

ENGG105 AUTOCAD LAB 3



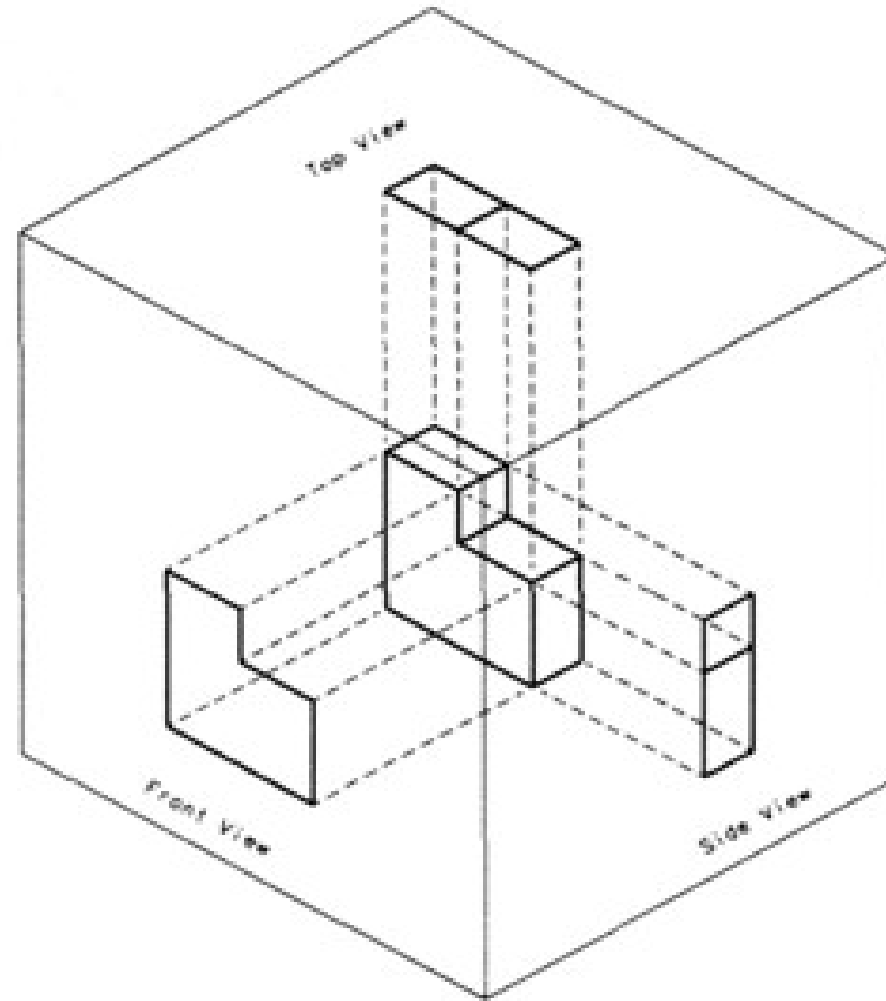
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University of Wollongong in Dubai

Orthographic projection is a parallel projection technique in which the parallel lines of sight are perpendicular to the projection plane

-Imagine yourself looking at the object from different directions (Top and sides).

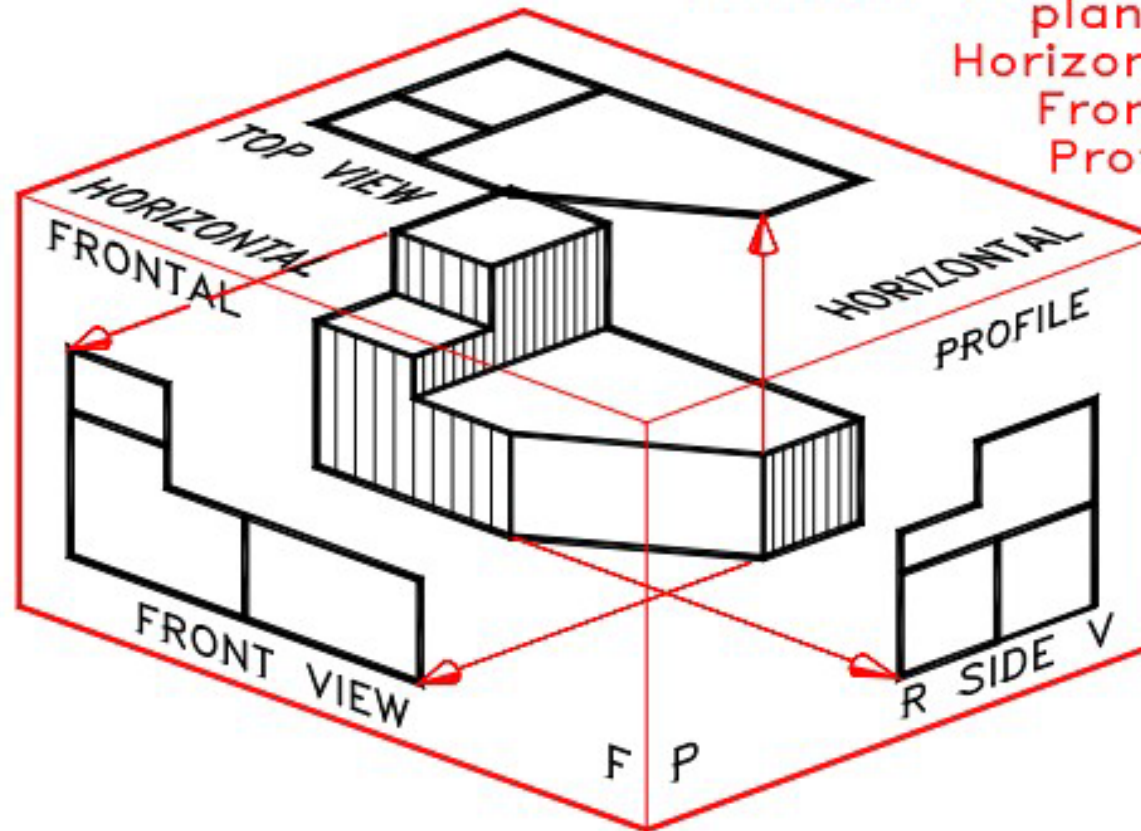
-The views you see are the 2D orthographic projections of that 3D drawing.



