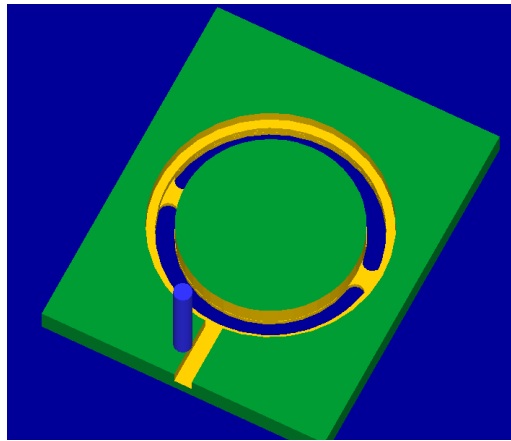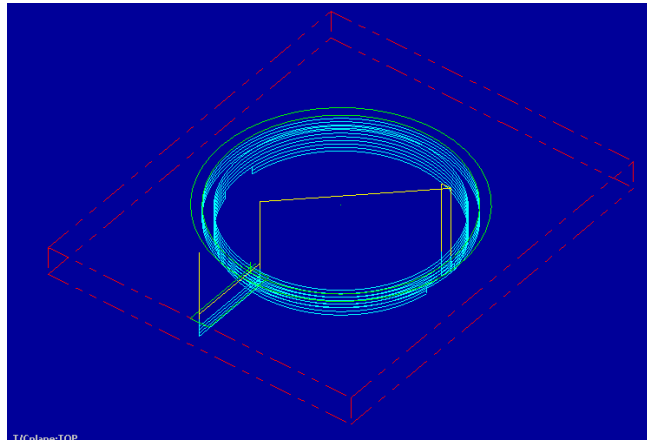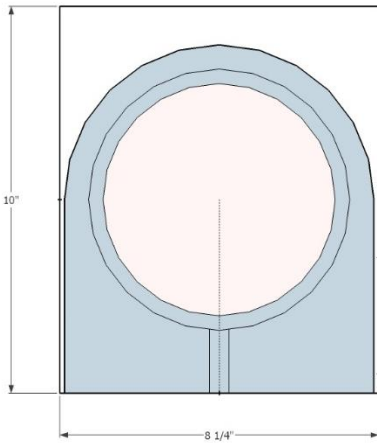# Kerf Bent Clock Front Geometry in MasterCAM
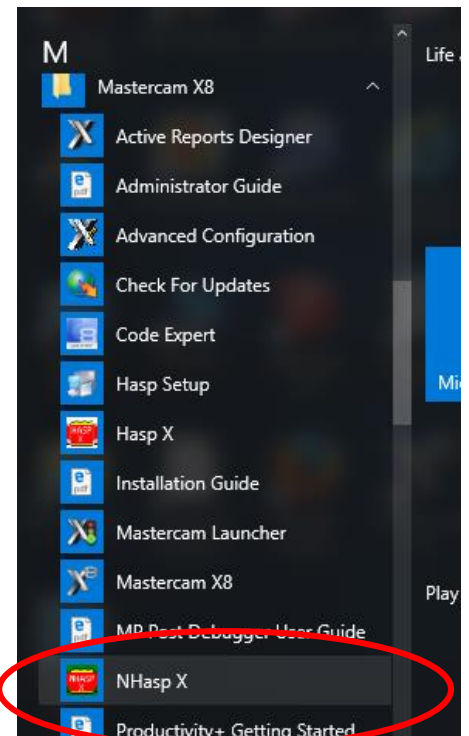
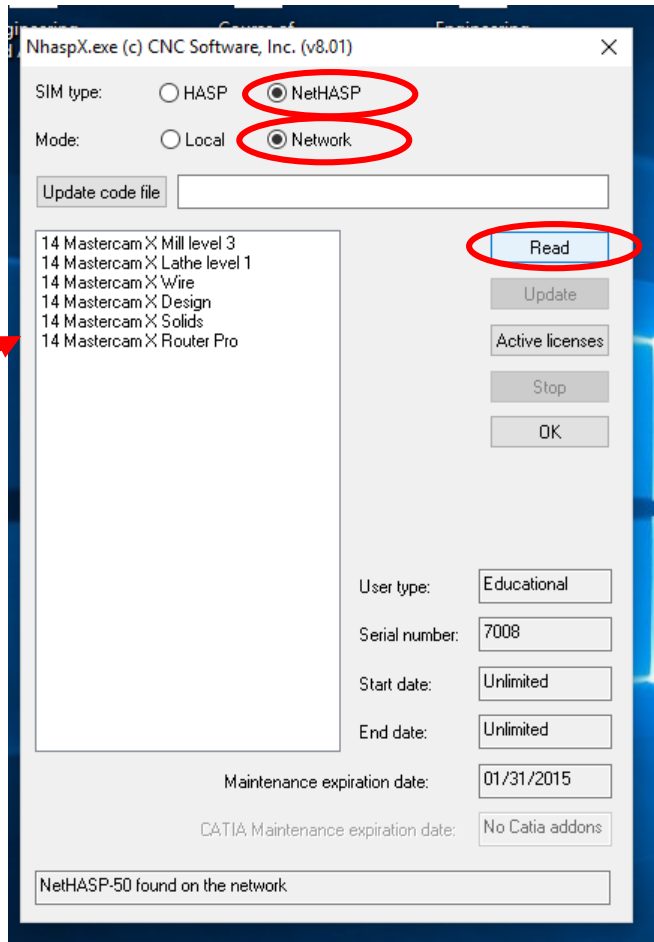Check to make sure the nethasp is working/turned on to network.

