

Lab Exercise 5-3**Time Allowed: 60 Min.****Drawing Specifications**

Name	Template	Units	Text Style
AutoCAD 3D Lab 05-3	Module Template 3D English	Inches	N/A

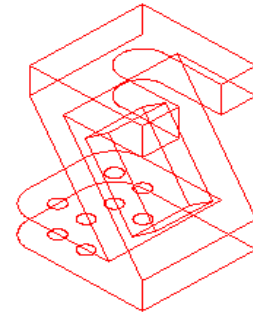
Note: Color, Linetype, and Lineweight are all ByLayer unless otherwise instructed.

Layering Scheme

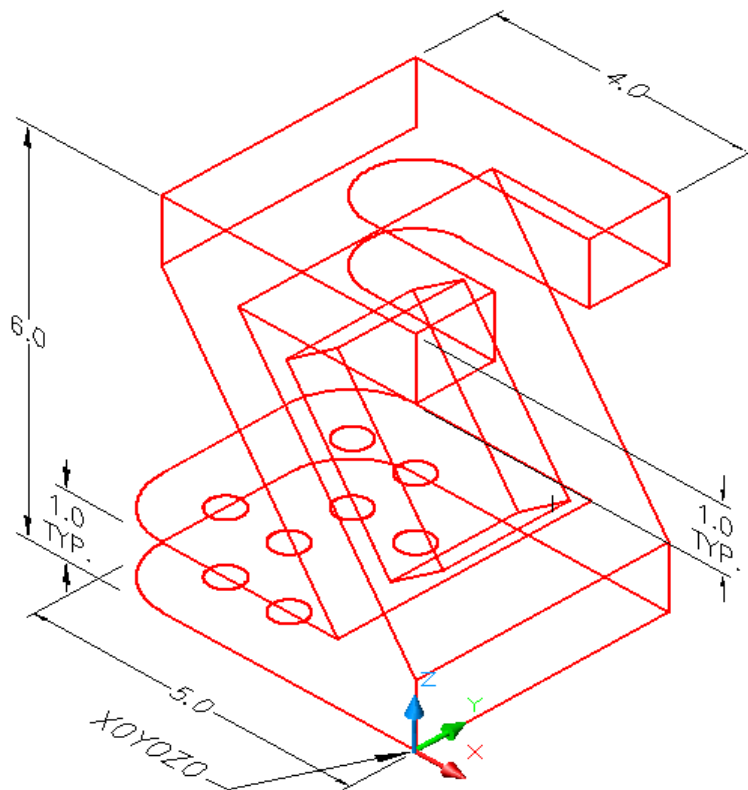
Objects on Layer	Name	Color	Linetype
Construction objects	Construction	253	Continuous
Model space objects	Model	Red	Continuous

Instructions:

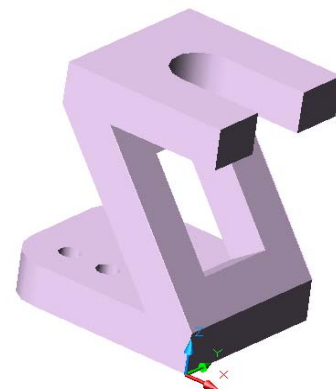
1. Save and name the drawing AutoCAD 3D Lab 05-3 as shown above.
2. Draw a wireframe model of the object below.
3. Draw all construction objects on layer Construction.
4. Draw all model objects on layer Model.
5. Start your model with the view in SE Isometric. If required, rotate it slightly with 3DORBIT to help the line of sight.
6. When complete, freeze layer Construction.
7. Change the current UCS to World and check the model with the key.
Hint: The best view to draw first is the front.



