

Assignment 5

CAD Mechanical – Part 1

Editing Tools & Polyline Functions

Objectives

In this assignment you will apply **polyline, offset, copy, move, and rotated dimension commands**, as well as skills learned in earlier assignments.

Getting Started

1. When AutoCAD's menu appears, select Open File and navigate to the CAD Support File and load **Otto 2016.dwt** template file as you have on the previous assignments.
2. Complete the title block and by typing the information into the block. The drawing will be drawn **full scale**.
3. Insert the drawing title and drawing number illustrated below:

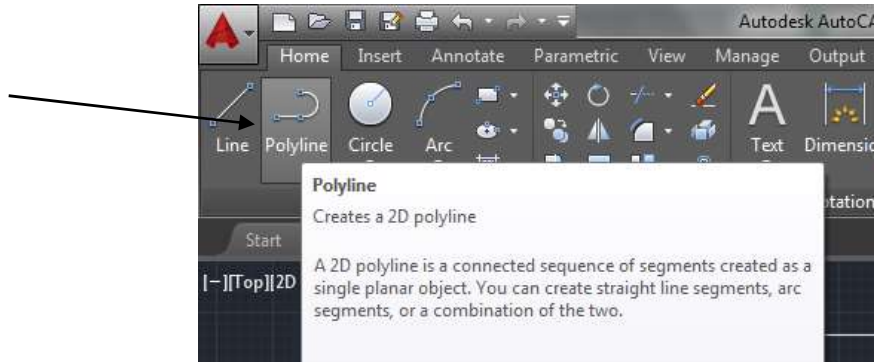
Edsel Radiator Gasket	C10
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4. The scale for the drawing is Full scale (1" = 1").
5. Dimension the assignment after drawing the Edsel Gasket.

Note: If a pop ask for you to make a selection, choose the one that is recommended.

Polyline Command

1. Turn Snap on and set at 1/8".
2. Drawing **C10**, the Edsel Radiator Gasket introduces six new AutoCAD commands (**polyline, offset, copy, rotated dimension, match properties and text rotation**).

3. Select Polyline from the Home Menu Bar.



4. Draw the polyline 7". Do not detach the line from the crosshair.



5. Move the mouse to the command line and click into the command box. Type the polar coordinate of @7<120.

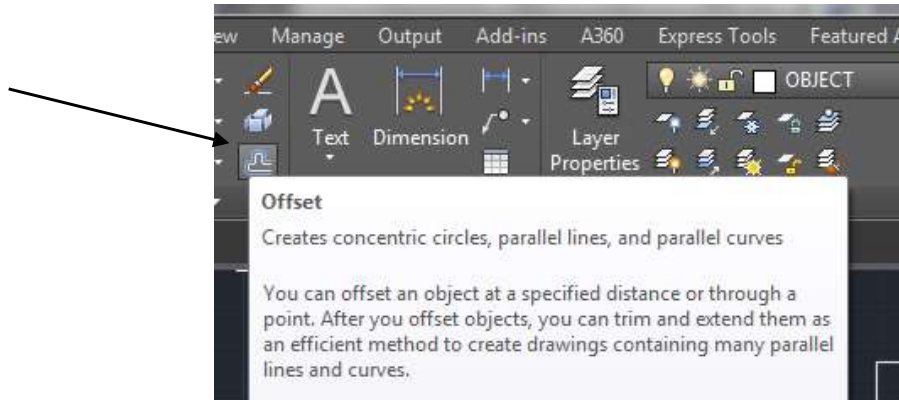


6. Type c to close.

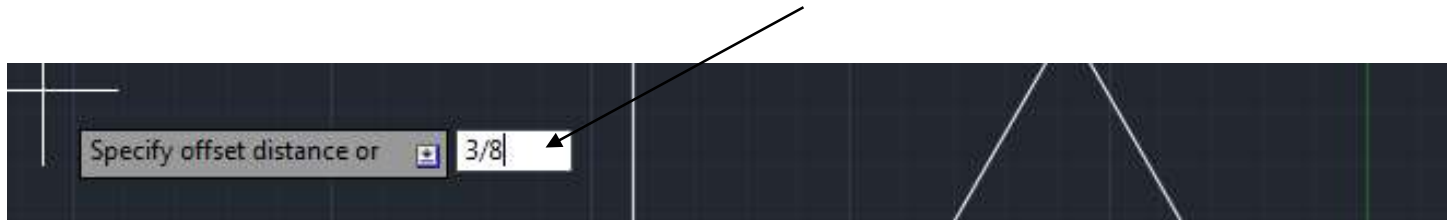
Offset Command

1. When drawn using the **Line command**, the **above representation** of the **triangle** is **three lines** that are **separate entities**. **Polyline** joins the **three lines** as **one entity**. Use the **Move command** to **reposition** the triangle lower in the title block drawing space.
2. When you **selected** the **triangle**, you did **not have** to **click three lines**. They are **all grouped** together.

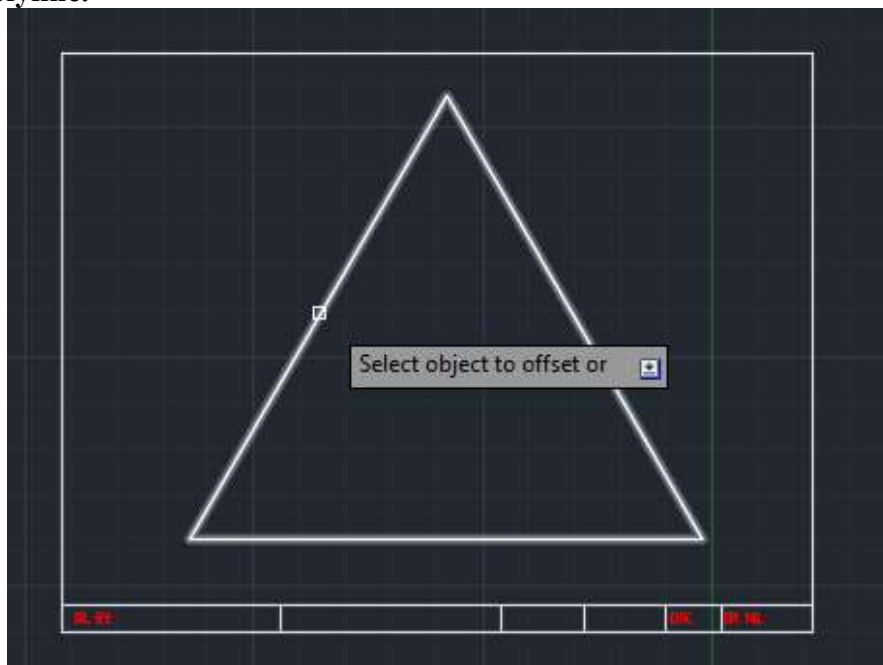
3. Select the **Offset** command from the **Modify** menu:



