Assignment 14

CAD Mechanical – Part 2

Auxiliary Views

Objectives

In this assignment you will continue to learn to apply the **hatch and break commands** along with commands previously learned.

General Instructions

1. When AutoCAD's menu appears, scroll down and select the **Otto 2016.dwt** template file.

2. Insert the 8X10 Title Block.
3. From the **popup dialog box** type the information for the title block. You will name the twenty-third drawing assignment the same as previously drawn assignments.

   Arm Bracket   C23
   Holder Pivot   C24

4. Set the **Scale** to **1" = 1".**
5. **Dimension** the **drawing** and **save** the **file** into the **correct location** and **file name**.
6. There are no instructions for C24. It is a follow up assignment for C23. **C24 is the most advanced drawing that you will draw.** Many of the previously learned commands will be applied.

Auxiliary View Problem 1

1. After completing the title block information, inspect the drawing sample C22. You will learn about using the break command and the rotate command in this drawing.
2. The first steps will require you to draw the problem on a flat plane. When the drawing is completed, it will be broken at desired points and rotated to be viewed as illustrated in the sample drawing.

3. Using the dimensions given on the sample drawing, you will draw the problem as illustrated below:
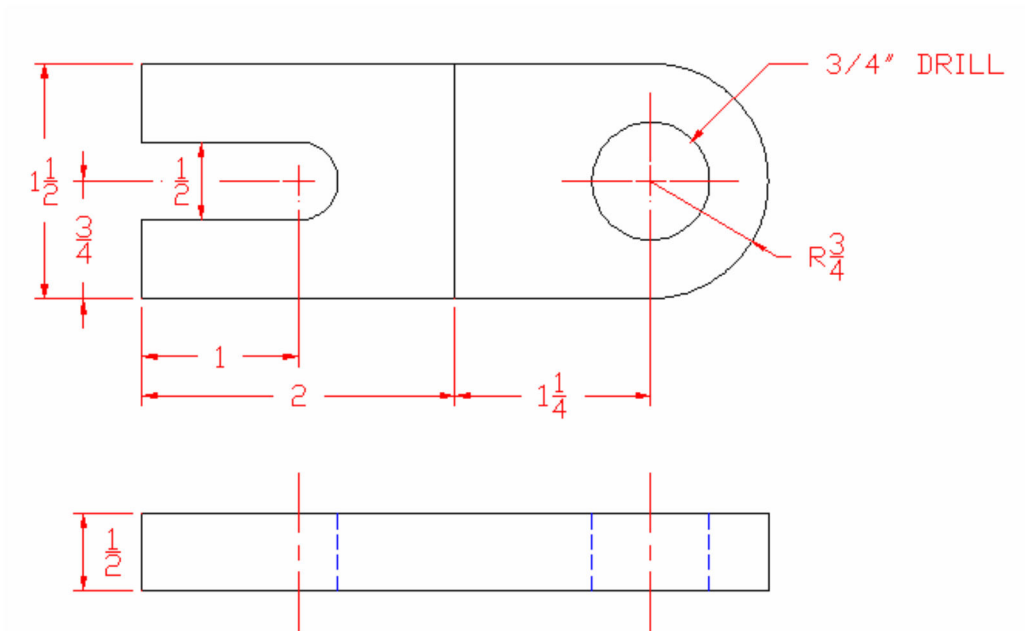