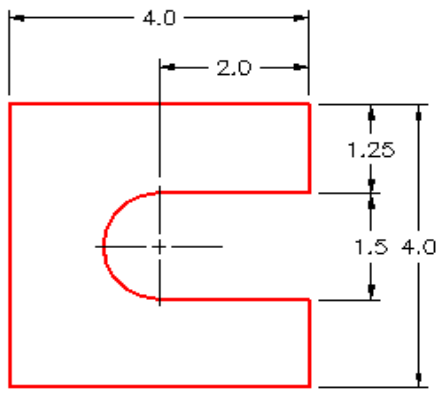
Completed
Wireframe Model



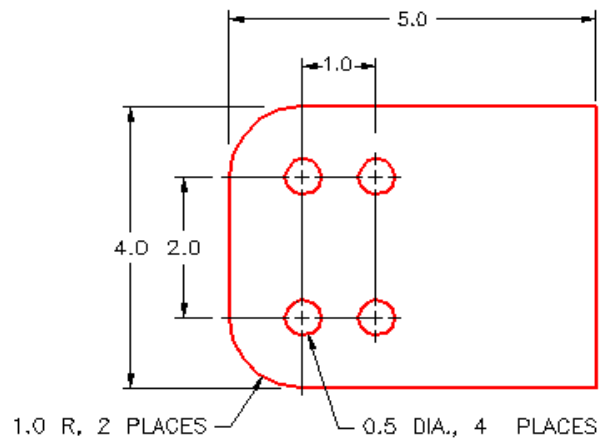
The Model



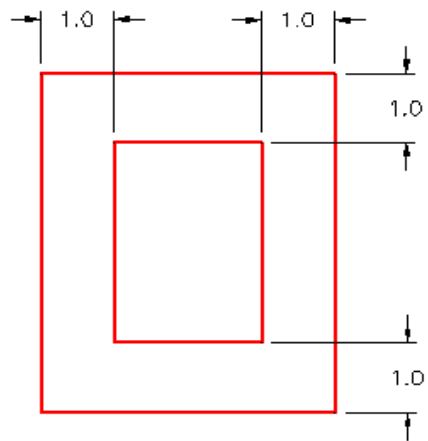
Solid Model - SE Isometric
View



Detail of Top



Detail of Bottom

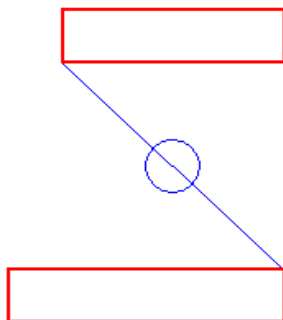


Detail of Square Hole in Inclined

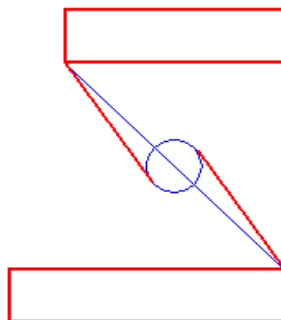
Hint 1

To draw the inclined line follow the step below:

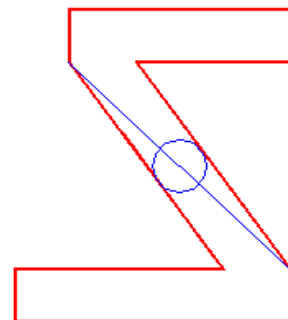
- Step 1 - Draw a construction line from corner to corner and a 1 Dia. construction circle with the center at the midpoint of the line.
- Step 2 - Draw two lines from the endpoints tangent to the circle.
- Step 3 - Extend the lines.



Step 1



Step 2



Step 3

Lab Exercise 15-1**Time Allowed: 3 Hours****Drawing Specifications**

Name	Template	Units	Text Style
AutoCAD 3D Lab 15-1	Module Template 2D English	Feet	N/A

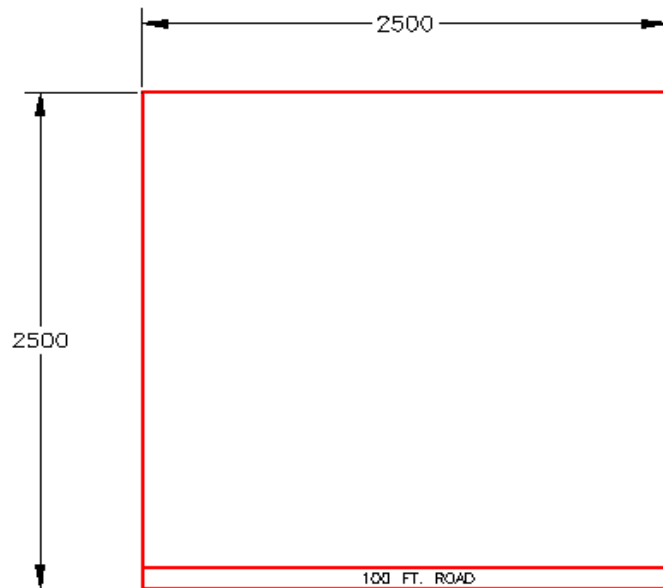
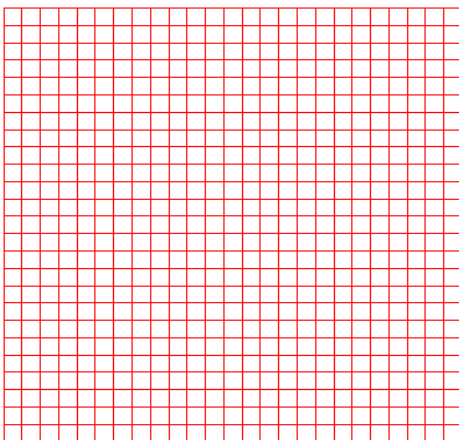
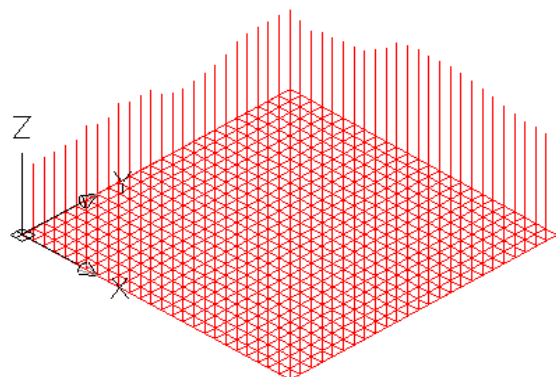
Note: Color, Linetype, and Lineweight are all ByLayer unless otherwise instructed.