Go to ALL APPs/Mastercam x8/nethasp

NhaspX.exe (c) CNC Software, Inc. (v8.01)

SIM type: ○ HASP   ● NetHASP

Mode: ○ Local   ● Network

Update code file [   ]

14 Mastercam X Mill level 3
14 Mastercam X Lathe level 1
14 Mastercam X Wire
14 Mastercam X Design
14 Mastercam X Solids
14 Mastercam X Router Pro

Read
Update
Active licenses
Stop
OK

User type: Educational
Serial number: 7008
Start date: Unlimited
End date: Unlimited
Maintenance expiration date: 01/31/2015
CATIA Maintenance expiration date: No Catia addons

NetHASP-50 found on the network
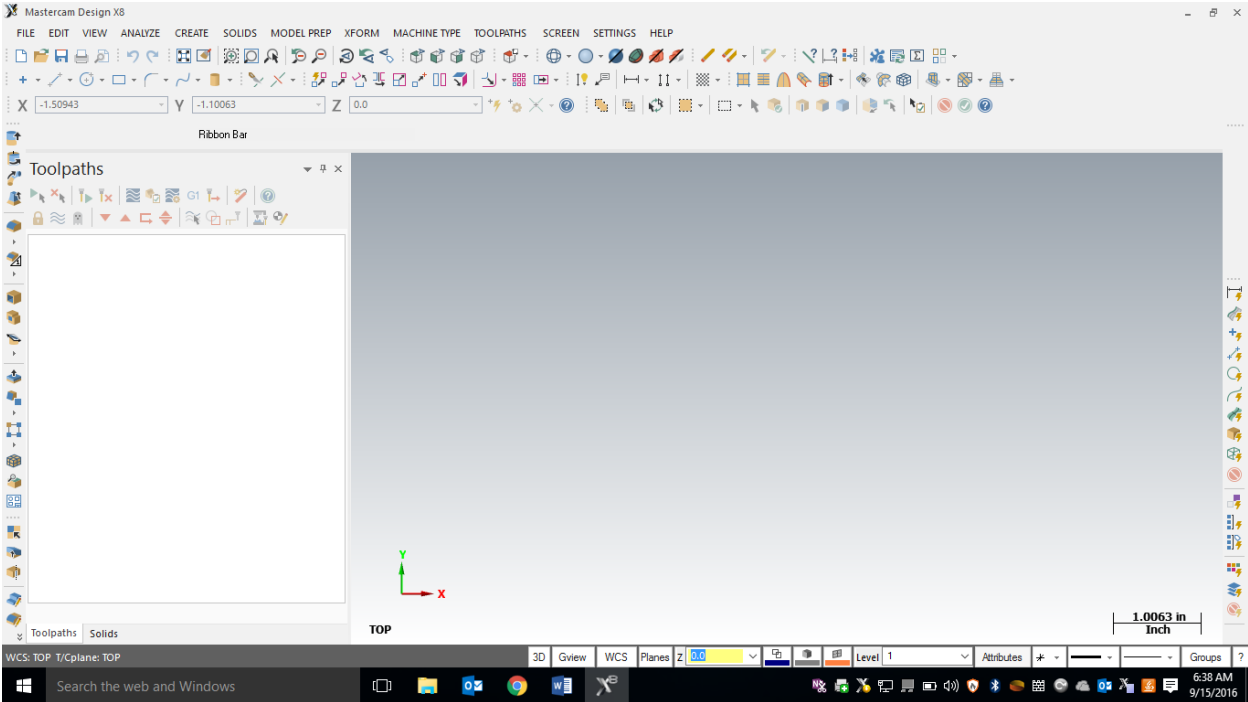
After the computer "reads" the nethasp, these programs should show up. If not ask your instructor.

After you check that, please open the MasterCAM application, it should look something like below.

First thing is to figure out what you are making….Using the measurements from your plans, you will draw your geometry (geometry is a generic term for lines, arcs, etc. in a computer drawing program). This geometry must be drawn in the 1st quadrant of the coordinate system, so positive x and y. The placement of the geometry matters since we will later be cutting out the part using the CNC Router. The CNC Router uses the coordinates from where you draw the geometry.