4. You are going to break the drawing at the four points illustrated below:
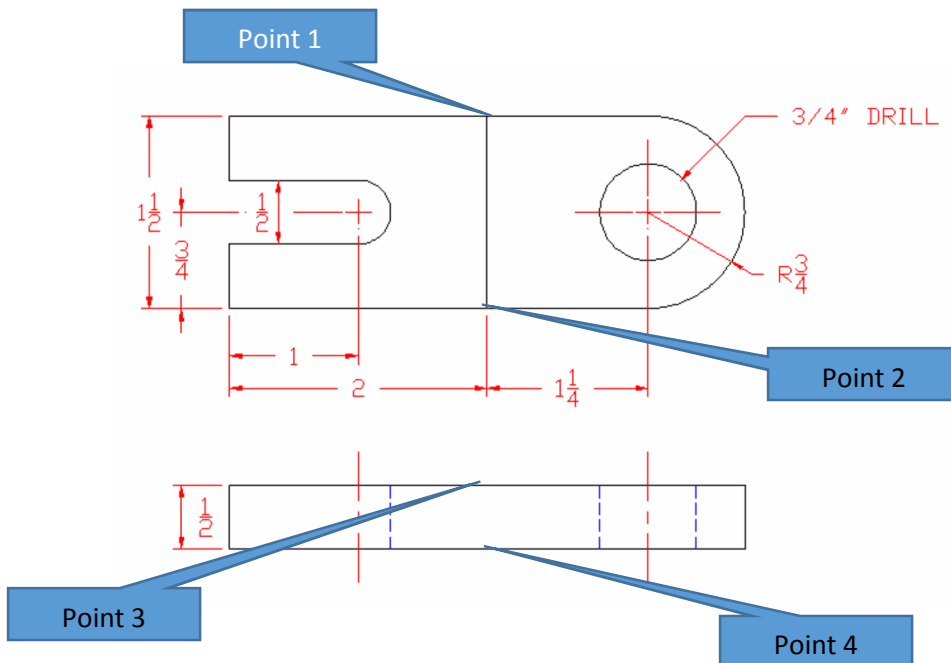
*Hint: Use the **distance** command to make a **blip 2" from the left side** of the drawing to locate the break points for the points 3 and 4.*

5. Use the break command as you did on assignment C22. Make sure that the first and second points are 2" from the left side of the drawing and make the first and second points be exactly the **same** point.
6. From the Modify menu select rotate. Pick all the points and objects to the right side of both views as illustrated below:
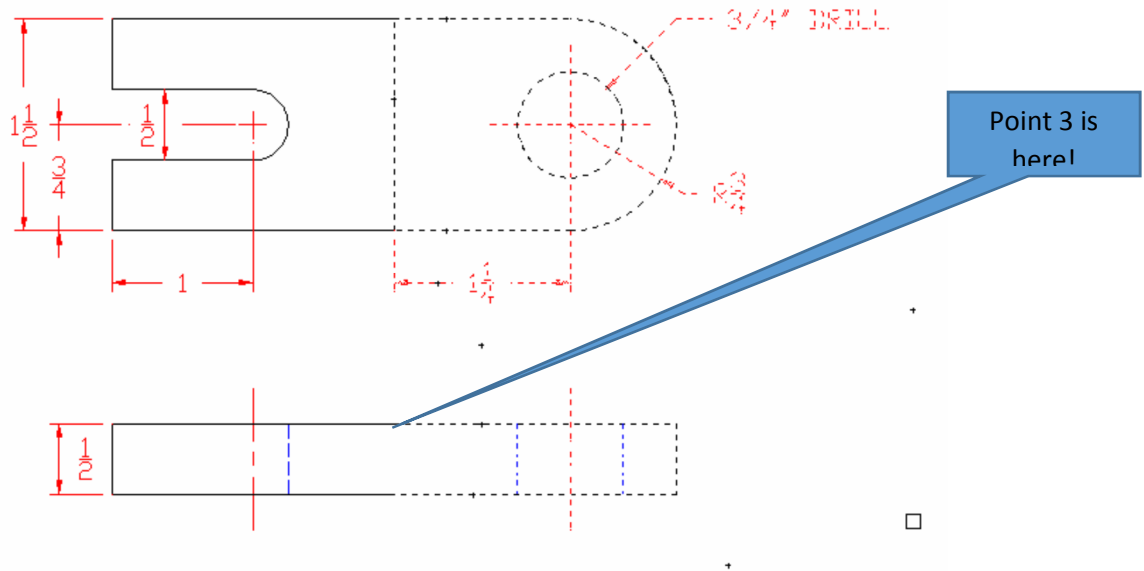