Engineering Drawing

THE GLASS-BOX APPROACH

Principal projection
planes:
Horizontal
Frontal
Profile



Types of Lines in Engineering Drawing:





- Visible lines represent features that can be seen in the current view

Meaning of Lines

- Hidden lines represent features that can not be seen in the current view
- Center lines represents symmetry, path of motion, centers of circles, axis of axisymmetrical parts



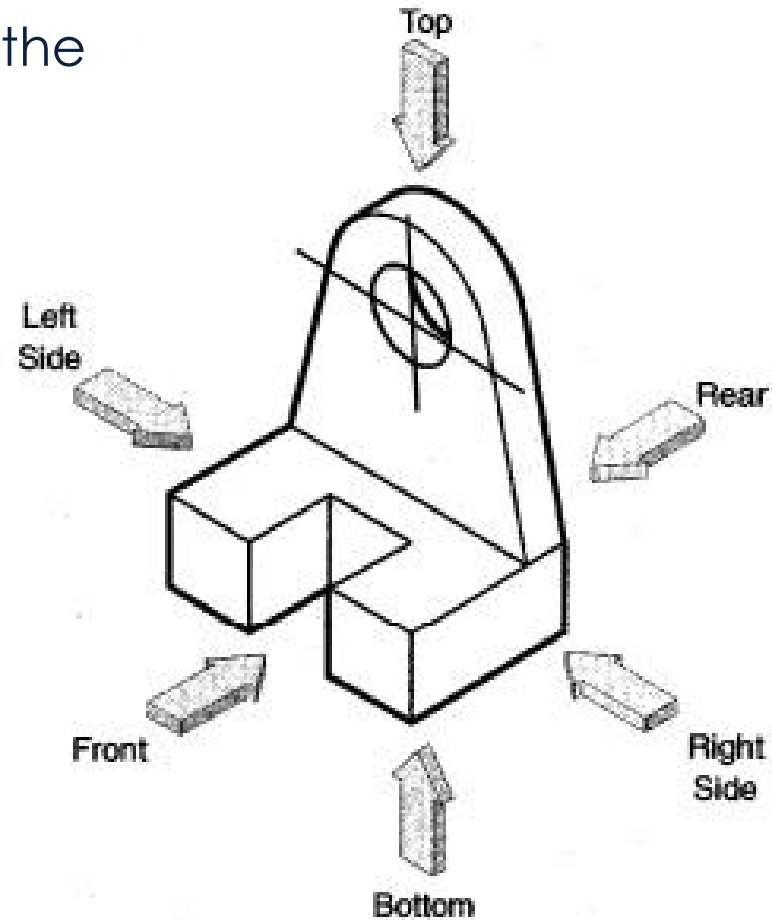
Engineering Drawing

Types of Lines	Appearance	Name according to application
Continuous thick line		Visible line
Continuous thin line		Dimension line Extension line Leader line
Dash thick line		Hidden line
Chain thin line		Center line



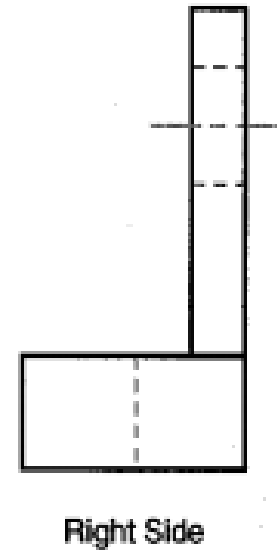
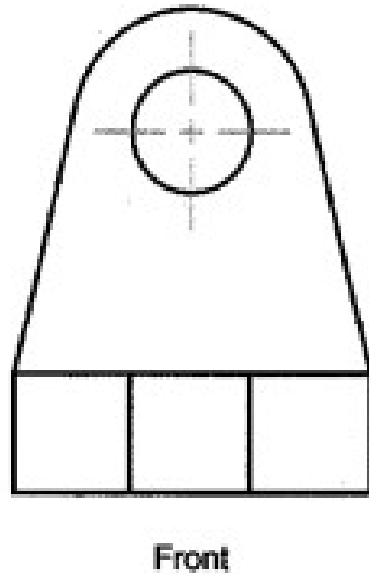
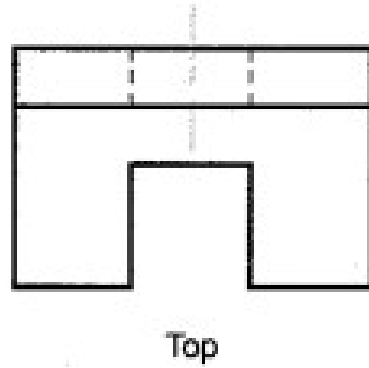
Engineering Drawing

Draw the three orthographic views of the object shown.



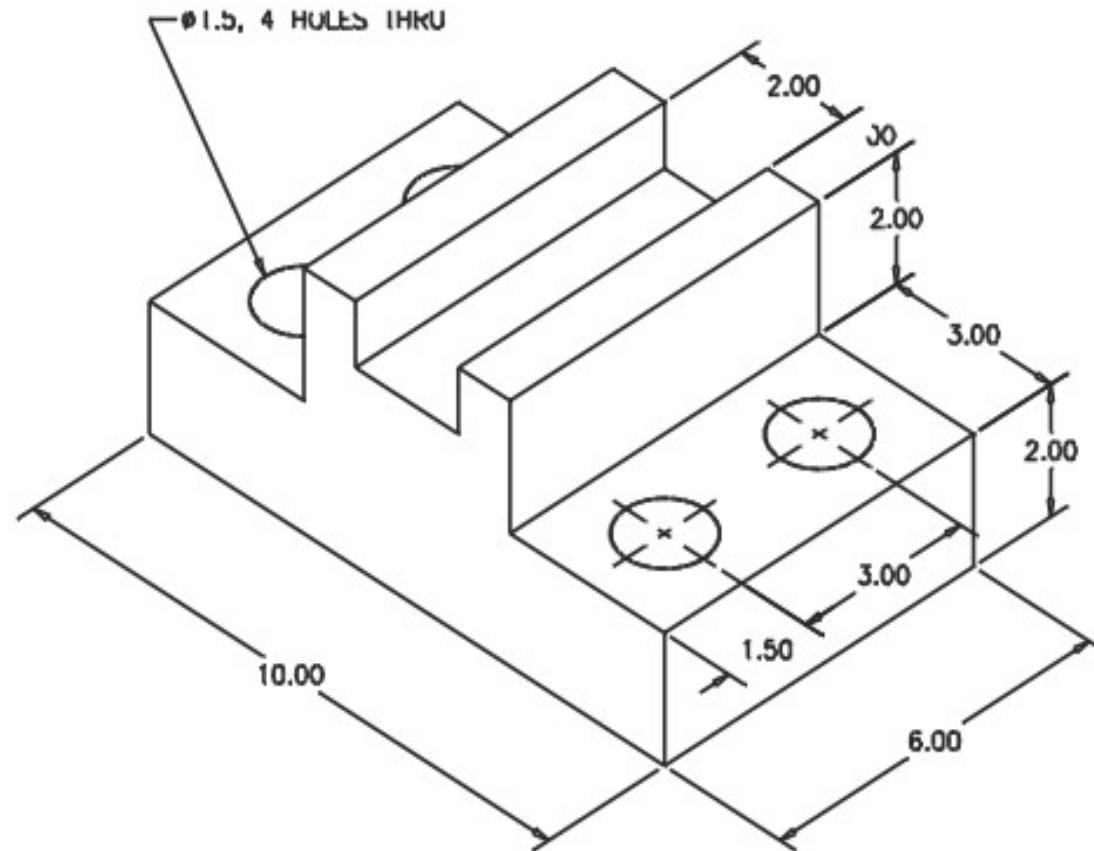
Engineering Drawing

The Solution:



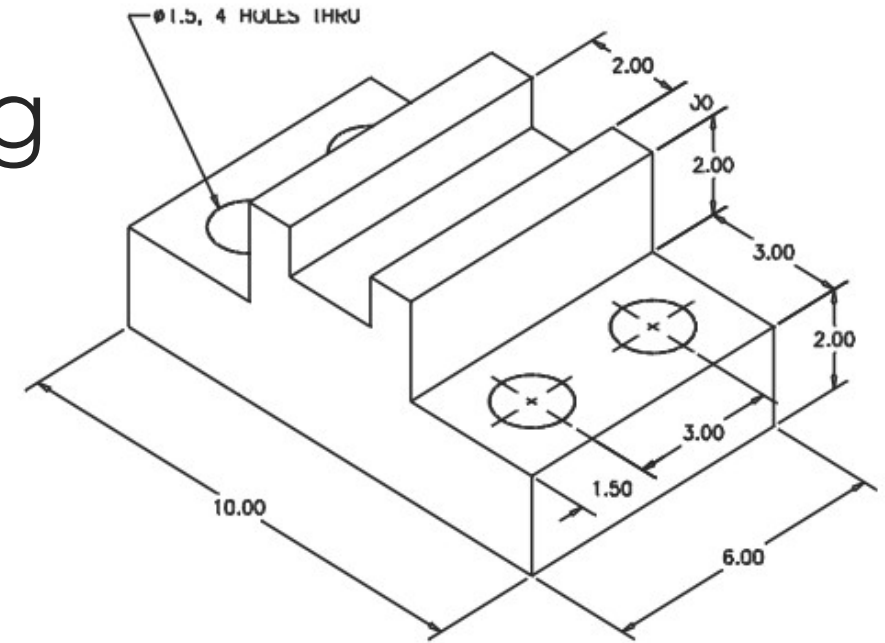
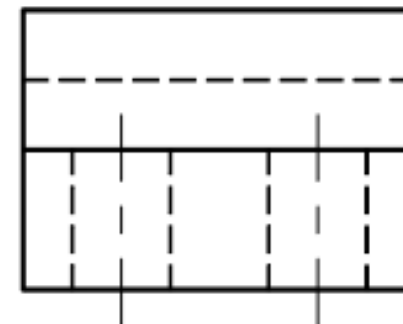
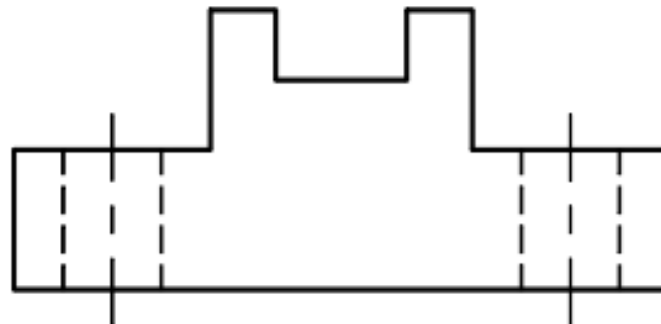
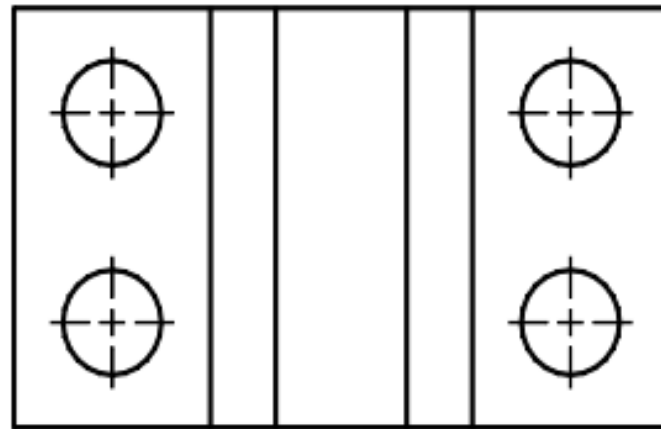
Engineering Drawing

Draw the three orthographic views of the object shown.



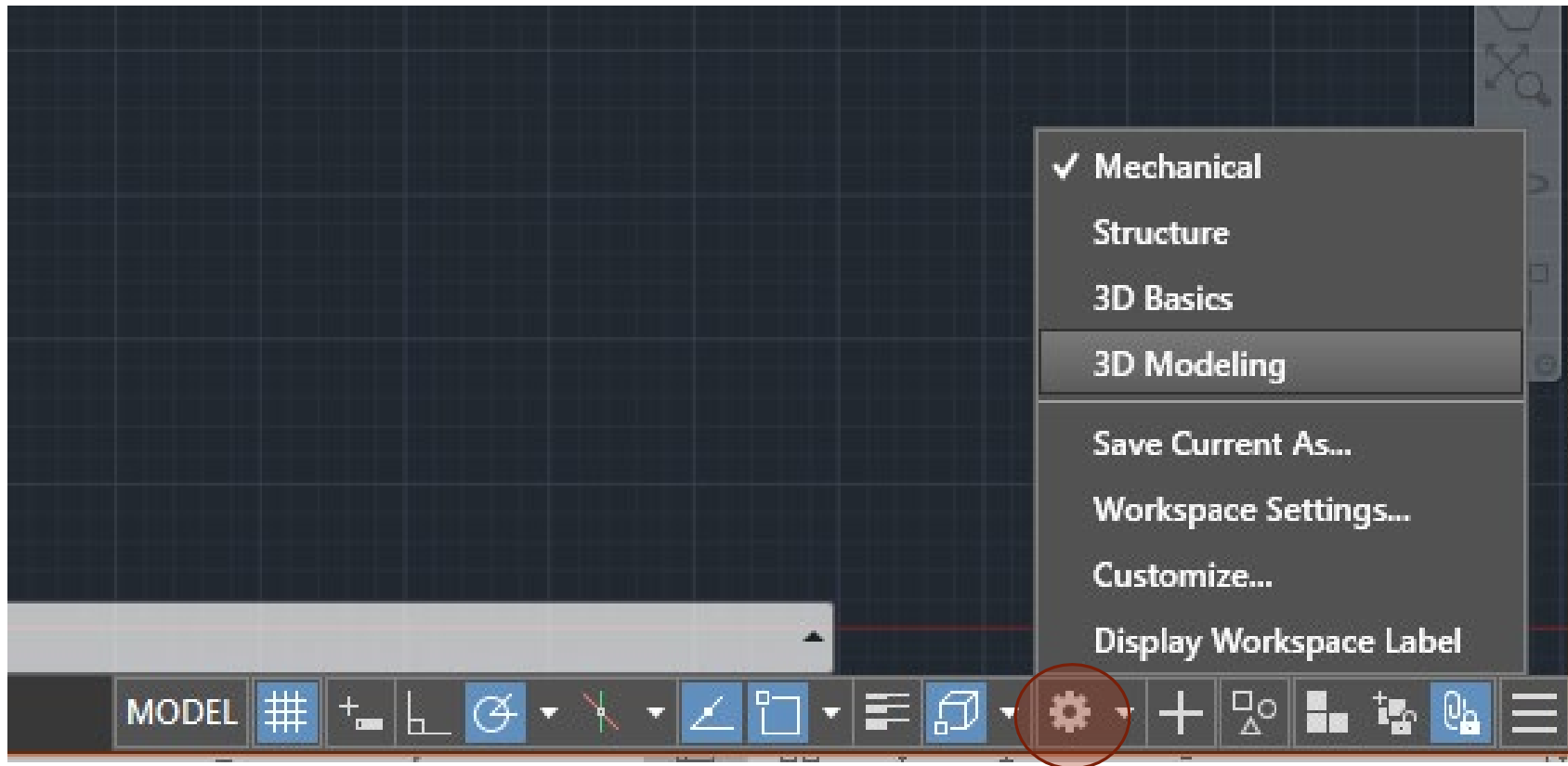
Engineering Drawing

The Solution:

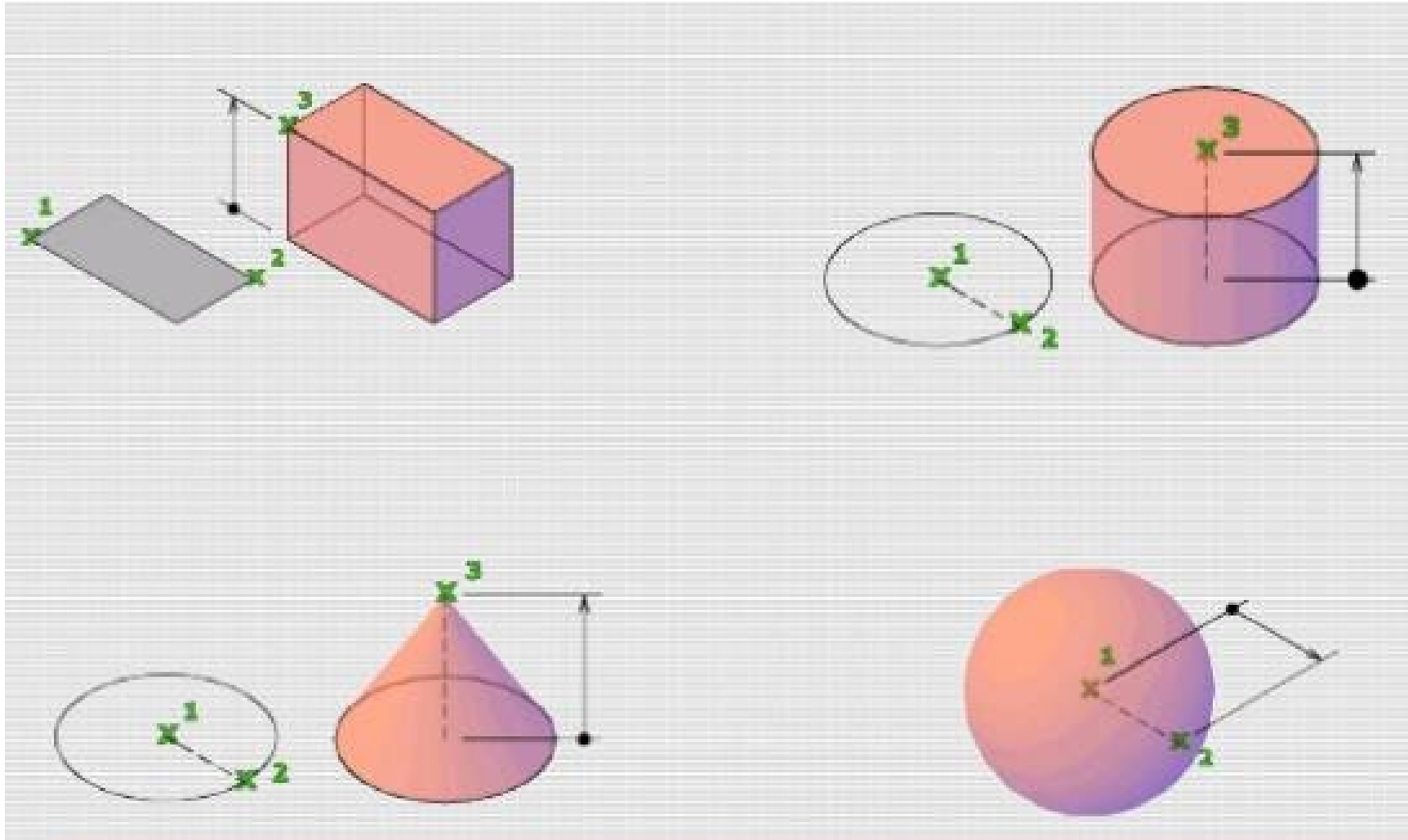


Solid Modeling in AutoCad

- From the status bar, select “3D Modeling” from the workspace switching button.

