



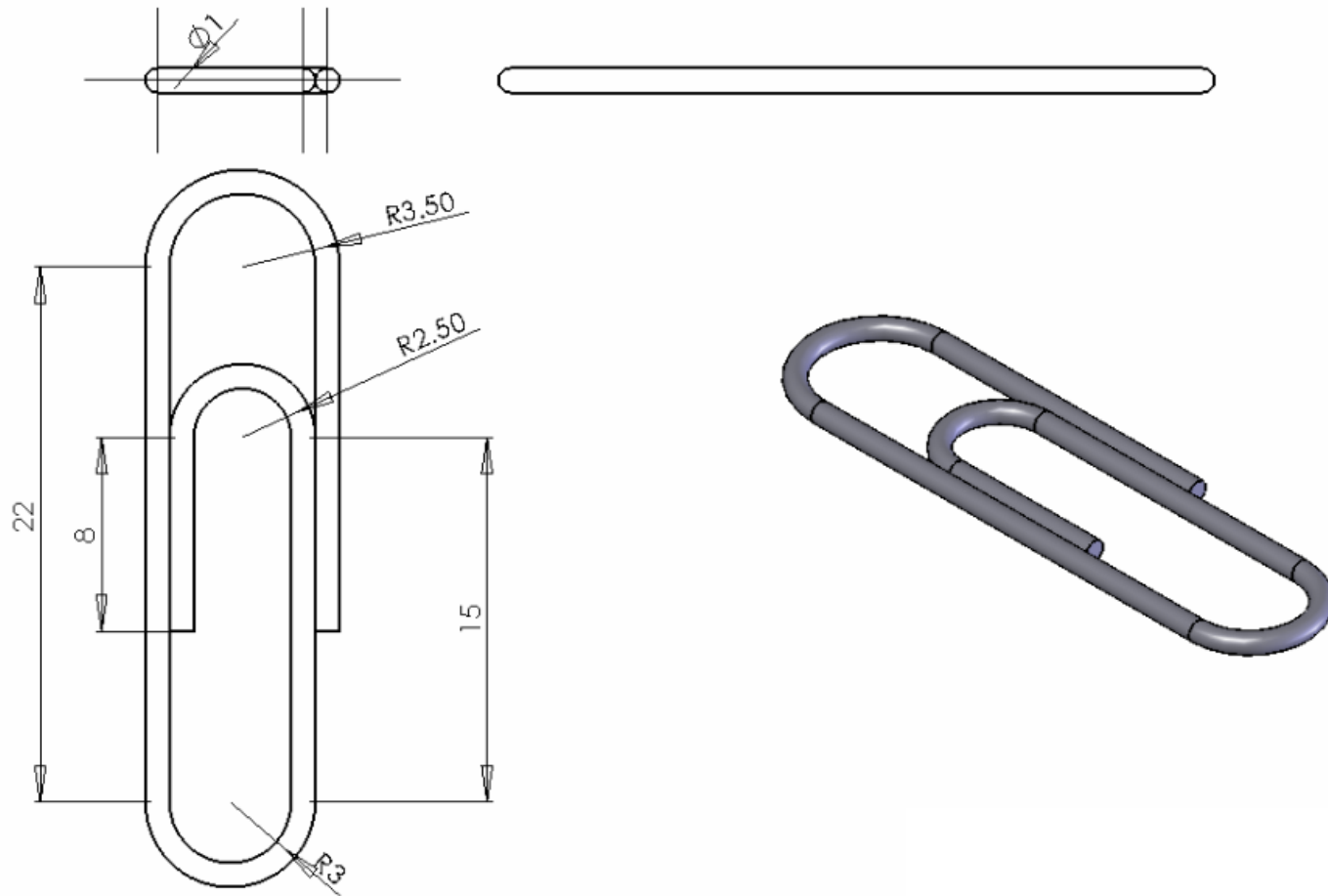
AutoCAD Level 3

Session 04

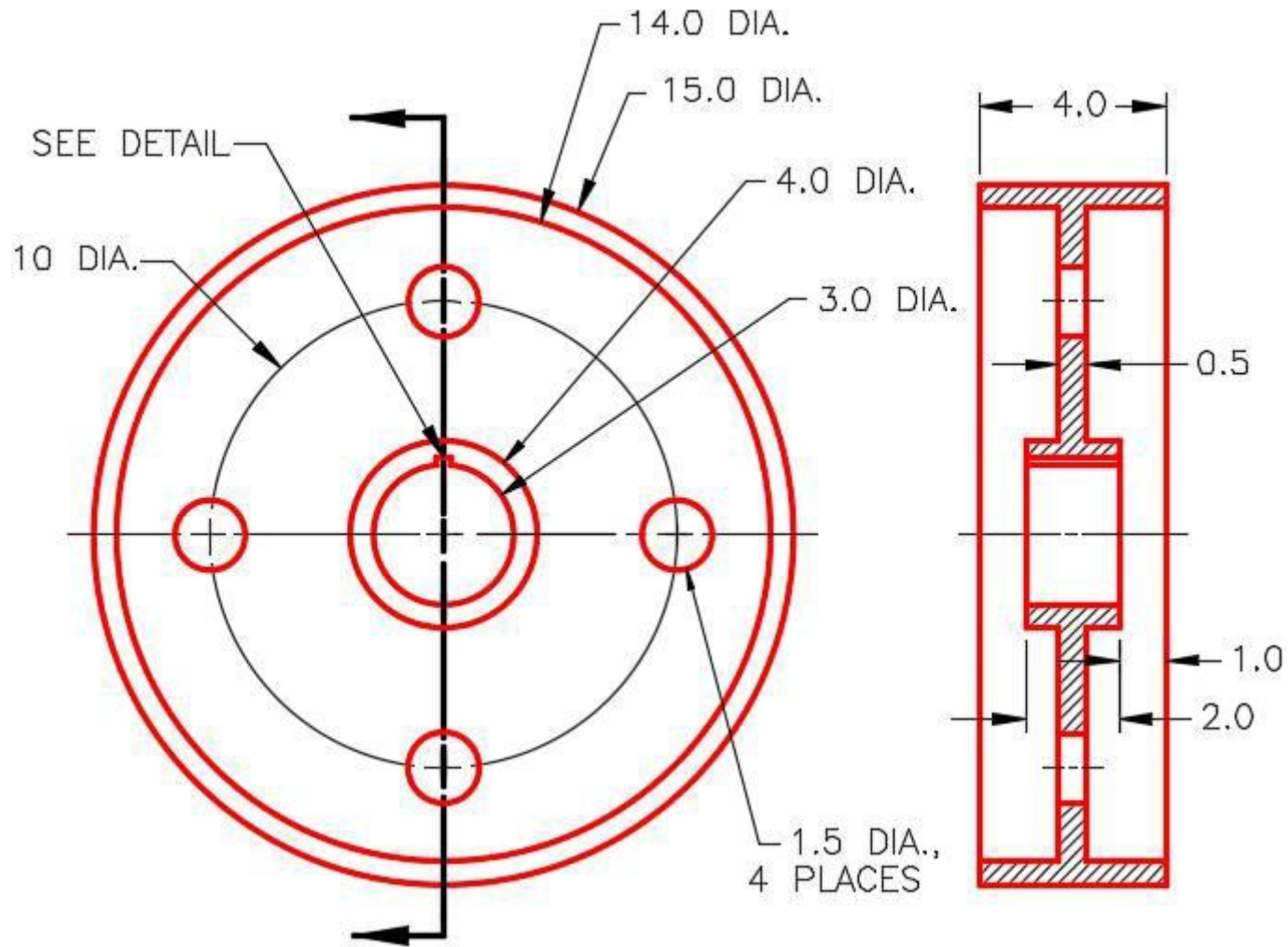
AGENDA

- MORE 3D MODELLING EXERCISES
- EDIT COMMANDS FOR 3D SOLIDS
- 3D FILLET
- 3D CHAMFER
- 3D MOVE
- 3D ROTATE
- 3D MIRROR
- 3D ALIGN