7. Press the enter key. You will be prompted to select a base point. Select Point 3 and input -45 as the rotation angle. Press enter and the drawing will appear as illustrated:
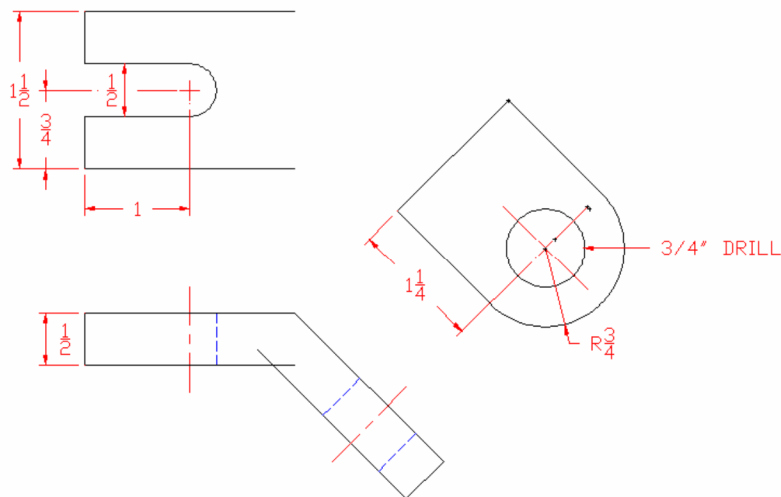
8. Notice in the front view of the object that the lines are now over extended. Use the trim command to remove the extended edges at Point A.

Point A
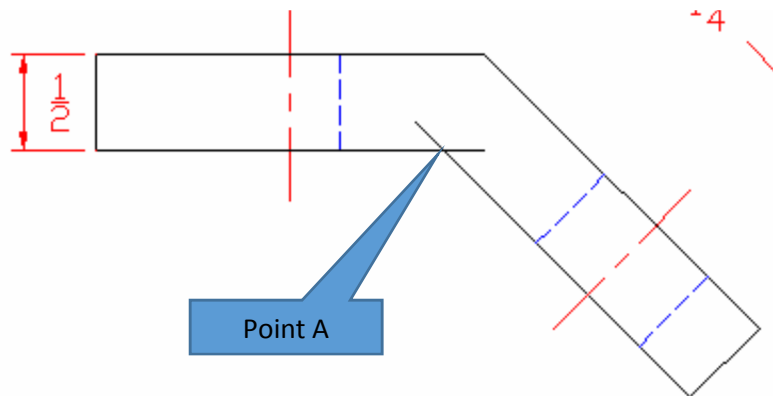
9. You are now going to learn a new command option for the polyline command. The top view needs a line that appears to be freehand drawn. You are going to use the polyline command with the poly edit and spline function to create this effect. From the draw menu select the polyline command and draw a line that zigzags as from point 1 to point 2 as illustrated below:

Point 2

Point 1
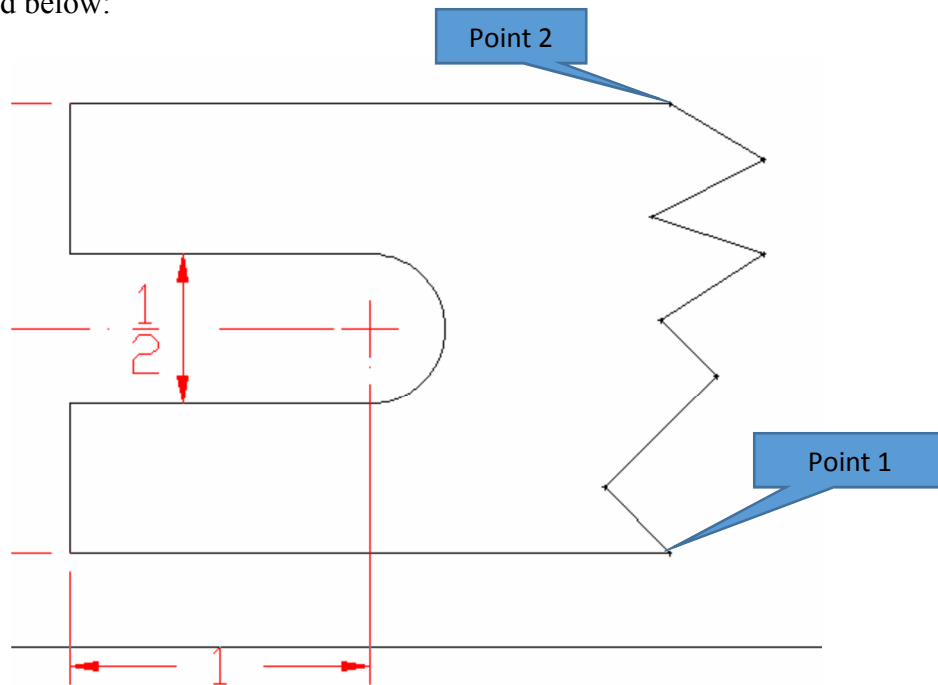
10. After the polyline is drawn, at the command prompt type **pedit**. A pick box should appear. Pick the zigzag polyline that you just drew. When the line is highlighted type S for spline and press the enter key. The zigzag shape should be curved and smooth as if you freehand drew the line.
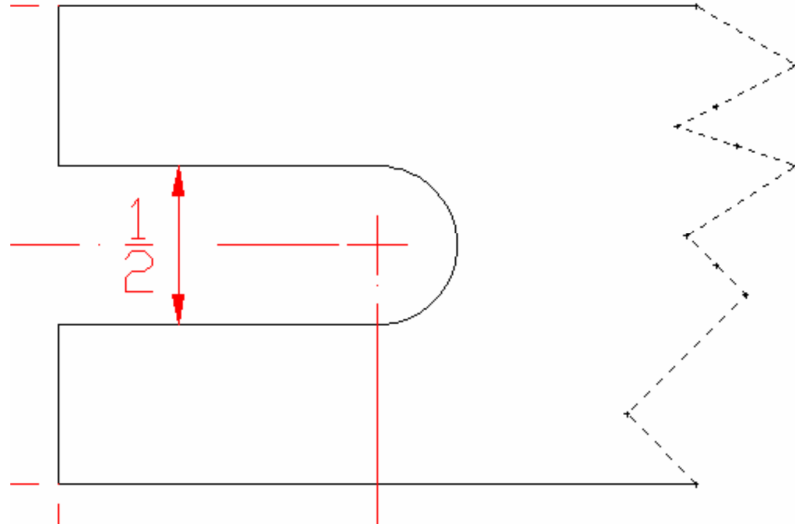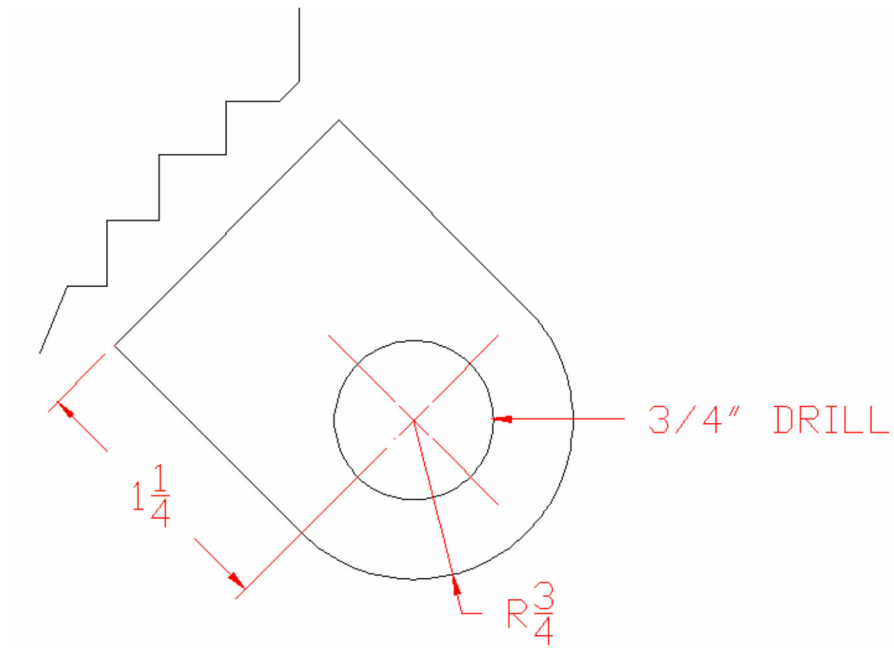
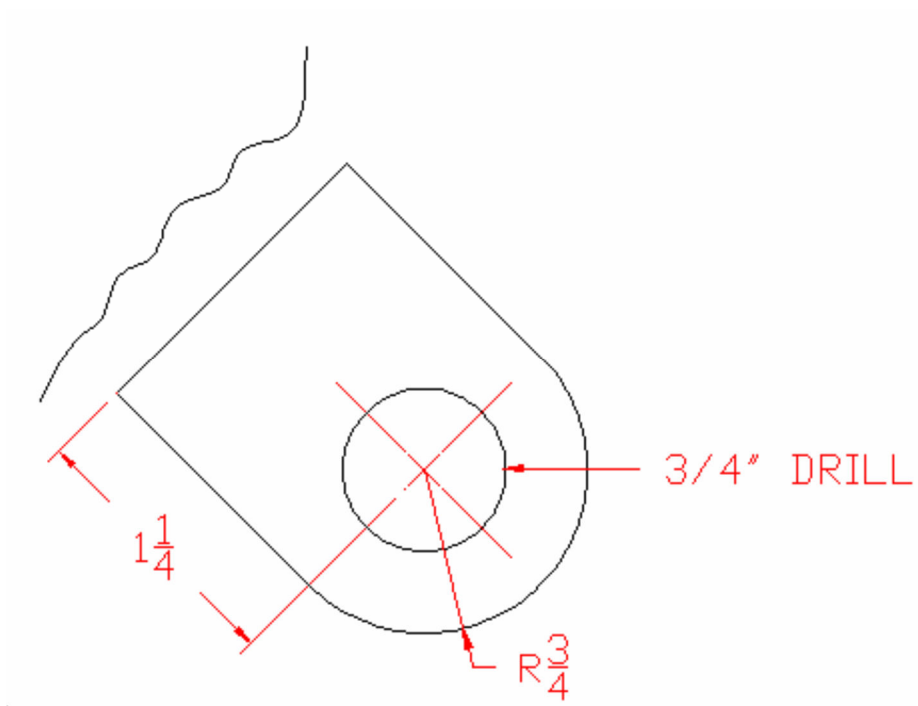After Selecting with Pedit Command.
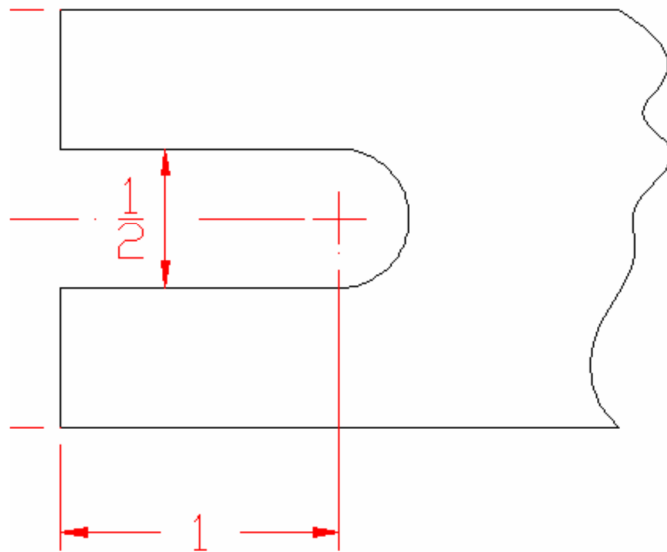
After using the Spline function.

