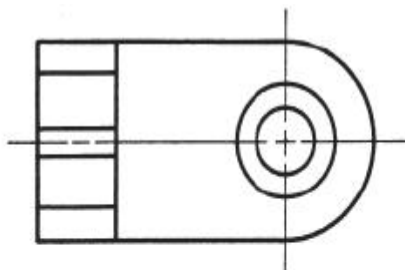
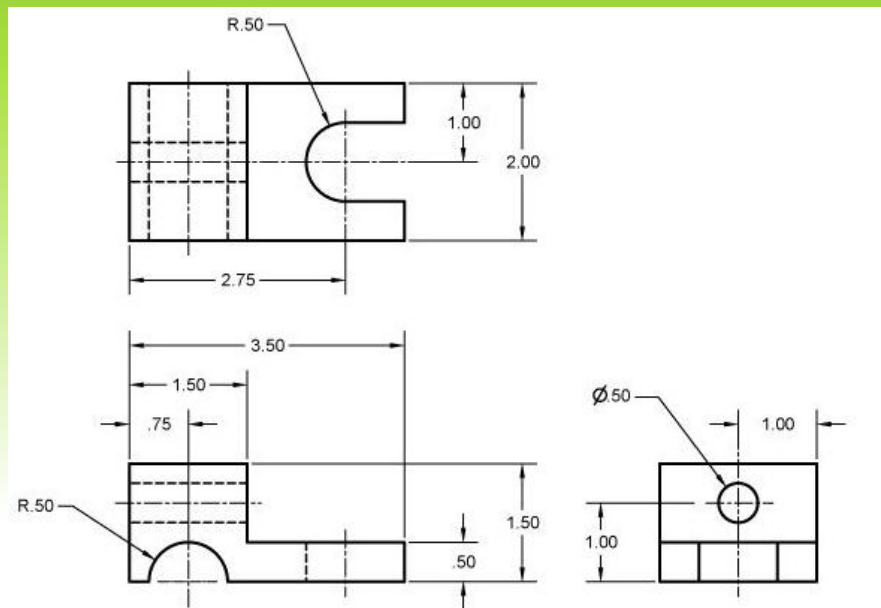
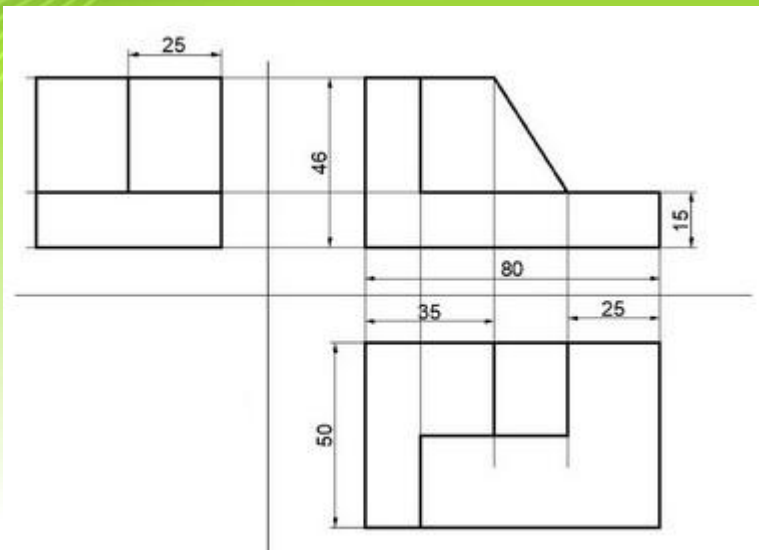
Common Mistakes in Multi-View

❖ Some of the common mistakes in multi-view are:

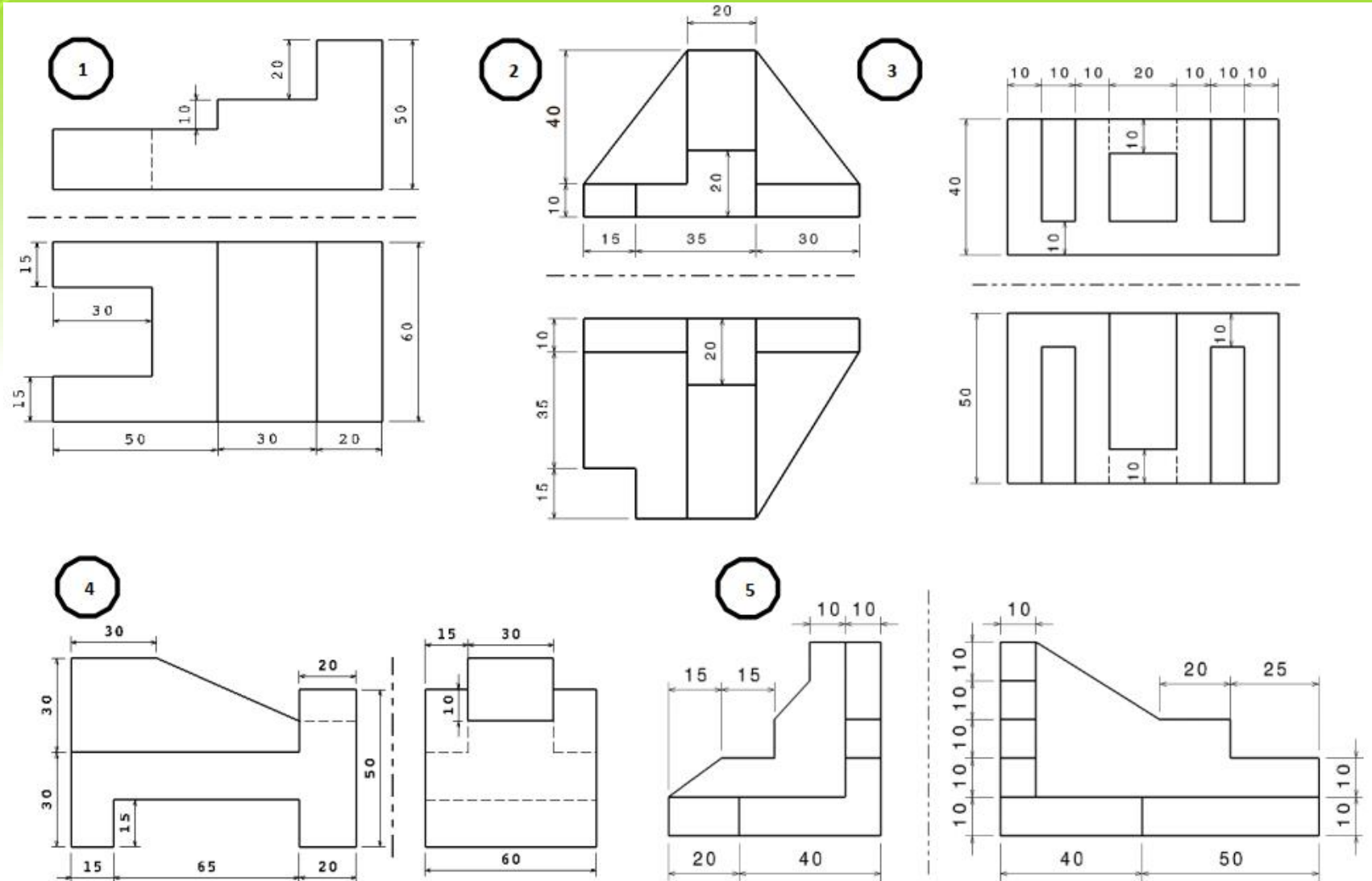
- missing principles of projection (point, line & plane)
- selection of front-view
- orientation alignment of views
- unconsider cross-checking back to pictorial drawing
- missing considering parallelity & perpendicularity of lines
- mixing 1st & 3rd angle projection systems
- missing using 45 degree for complex features