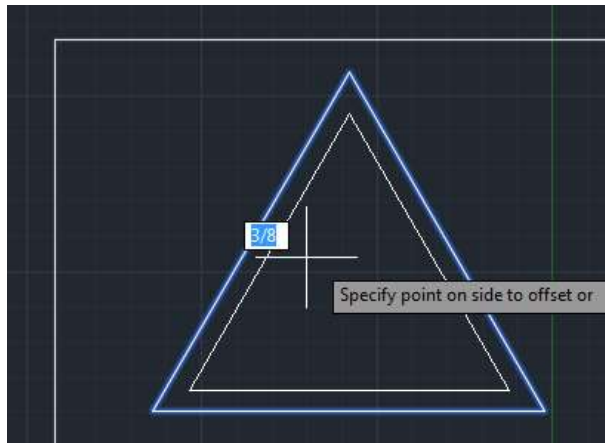
4. Type $3/8$ for the offset into the command box.



5. When you press the Enter key, a pick box appears. Place the pick box somewhere on the polyline.



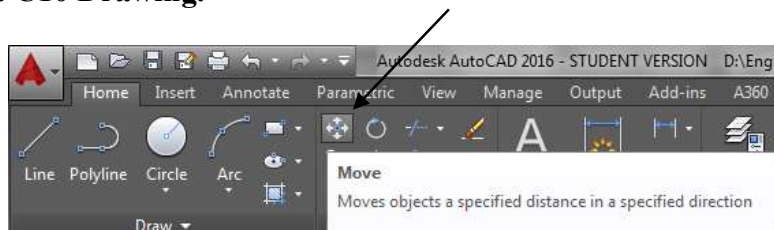
- Pick the line and notice that the polyline is selected. Move the crosshair into the inside of the drawing.



- When you click the mouse, you are specifying the location of the offset to be inside as illustrated:

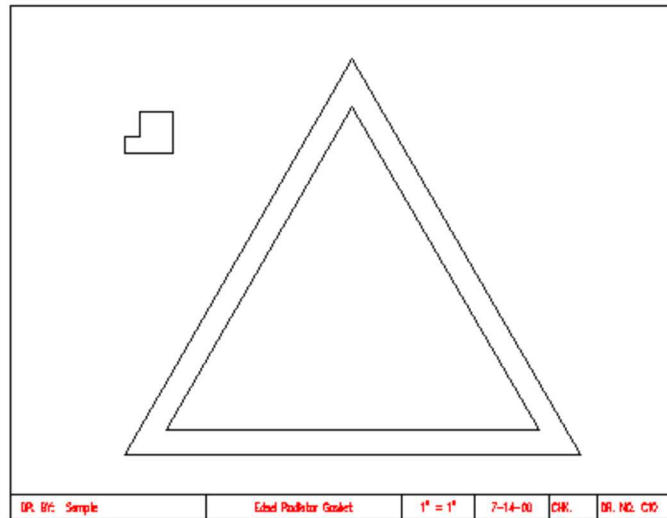


- Select the Move command from the Home Ribbon Tab and move the drawing to match the C10 Drawing.



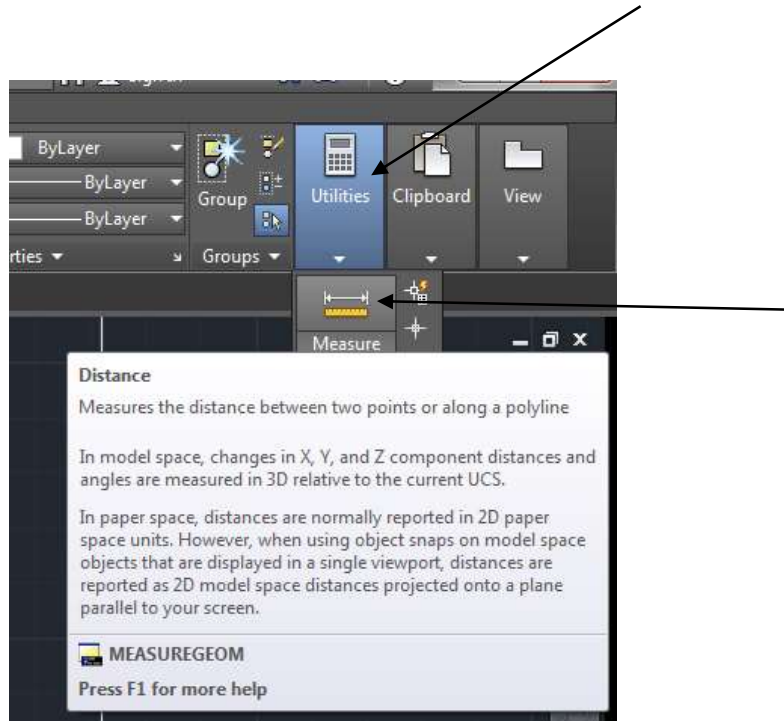
Distance Command

1. Select the **Line command** and **draw the DETAIL A** to the **upper left** of the **triangles**. The dimensions for Detail A can be found on the goldenrod labeled **C10**.