11. You will now draw another polyline for the rotated view as illustrated below:
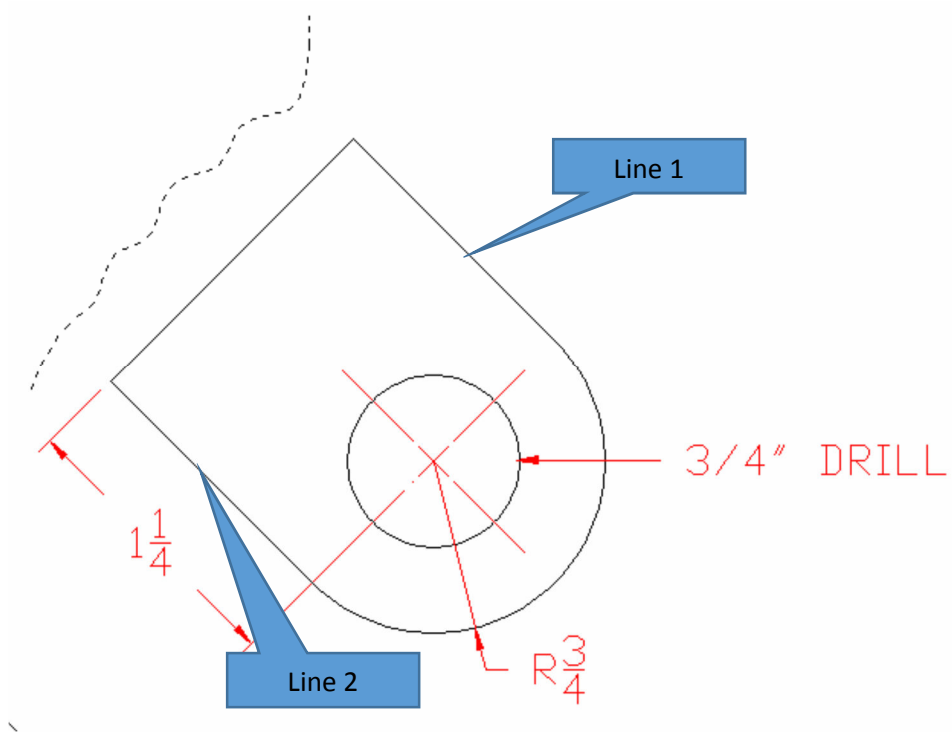