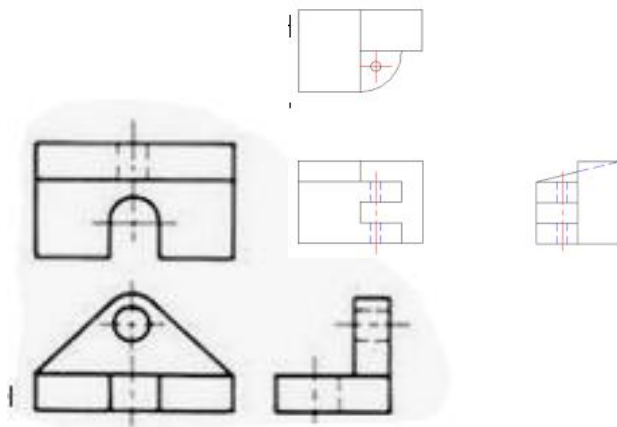
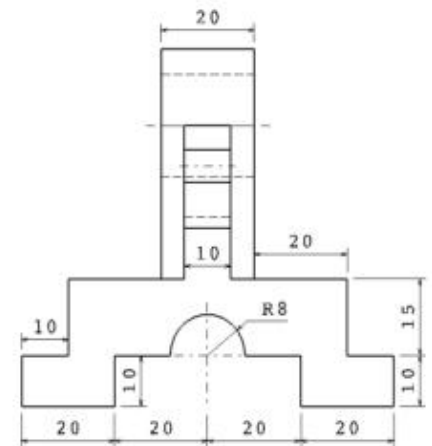
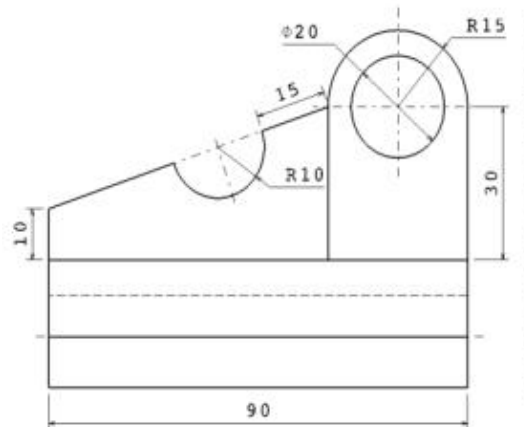
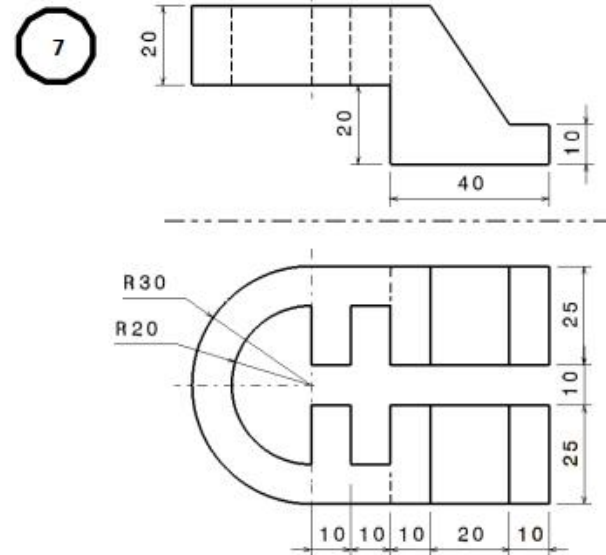
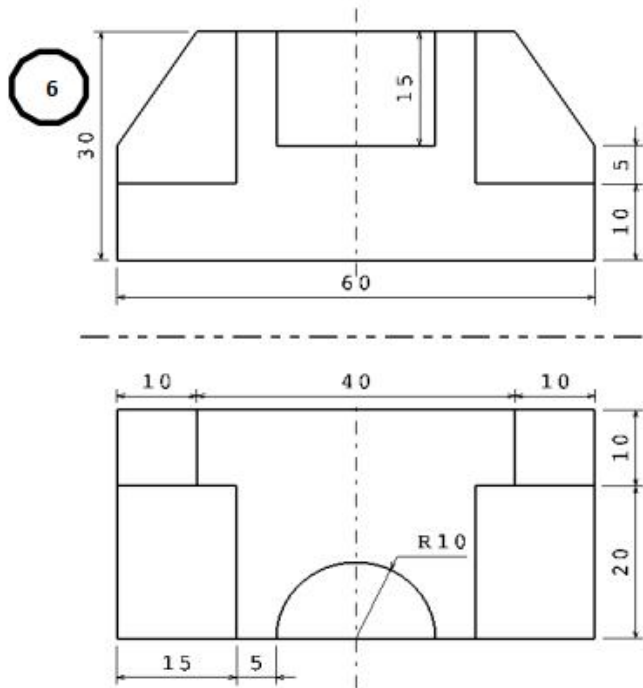
Pictorial Drawing - practice



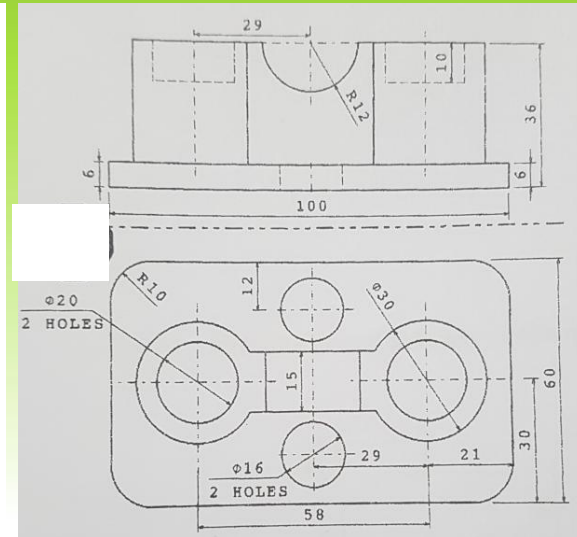
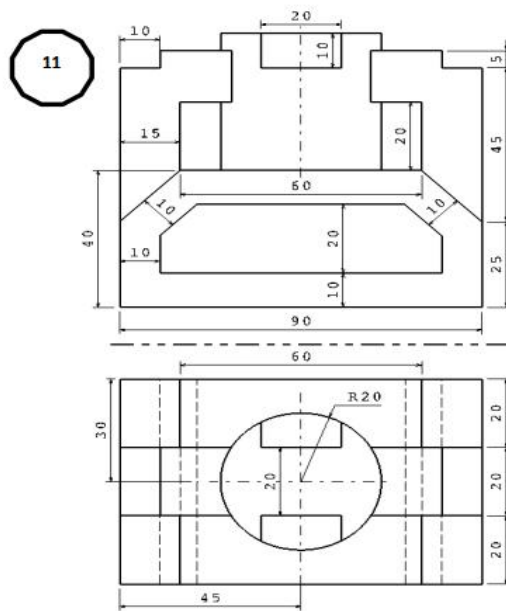
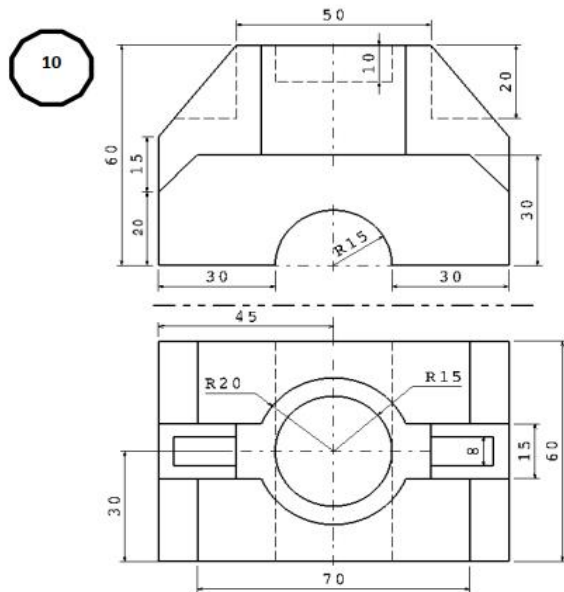
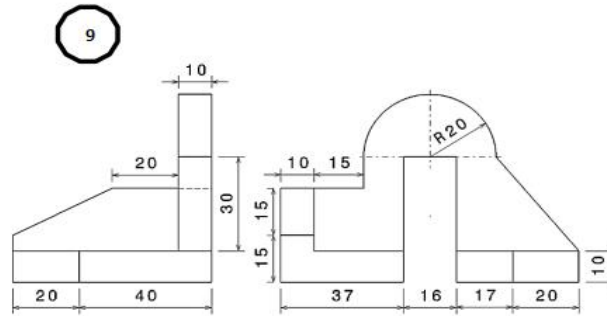
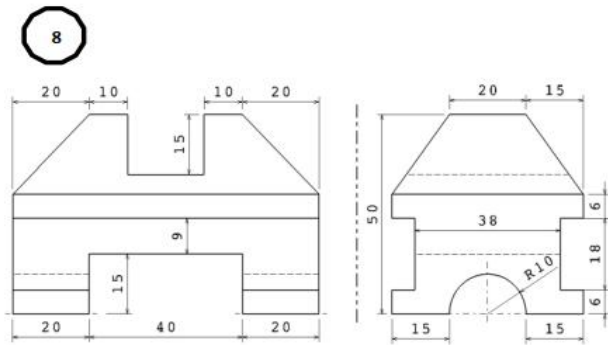
Pictorial Drawing



