

1. Exercise : 7

2. Date: 27/11/2020

3. Title : Section of solids.

4. Aim : To draw the orthographic multi-view projection of sectioned solid like prisms/ cylinders and pyramids/ cones.

5. Software used: Autodesk AutoCAD 2021

6. Introduction: Section of solids:

One of the engineering application of projection of solids is SECTION OF SOLIDS. An object (here a solid) is cut by some imaginary cutting plane to understand internal details of that object. The action of cutting is called SECTIONING a solid and the plane of cutting is called SECTION PLANE.

6.3 Terminology (with sketch):

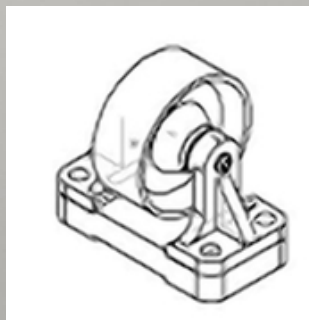


Fig.

6.2 Real time example - Picture



Fig.

7. Procedure (for solving question # ): To understand how the objects

7.1 Question outline : are drawn using conditions.

7.2 Object : Combination of solids.

7.3 Resting on Conditions : See which Boolean equation is used.

7.4 Other resting condition (if any) : -

7.5 Other condition (cutting plane) : All dimensions should be in mm.

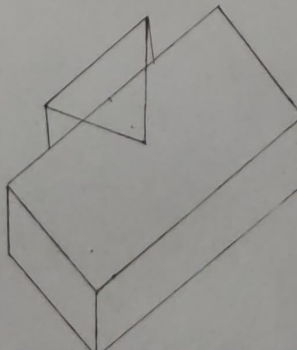


Fig. Free hand sketch of the solution to question #

### 7.6 Procedure:

- Step 1.** Draw a rectangle of (80×50)mm and triangle of (30×30×30)mm in top view, using "RECTANGLE" command.
- ② Now, draw a line of 20mm inside rectangle from midpoint of 80mm side using "LINE" command.
  - ③ Move the triangle using "MOVE" command by selecting one edge of triangle and moving it to other point of the line.
  - ④ Now, delete previously drawn line as it was just for reference.
  - ⑤ Using "EXTRUDE" command, extrude both the objects by selecting them to about 35mm in height and move to isometric view.
  - ⑥ Using Boolean equation i.e. "UNION" command (it adds up multiple objects into single one).
  - ⑦ Using ANNOTATION, give proper dimensions whenever needed.

### 8. Commands used:

S.N.	Command	Use
1.	UNITS	Used to set unit-type & precision.
2.	LIMITS	Define workspace & give it boundary.
3.	ZOOM	Expand/Contract the work area.
4.	RECTANGLE	Used to draw rectangle.
5.	LINE	Used to draw a line.
6.	MOVE	Move a object to desired location.
7.	EXTRUDE	Creates a 3D solid from enclosed area.
8.	UNION	Converts multiple objects into single one.
9.	TEXT	Used to write text in the file.
10.	DIM	Used to write dimension of object.
11.	VIEWBASE	Used to change views from top to front, etc.

### 9. Result:

Thus, by the use of AutoCAD 2021 we are able to draw solids of desired combination by using different types of commands, Boolean equations, etc. of given length and dimensions.

Faculty Name		Date of Submission	
Signature		Marks	