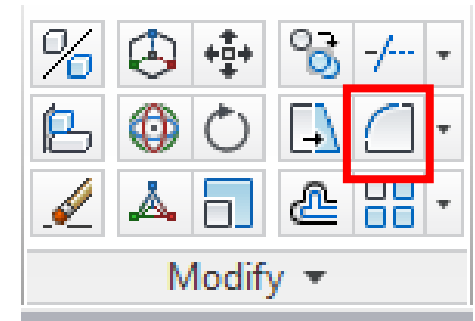
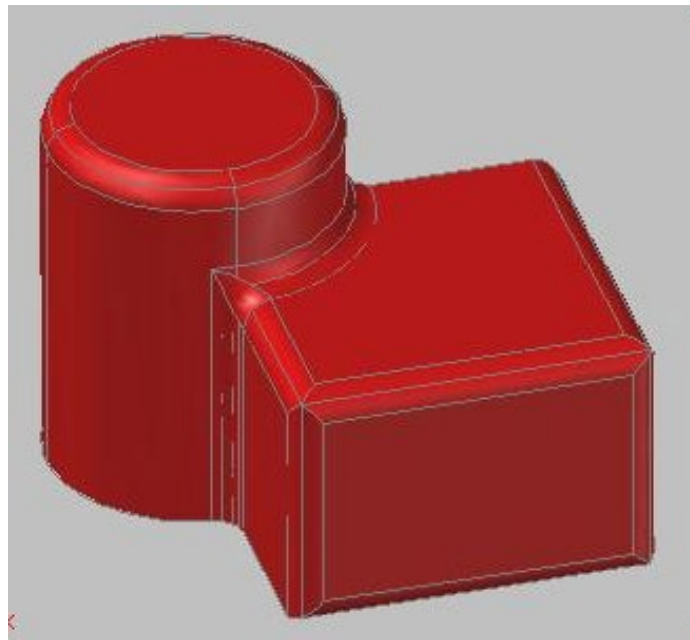
Exercise 6- Paper clip



Exercise 7- Wheel hub



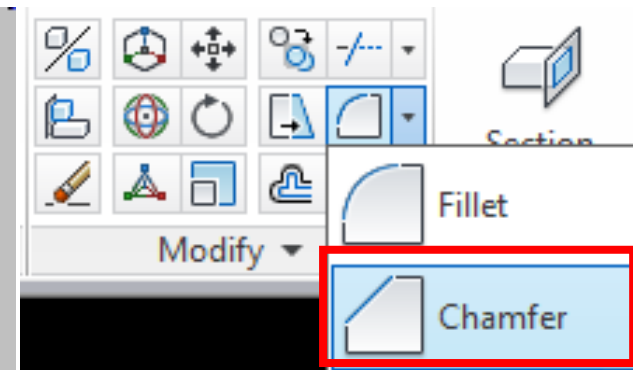
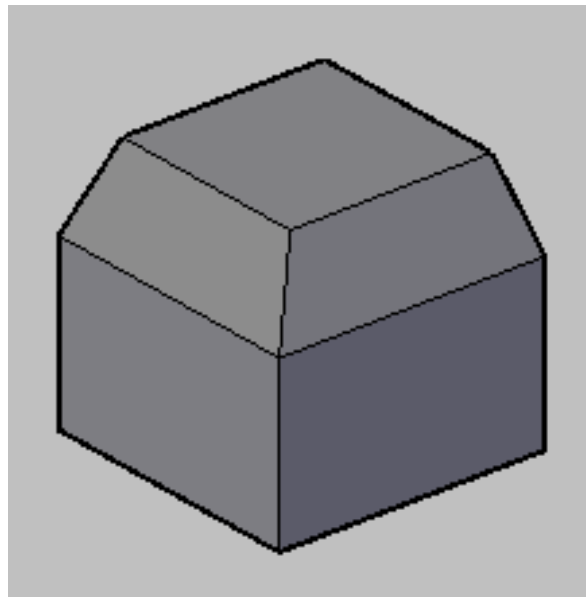
Fillet



- First, create a 3d solid object. (box or cylinder)
- Then use the fillet command to round of an edge(s).
- Command: **F**
- FILLET
- Current settings: Mode = TRIM, Radius = 0.0000
- Select first object or [Undo/Polyline/Radius/Trim/Multiple]:
- Enter fillet radius or [Expression]: **1**
- Select an edge or [Chain/Loop/Radius]: **select an edge**
- Select an edge or [Chain/Loop/Radius]: **select an edge**
- Select an edge or [Chain/Loop/Radius]: **select an edge**
- Select an edge or [Chain/Loop/Radius]: **select an edge and press enter**
- 4 edge(s) selected for fillet.