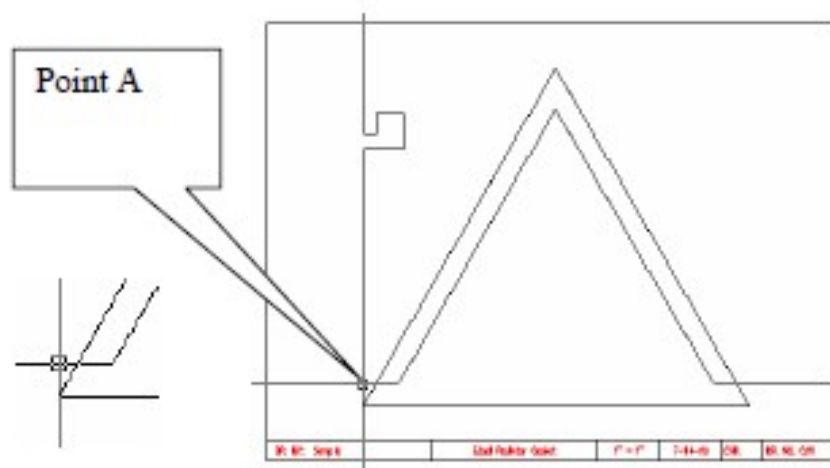


2. Type Osnap and turn it off.
3. Type **.blipmode** (make sure you include the ".") in the command line and turn it on. (NOTE: Temporary Blips will appear on the screen each time you left click the mouse. These will disappear if you roll the wheel on the mouse.)

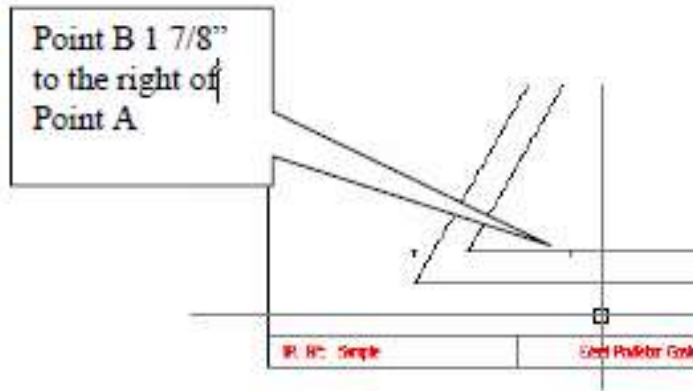
- Click Utilities and then Measure:



- Begin the distance command** by placing the **crosshair at Point A**. Point A is the **point that lines up with the bottom left corner of the outside triangle and the bottom line of the inside triangle**. Press the pick button here.

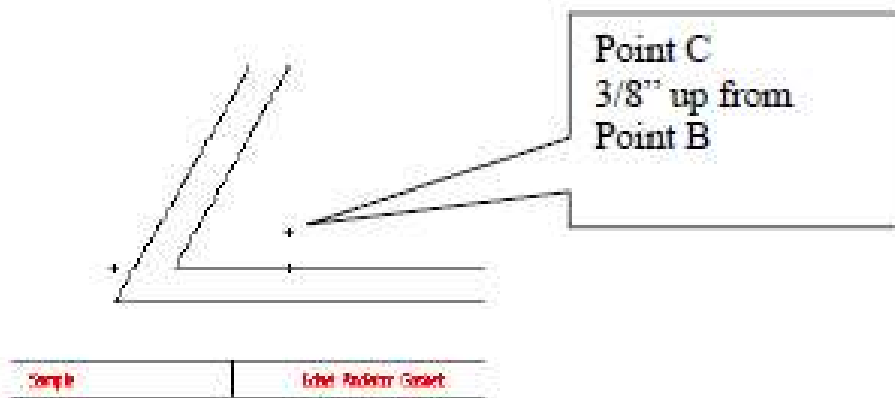


6. Move the mouse to the right $1 \frac{7}{8}$ " and click the left mouse button to mark Point B.



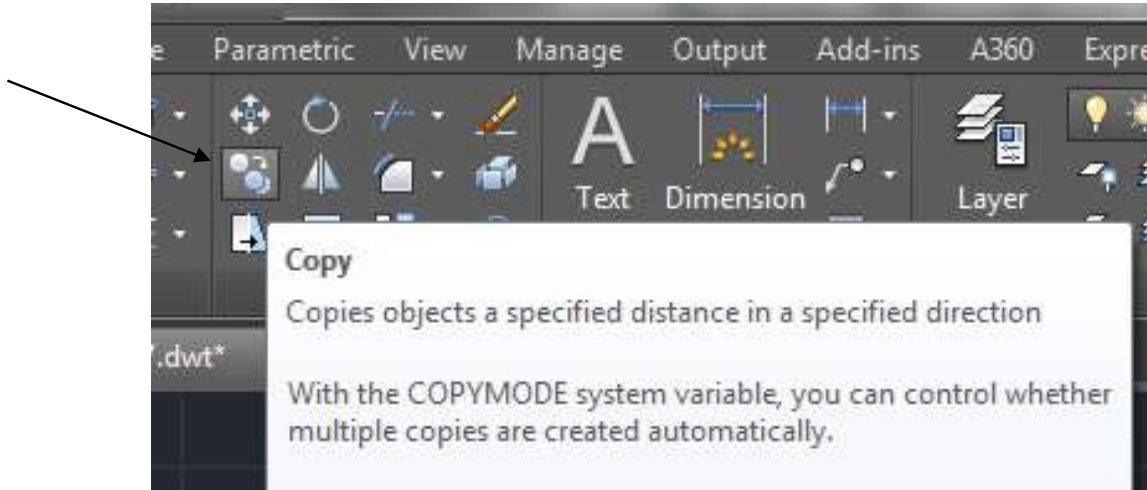
Note: Click the Ortho button on while moving from Point A to Point B.

7. Press the Enter key one time to continue the distance command. Repeat the procedure to locate Point C, which is $\frac{3}{8}$ " up from Point B.