Layering Scheme

Objects on Layer	Name	Color	Linetype
Construction objects	Construction	253	Continuous
3D Polylines	3D Pline	Blue	Continuous
Original Model Objects	Model	Red	Continuous
Original Surface	Surface	81	Continuous

Instructions:

1. In this lab exercise you will be creating a surface mesh on a plot of land that is 2500 X 2500 feet as shown to the right.
2. There is an existing 100 ft. road on the south side of the property. See Figure Step 2,
3. Insert the block AutoCAD 3D Lab 15-1.
4. Explode the block.
5. Change the layer of the all objects to layer Model. See Figure Step 5.
6. Change the current view to SE Isometric. See Figure Step 6.
7. The 2D grid located at sea level or Z=zero and is divided equally every 100 ft.

**Figure Step 2****Figure Step 5****Figure Step 6**

8. On the layer 3D Pline, draw 3D polylines between the top of each of the Z coordinate lines to construct a digital terrain model of the property as shown below. Try rotating the grid and lines to different positions to find the best view to insert the 3D polylines

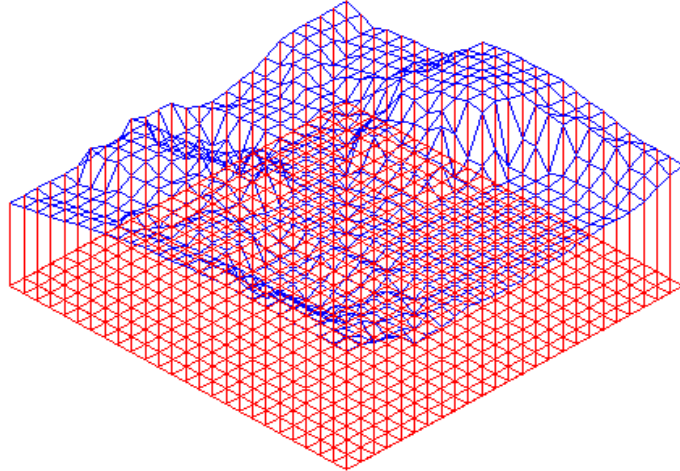


Figure Step 8

9. Turn off all layers except 3D Pline and Surface.
10. Change the view to the top view as shown in Figure Step 10.
11. Set layer Surface as current.
12. Using the 3DMESH command, draw a mesh by snapping to each of the 625 intersections. Ensure that you do it in the correct sequence and zoom the view so you can select very accurately. If you make an error, you will have to start over. You will need at least 30 minutes of uninterrupted work.
13. Turn layer 2D Pline off.
14. Change the view to SE Isometric.
15. Change the shademode to Gouraud or Realistic depending the version of AutoCAD you are using. The surface should appear similar to Figure Step 15..

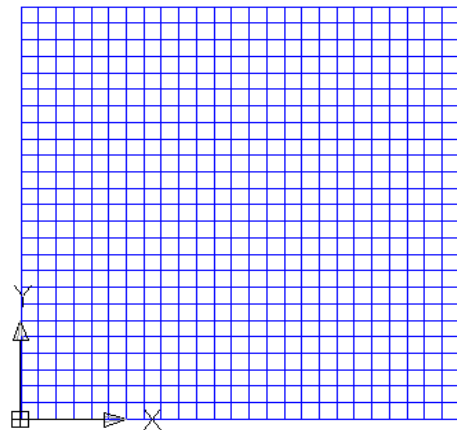


Figure Step 10

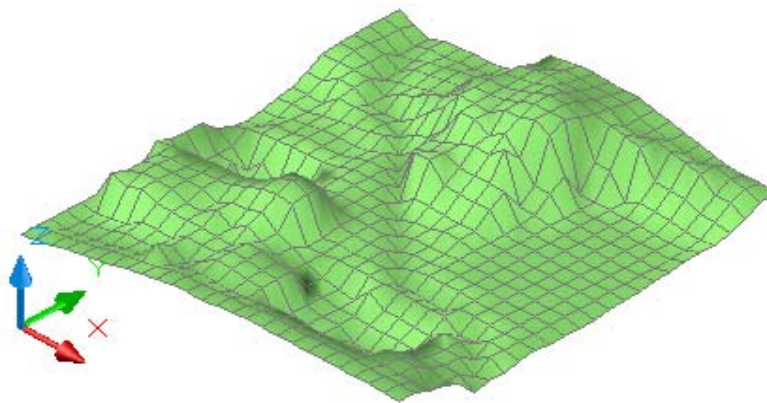


Figure Step 15

Lab Exercise 18-3

Time Allowed: 60 Min.

