Dwg #9 — MIRROR

T.E. Lab 347/547 - Computer Assisted Design and Drafting

INTRODUCTION:

This drawing involves the use of the mirror command to create a duplicate image of an object that is a reverse image of the original. The mirror command can be used to duplicate and reverse one or more objects at a time. It can mirror objects no matter how complex, so long as all lines in the original object have been selected prior to using the mirror command. Refer to Figure 2 to see the complete object.

OBJECTIVES:

Following the completion of this activity, the learner will be able to:

1. Open and save an existing drawing using a new file name.
2. Identify the Mirror tool in the Modify toolbar. 
3. Use the Mirror tool to mirror the object drawn in drawing #8.
4. Change the completed object into polylines using the boundary command.
5. Adjust the width of all object lines using the PEDIT command.
6. Use the Linear Dimension tool to place linear dimensional data.
7. Identify the Point tool in the Draw toolbar. 
8. Locate the starting point using the Point tool.
9. Use the Quick Leader tool to reference the starting point.

DIRECTIONS:

Read the specific information regarding this drawing. Attached to this sheet is the drawing that you are to reproduce. Open a new drawing and save it to your class disk using your 3 initials followed by Dwg09 (i.e.; fmlDwg09). Set up the CADD program to the correct setting as indicated below.

After the Dwg09 drawing is complete, save it to your class disk, answer the questions about the drawing in the question section of this activity and complete the Drawing #9 section of the Drawings #6-#10 Evaluation sheet.

When due, submit drawings #6-#10 with a title page, hard copy of each required drawing, and the Drawings #6-#10 Evaluation sheet stapled together with a disk containing the finished drawing files.

AutoCAD SETUP:

1. Open Drawing #08 – Chamfer/Fillet (fmlDwg08).
2. Choose File➤Save As..., immediately save a copy of the drawing to your class disk using your 3 initials followed by Dwg09 (i.e.; fmlDwg09).
3. Choose Format➤Units..., under Length, set Type = Decimal, set Precision = 0.00.
4. Choose Format➤Drawing Limits: respond to the command line prompts and set the lower left limit to 0.00,0.00 and the upper right limit to 12.00,9.00.
5. Choose Format➤Point Style..., set the point style to (+) at 5% of screen size.
6. Select the Zoom All tool from the Zoom menu in the Standard toolbar to resize the worksheet.
7. Choose Tools➤Drafting Settings...:
   A. Click the Snap and Grid tab: set Snap On (F9), set Grid On (F7), under Snap: set Snap X spacing = 0.25, set Snap Y spacing = 0.25, and under Grid: set Grid X spacing = 0.25, set Grid Y spacing = 0.25.
   B. Click the Object Snap tab (OS): set Object Snap On (F3), under Object Snap modes: Set Endpoint.

8. Choose Dimension➤Style..., click the Modify... button:
   A. Click the Lines and Arrows tab: under Extension Lines, set Extend beyond dim lines = 0.20, set Offset from origin = 0.15, under Arrowheads, set Arrow size = 0.20.
   B. Click the Text tab: under Text Appearance: set Text style = Standard, under Text Alignment: set Horizontal, under Text Placement: set Offset from dim line = 0.11.
   C. Click the Fit tab: under Fit Options: set Both Text and Arrows.
   D. Click the Primary Units tab: under Linear Dimensions: set Unit format = Decimal, set Precision = 0.00.
9. Verify and/or create the following layers using the Layers tool in the Object Properties toolbar.
   A. Layer 0 layer, verify Color = White, verify Linetype = Continuous.
   B. Layer Dimension layer, set Color = Blue. set Linetype = Continuous.
   C. Layer Centerline layer, set Color = Red, set Linetype = CENTER.
10. Turn on ORTHO by clicking on the ORTHO button at the bottom of the screen
11. Select the entire object as drawn in Drawing #8.
12. Click on the Mirror tool in the Modify toolbar, when asked to specify first point of mirror line, select the end of the upper line (point A), when asked to second point of mirror line, move the cursor vertically up or down and click (Figure 1).
13. Convert all object lines into polylines using the boundary command (BO is a shortcut).
14. Adjust all object line widths to 0.02 using PEDIT (PE is a shortcut).
15. Place all dimensions using the Linear Dimension and Quick Leader tools (Figure 2).
16. Place all dimensions on the Dimension layer.
17. Place the center line on the Centerline layer.

