

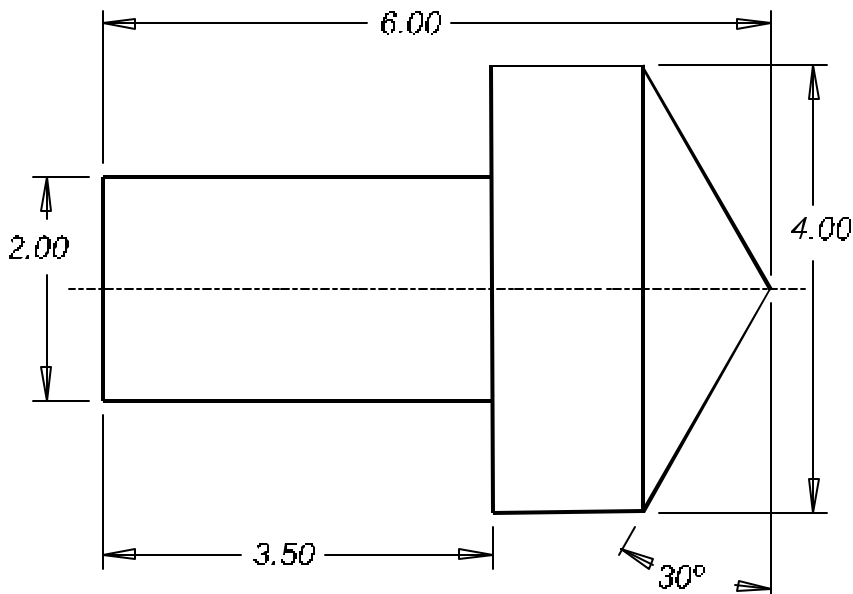


Section 9

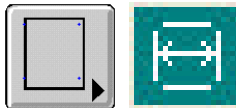
Drawing #8

SPINNER

Today's Menu
Trims: Modal
Creating Angles
Dimensioning Angles
Quick Dimensions



Create the Box



Use this command to draw a rectangular box that is **6" wide** and **4" tall**.

E the width of the SPINNER.

E the height of the SPINNER.

M near the bottom left corner of the drawing window.

X

C a or M

Enter width of rectangle

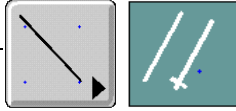
Enter height of rectangle

Indicate lower-left corner

You should see all or part of the rectangle.

The rectangle should fit right in the screen

Parallel Lines - pt 1



Enter this command to create a line that will be parallel to another line you have already drawn. You will make your new line parallel to the top or bottom line, and it will go through the center of the two sides.

M the top or bottom of the box.

Your new line will be parallel to this line.

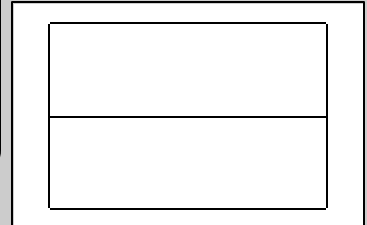
M **Center*** in the Conversation Bar.

M the right or left side of the box.

Your new line will go through the center of the line you click.

Select reference line

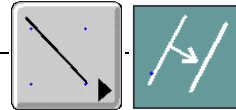
Indicate point



Enter distance



Parallel Lines - pt 2



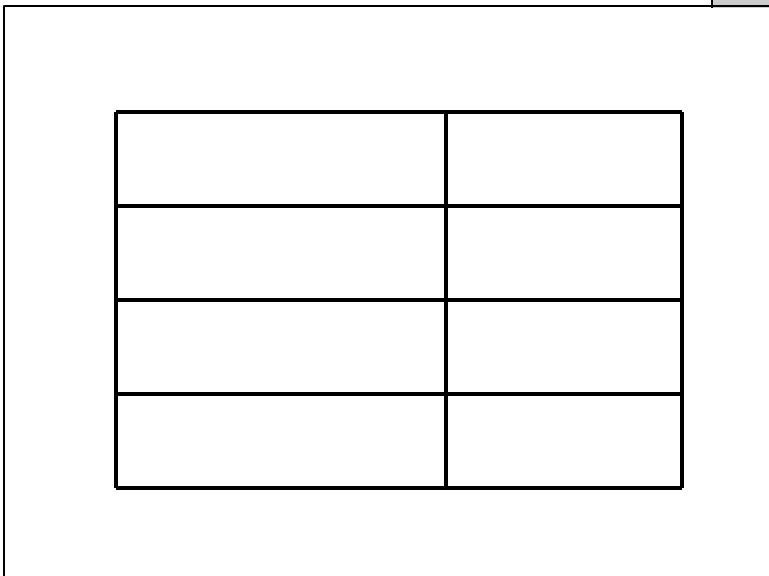
This command is also under the Line Menu.