Drawing Specifications

Name	Template	Units	Text Style
AutoCAD 3D Lab 18-3	Module Template 3D English	Inches	N/A

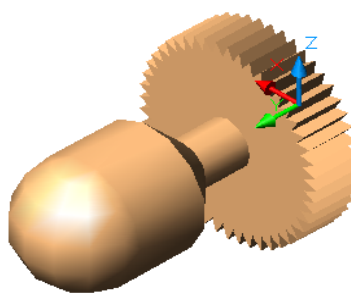
Note: Color, Linetype, and Lineweight are all ByLayer unless otherwise instructed.

Layering Scheme

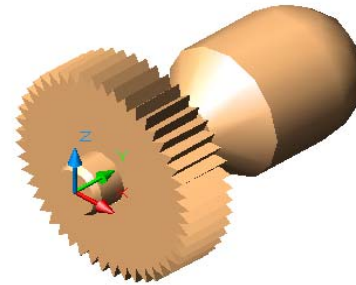
Objects on Layer	Name	Color	Linetype
Construction objects	Construction	253	Continuous
Model Objects	Model	Red	Continuous
Solid Objects	Solid	31	Continuous

Instructions:

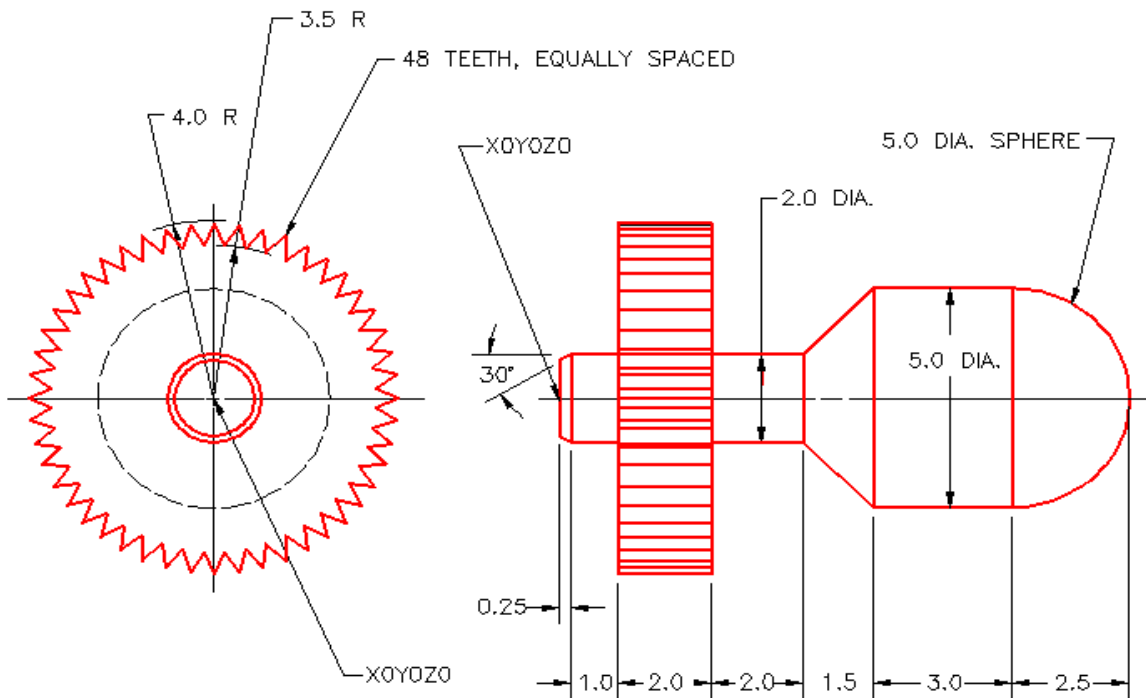
1. Draw a solid model of the object shown below.
2. The completed solid model must be one object when complete.
3. Turn layers Construction and Model off and shade the model.
4. Use 3D Orbit to view all sides for completeness.



Completed Solid Model - Rotated View



Completed Solid Model - SE Isometric View



Multiview Drawing

Lab Exercise 23-2**Time Allowed: 40 Min.****Drawing Specifications**

Name	Template	Units	Text Style
AutoCAD 3D Lab 23-2	Module Template 3D English	Inches	N/A