**F9 will display the x/y axis such as:**
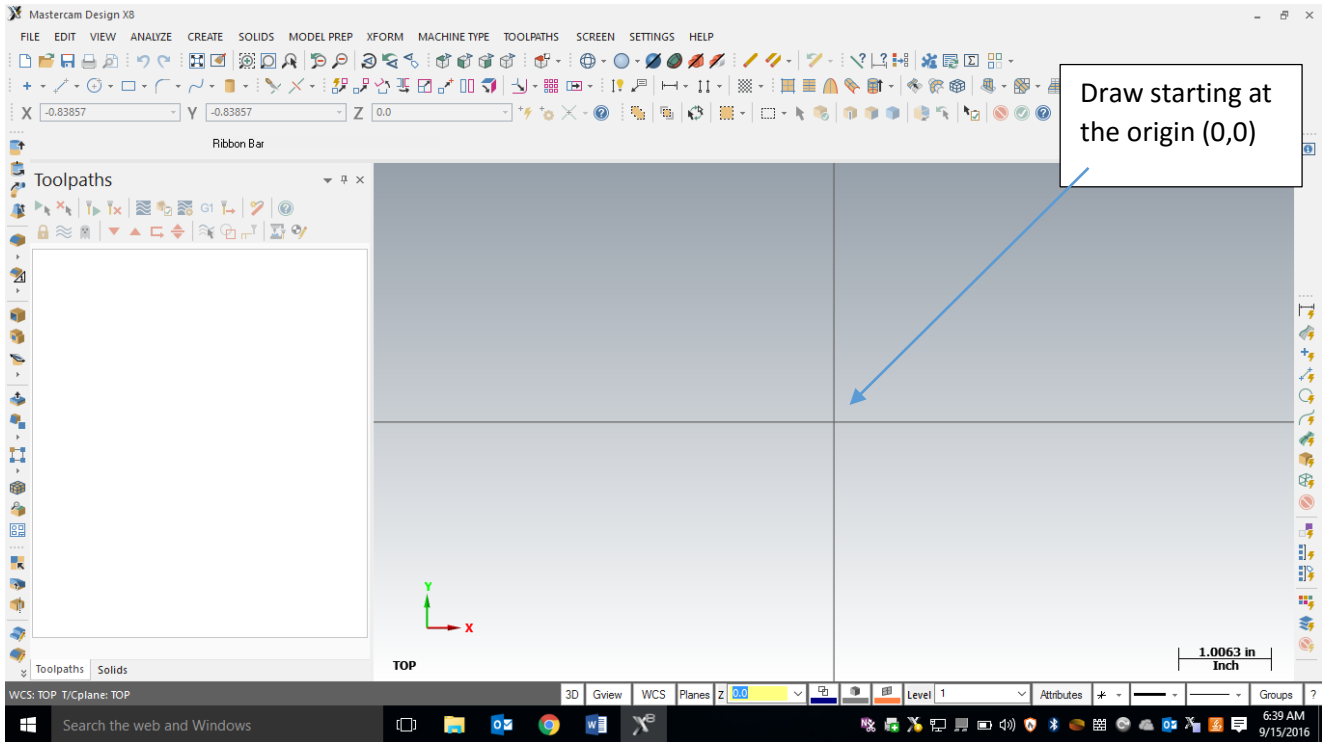
To start a project, we need to set our specific CNC router and set up the stock sizes. MasterCAM can write NC code for different manufacturers of CNC equipment. Our router is called a Forest Scientific Velocity 3 axis mill. MasterCAM will write the correct type of code as long as we pick the correct machine definition. Currently the only computer with this machine definition is the one hooked to the CNC router, so please just pick the