201

Dwg #3 - POLYLINE

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

INTRODUCTION:

This drawing involves the use of the three coordinate systems supported by AutoCAD to create an object that will be converted in polylines. The polylines will be created using the boundary and polyline edit commands.

OBJECTIVES:

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

1. Construct the object using the absolute, relative, and polar coordinate systems.
2. Identify the Line tool in the Draw toolbar. 
3. Position the lower left corner of the object using the absolute coordinate system.
4. Construct the left, bottom, and right sides of the object using the Line tool.
5. Identify the Rectangle tool in the Draw toolbar. 
6. Establish a reference point using ID.
7. Construct a rectangle using the relative coordinated system.
8. Construct an angled line using the polar coordinate system.
9. Construct a temporary line to determine the end of a line.
10. Identify the Layer Properties Manager tool in the Layers toolbar. 
11. Create drawing layers and set line type and line color using the Layer Properties Manager tool.
12. Identify the Make Object's Layer Current tool in the Layers toolbar. 
13. Quickly switch between layers using the Make Object's Layer Current tool.
14. Identify the Linear Dimension tool in the Dimensions toolbar. 
15. Place dimensions using the Linear Dimension tool.
16. Identify the Quick Leader tool in the Dimensions toolbar. 
17. Place an angle dimension using the Quick Leader tool.

DIRECTIONS:

Read the specific information regarding this drawing. Attached to this tutorial is the drawing that you are to reproduce. Open a new drawing and save it to your storage media using the initials of your; last name, first name, and middle name, followed by -Dwg03 (i.e.; LFM-Dwg03). Set up the CADD program to the correct setting as indicated below.

After drawing #3 is complete, save it to your storage media, answer the questions about the drawing in the question section of this tutorial, and complete the Drawing #3 section of the Drawings #1-#5 Evaluation sheet.

When due, submit drawings #1-#5 with a title page, hard copy of drawings #1, #3, #4, and #5 on A size paper, hard copy of drawing #2 on B size paper (in numeric order), and the Drawings #1-#5 Evaluation sheet stapled together with your storage media containing the finished drawing files.

Note: Drawings #3, #4, and #5 should be printed using the A title block template.

AutoCAD SETUP:

1. Under Format➤Units...: under Length, set Type = Decimal, set Precision = 0.000 (Figure 1).

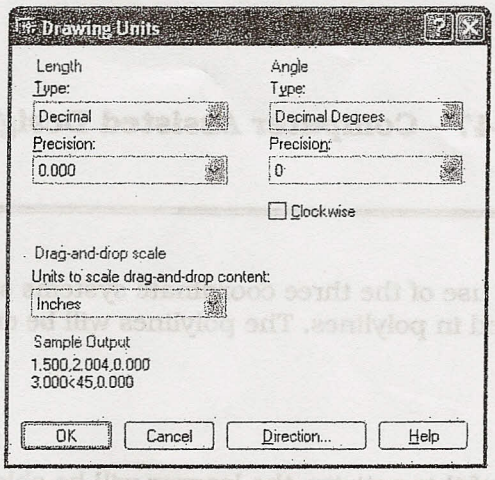


Figure 1 Drawing Units dialog box

2. Under Format➤Drawing Limits: respond to the command line prompts and set the lower left limit = 0.000,0.000, and the upper right limit = 12.000,9.000.
3. Select the Zoom All tool from the Zoom fly-out menu in the Standard toolbar.
4. Under Format➤Text Style..., set Style Name = Standard.
5. Under Format➤Dimension Style..., click the Modify... button (Figure 2):

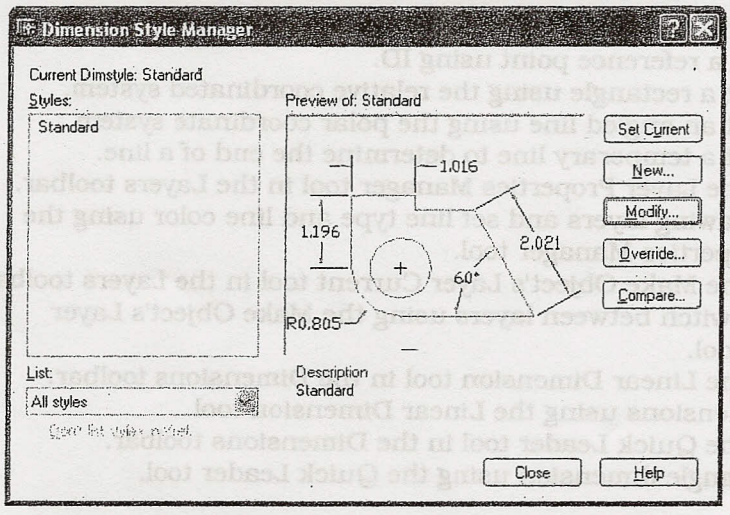


Figure 2 Dimension Style Manager dialog box

A. Click the Lines and Arrows Tab, under Arrowheads, set Arrow Size: 0.180, and under Extension Lines, set Extend beyond dim lines: 0.180 (Figure 3a).
B. Click the Text tab, under Text Appearance, set Text Height: 0.180 (Figure 3b).