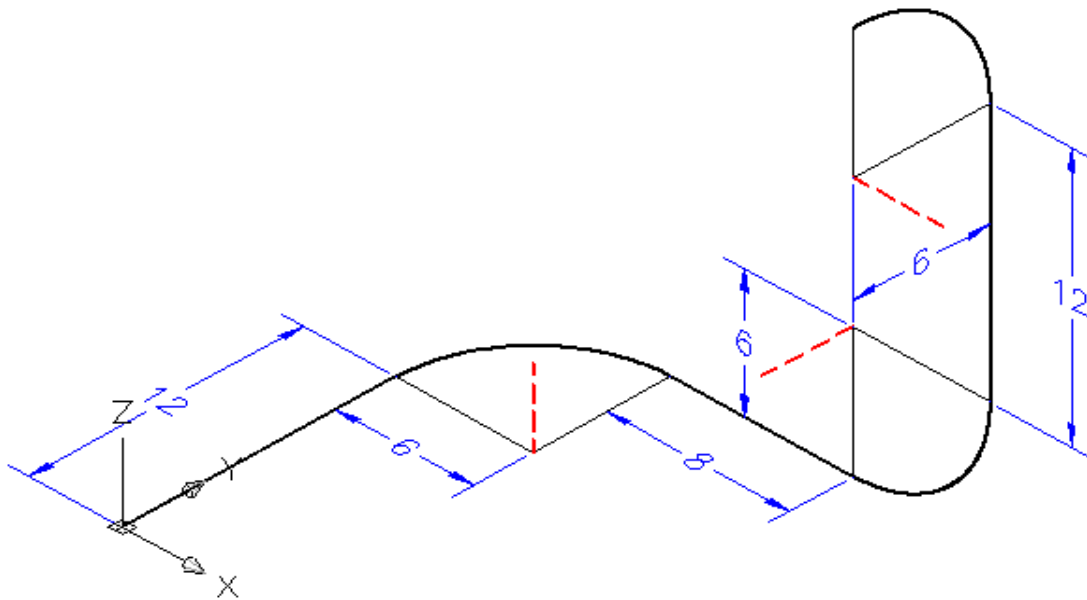
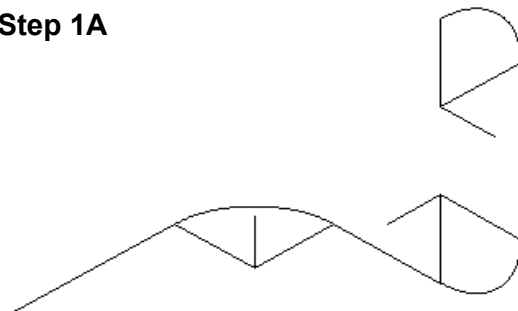
Note: Color, Linetype, and Lineweight are all ByLayer unless otherwise instructed.

Layering Scheme

Objects on Layer	Name	Color	Linetype
Construction objects	Construction	253	Continuous
Solid Objects	Solid	71	Continuous

Instructions:

1. On layer Construction, draw the model shown in Figure Step 1A. These are the construction lines and arcs to be used to construct the model. When complete, your model will appear as shown in Figure Step 1B

**Figure Step 1A****Figure Step 1B**

2. On layer Model, draw 3 diameter circles with their centers located at the ends of the construction lines as shown in Figure Step 2.