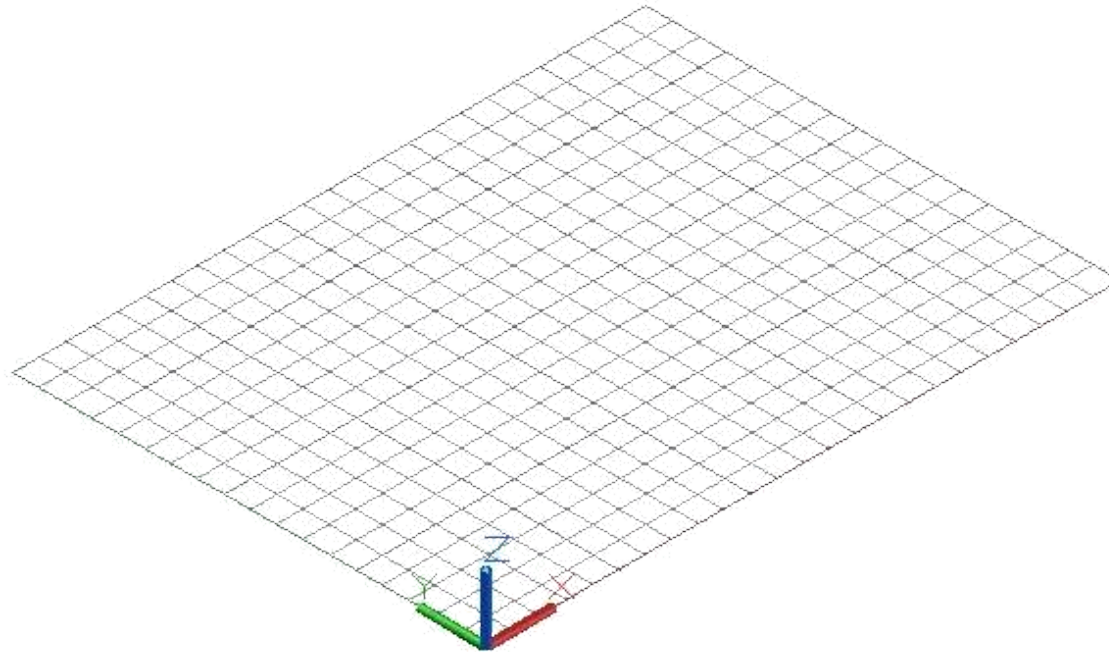


Basic 3D objects



Coordinate System

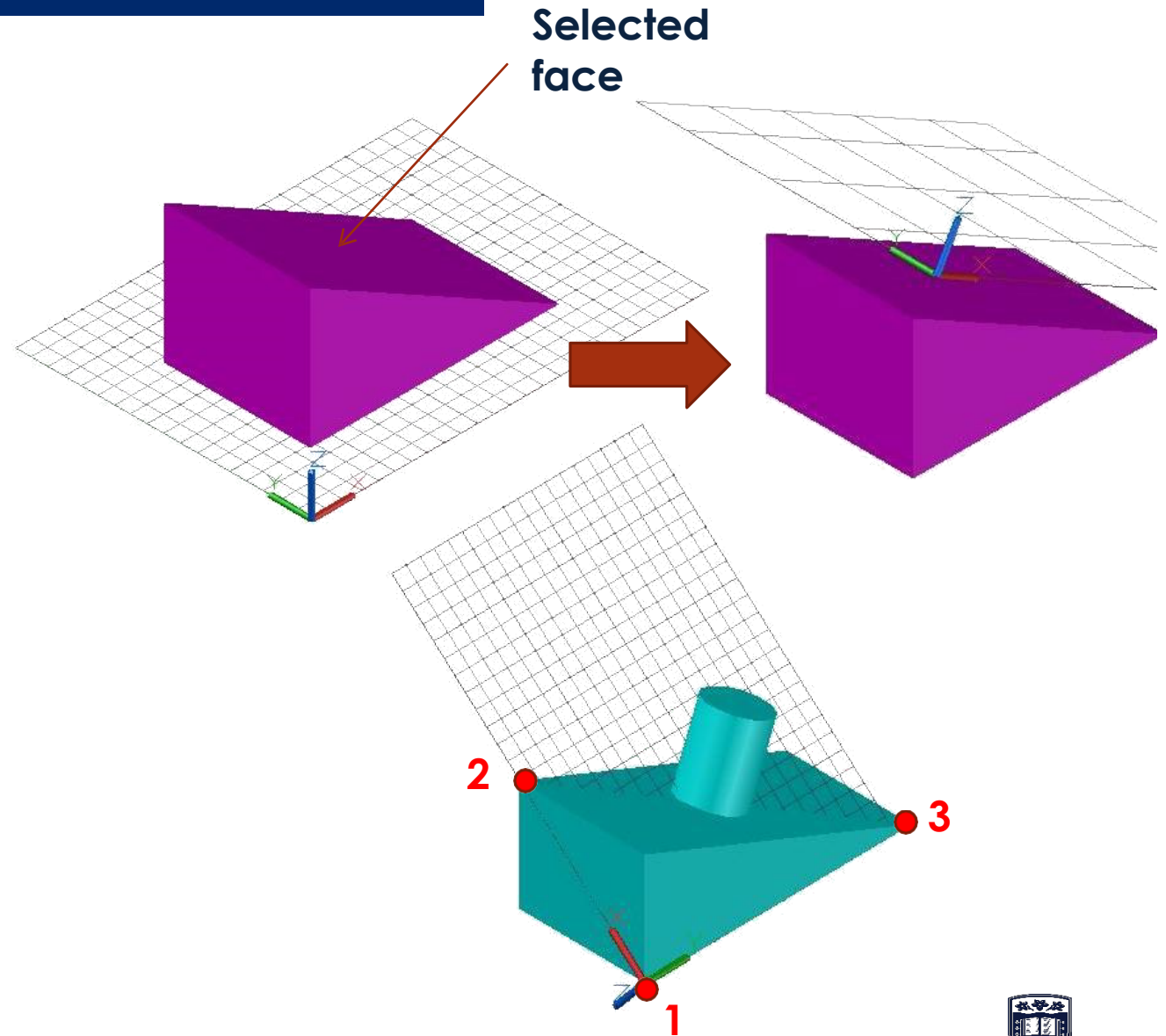
- The UCS is a moveable Cartesian coordinate system that establishes the *XY* work plane.
- It is generally used in 2d drawings (in the x-y plane), wireframe models and surface models.



Coordinate System

Face UCS

Used to align a new UCS (X-Y plane) with the selected face of a solid object.



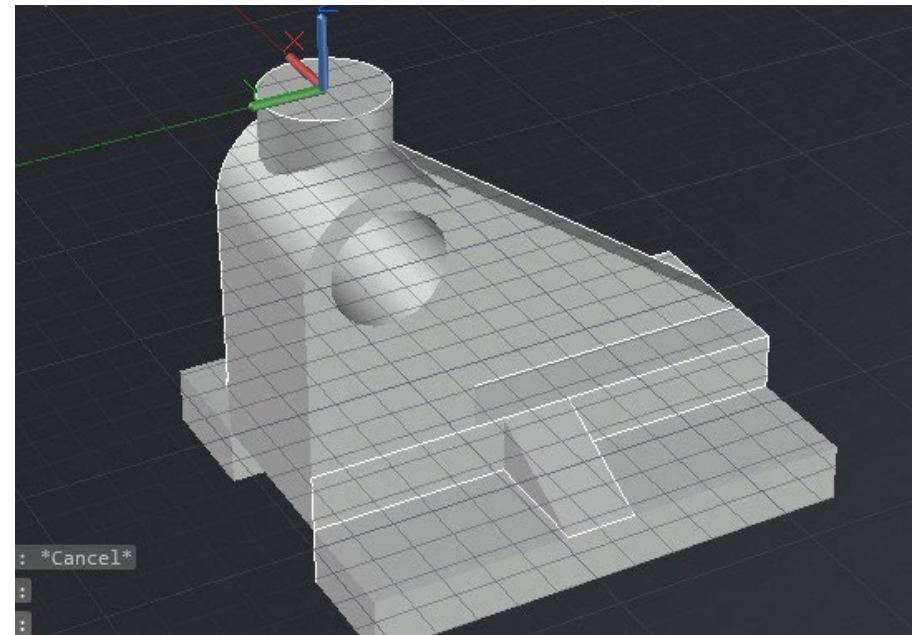
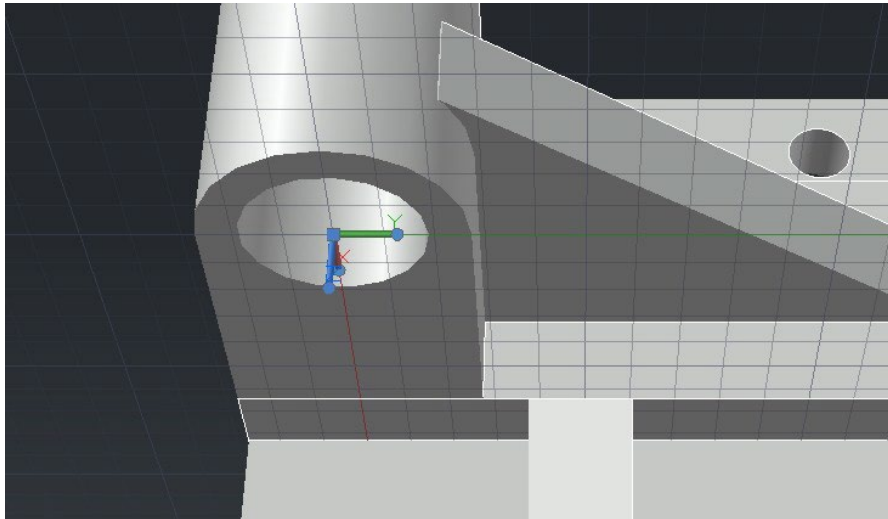
3 Point UCS

- The UCS will be applied by selecting 3 points.
- The UCS placing is based on the selection points.