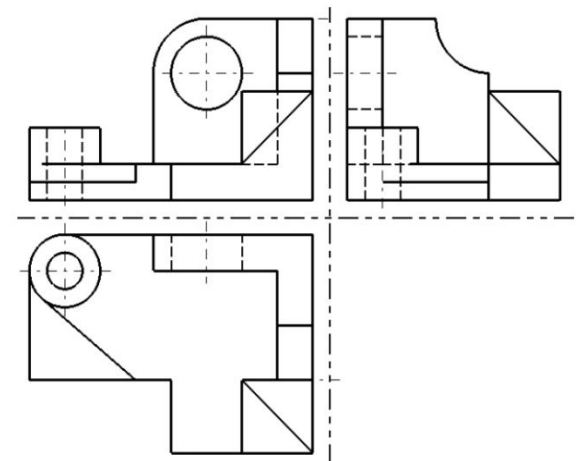
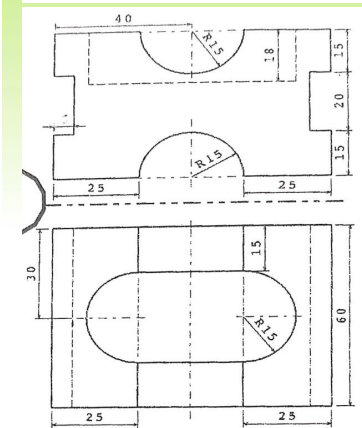
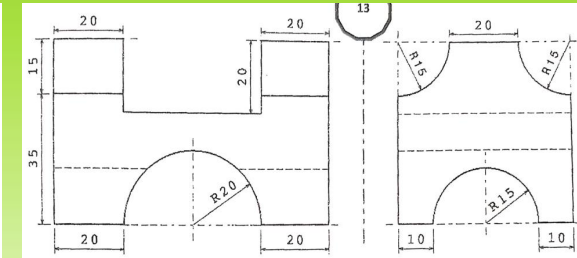
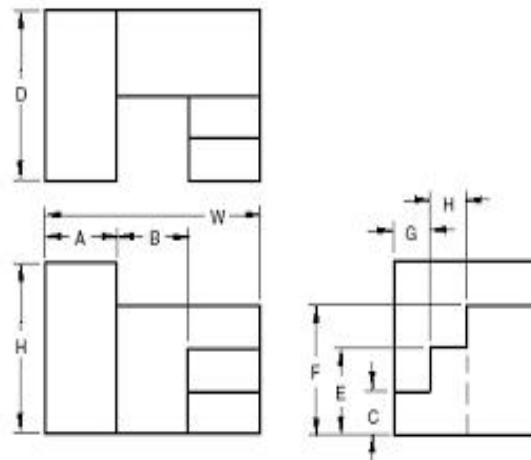
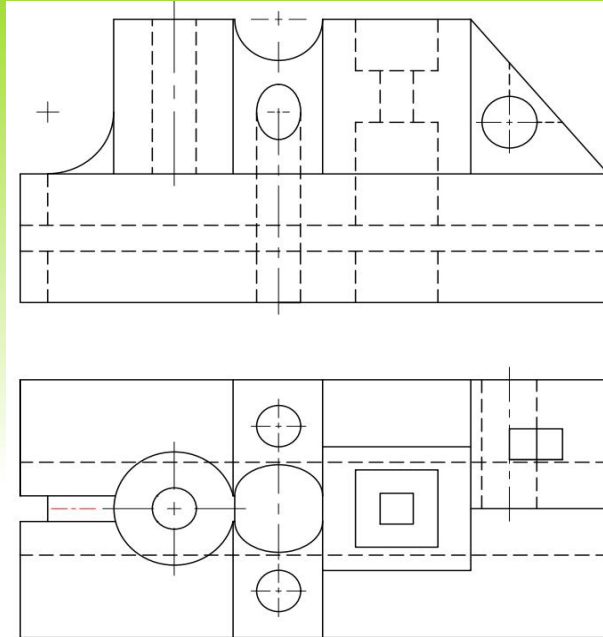
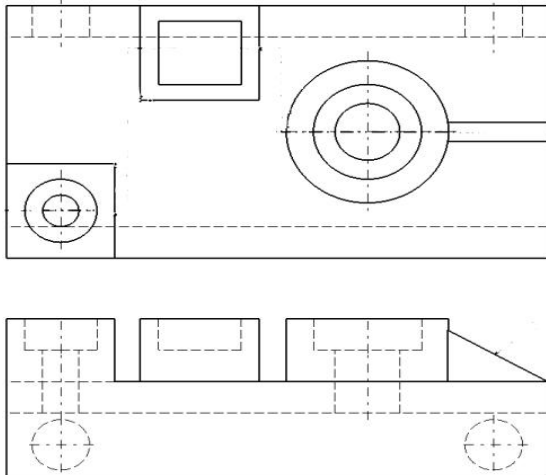
Pictorial Drawing



Pictorial Drawing



The image displays three orthographic views of a mechanical component. The top view is a front elevation showing a symmetrical profile with a central rectangular cutout and sloped sides. The bottom-left view is a top plan view showing a circular feature in the center and a rectangular base. The bottom-right view is a side elevation showing the profile of the object from the side, including a sloped top surface and a vertical section.