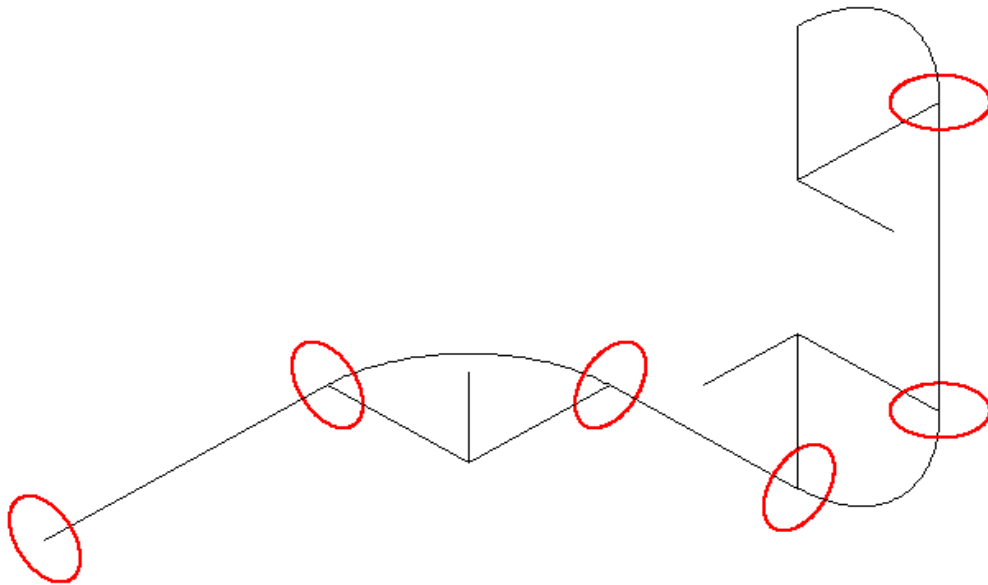


Figure Step 2

3. Using the EXTRUDE and REVOLVE commands, create the solid pipe as shown in Figure Step 3.

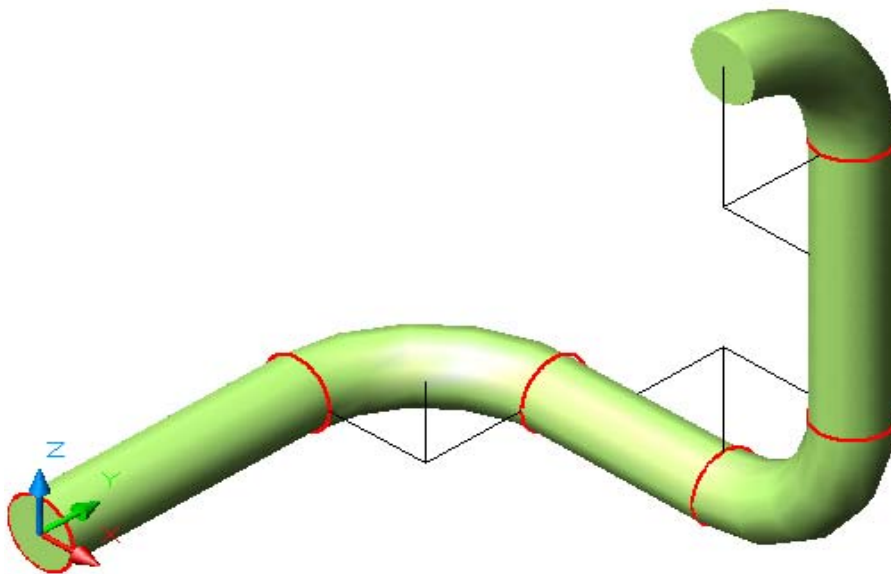


Figure Step 3

4. Turn layer Model and Construction off. Use the UNION command to create one solid model from all the parts as shown in Figure Step 4.

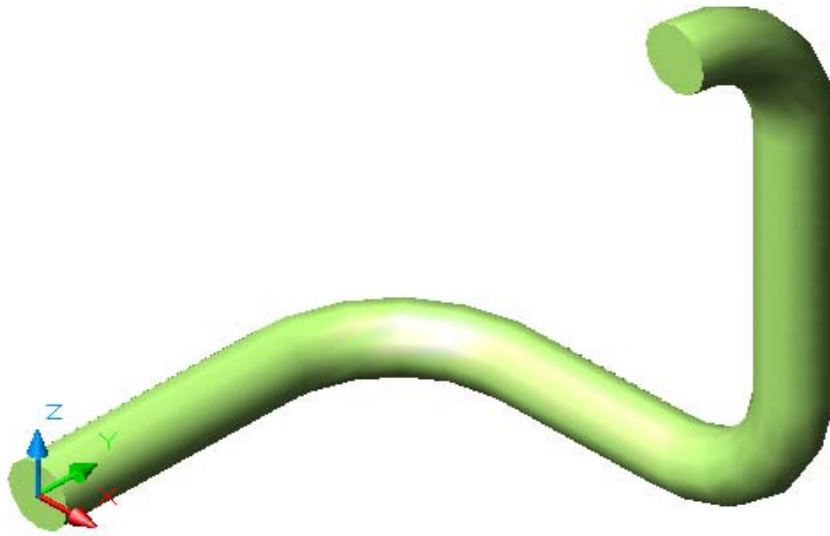


Figure Step 4

5. Using the SOLIDEDIT command and Shell option to create a 0.25 unit wall thickness pipe. Remove both ends as shown in Figure Step. 5

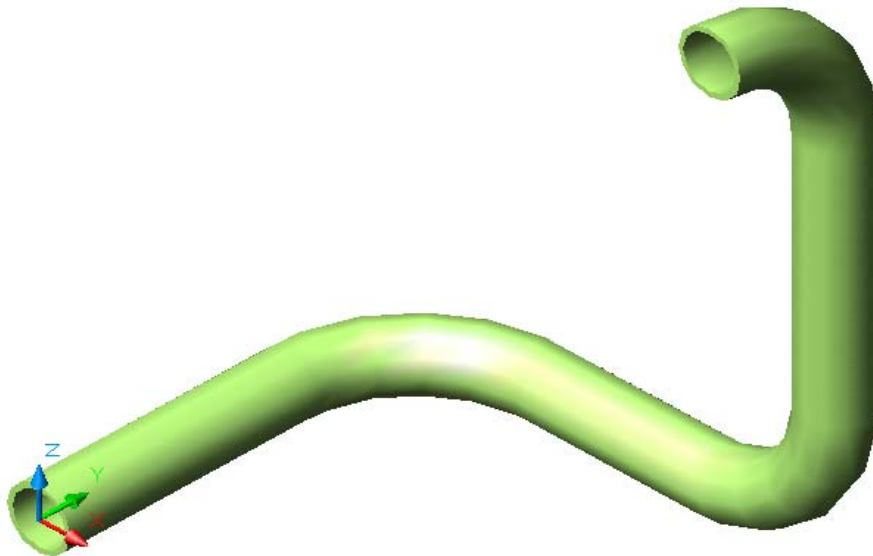
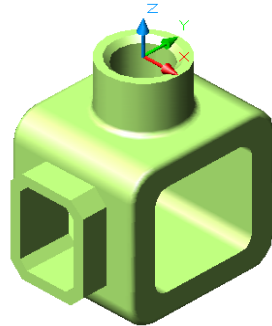