default, then your instructor will change it at the CNC machine. This is a critical first step, without a machine definition, the CNC router will crash….litterly the tool bit will dive into the table top. **Goto Machine Type/Mill/Default.**
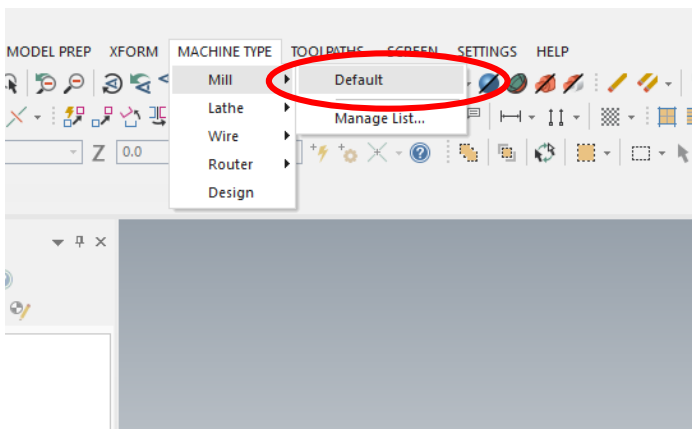
The result: there should be one machine group ("Machine Group -1") that says "Properties – Mill Default", if there is other Machine Groups, right-click and delete them.
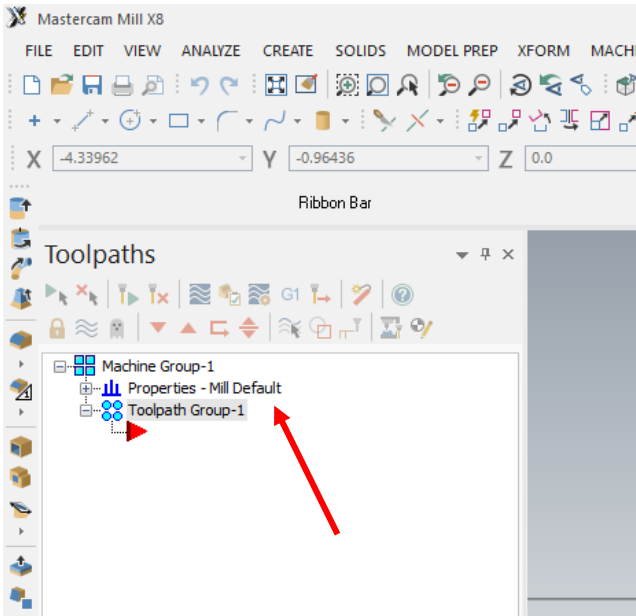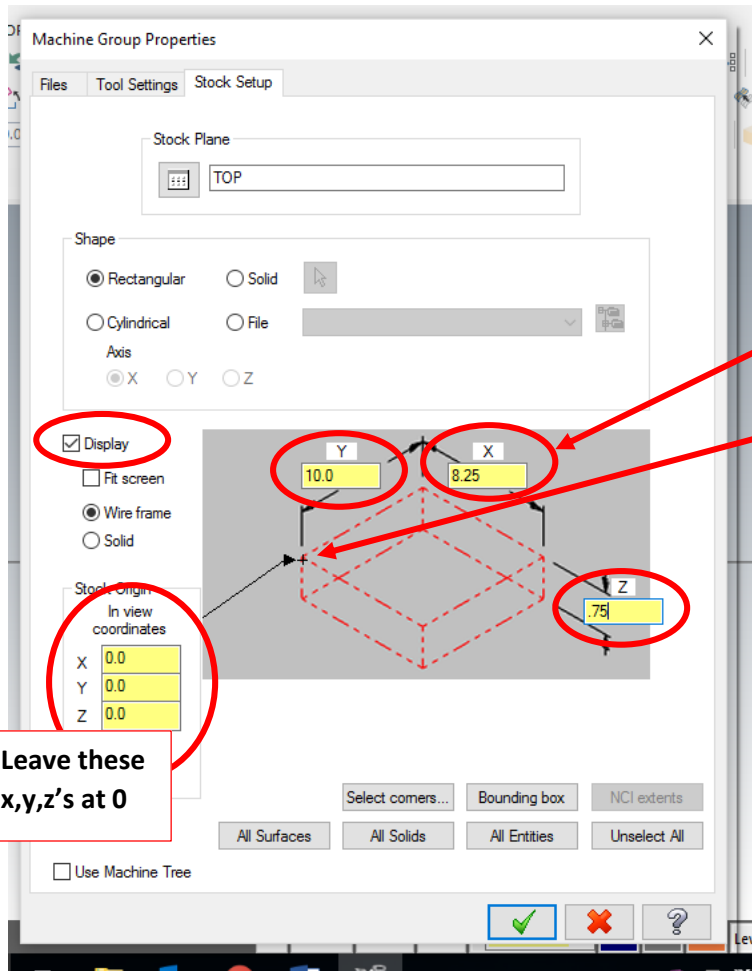