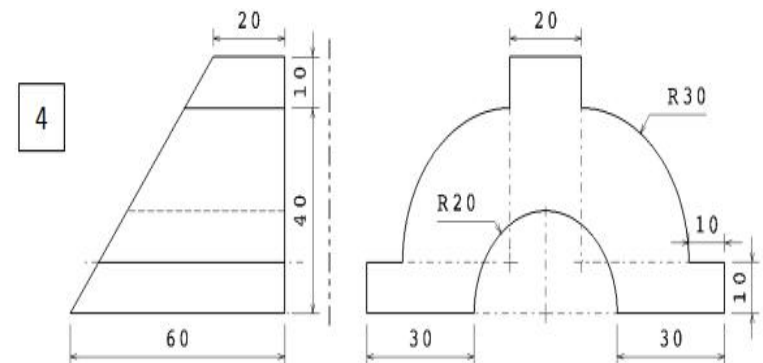
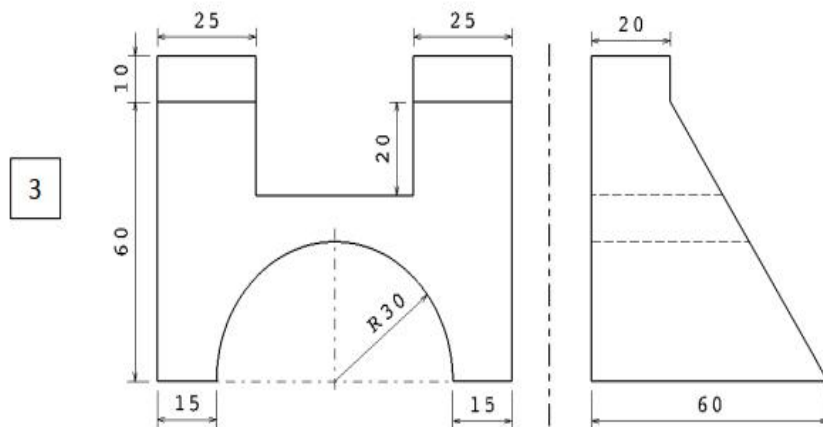
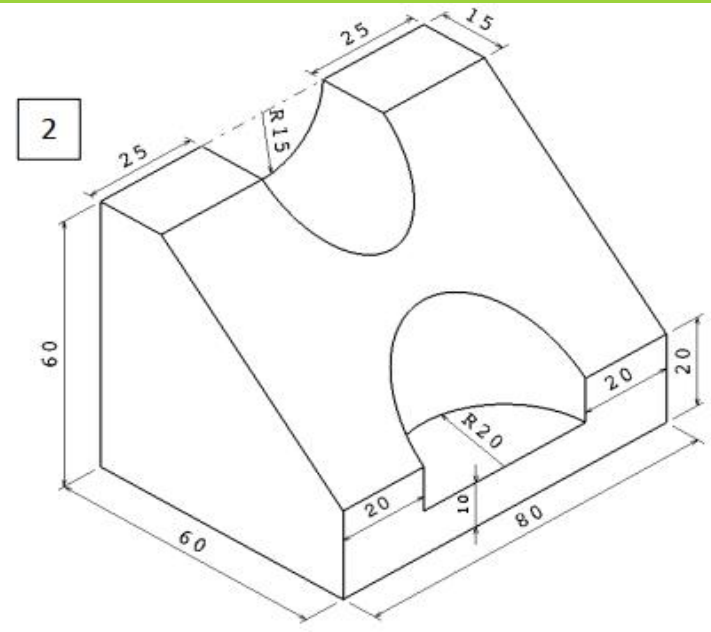
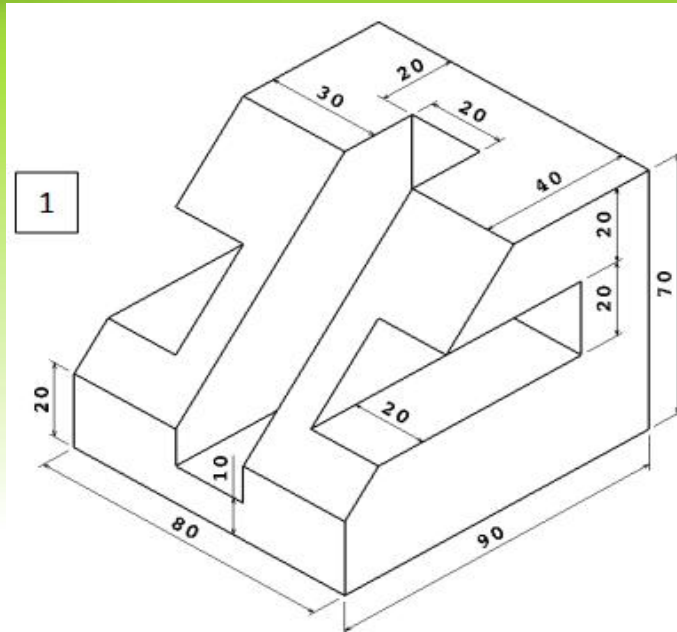