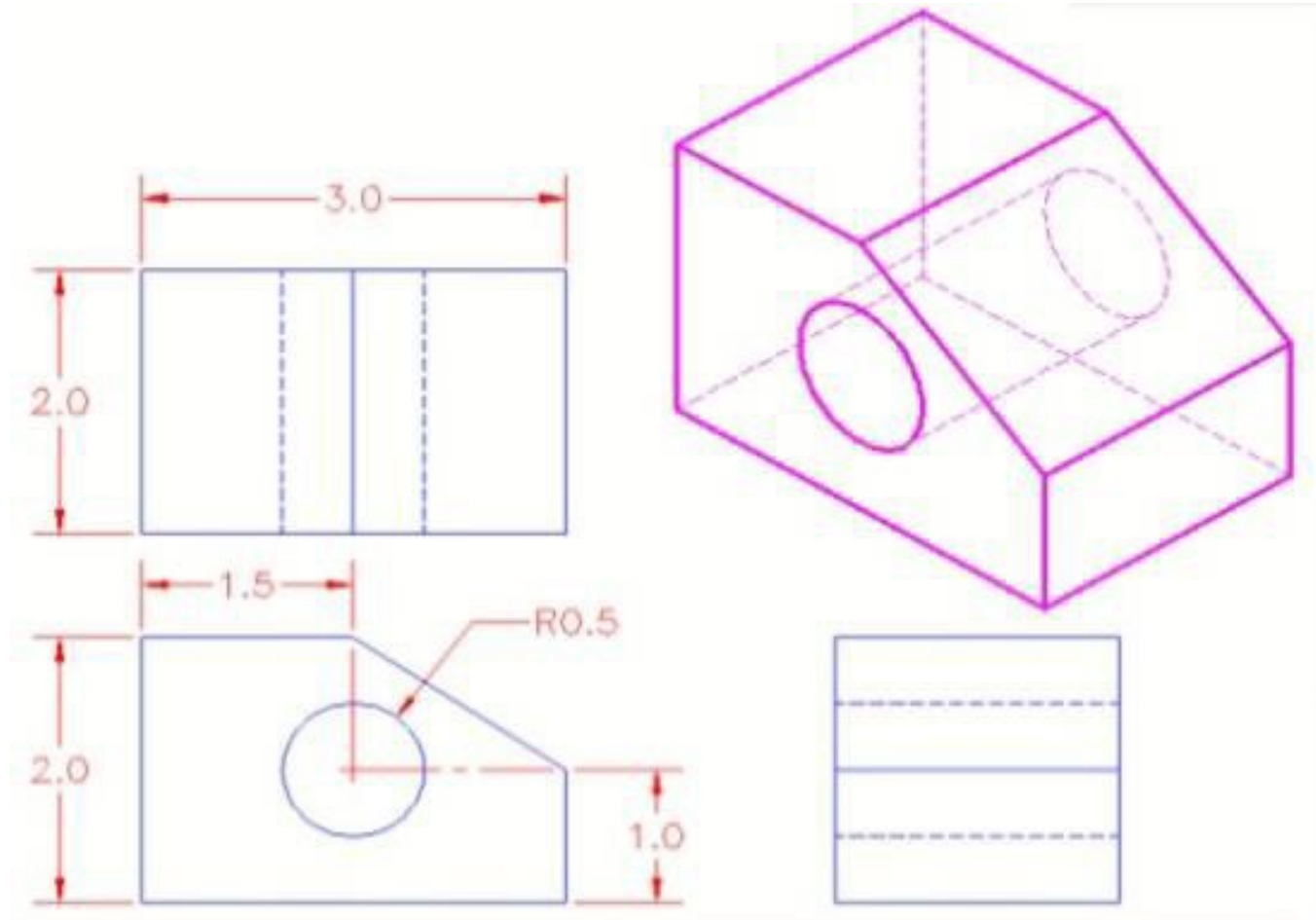
Coordinate System

- A shift in the UCS is used to draw a 2D drawing at a distance from a certain surface or object
- This is usually used to draw a 3D objects on curved surfaces where “Face UCS” cannot be used

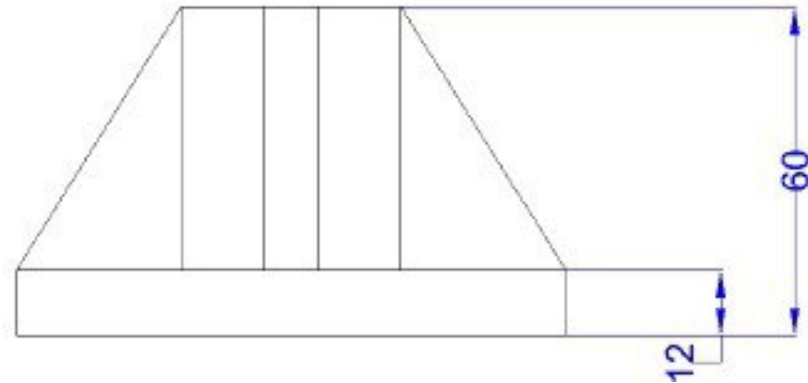
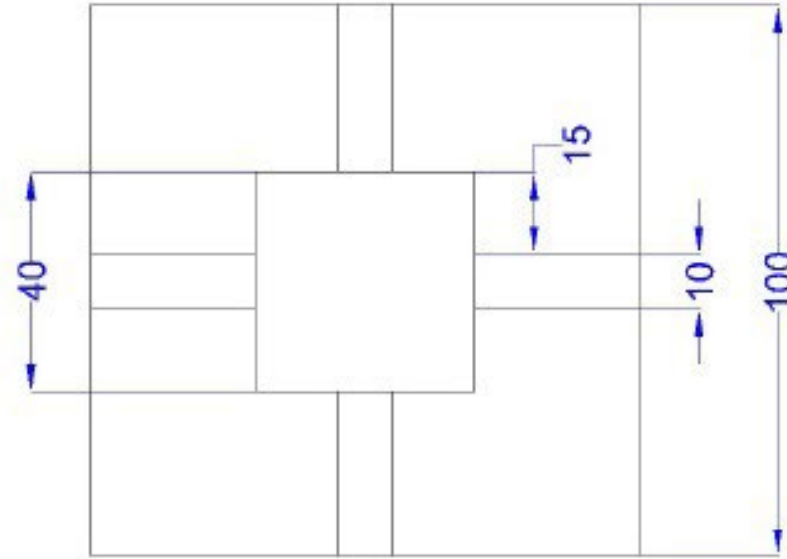
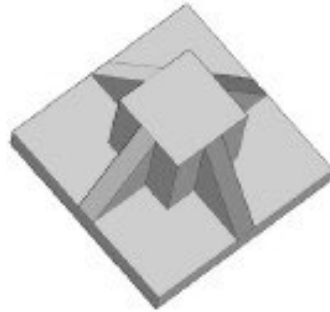