Stock Setup
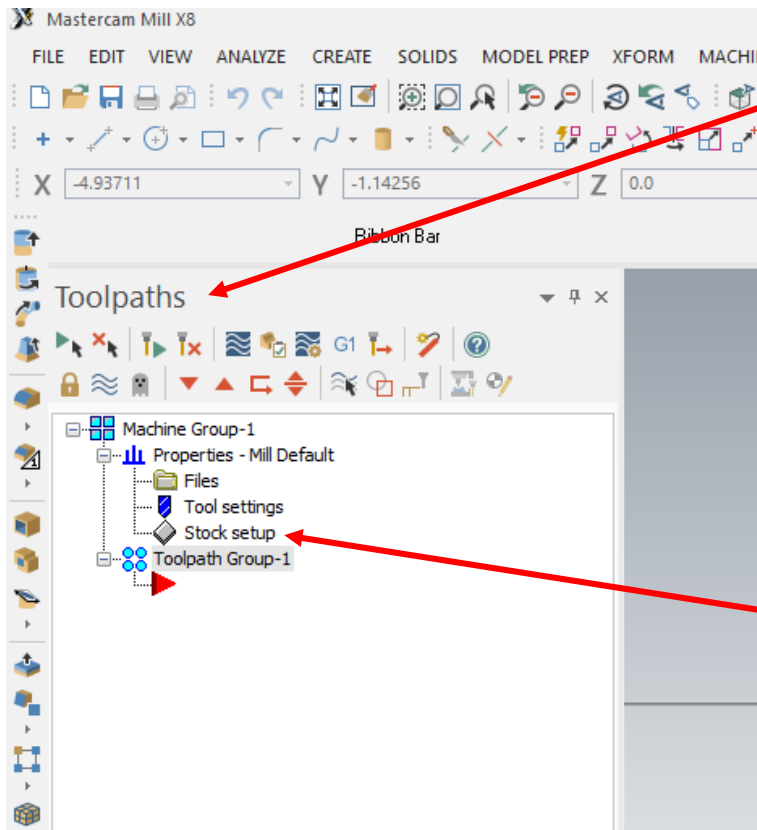
The Toolpath Operations Manager is the tool palette that is docked on the left of the screen. It is titled "Toolpaths." This displays all the specific information about the tool paths (what the CNC router will cut).