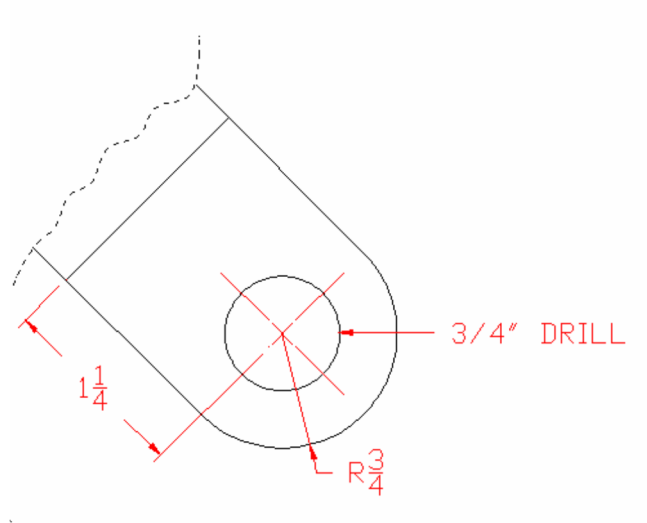This polyline should be longer than the width of the object as illustrated.

12. Use the pedit command to spline the line as done on the top view.
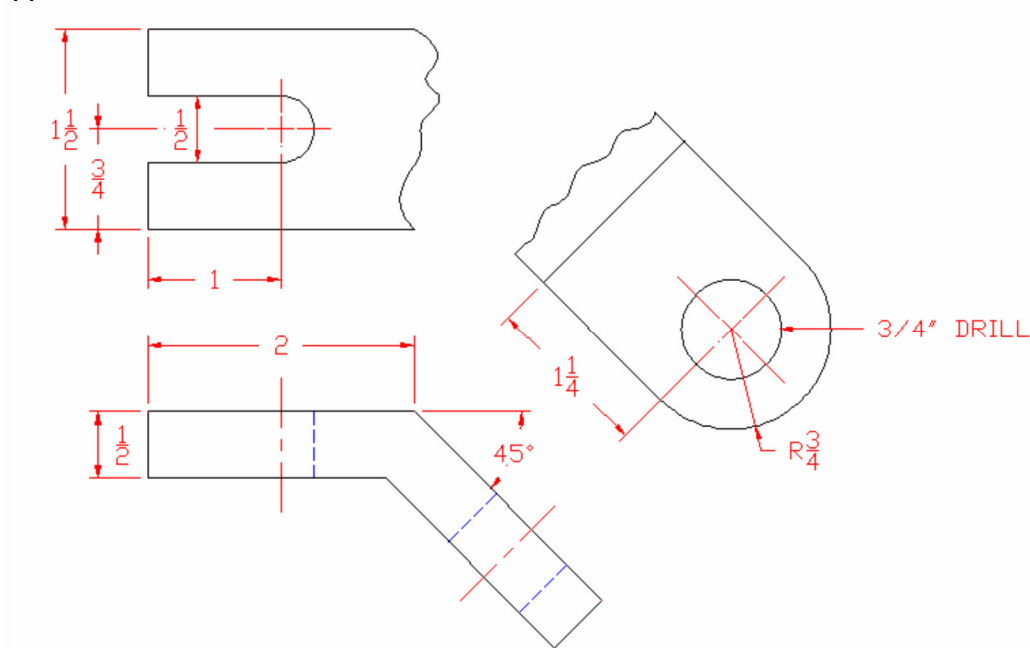
13. Select the extend command and pick the polyline in the auxiliary view. When the polyline is highlighted, pick lines 1 and 2.