E **1"**, and create a line **above** the middle line.

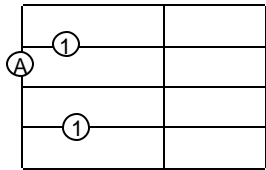
Create another line below the center line.

M **BackUp**

E **3.5**, and create a new line 3.5" from the **left** side of the box.



Trim DOUBLE

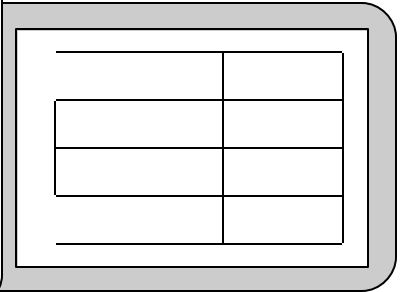


M on line "A".

This is the line you will trim.

M on the two lines marked "1".

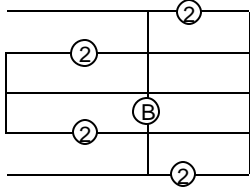
These lines will "cut" line "A".



Trim MODAL



Use this command when you want to shorten or extend a bunch of lines so that they all trim to one other entity.



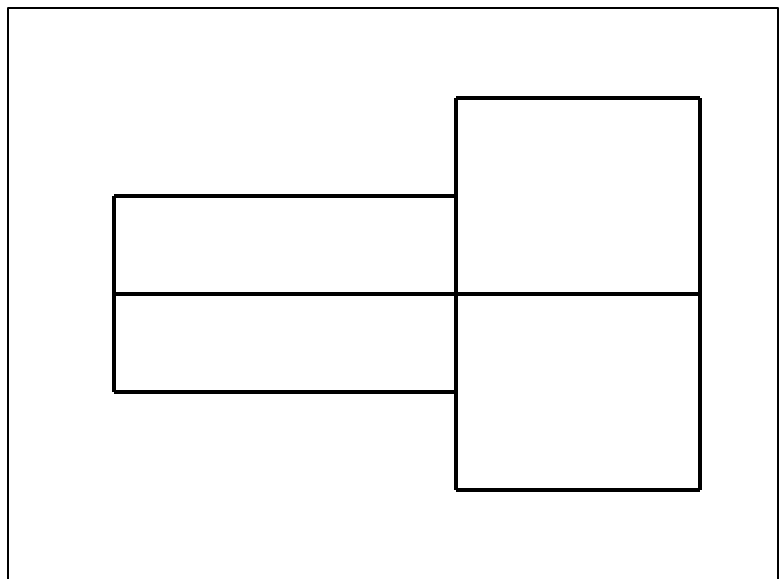
M line "B".

This will be the line that cuts all the other lines.

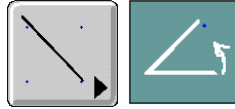
M all the lines marked "2".

M the part of the lines you want to keep.

C a

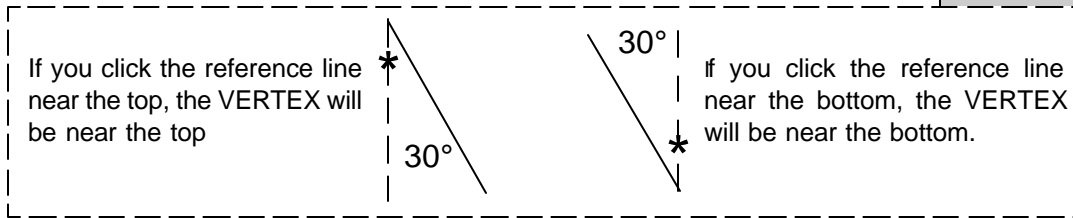


Create Angles

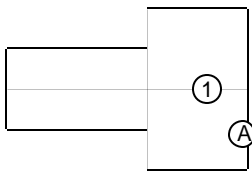


This command will allow you to draw a line at an angle to another line. Angles are made up of two lines that intersect at a point called a **VERTEX**. Angles are measured in a **COUNTER-CLOCKWISE** (against the clock) direction. (Of course, this doesn't work if you own a digital clock).

E 30. The new line will be at a 30° angle to the line you click.