Chamfer

- First create a solid box 5x5x5
- Use the chamfer command to bevel an edge(s)



Command: _chamfer

(TRIM mode) Current chamfer Dist1 = 0.0000, Dist2 = 0.0000

Select first line or [Undo/Polyline/Distance/Angle/Trim/mEthod/Multiple]:

Base surface selection...select a top edge

Enter surface selection option [Next/OK (current)] <OK>: n (the base surface should be along all the edges that are to be chamfered)

Enter surface selection option [Next/OK (current)] <OK>: enter

Specify base surface chamfer distance or [Expression]: 1

Specify other surface chamfer distance or [Expression] <1.0000>: 3

Select an edge or [Loop]: select all the other edges along the base surface

Select an edge or [Loop]: select all the other edges along the base surface

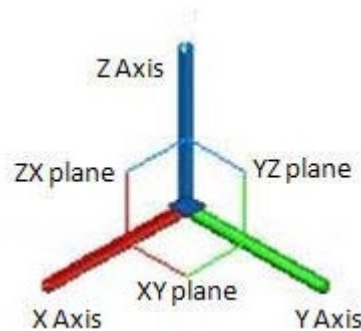
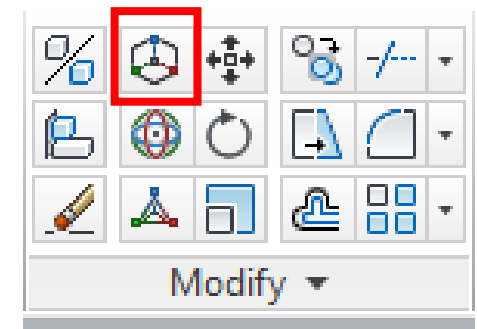
Select an edge or [Loop]: select all the other edges along the base surface

Select an edge or [Loop]: select all the other edges along the base surface

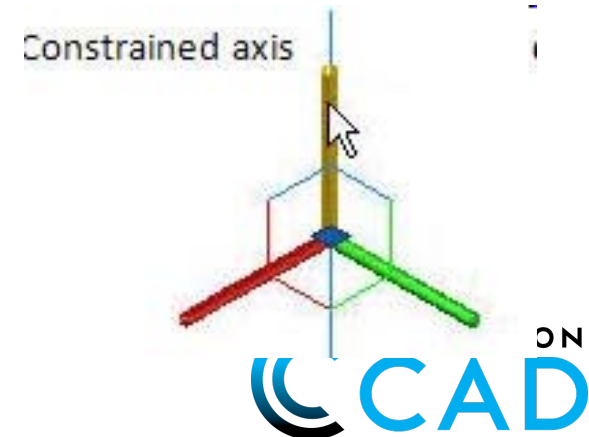
Select an edge or [Loop]: enter

3d Move

- The Move gizmo enables you to restrict the movement of selected objects or sub-objects to a specified axis or plane.
- When the Move gizmo is activated, it displays the X,Y, and Z axes as thick red, green, and blue vectors.

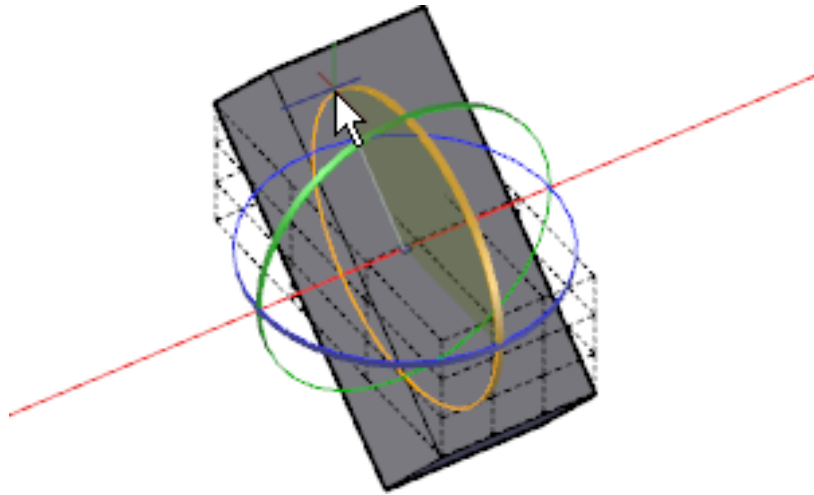
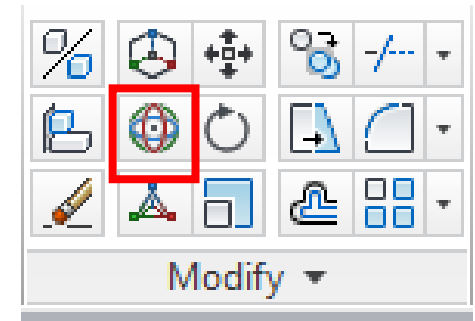