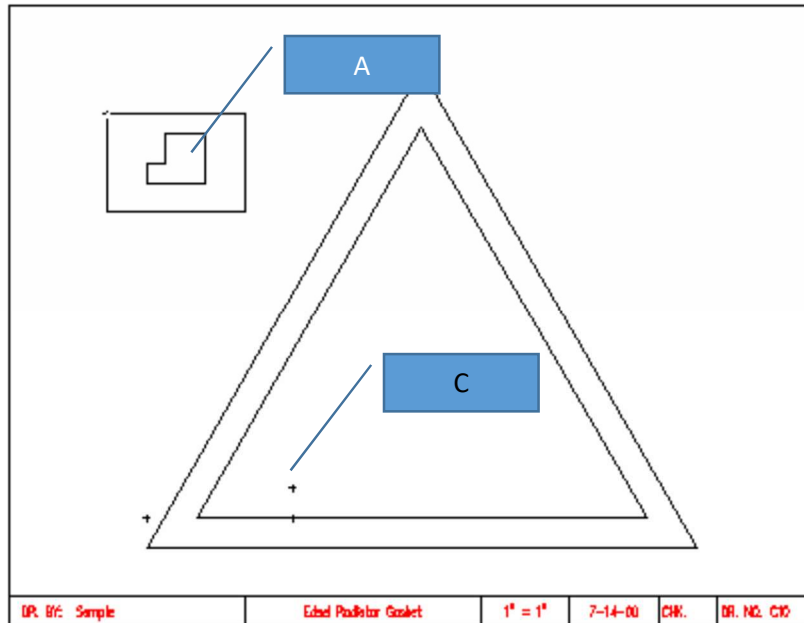


Copy & Move Commands

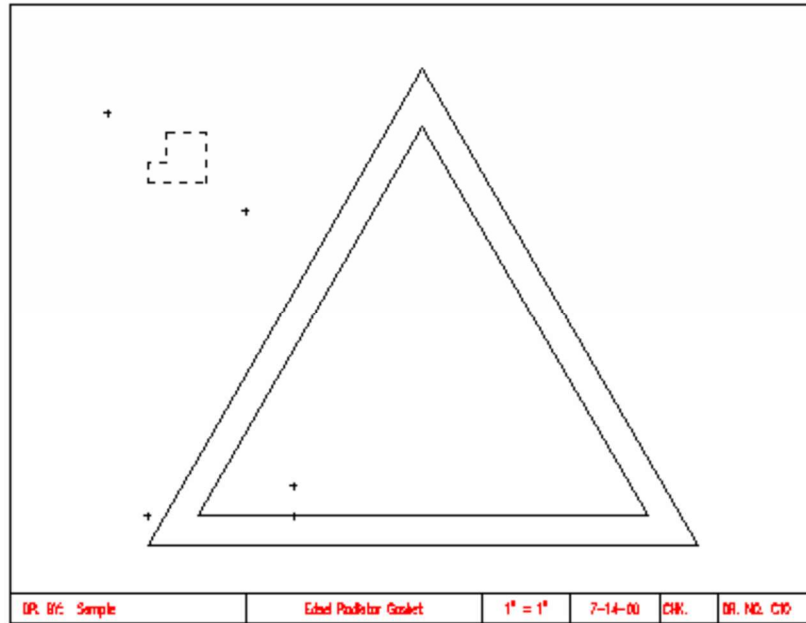
1. Choose the Copy command from the Home Tab Ribbon bar (or simply type copy).



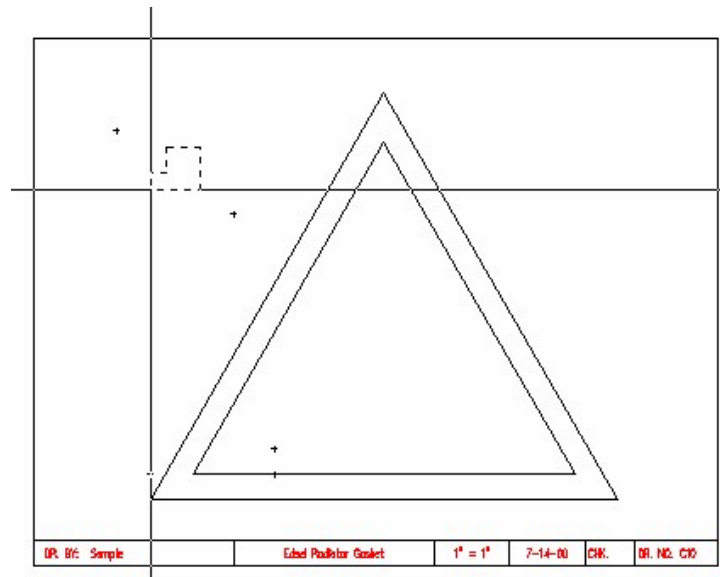
2. You are going to **copy** the **DETAIL A** object and insert it at the **Point C** location. Select **DETAIL A** by dragging a **window** around the object.



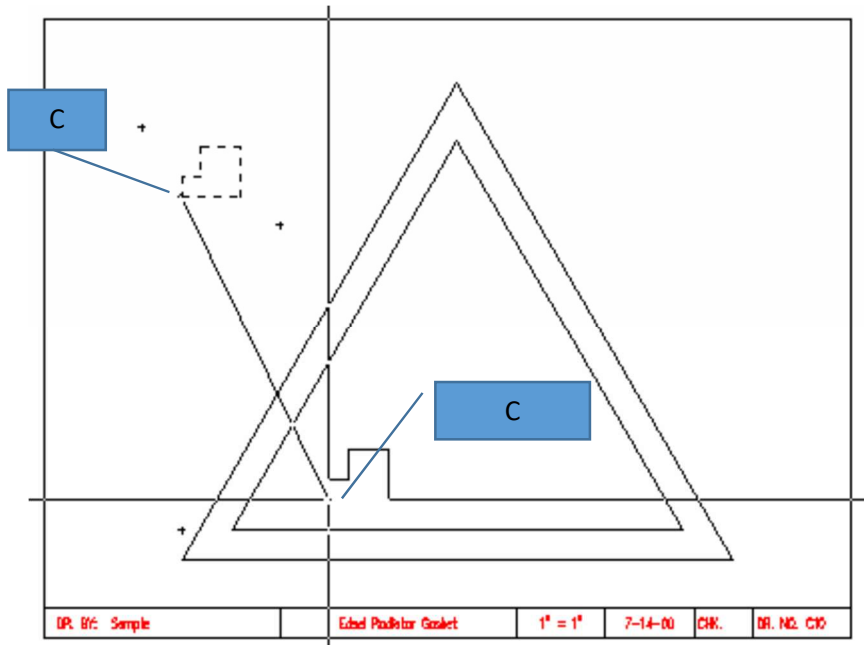
- Press the **Enter** key to **confirm** the **selection**.