M the **lower** part of line (A).



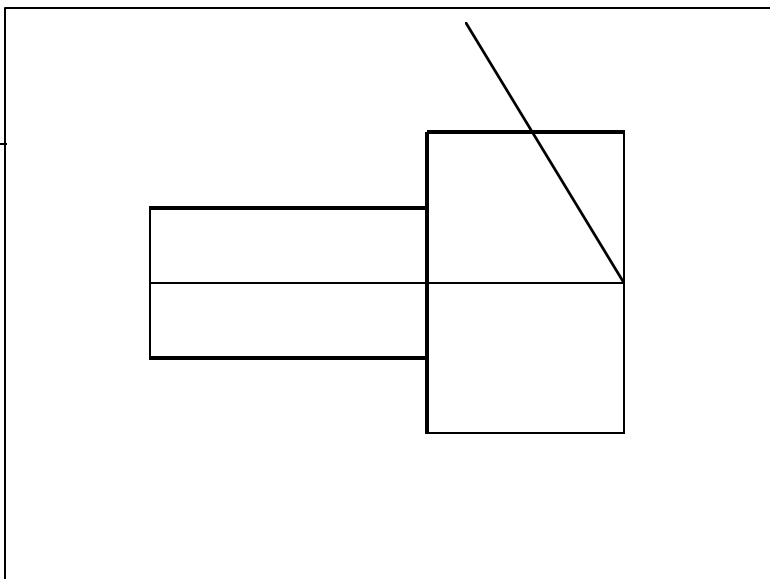
This is where the Vertex of the angle is measured from.

Remember: Line A goes from the top all the way to the bottom of the drawing.

M **End Ent*** from the Position Menu.

You want to attach the new line to the end of the line in the middle.

M line (1).



Enter angle

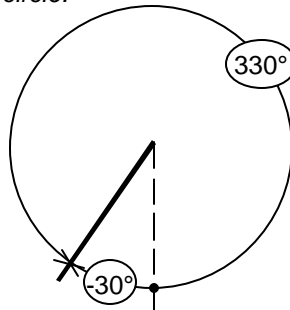
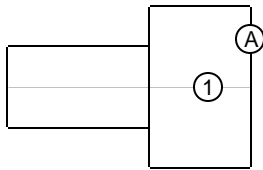
Select line

Indicate endpoint of new line

Create Angles (cont.)

) **BACK-UP** or M **BackUp** **twice**.

If you measured it in the counter-clockwise direction, the bottom line's angle could be entered as 330° . You could also enter it as a negative number if you go in the opposite, or **CLOCKWISE** (with the clock), direction. (This is like the way you get negative numbers on a number line by going to the left of the zero). If you add the two numbers that measure an angle (the positive and negative angles) you will always get 360° , because that's how many degrees there are in a circle.



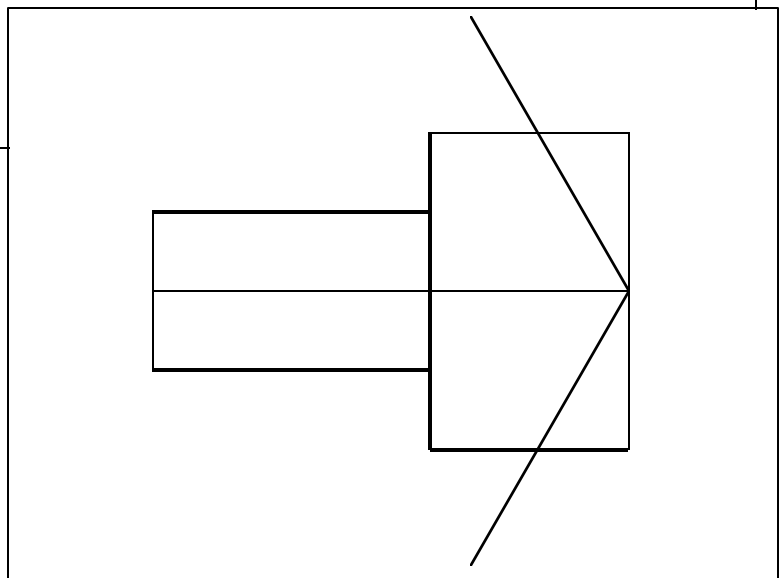
E **-30**.

Be sure to enter the minus sign.

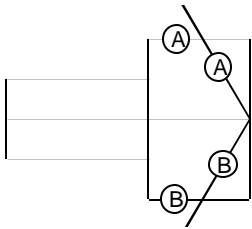
M near the **top** of line (A).