- If you pass the cursor over one of the vectors, the vector turns yellow and a continuous line is displayed in the original color indicating the axis of constraint. To constrain movement along the axis, click on the yellow vector.

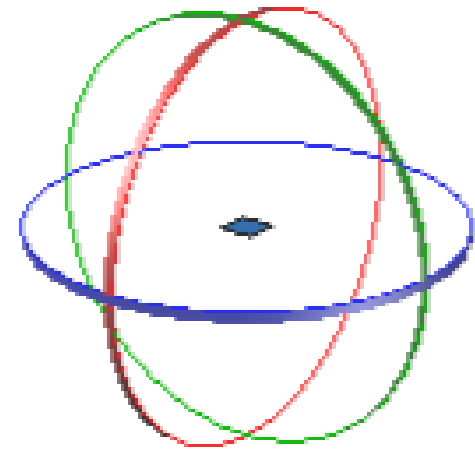


3d Rotate

- Constrain the rotation of 3D objects and subobjects to an axis.
- Works similar to the 3d move command.

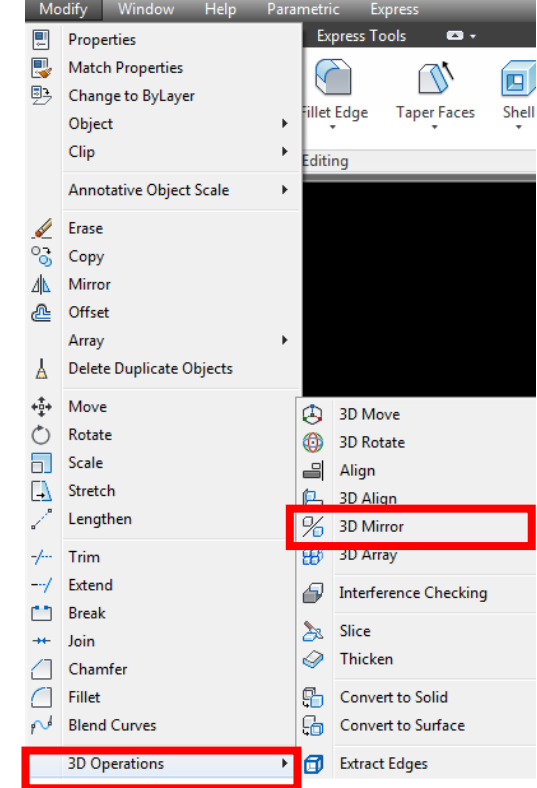
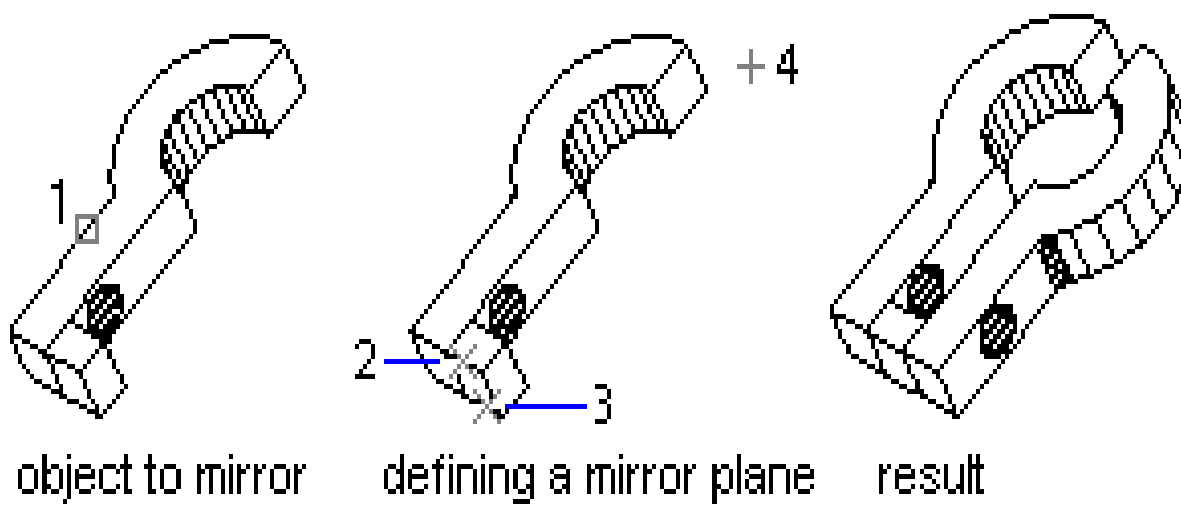