Common Mistakes in Pictorial Drawing

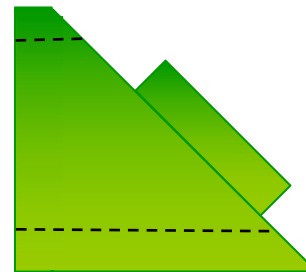
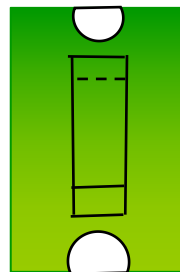
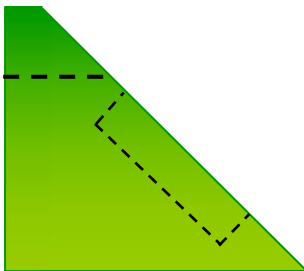
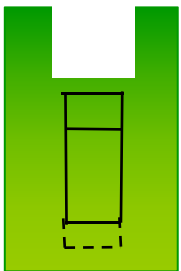
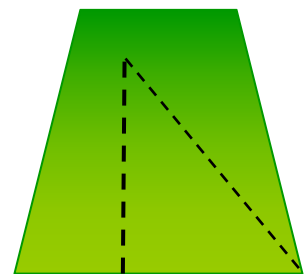
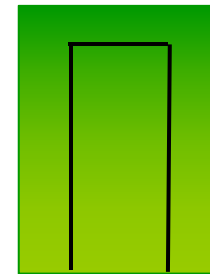
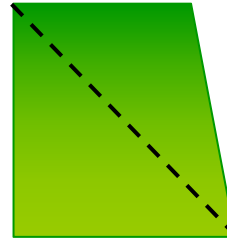
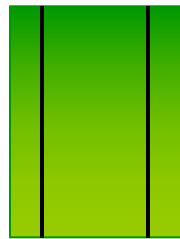
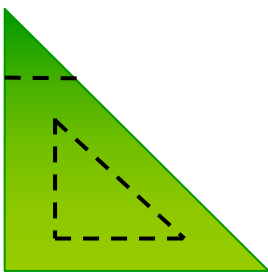
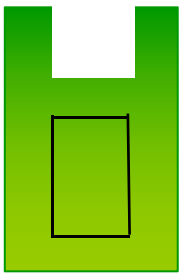
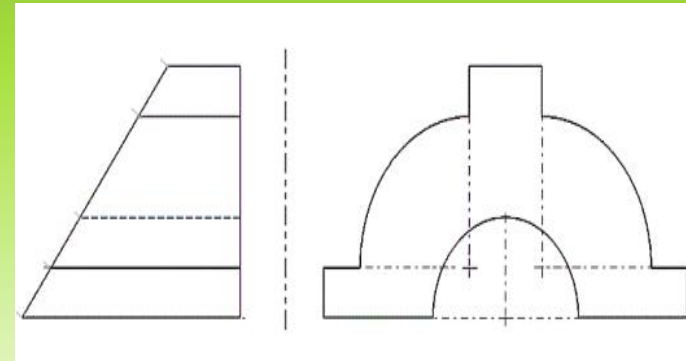
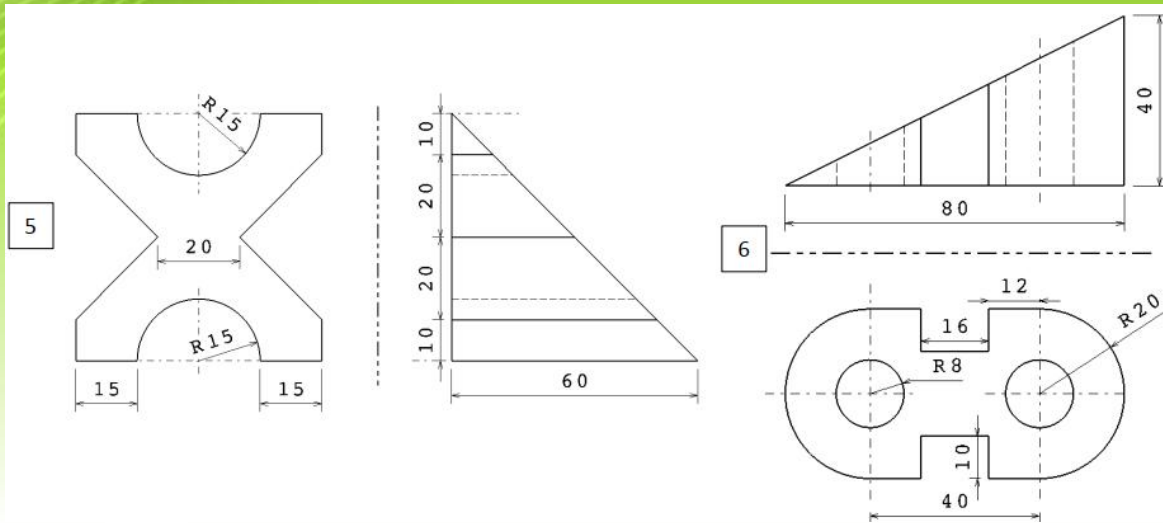
- ❖ Some of the common mistakes in pictorial drawing are:
 - decision inaccuracy for orientation selection
 - missing pictorial drawing procedures
 - unconsider cross-checking back to multi-view
 - taking time in visualizing the object
 - missing considering parallelity & perpendicularity of lines
 - mixing Isometric & Obliques pictorial drawings (PD)
 - missing commonly used angles in Isometric/Oblique PD
 - missing concept of ellipse drawing (mainly four-center method)



Auxiliary View

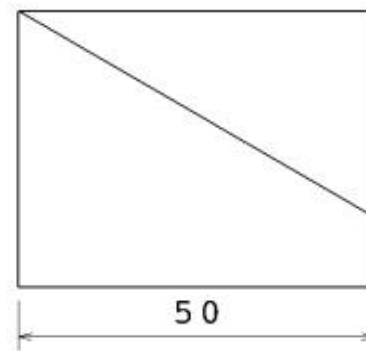
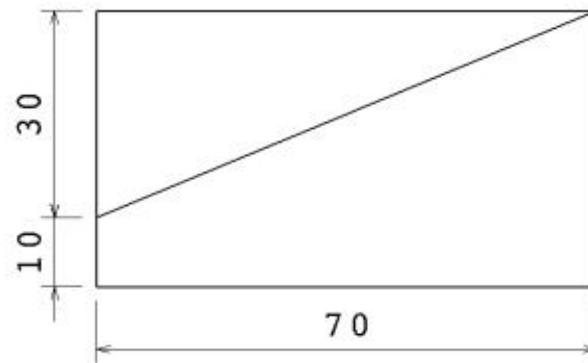


Auxiliary View

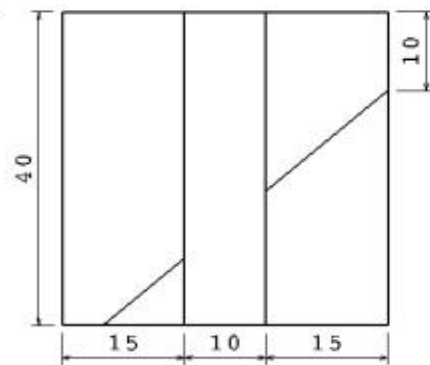
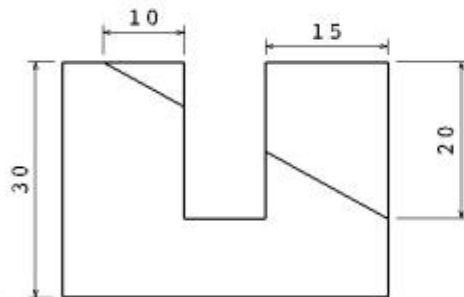


Auxiliary View

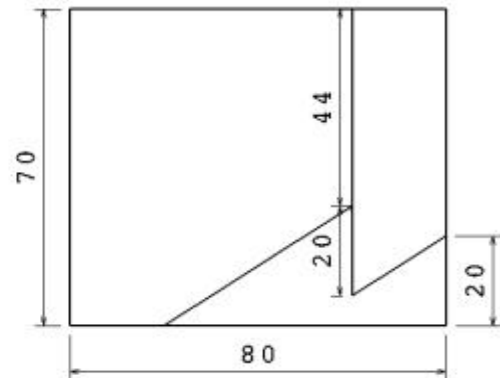
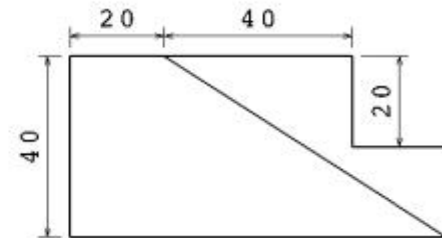
7



8



9



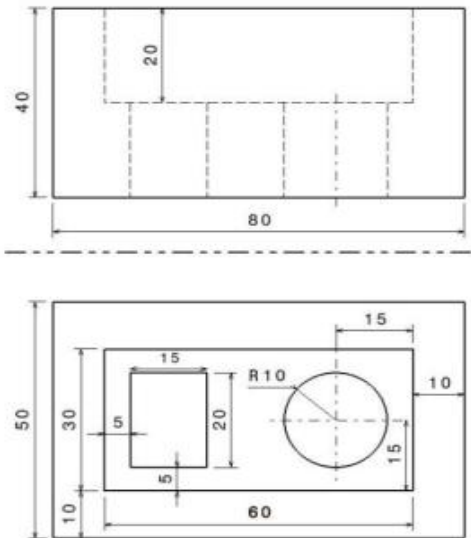
Common Mistakes in Auxiliary-View

- ❖ Some of the common mistakes in auxiliary-view are:
 - visualization inaccuracy
 - region to be projected
 - mixing partial & complete A. Vs.
 - mixing or confusion b/n primary & secondary A. Vs.
 - mixing 1st & 2nd plane line in secondary A. V.
 - missing direction of observation or lines of sight