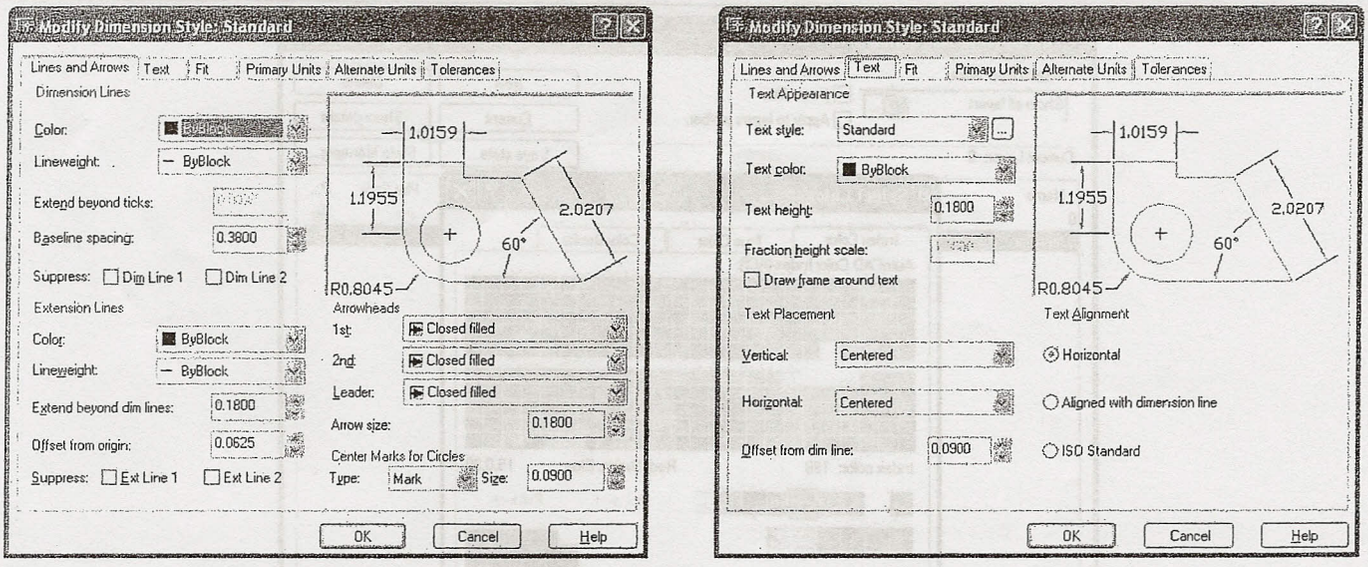


Figure 3a/b Lines and Arrows tab and Text tab of the Dimension Style Manager

C. Click the Fit tab, set Fit Options = Both text and arrows. (Figure 4a)
D. Click the Primary Units tab, under Linear Dimensions, set Unit Format: Decimal, Precision = 0.000, under Angular Dimensions, set Precision = 0.000 (Figure 4b).