Expand the properties tab in the Toolpath manager. Then click on stock setup.

Setup the stock:
Enter the measurements
   10 for y
   8.25 for x
   .75 for z
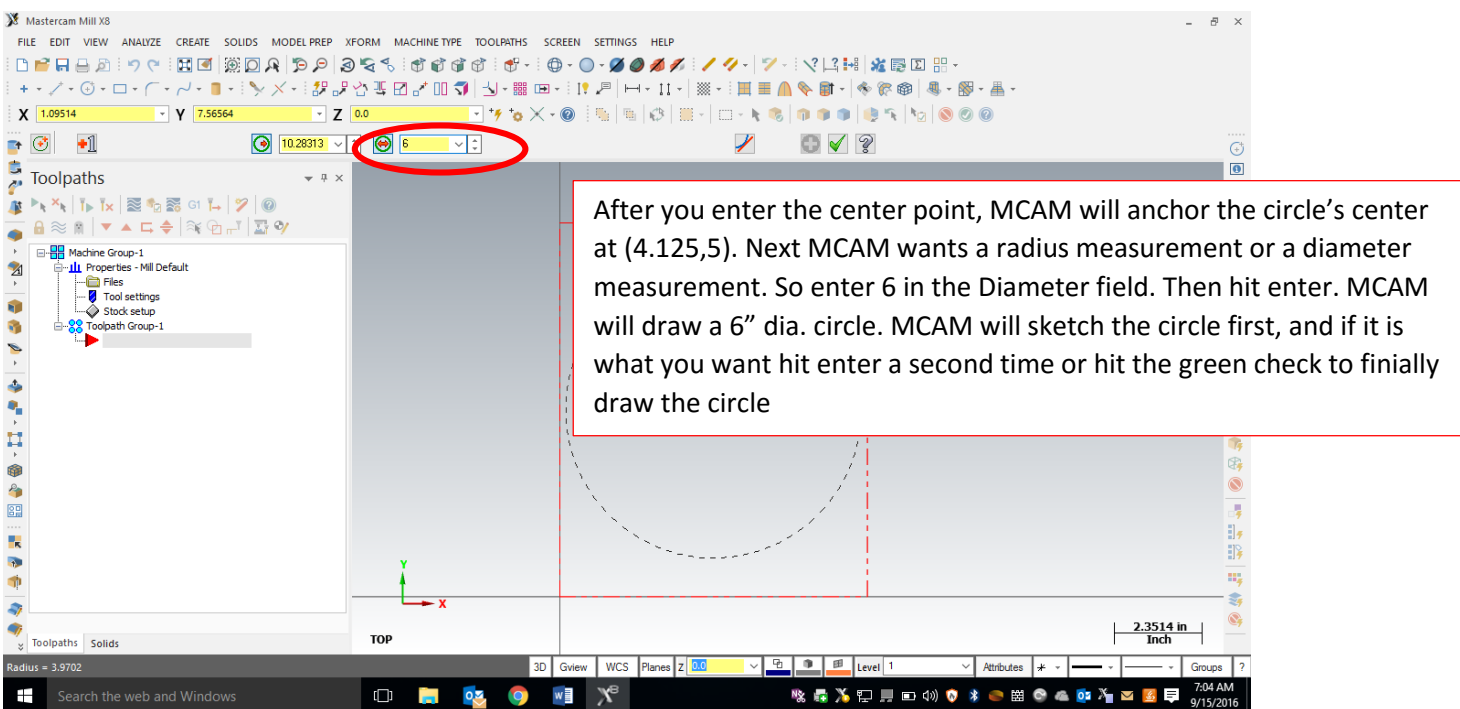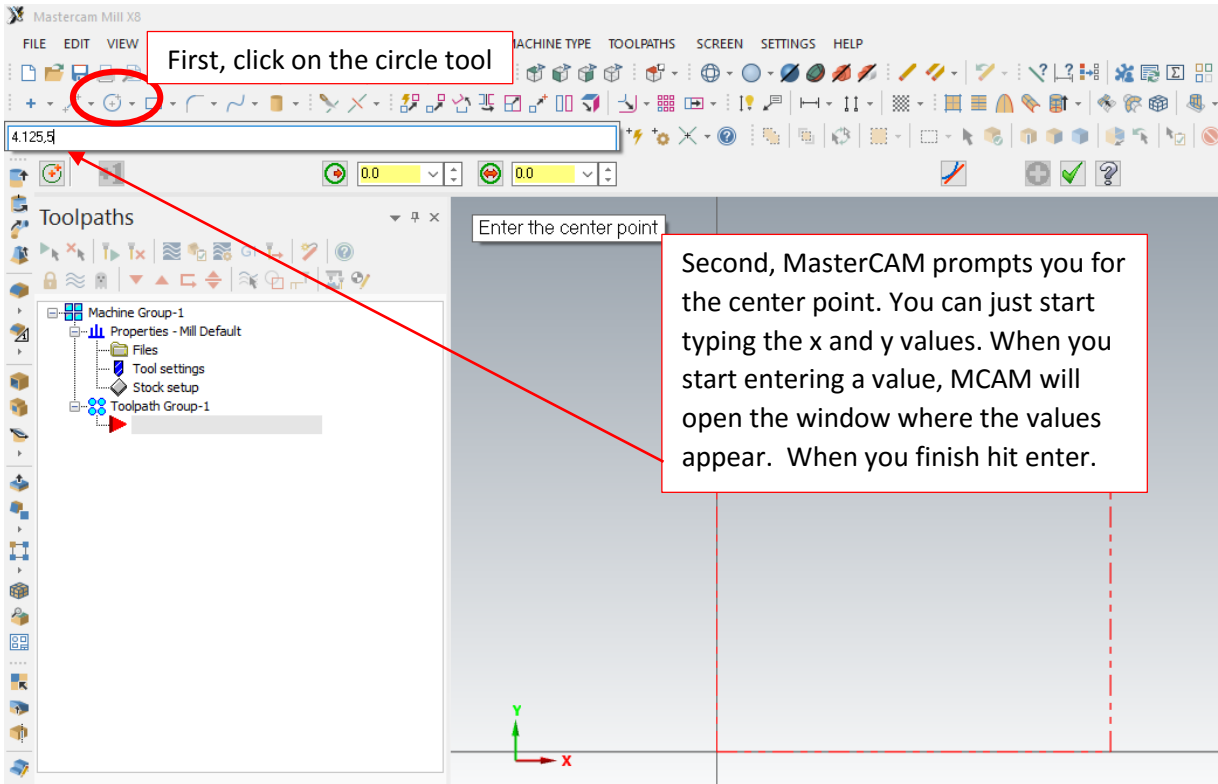Set the stock origin by clicking on this corner.