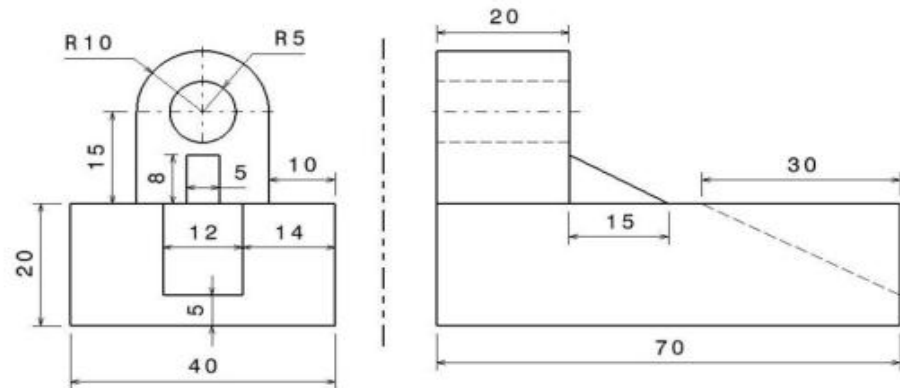


Sectional View

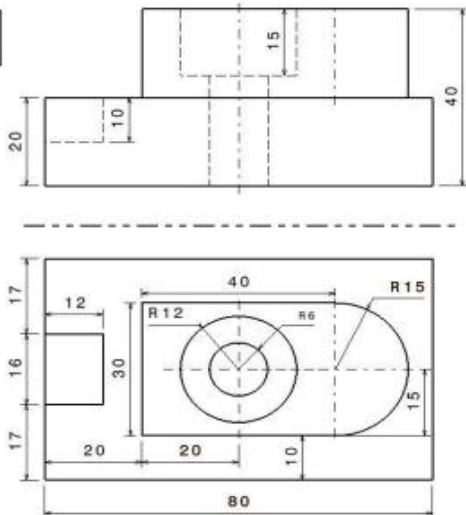
1



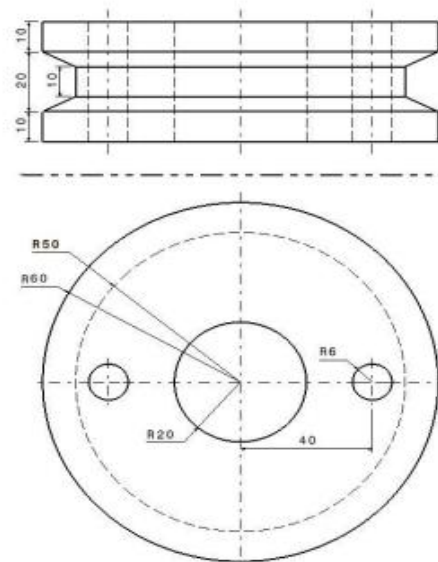
2



3



4



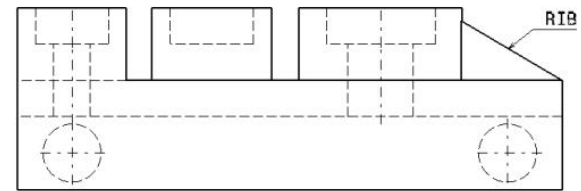
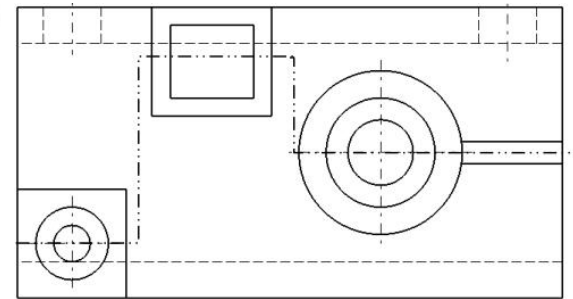
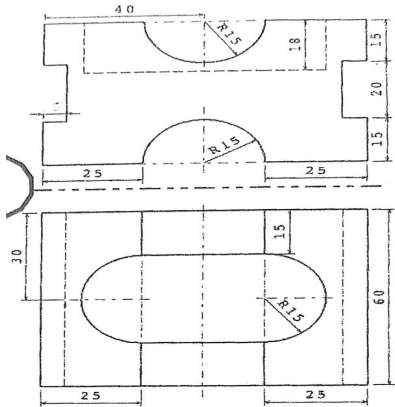
Technical drawing of a mechanical part, showing front and top views with dimensions.

Front View (Top):

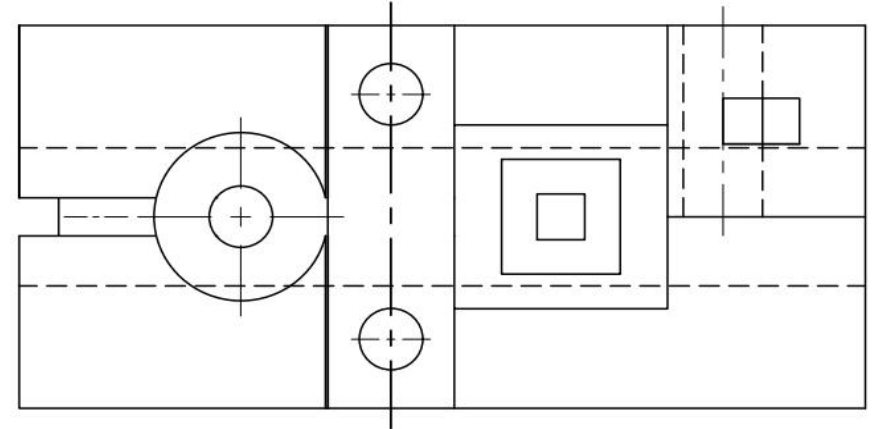
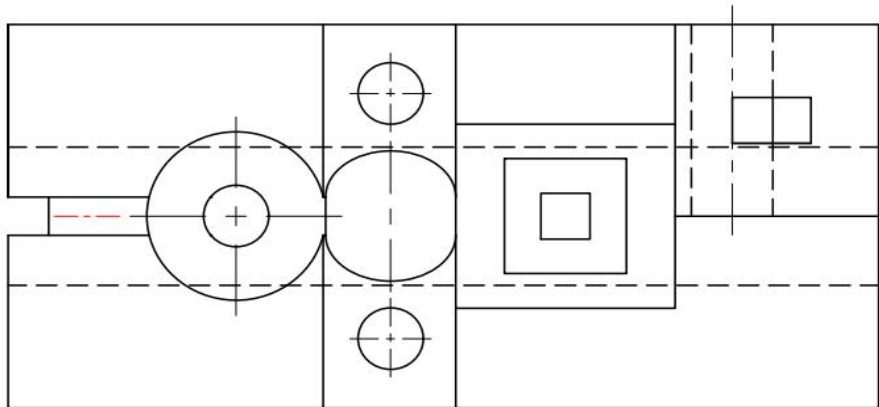
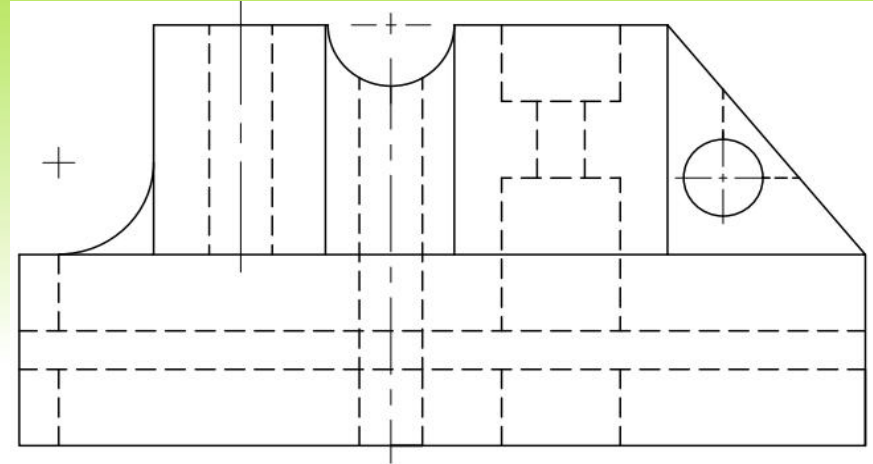
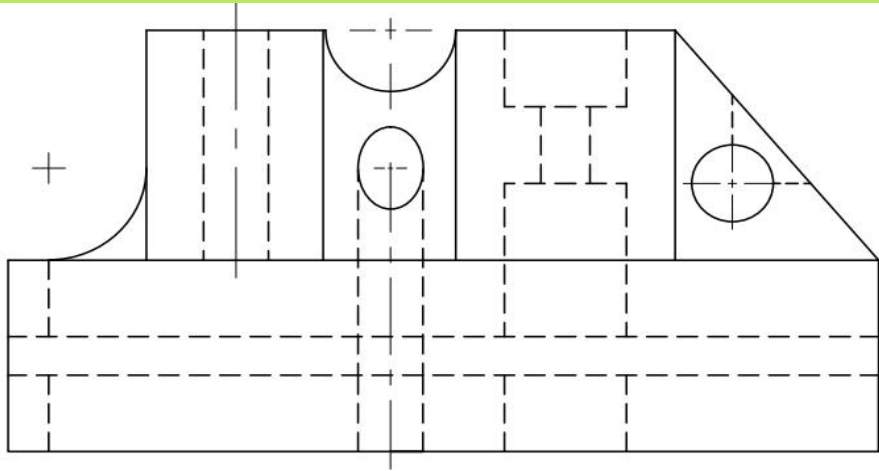
- Overall width: 100
- Overall height: 36
- Top flange thickness: 6
- Bottom flange thickness: 6
- Distance from left edge to center of semi-circular cutout: 29
- Radius of semi-circular cutout: $R12$
- Distance from center of semi-circular cutout to right edge: 10