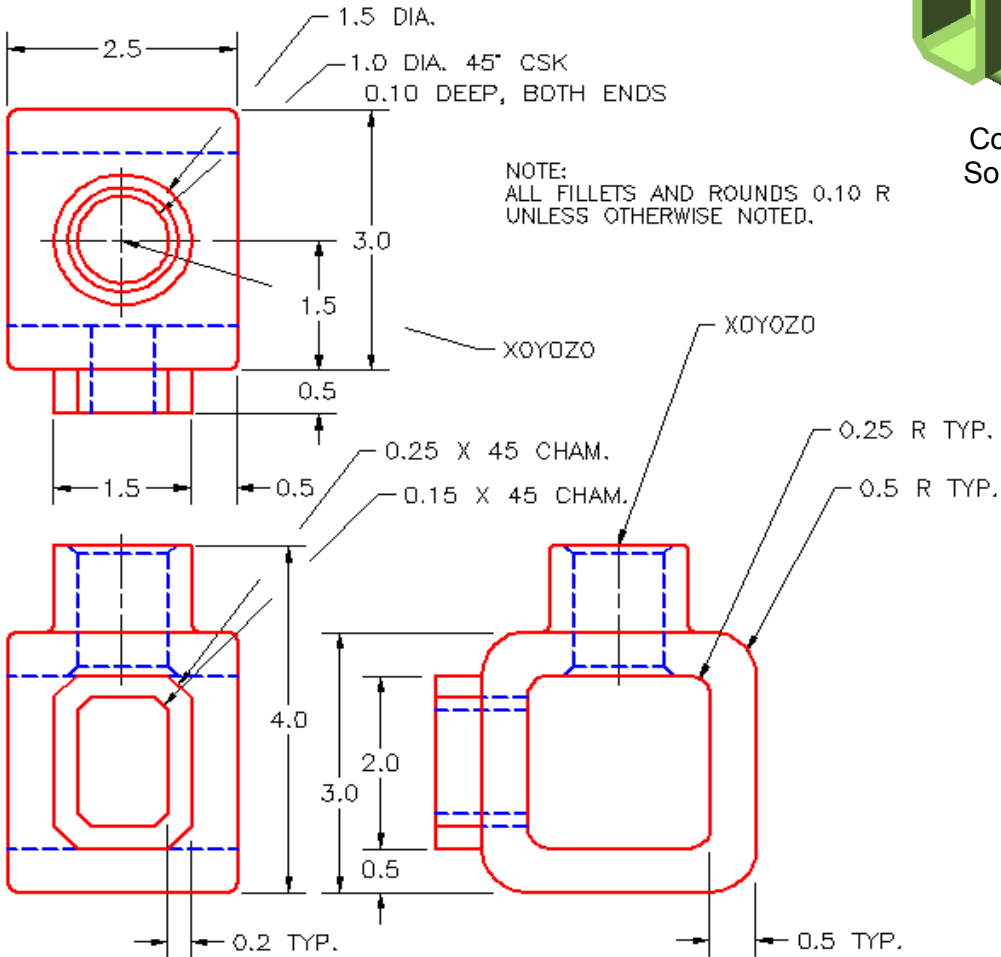
Figure Step 5

Lab Exercise 26-1		Part B		Open Book	
Drawing Specifications					
Name	Template	Units	Text Style		
AutoCAD 3D Lab 26-1	Module Template 3D English	Inches	N/A		
Note: Color, Linetype, and Lineweight are all <u>ByLayer</u> unless otherwise instructed.					
Layering Scheme					
Objects on Layer	Name	Color	Linetype		
Construction objects	Construction	253	Continuous		
Solid objects	Solid	71	Continuous		
Center Lines	Center	White/Black	Continuous		
Dimensions	Dimension	White/Black	Continuous		

- Instructions:**
1. Draw a solid model of the object shown below on layer Solid.