Check "Display"

Click the Green Check Mark (OK)

After you click ok in the stock setup, you should see a red dashed red rectangle that represents your stock. Zoom in or out so that you see the whole piece. Zoom with the scroll wheel on the mouse, and use the arrow keys to move left/right/up/down.
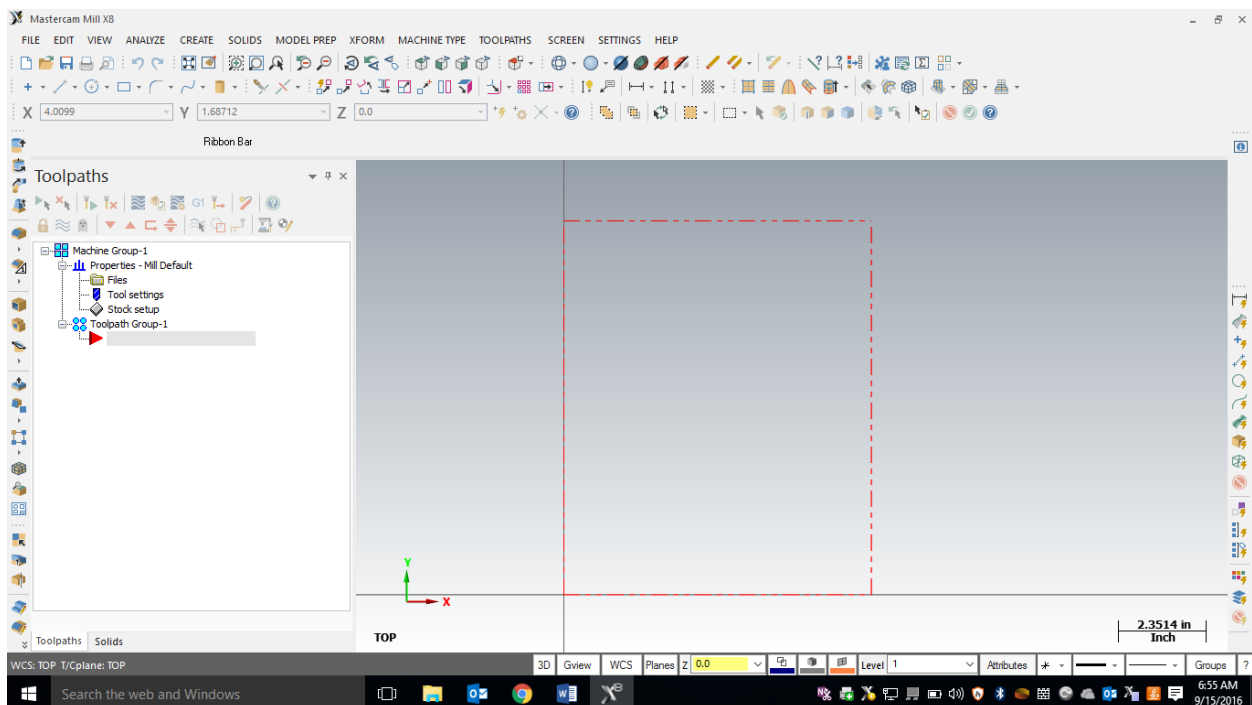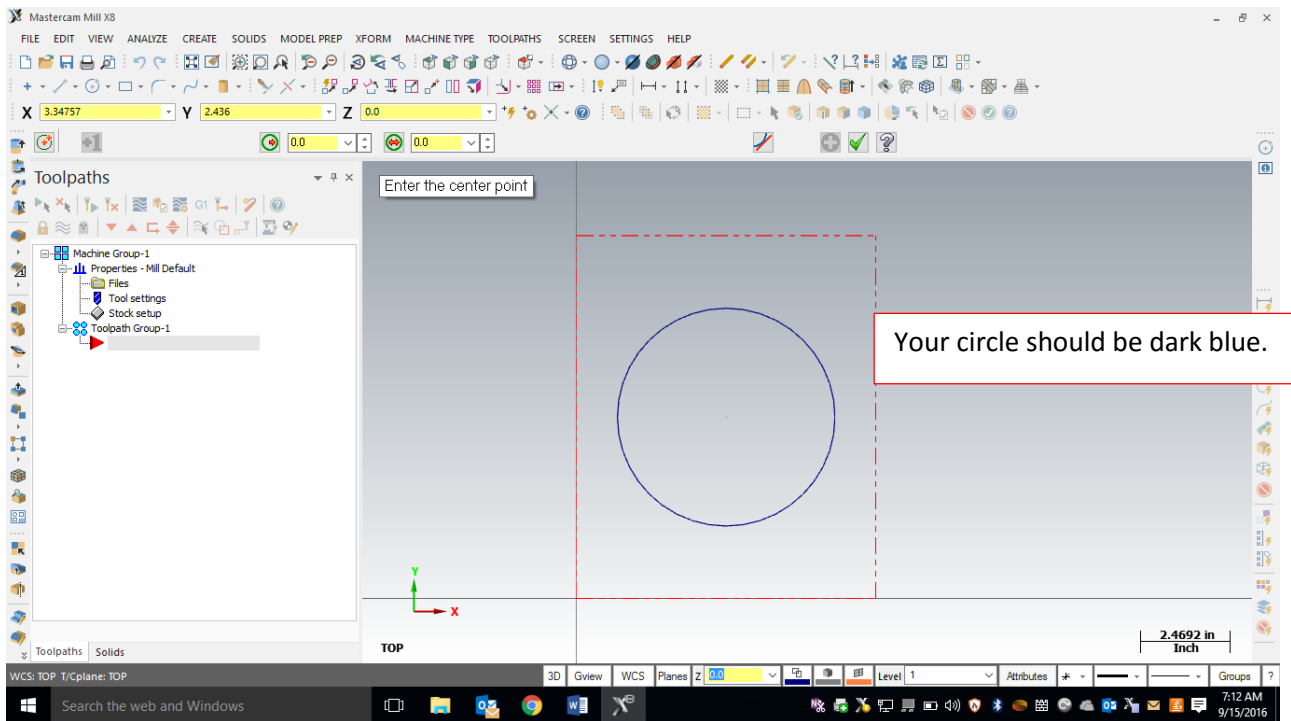
Entering Geometry

It's time to start drawing some geometry, we can start with the circle cut out and rabbit that will hold the glass. We are going to cut on the back of the clock door. Click on the circle tool. Once inside the tool, you can enter the coordinates for the center and the diameter of the circle. MasterCAM prompts you for what it wants first. Enter the center first. The center is (4.125,5) enter those values for X and Y, for the center. Then enter the diameter of 6. To enter your values to draw the circle, hit enter. To get out of the circle tool, click the green check mark.