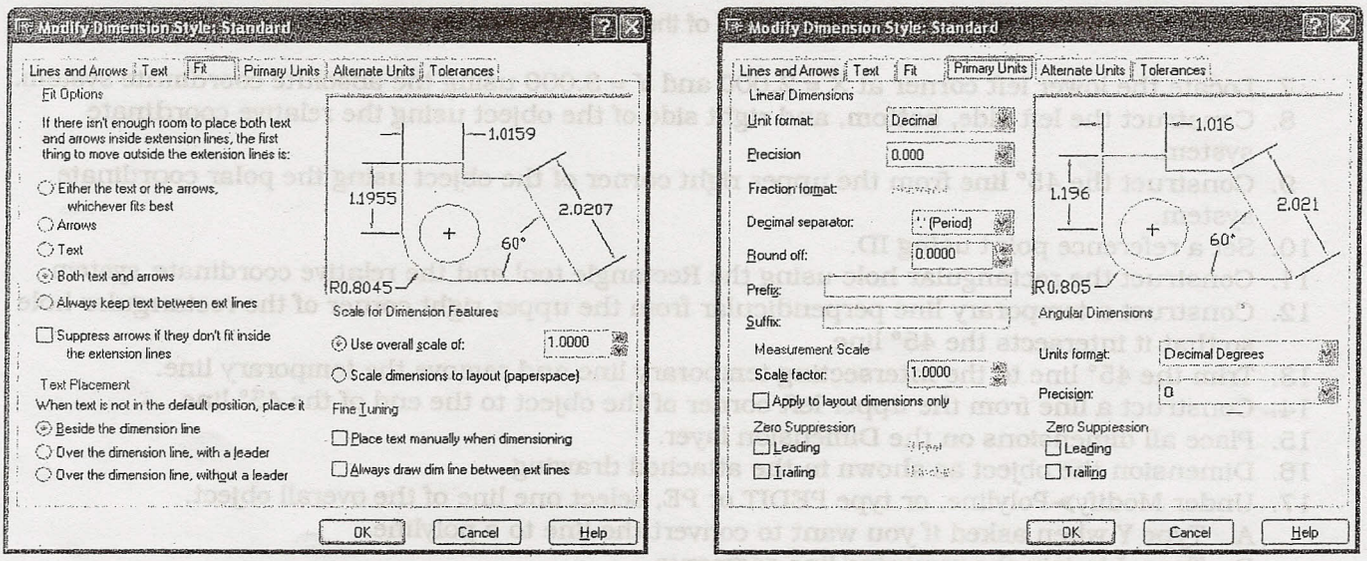


Figure 4a/b Fit tab and Primary Units tab of the Dimension Style Manager

6. Select the Layer Properties Manage tool in the Layers toolbar (Figure 5):
   A. Verify Layer 0: Color = White, Linetype = Continuous.
   B. Click the New button: Change name Layer 1 = Dimension, set Color = Blue, set Linetype = Continuous.

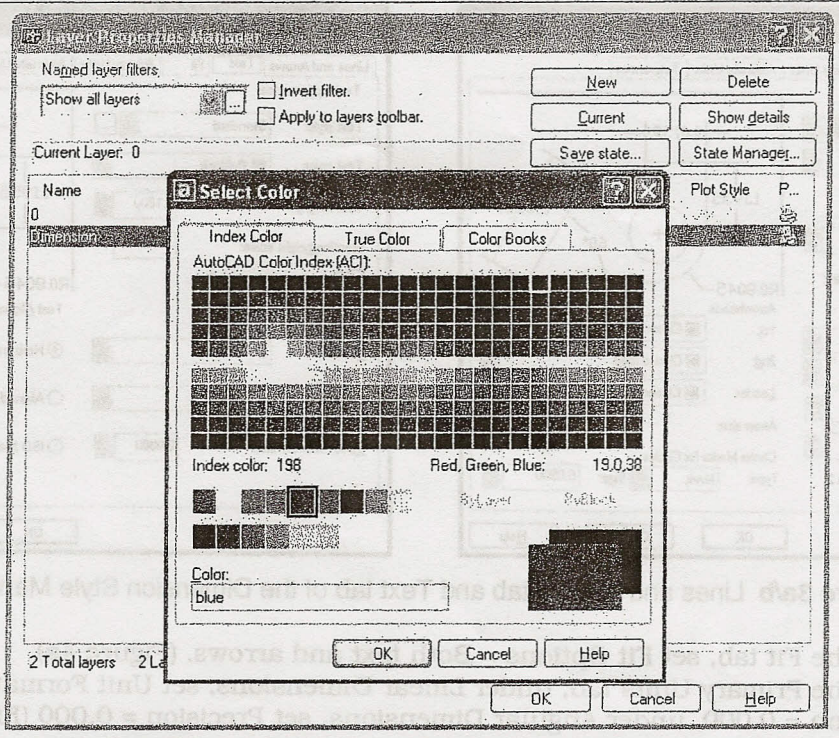


Figure 5 Select Color dialog of the Layer Properties Manager

7. Locate the lower left corner at X = 2.000 and Y = 3.000 using the absolute coordinate system.
8. Construct the left side, bottom, and right side of the object using the relative coordinate system.
9. Construct the 45° line from the upper right corner of the object using the polar coordinate system.
10. Set a reference point using ID.
11. Construct the rectangular hole using the Rectangle tool and the relative coordinate system.
12. Construct a temporary line perpendicular from the upper right corner of the rectangular hole so that it intersects the 45° line.
13. Trim the 45° line to the intersecting temporary line and remove the temporary line.
14. Construct a line from the upper left corner of the object to the end of the 45° line.
15. Place all dimensions on the Dimension layer.
16. Dimension the object as shown in the attached drawing.
17. Under Modify➤Polyline, or type PEDIT or PE, select one line of the overall object.
    A. Type Y when asked if you want to convert the line to a polyline.
    B. Type J to join the remining line segments.
    C. Type W to adjust the width of the polylines, and type 0.030.