M **End Ent*** again.

M line (1).

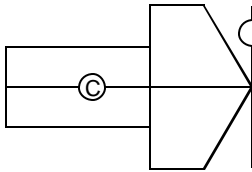


Trim: BOTH




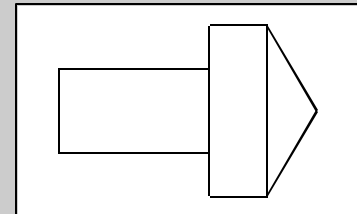
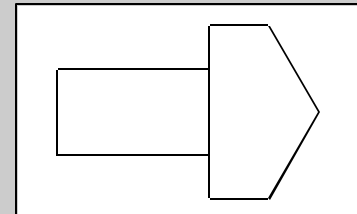
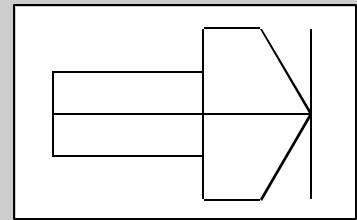
M Edit the corner marked (A).

M Edit the corner marked (B).

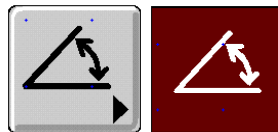


C q or M  to delete lines (C) and (D).

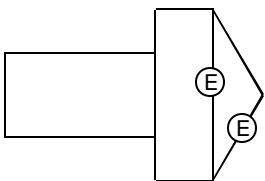
Now create the missing line. It will be easier to connect the corners if you M . *Be careful how you M the corners.*



Dimension Angles




Use this command to add angular dimensions.



M the lines marked "E".

M the space between these lines.

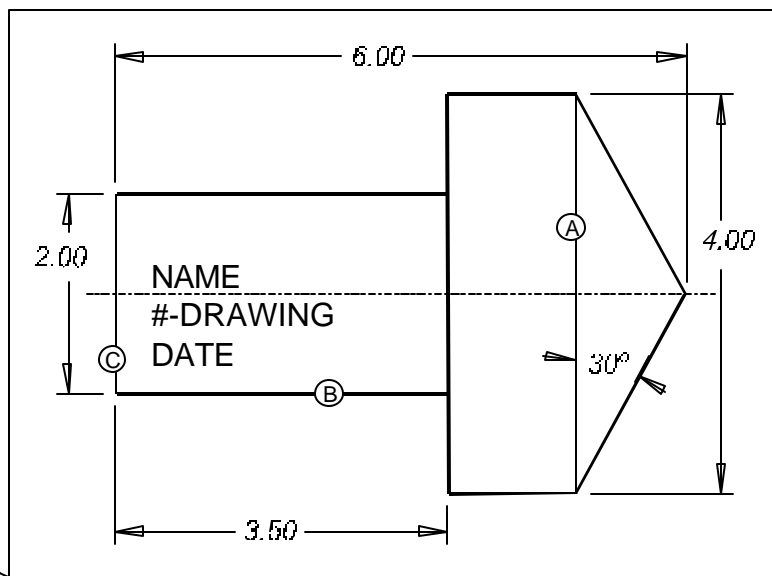
M  from the Conversation Box.


M place where you want the number for the dimension.

Select first line


Angle to be dimensioned

Which angle do you want to measure?



M  to add the 6.00" horizontal dimension.

Now try something new:

M  and the line marked A.