- Command: **_3drotate**
- Current positive angle in UCS: ANGDIR=counterclockwise ANGBASE=0
- Select objects: **1 found**
- Select objects: enter
- Specify base point: **pick a point along the axis edge**
- Pick a rotation axis: **pick an axis (see side diagram)**
- Specify angle start point or type an angle: **90 enter**



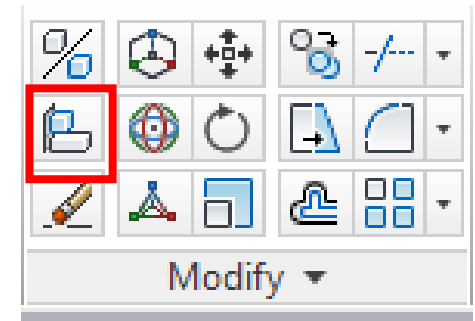
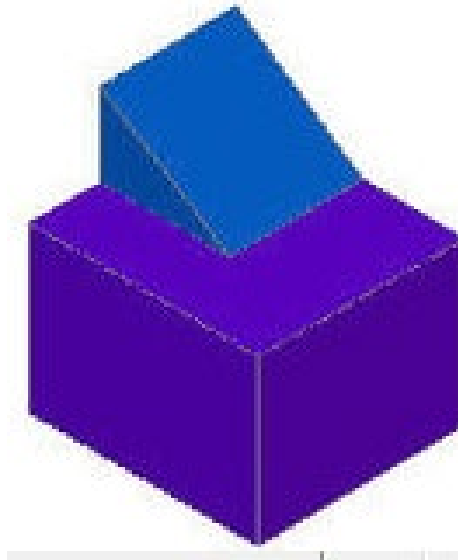
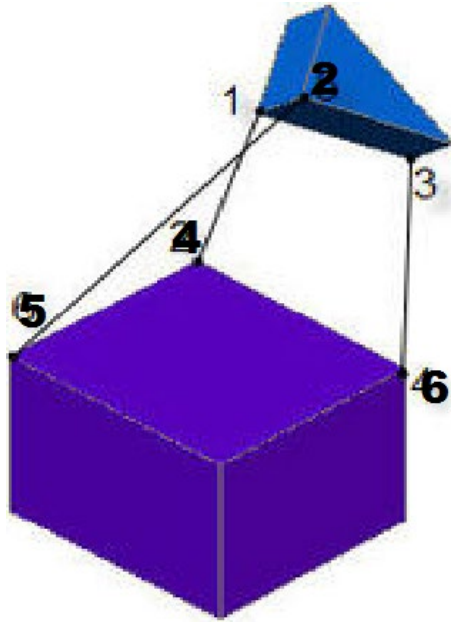
3D Rotate gizmo