QUESTIONS:

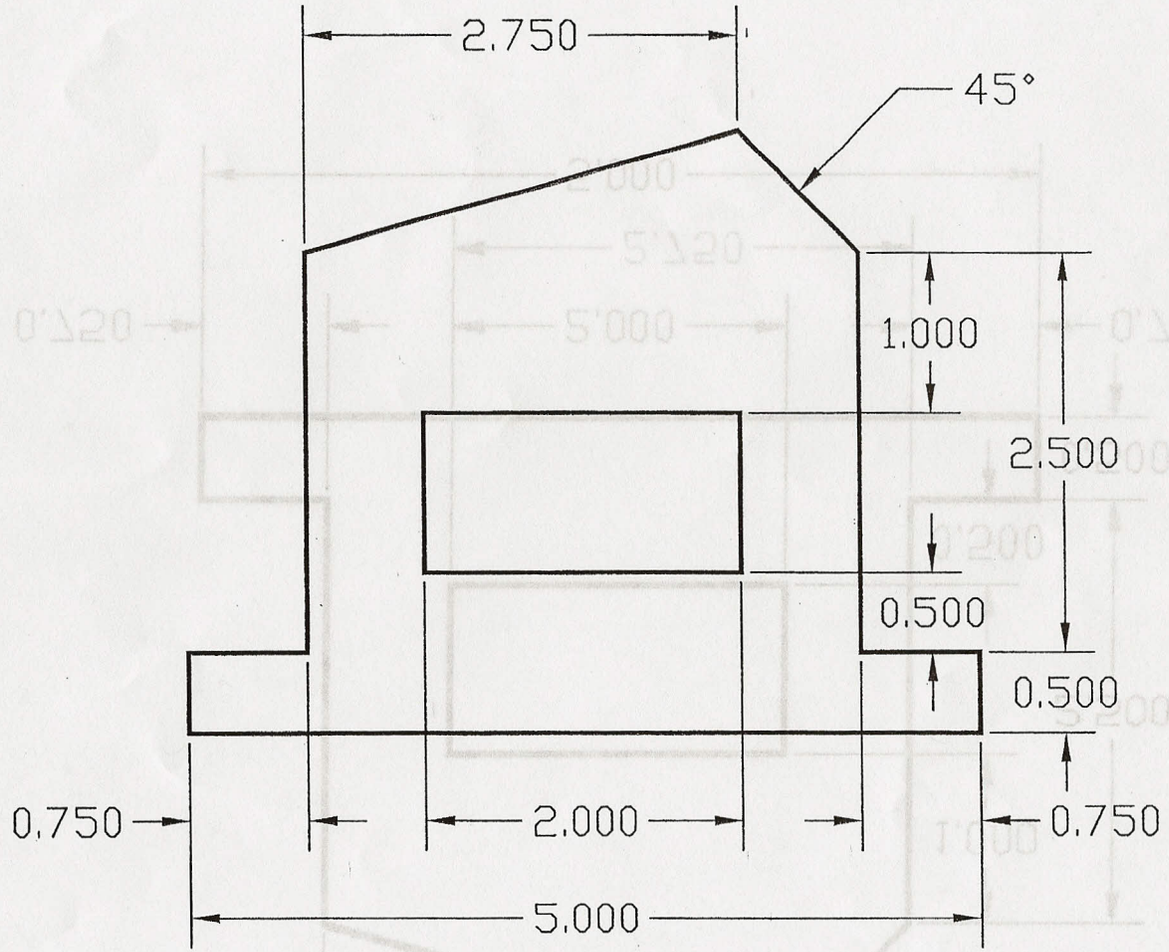
Set the drawing length and angle units precision to 0.0000 before answering the following questions. Use the Distance and List commands to answer the following questions.

Question 1: Measure distance from highest point to lower left corner
(Precision, 4 decimal places) ....._____

Question 2: Measure length of the 45° line
(Precision, 4 decimal places) ....._____

Question 3: Measure angle from highest point to lower left corner in the XY plane (Precision, 4 decimal places) ....._____

Question 4: Measure area of overall object
(Precision, 4 decimal places) ....._____



swego

DWG. NAME	POLYLINE
ORGANIZATION	OSWEGO State University of New York

SIZE	SCALE	DWG. NO.	DATE
A	N/S	3	03/18/05

DRAFTER Chris Jones