Top View (Bottom):

- Overall width: 58
- Overall height: 60
- Distance from left edge to center of left circular hole: 21
- Distance from center of left circular hole to center of middle rectangular slot: 15
- Distance from center of middle rectangular slot to center of right circular hole: 29
- Distance from center of right circular hole to right edge: 21
- Radius of left circular hole: $R10$
- Radius of right circular hole: $R30$
- Radius of middle rectangular slot: 12
- Width of middle rectangular slot: 15
- Left circular hole diameter: $\phi 20$
- Right circular hole diameter: $\phi 30$
- Middle rectangular slot diameter: $\phi 16$
- Number of holes: 2 HOLES (referring to the circular holes)

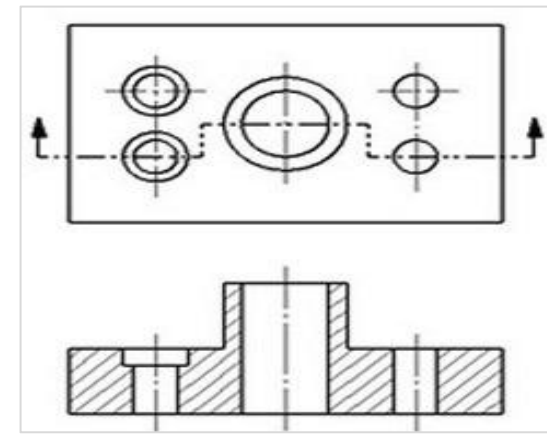
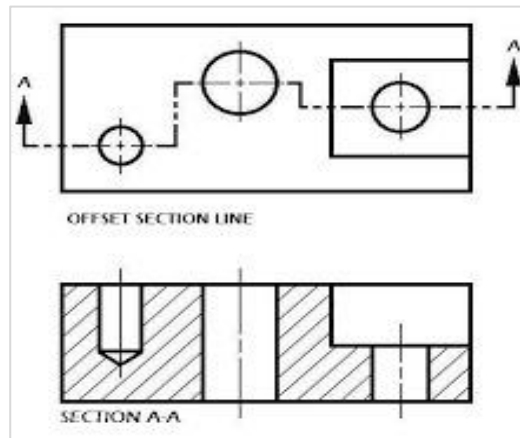
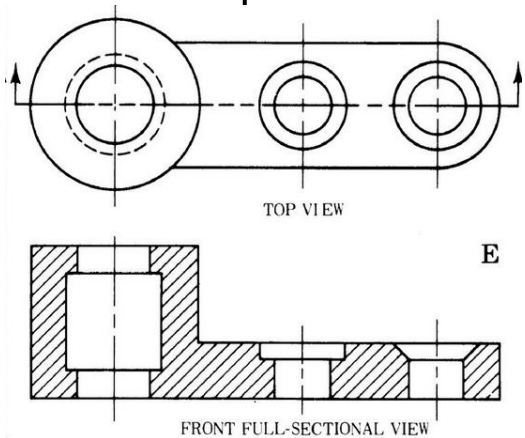
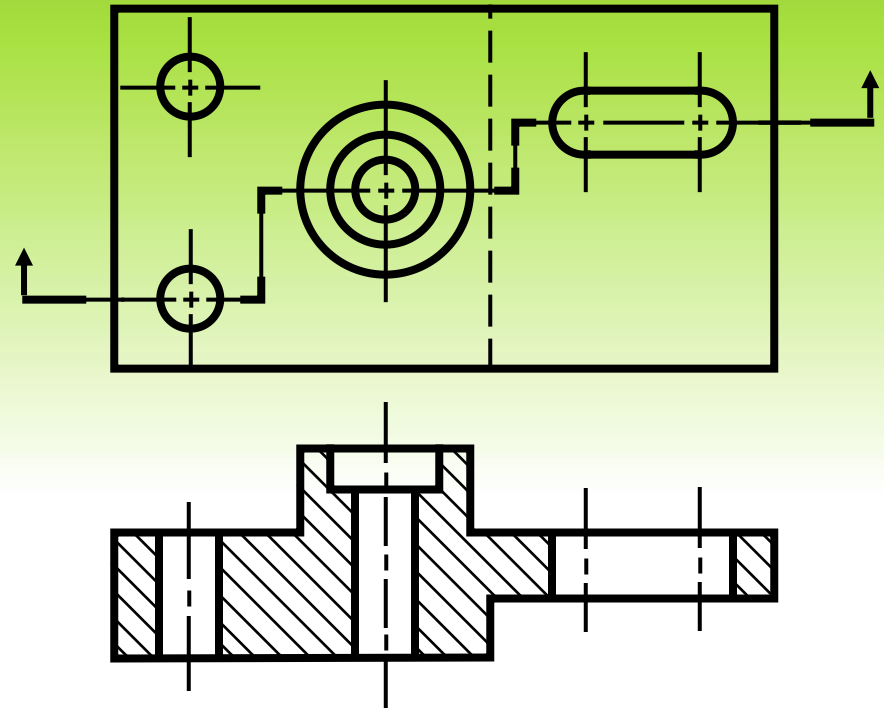
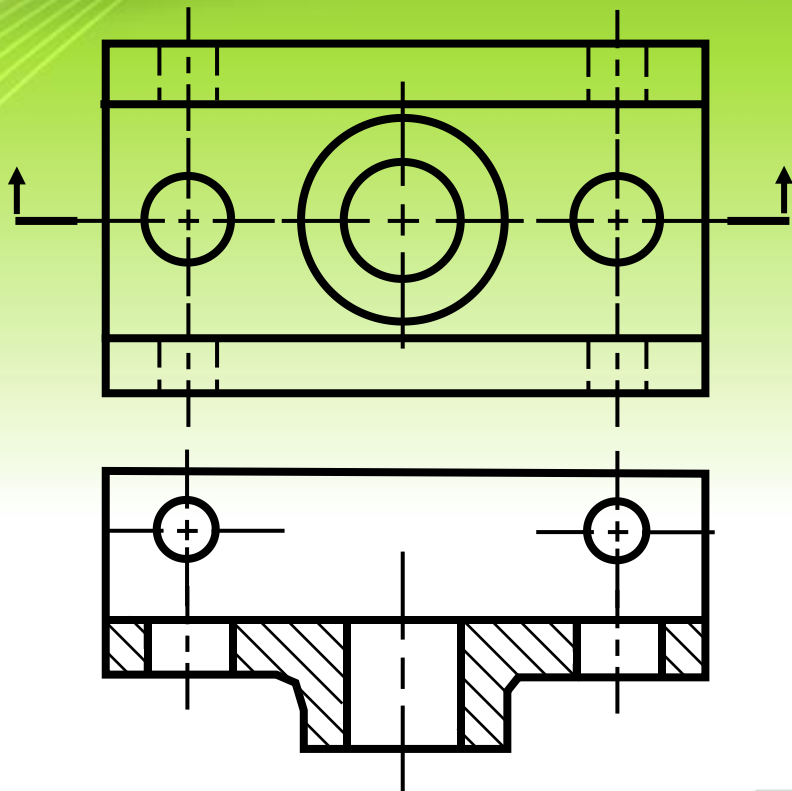