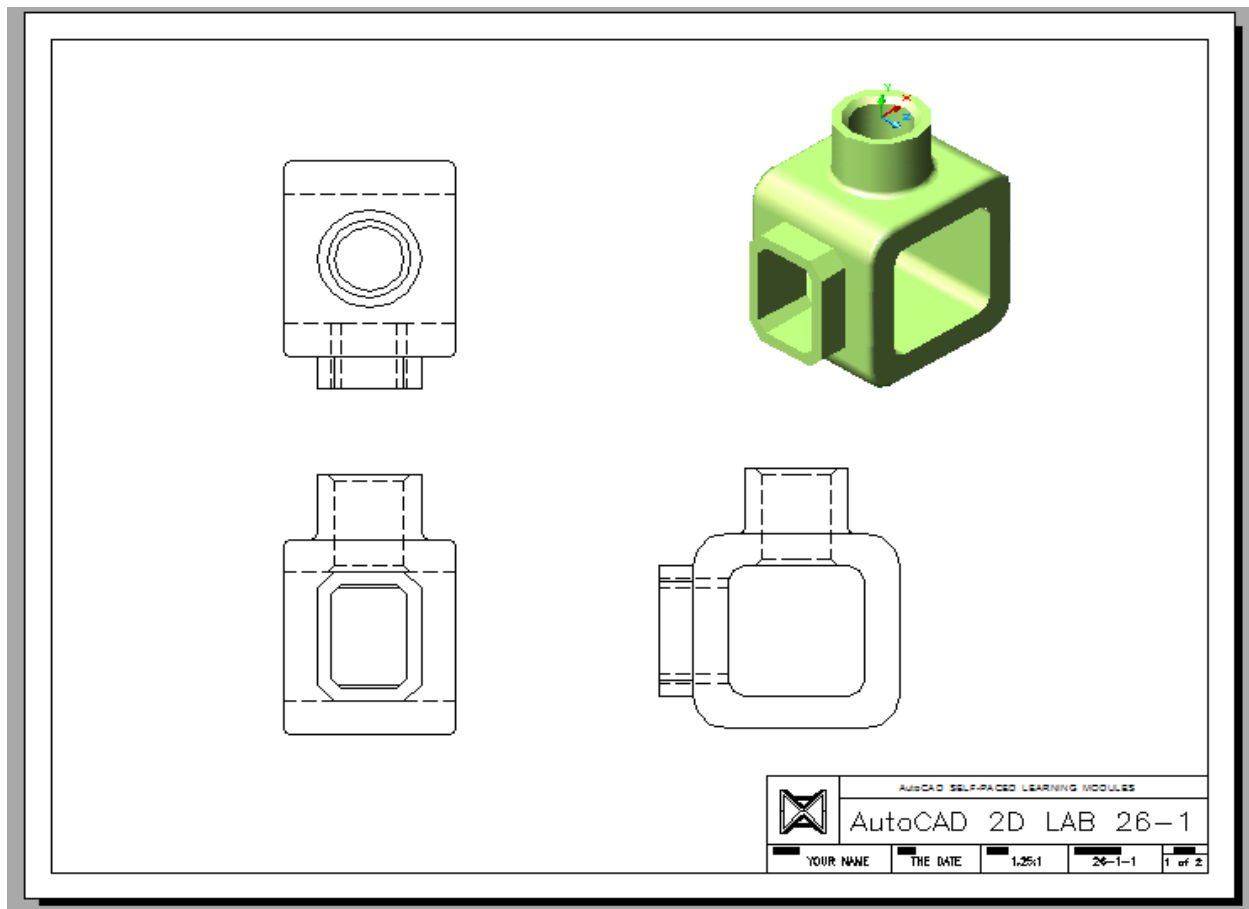
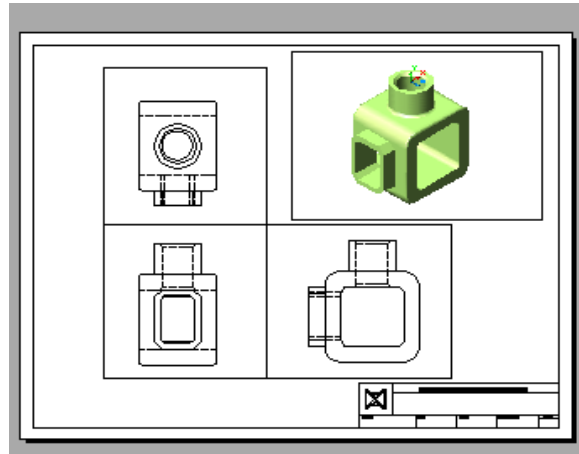


Completed Solid Model



Multiview Drawing
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2. On Module Template Layout C, and using the SOLVIEW command, create the three views of the model as shown in the drawing right.
3. Using the MVIEW command, create an isometric view of the solid.
4. Set the scale to 1.25 for all four views and lock their display.
5. Use the SOLDRAW command to change the three multiview views to two dimensional views
6. Change the shademode of the model so that it displays shaded in the isometric view.
7. Complete the titleblock in paper space.



8. On Module Template Layout D, using the SOLVIEW and SOLDRAW commands, create the three multiviews of the model as shown to the right.
9. Using the MVIEW command, create two viewports. Change the views to shaded. Rotate them to match the drawing the best you can.
10. Set the scale to 2:1 for the multiviews and 1.5:1 for the isometric views and lock their display.
11. In paper space, on layer Center, draw the center lines.
12. In paper space, on layer Dimension, create the dimensions shown below.
13. Change the color of the necessary layers so that the object lines are red and the hidden lines are blue.
14. Complete the titleblock in paper space.