Example

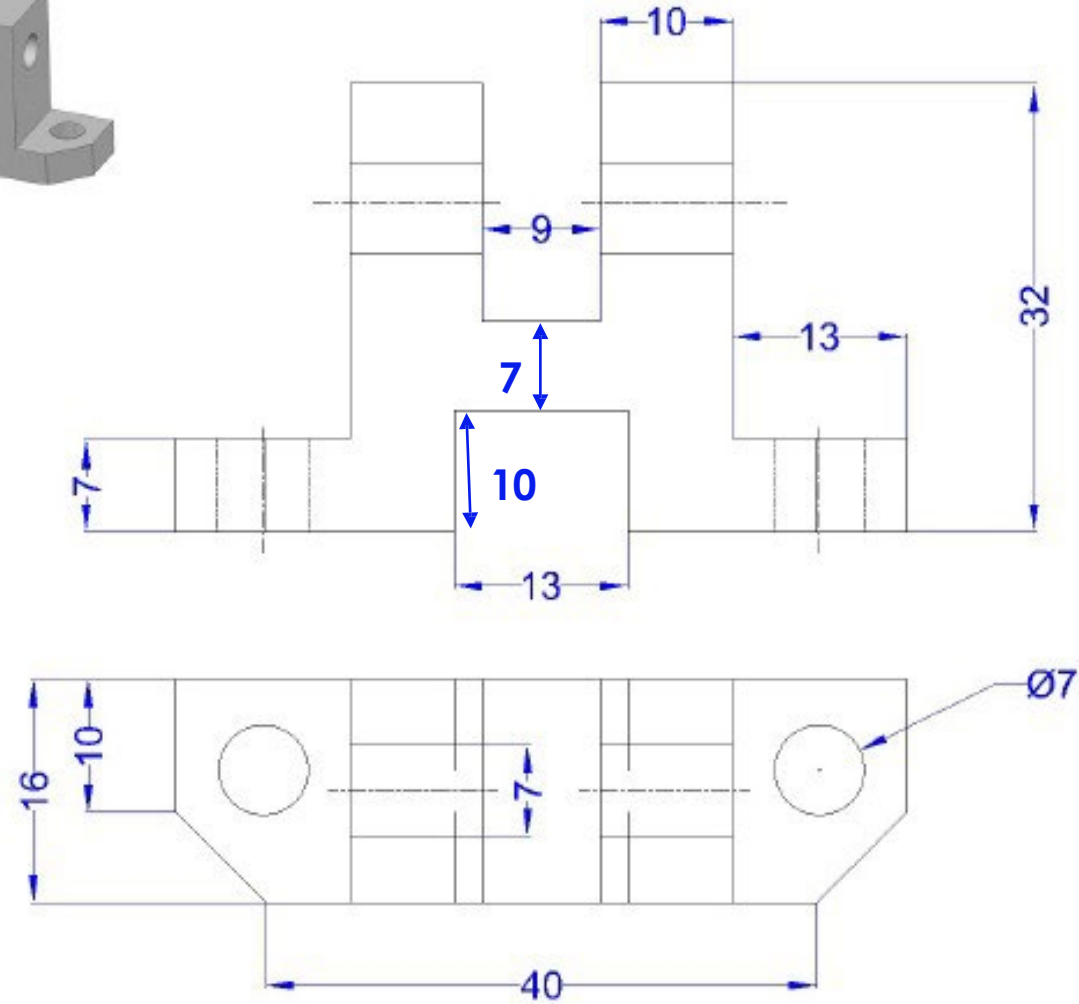
Since the solid body is straight with no special features along the z-axis, it can be simply done by drawing the front view and extrude it along the z-axis.