QUESTIONS:

Measure the distances, perimeter, and area as requested in question 1-4.

Question 1: Measure the distance between points A and B
(Precision, 4 decimal places) 4.7200

Question 2: Measure the distance between points B and C
(Precision, 4 decimal places) 5.0000

Question 3: Measure the distance from the center of the upper left hole to the center of the lower right hole (Precision, 4 decimal places)..... 4.2400

Question 4: Measure the outside perimeter of the completed object
(Precision, 4 decimal places) 29.8700

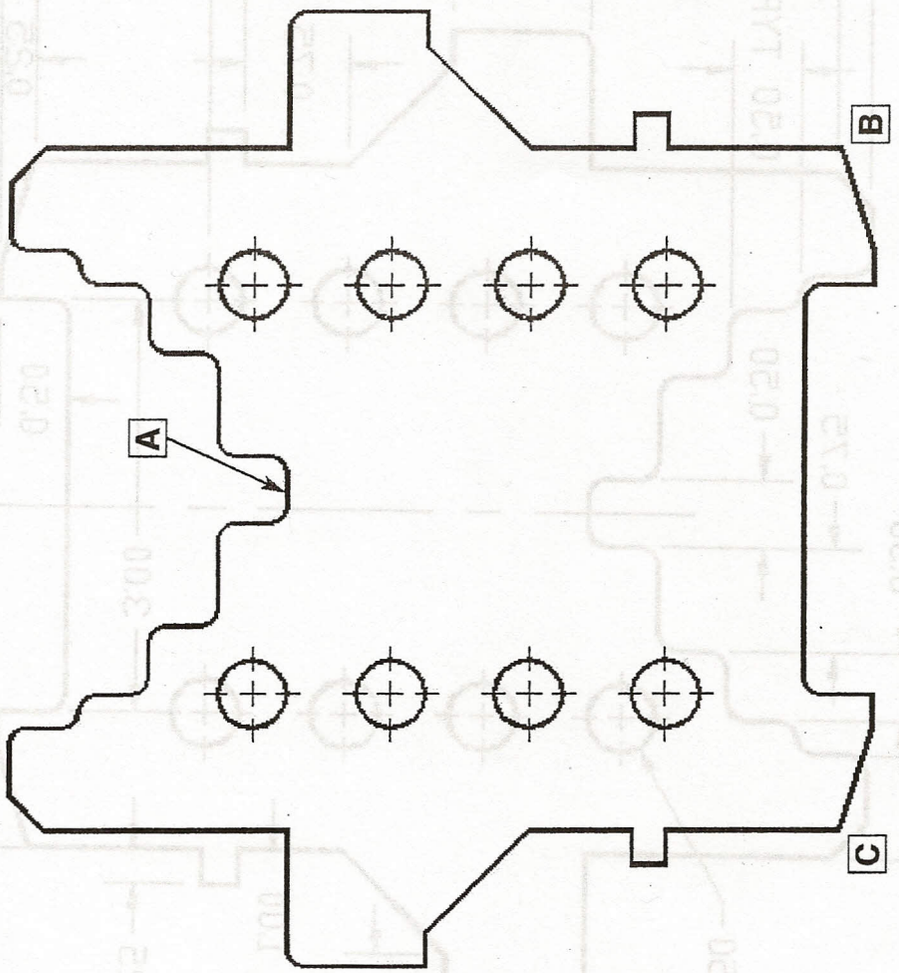

Figure 1 Mirrored object

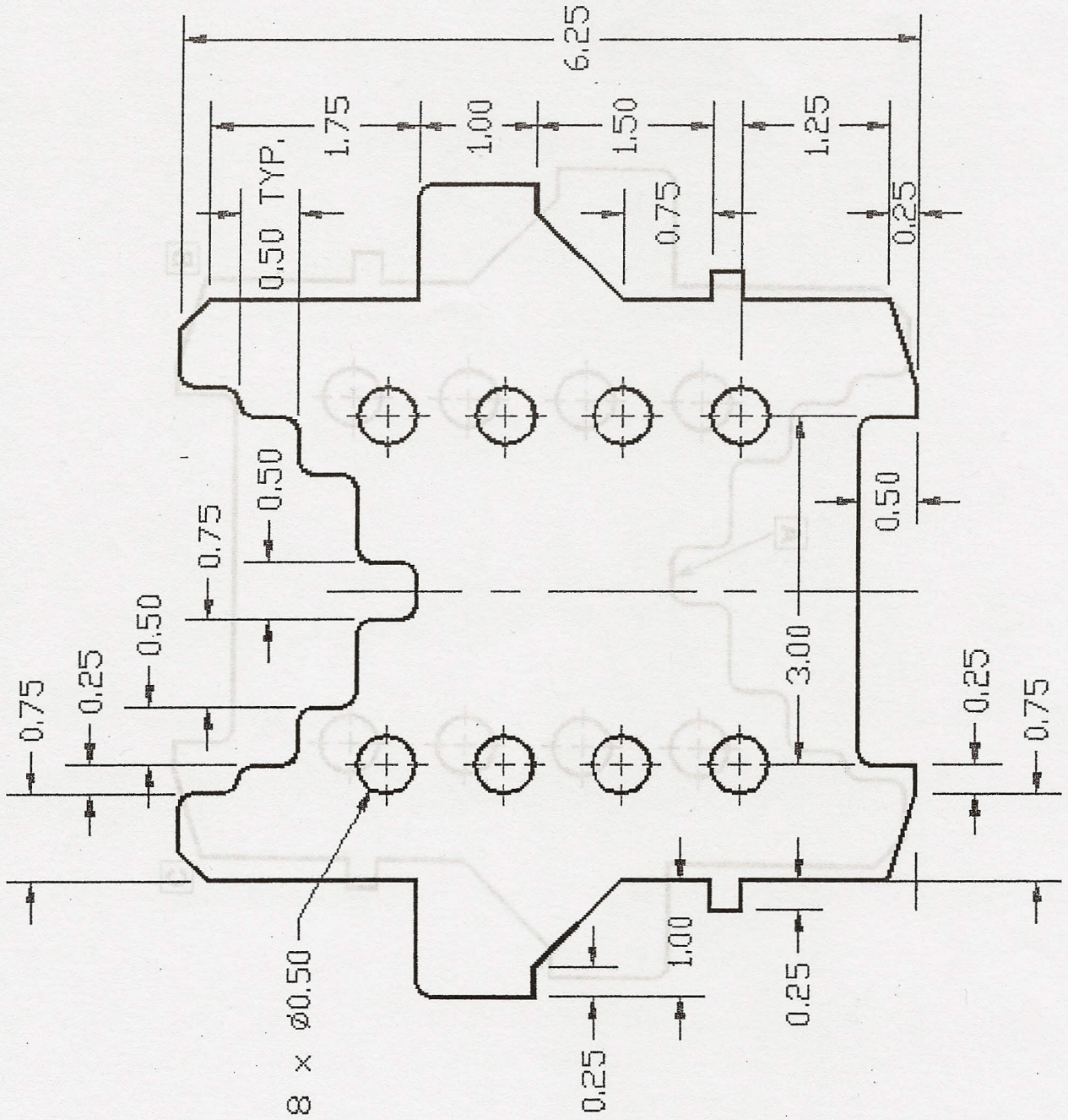

Figure 2 Dimensioned object