14. The lines will then be extended as illustrated:

15. Use the trim command to trim the excess off the polyline. The final drawing should appear as illustrated below:

Auxiliary View Problem 2

1. The procedures for drawing C23 will be applied to drawing C24. Apply what you learned on C23. Use the help function to apply the fillet command for the rounds on the drawing. Remember that if the drawing is not full scale, the text, the line type, and the dimensions have to be considered before drawing the problem.

2. The final drawing should appear as illustrated below:
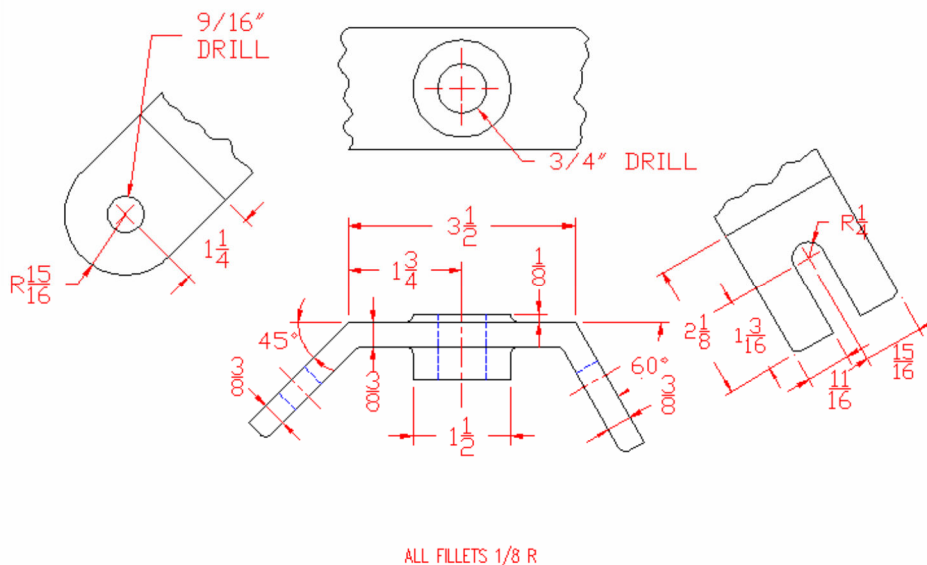
3. The **Holder Pivot** will be the most challenging drawing that you have had to draw. You will need to apply what you have learned in previous drawings to accomplish the task successfully.

Terms to Know

Auxiliary View - A view other than the six basic views (front, back, top, bottom, right side, left side); it is used to describe an inclined surface of an object completely when the surface cannot be described using one of the basic views.

Cutting plane - The plane used to cut through an object to define a sectional view**.**

Dimscale - Command sets the overall scale factor applied to dimensioning variables that specify sizes, distances, or offsets. Also affects the scale of leader objects created with the LEADER command.

Extend - Command extends an object to meet another object. It does not function if the objects do not intersect.

Fillet - A small radius on an inside corner of an object. In AutoCAD, the FILLET command also allows you to round off outside corners.

Pedit - Commands edits polylines and three-dimensional polygon meshes.

Rotate - Command moves objects about a base point.

Spline - Command creates a non-uniform rational B-spline (NURBS) curve. AutoCAD uses a particular type of spline known as a non-uniform rational B-spline (NURBS) curve. A NURBS curve produces a smooth curve between control points. Splines are useful for creating irregularly shaped curves, for example, drawing contour lines for geographic information system (GIS) applications or automobile designs.

Scale - Command used to increase or decrease the actual size of an object in an AutoCAD drawing.

Trim - Command trims objects at a cutting edge defined by objects. It does not function if the objects do not intersect.