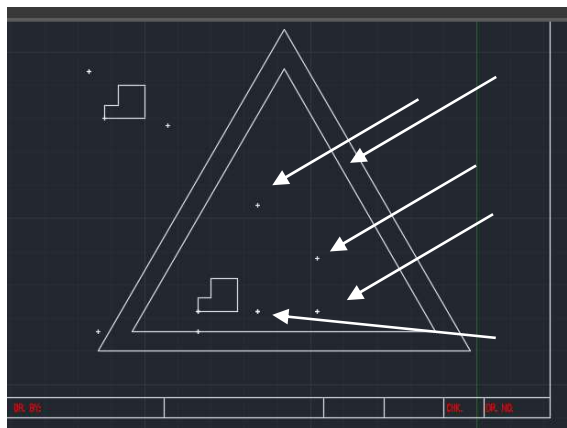
- Press **Enter** again and **position** the **cross** hair on the **lower** left corner of **DETAIL A**.
Click this **point** for the **location** of the **base** point of the copy.



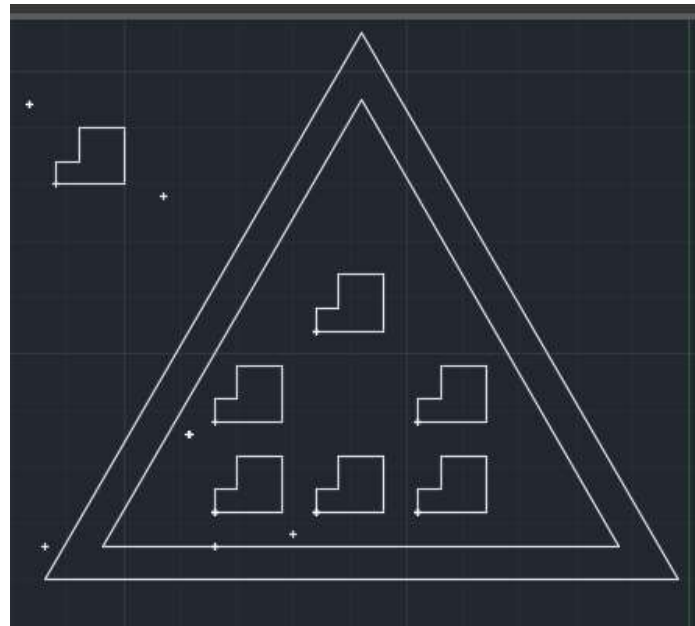
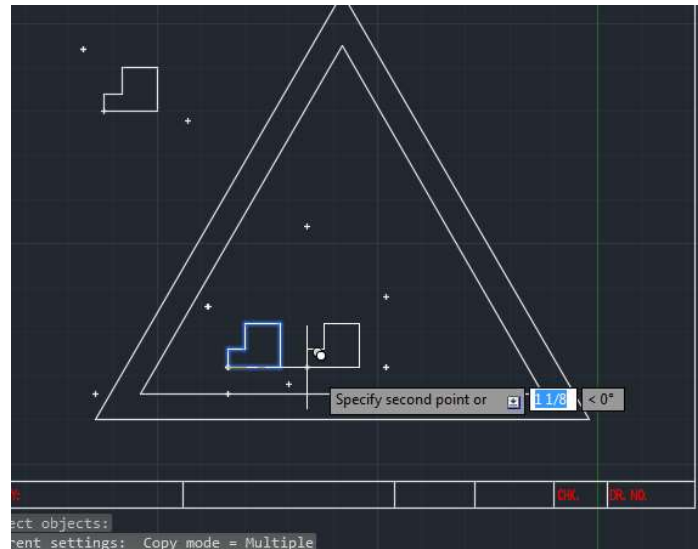
- Click the Ortho button to **turn ortho off**. Move the mouse to **position** the copy at **Point C**.



- Detail A** has now **been copied** to the **Point C** location inside the triangles. Repeat the **copy command** and place a **rectangular window** around the copy of **DETAIL A**. Press **Enter** after the lines have been selected.
- Repeat the process using the Measurement command and locate the points for the displacement for all the copies of **DETAIL A**.

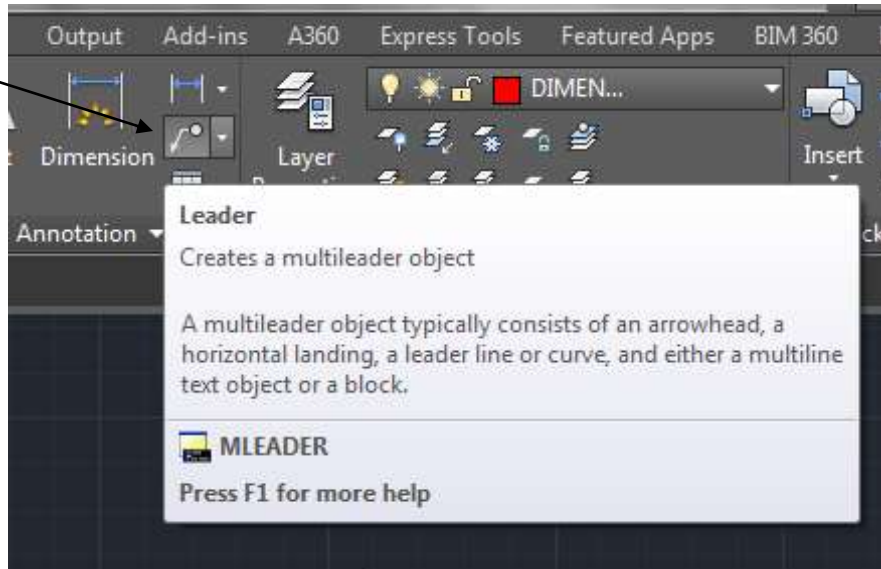


- Copy DETAIL A and use the points (blips) to locate the point of displacement. Click at each point and then when finished with coping hit enter.