Sectional View



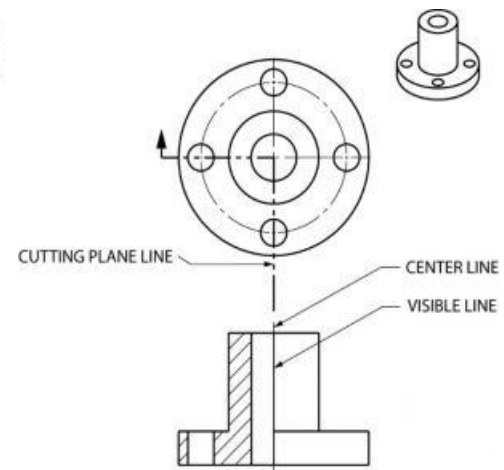
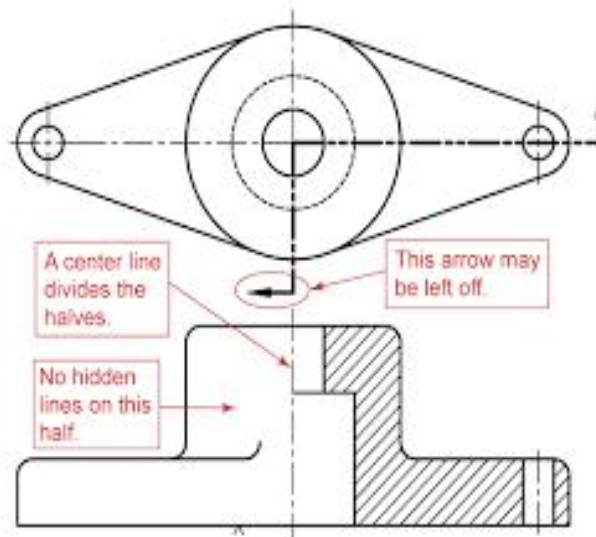
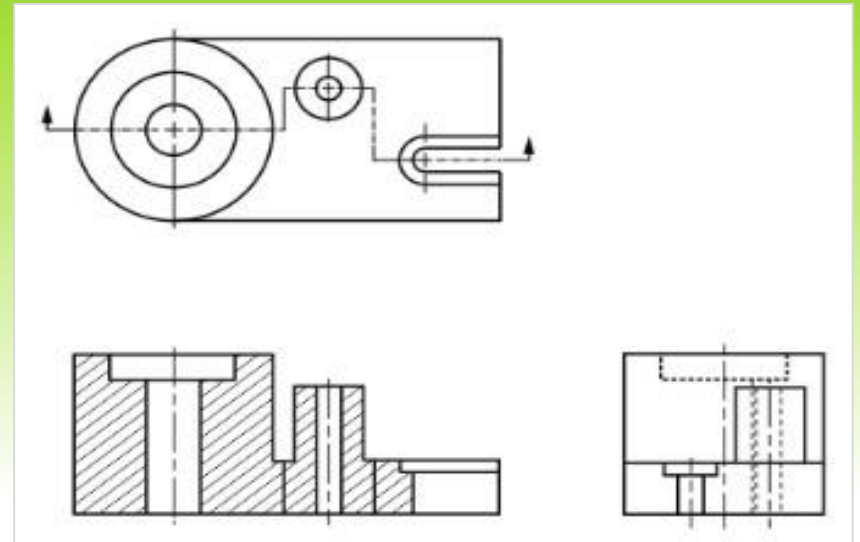
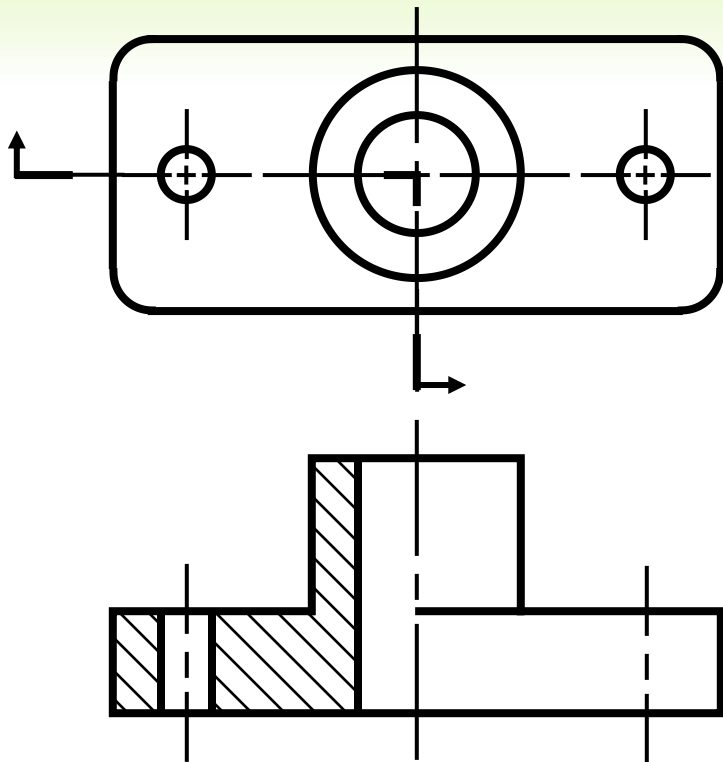
Sectional View

Examples:



Sectional View

Examples:



Common Mistakes in Sectional View

- ❖ Some of the common mistakes in sectional view are:
 - selection of section type
 - visualization inaccuracy
 - section line thickness & spacing
 - region to be sectioned
 - direction of cutting plane line
 - openings or extending section lines to/from solid line
 - arrow head shape & size
 - arrow direction length
 - cutting plane line type
 - dimensional inaccuracy

Common Mistakes in All Chapters

❖ Some of the common mistakes in all chapters are:

- lettering
- dimensional inaccuracy
- line thickness & quality
- line uniformity
- neatness
- drawing quality
- instruction
- visualization
- line rules & types
- centering drawing
- overall drawing inaccuracy & time management.



End of the Course!

Thank you!

Good Luck!