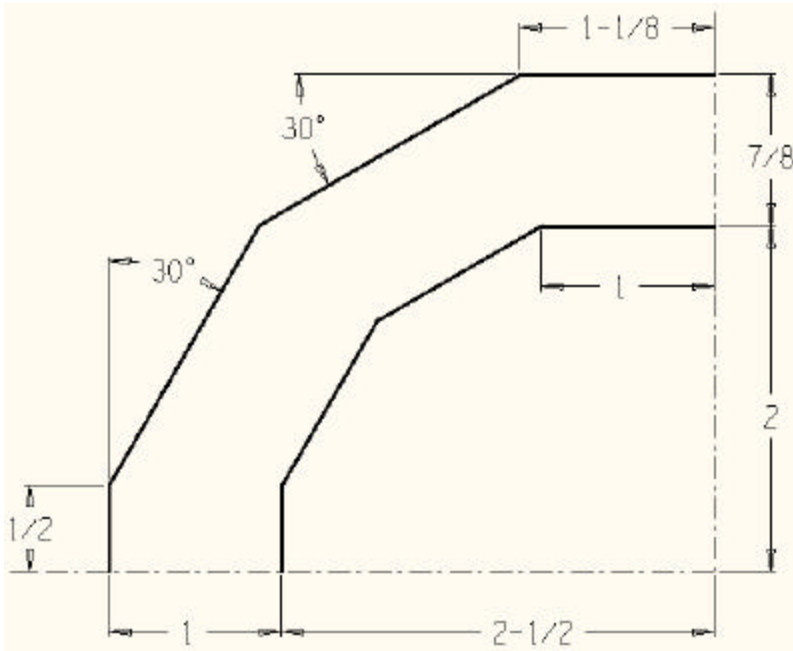
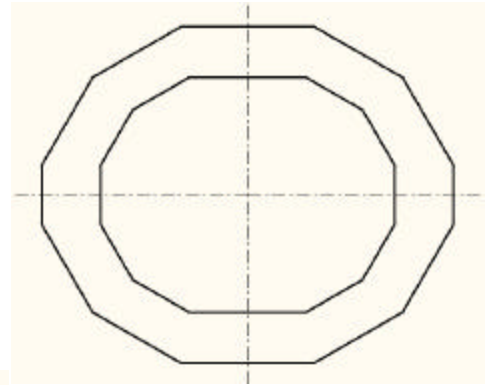
M a location for your dimension. *This is the Quick Dimension command. Notice how it automatically measures the length of the line for you?*

M lines B and C to finish adding your dimensions.

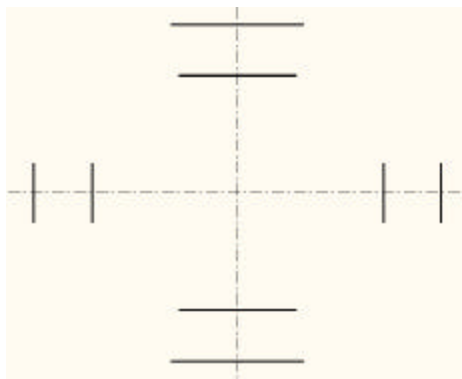
Extra Credit Challenge

9a - Sheet Stamping

Let's practice making angles with this drawing of a sheet stamping. The complete drawing is shown here at right. The dimensions are given in the view below, which is one quarter of the stamping. The object is symmetrical, so all dimensions have mirror symmetry.



Drawing Hint:

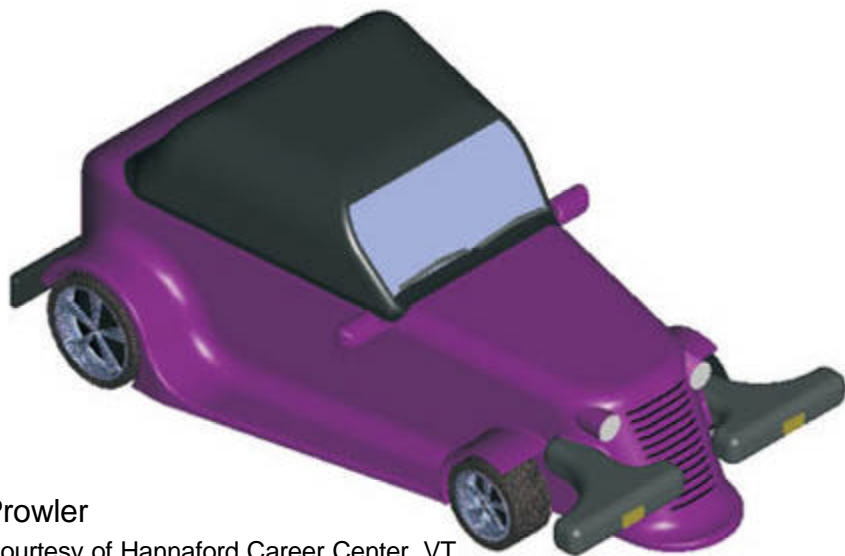


- Start by making the two center lines in the middle of the screen.
- Create parallel lines 2" above and below the horizontal line.
- Create lines 1" to the left and right of the vertical center line.
- Use these two vertical lines to trim the horizontal lines.
- Erase the vertical trimming lines.

- Use these steps to get the other 6 lines as shown here at left.

- Once you're done, create the angled lines, and trim them to each other.

Notes



Prowler
Courtesy of Hannaford Career Center, VT