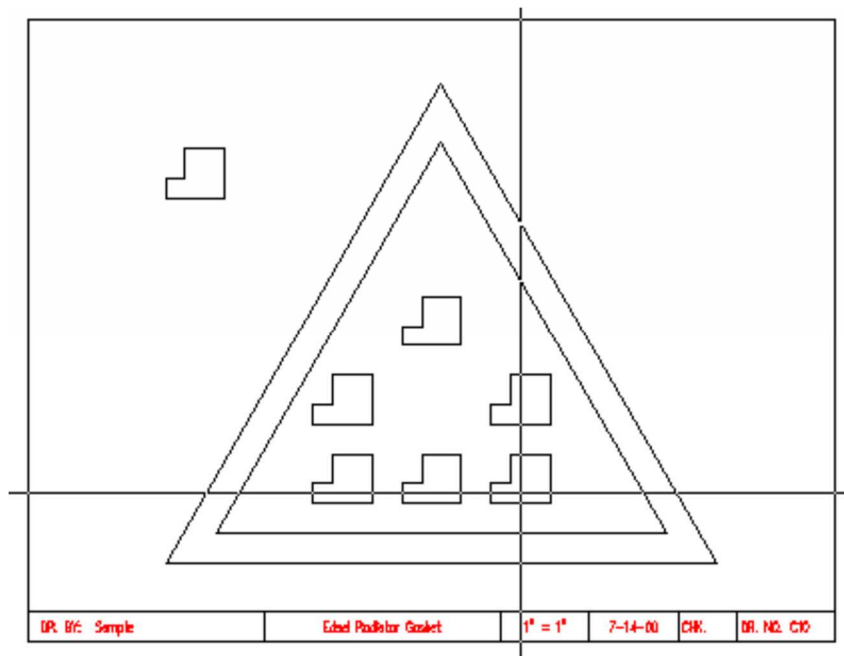


Leader Command

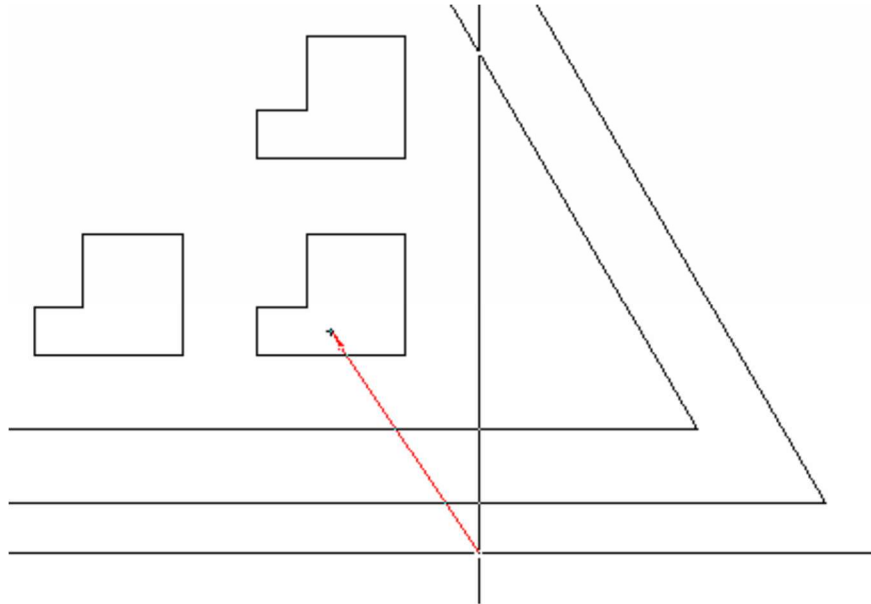
1. Change layers to the **dimension layer**. From the **Dimension** menu select the **Leader** command.



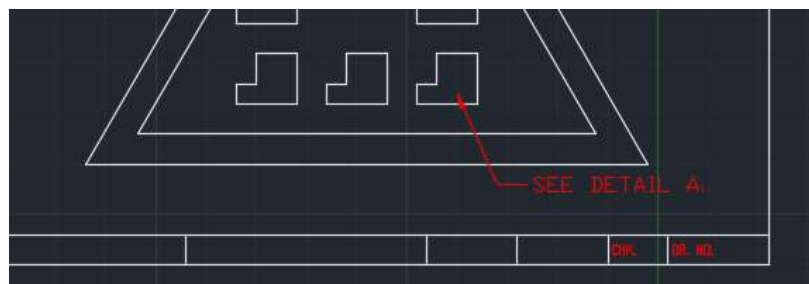
2. Place the **cross hair** at a point to which you want the **leader** to **point**. Press the **pick** button.



3. Turn ortho off and move the cross hair to a point below the triangles. Press the pick button to locate the position for the text.

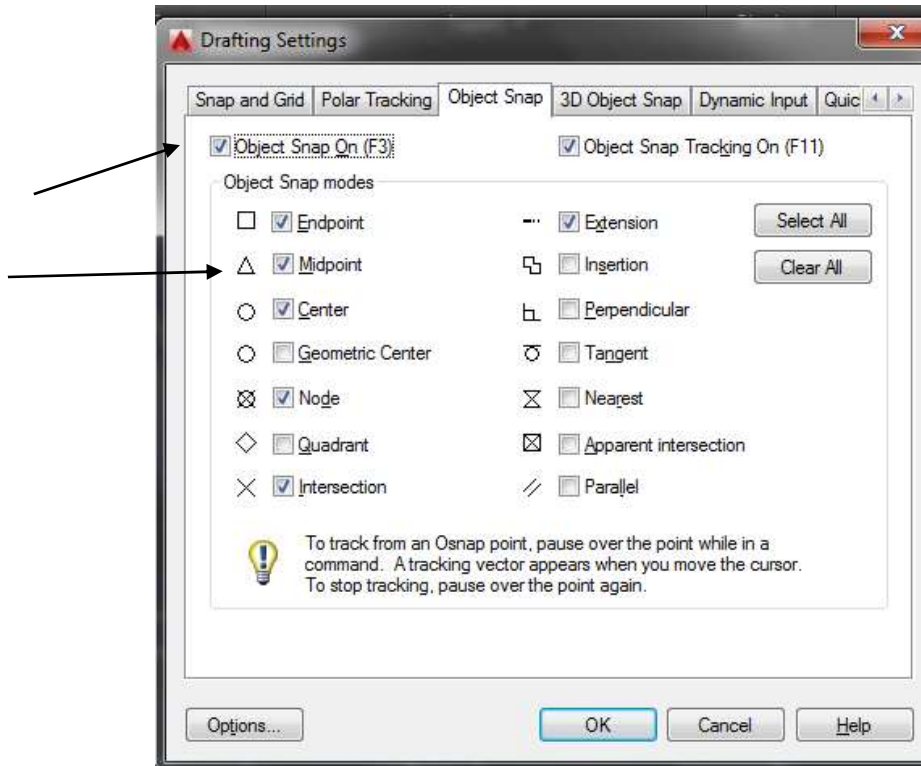


4. Type the information in and then click outside the text box to close the command.
5. The text will automatically be placed at the end of the lead. The text should now appear as illustrated:

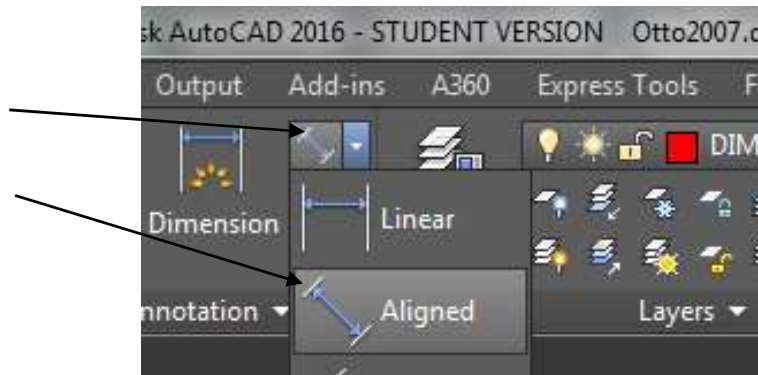


Rotated Dimensions

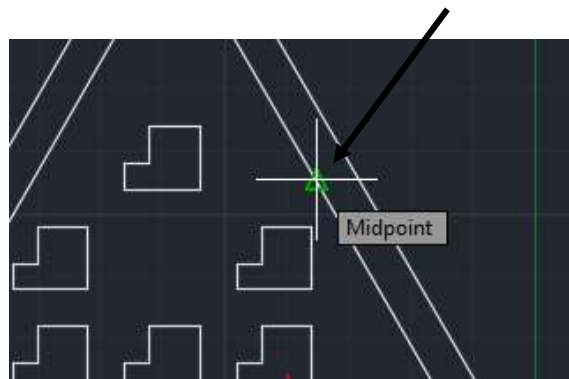
1. The next step involves **rotated dimensions**. You will use the **Object Snap (osnap)** toolbar to assist in locating center points for the dimension.
2. Type osnap and make sure it is on and that midpoint is checked. Press OK.



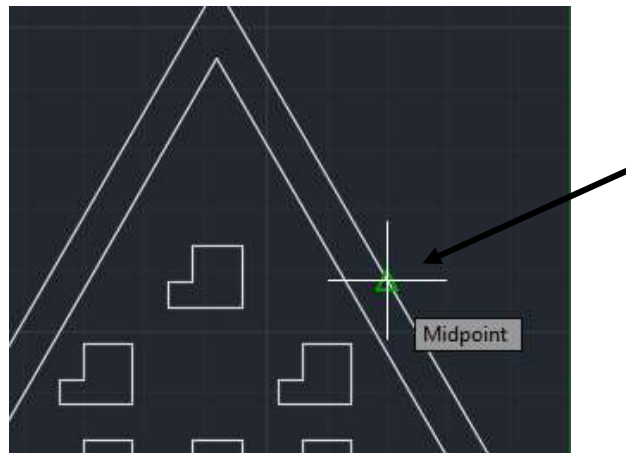
3. Select Aligned Dimensions from the Home ribbon bar.



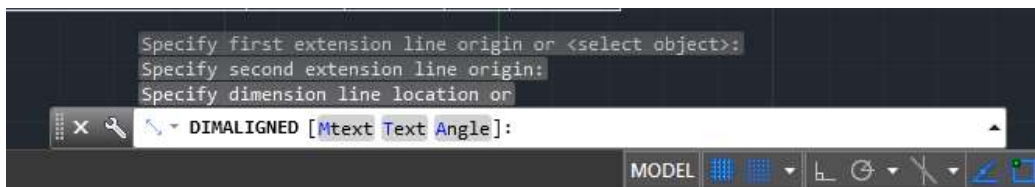
- Click on the midpoint of the inside line as shown below:



- Click on the midpoint on the outside line as shown below:

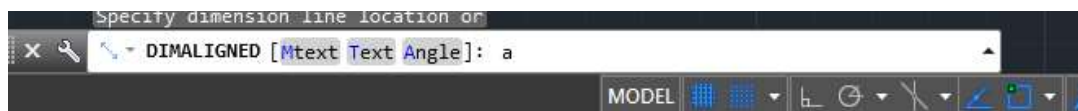


- After clicking the point above the command line has the following prompt:



- Type "a", then enter.

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- Type “30”, enter, and then click on the outside midpoint.



- The text has been rotated between the two triangles.

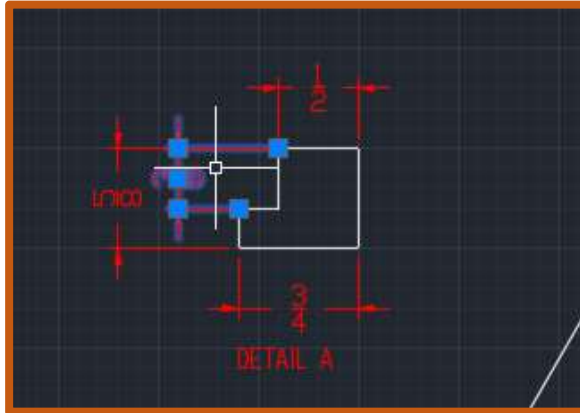
Edsel Radiator Gasket

- Complete the **remaining dimensions** and use **dtext** to type **DETAIL A**.
- The **angular dimension** of **30 degrees** on the **right** side of the triangle will **require** drawing the **vertical line** using the **line command first**. After you draw the **vertical line**, **select angular dimension** and **pick the right side** of the outside **triangle** and the **vertical line**. The **30 degrees** should then be **inserted**.
- Finish all the dimensioning before going any further.