3d Mirror



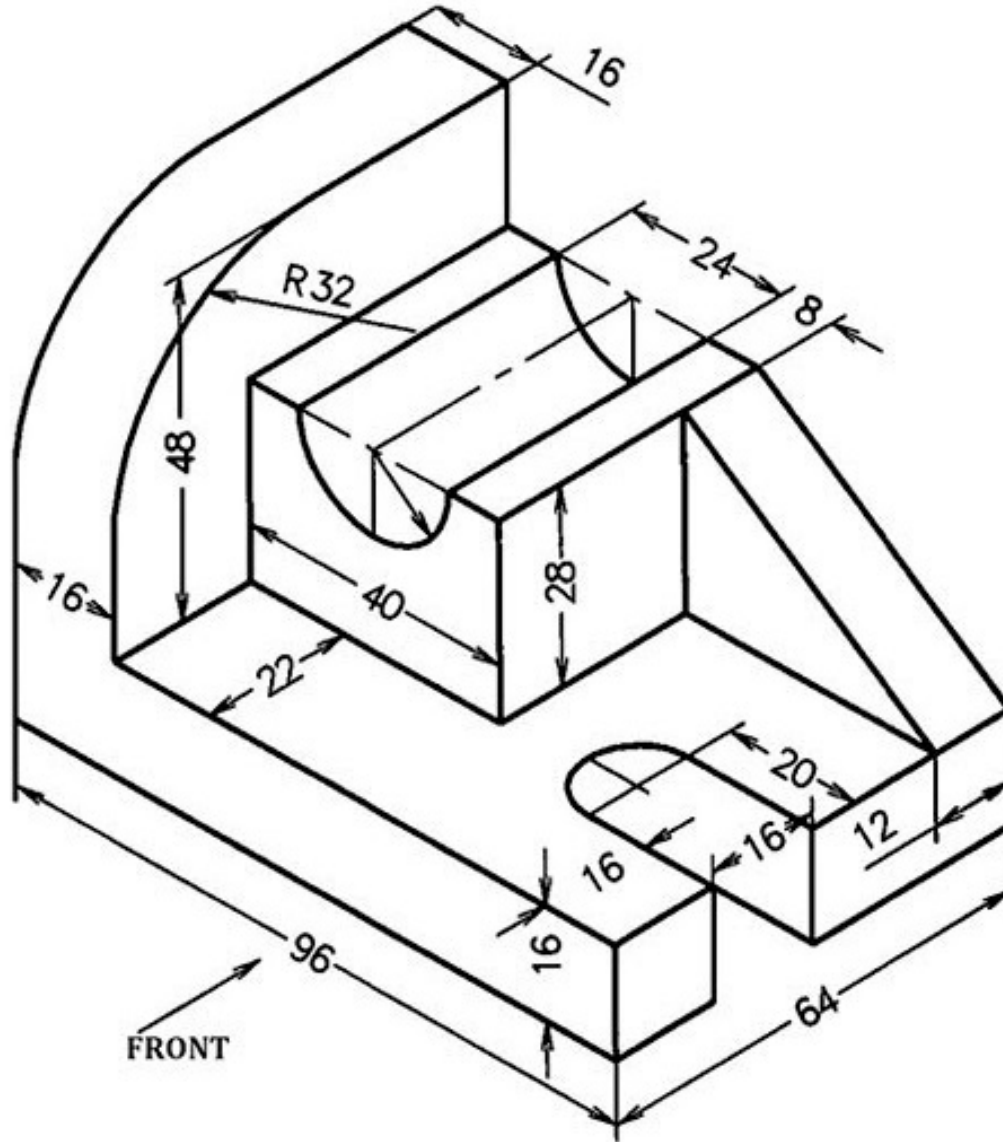
- Creates a mirrored copy of selected objects across a mirroring plane.
- Command: **_mirror3d**
- Select objects: **1 found**
- Select objects: **enter**
- Specify first point of mirror plane (3 points) or
[Object/Last/Zaxis/View/XY/YZ/ZX/3points]: **pick 3 points along mirroring plane**
- Delete source objects? [Yes/No] <N>: **n**

3d Align



- To align an object in 3D space, you'll need to provide three sets of points between the source and destination.
- The following image illustrates the process of aligning the 3D wedge with the 3D box by picking the specified points. After picking all six points in the order indicated by the first image, AutoCAD automatically moves the wedge to ensure point 1 is coincident with point 4. Then it rotates the wedge so that edge 1-2 is aligned with edge 4-5. Finally, it rotates the cube again to ensure edge 1-3 aligns with edge 4-6.

Exercise 8- Mechanical Parts



Exercise 9- Mechanical Parts