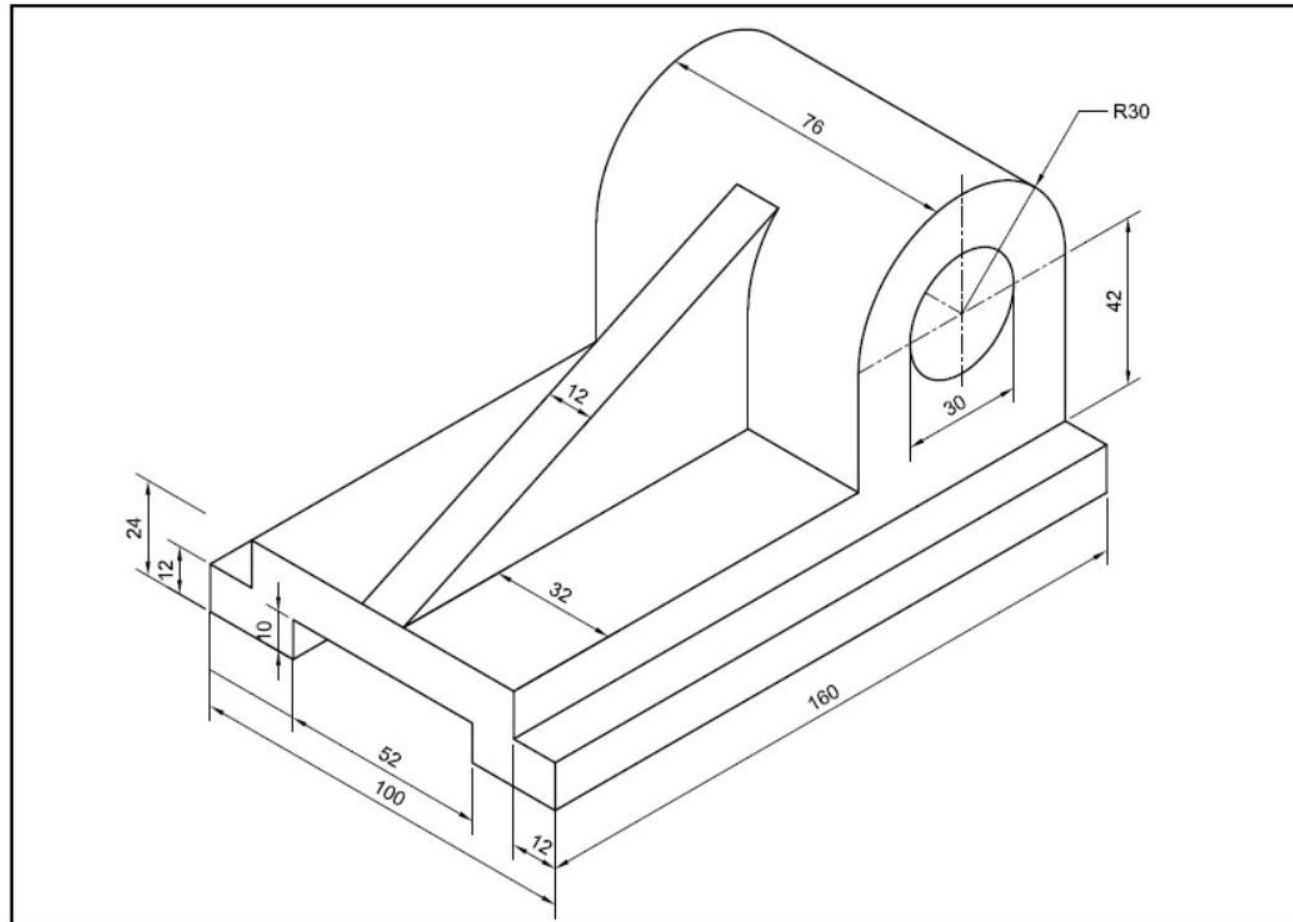
Class Work 1



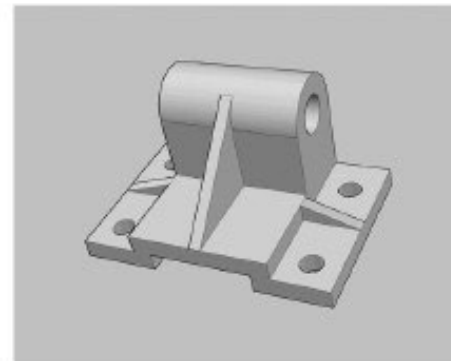
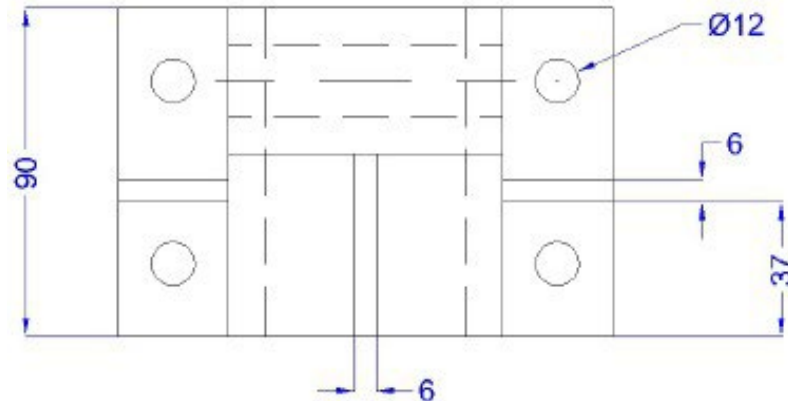
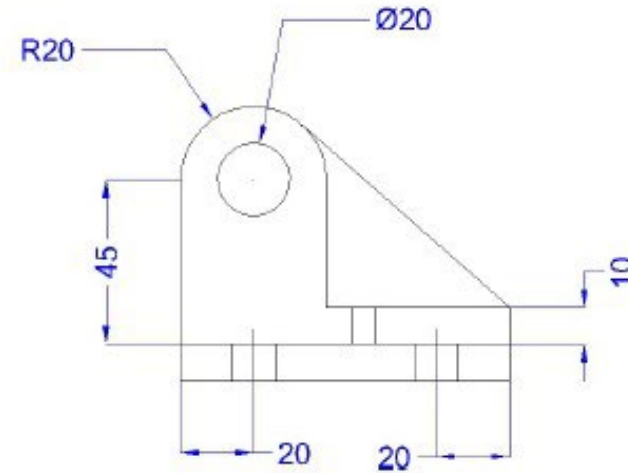
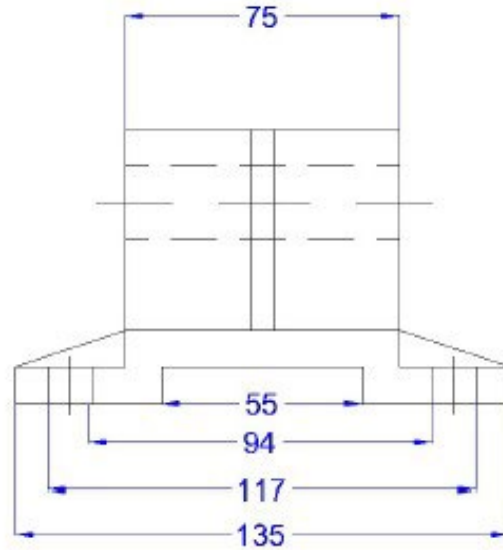
Class Work 2



Practice Question

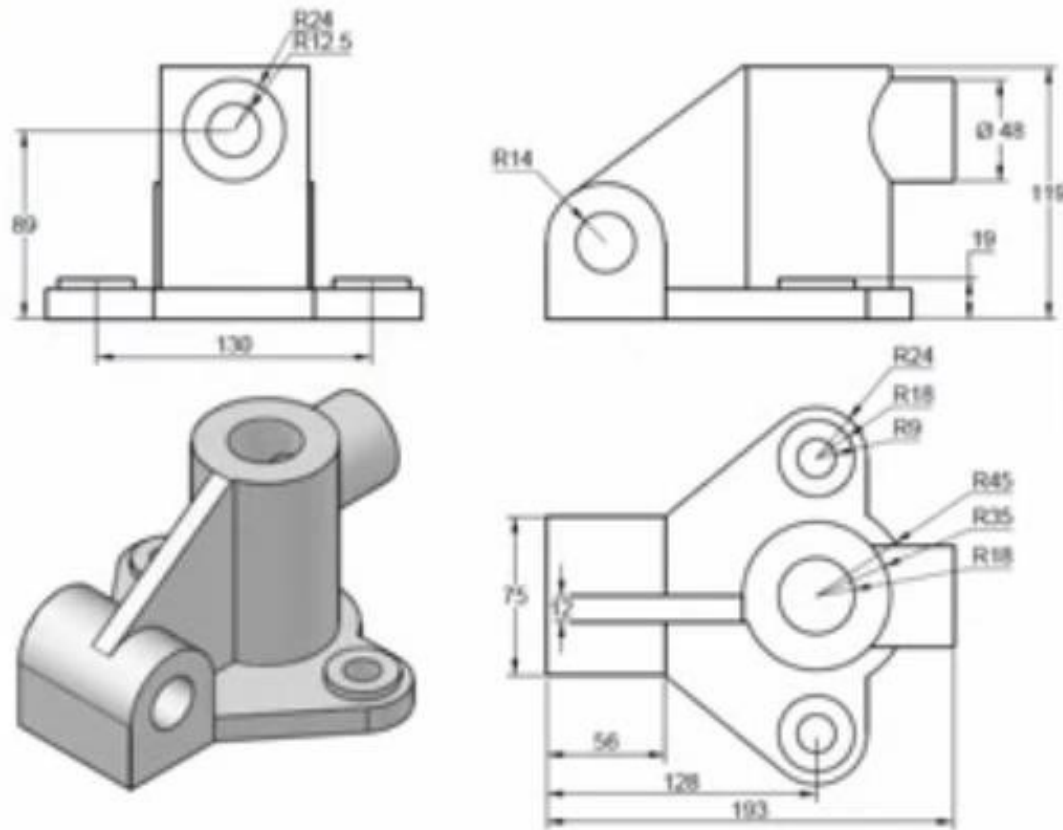


Practice Question



Solid Modeling

- The steps of drawing this 3D shape are shown here
<https://www.youtube.com/watch?v=XSrn0maJRfg>





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