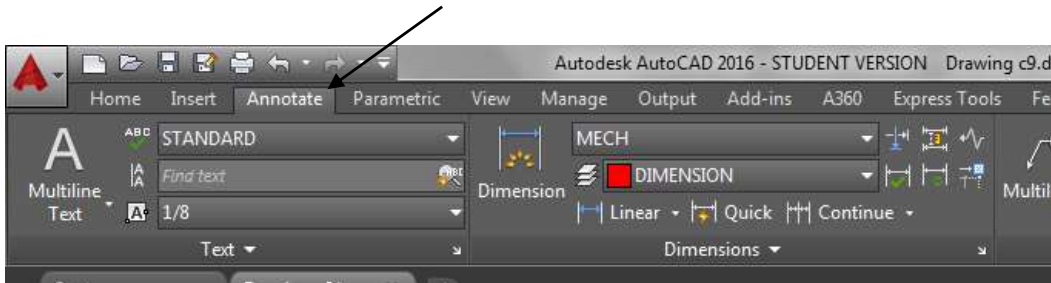
Completing the Drawing

- In order to complete the drawing you must turn the dimensions in Detail A and in the Triangles.

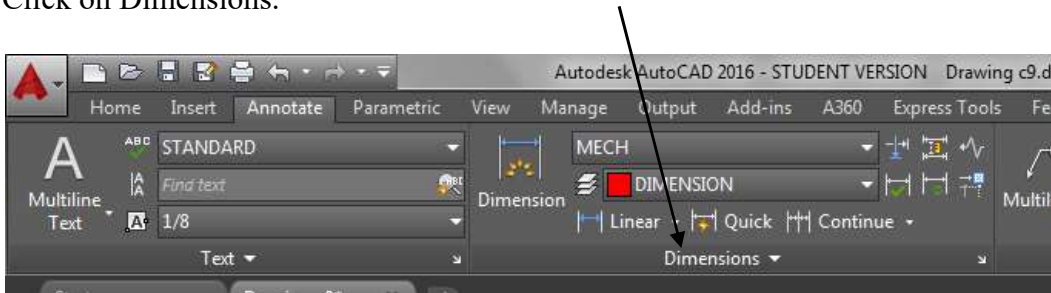
2. Click on the Dimension



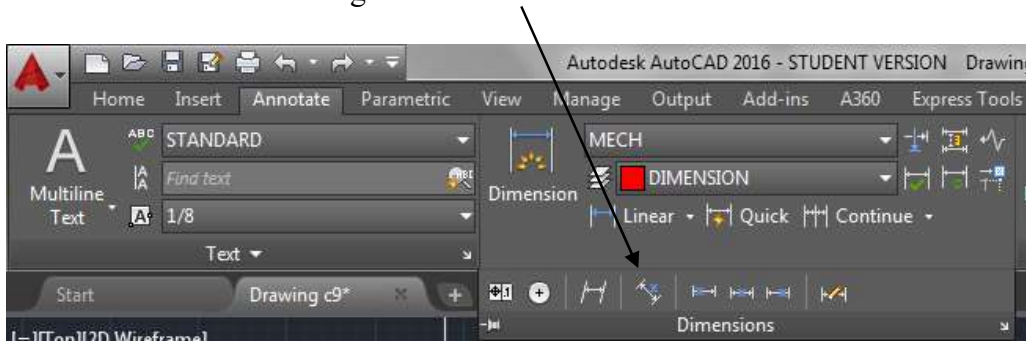
3. Select the Annotate Tab.



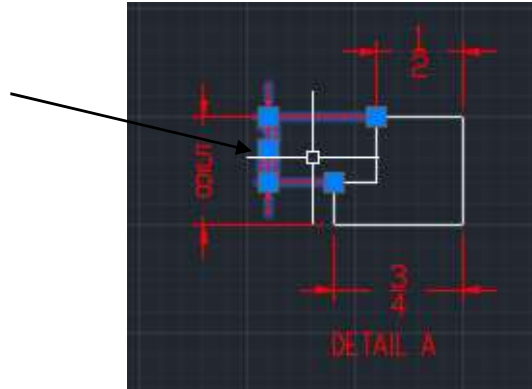
4. Click on Dimensions.



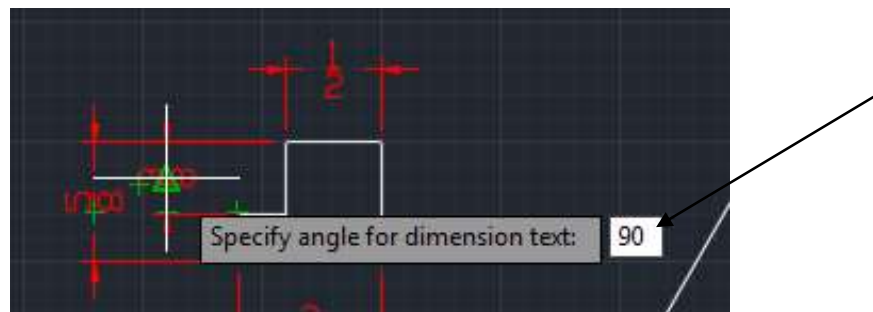
5. Click on the Rotate Text Angle.



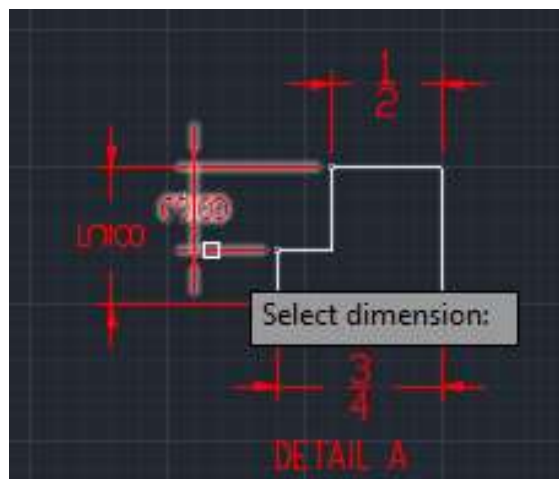
6. Select the Dimension you want to rotate.



7. Specify the angle, in this case, 90 and press Enter.



8. The Dimension should now be turned 90 degrees to the left.



9. Save the drawing into the correct folder and name the file with the correct format.

Terms To Know

Polyline
Move
Text Rotation

Offset
Rotated dimension

Copy
Osnap