First, click on the circle tool

Enter the center point

Second, MasterCAM prompts you for the center point. You can just start typing the x and y values. When you start entering a value, MCAM will open the window where the values appear. When you finish hit enter.

After you enter the center point, MCAM will anchor the circle's center at (4.125,5). Next MCAM wants a radius measurement or a diameter measurement. So enter 6 in the Diameter field. Then hit enter. MCAM will draw a 6" dia. circle. MCAM will sketch the circle first, and if it is what you want hit enter a second time or hit the green check to finially draw the circle

Result:

We want another circle that represents the edge of the rabbit. MCAM keeps your current tool active until you exit out of it. So, you still should be in the circle tool, if not go back to the circle tool. Then draw another circle with the same center point, and a diameter of 6.75. You can do this by entering 6.75 in the diameter field, then go anchor the center of the new circle on the center of the old one. MCAM will sketch it first (a light blue). Then you must hit enter again or the green check to actually draw the circle (it will turn dark blue)
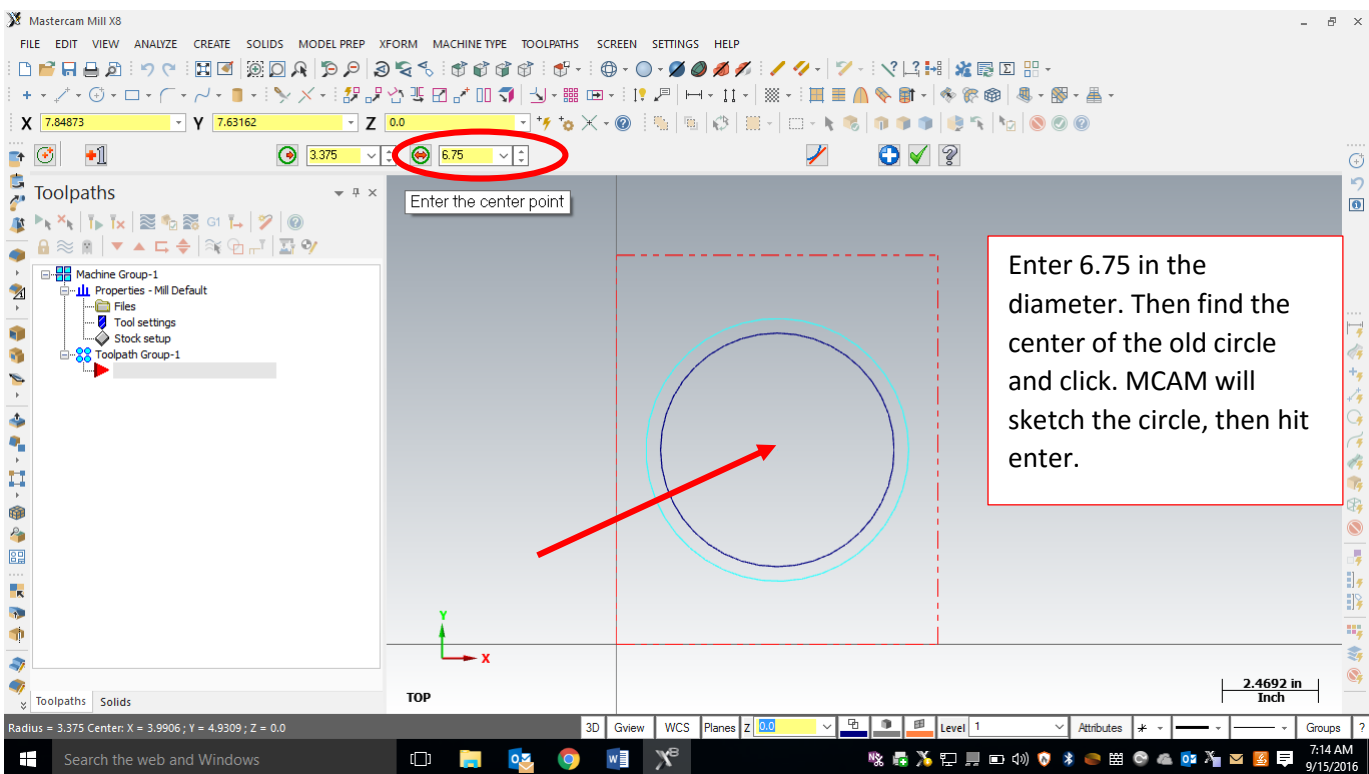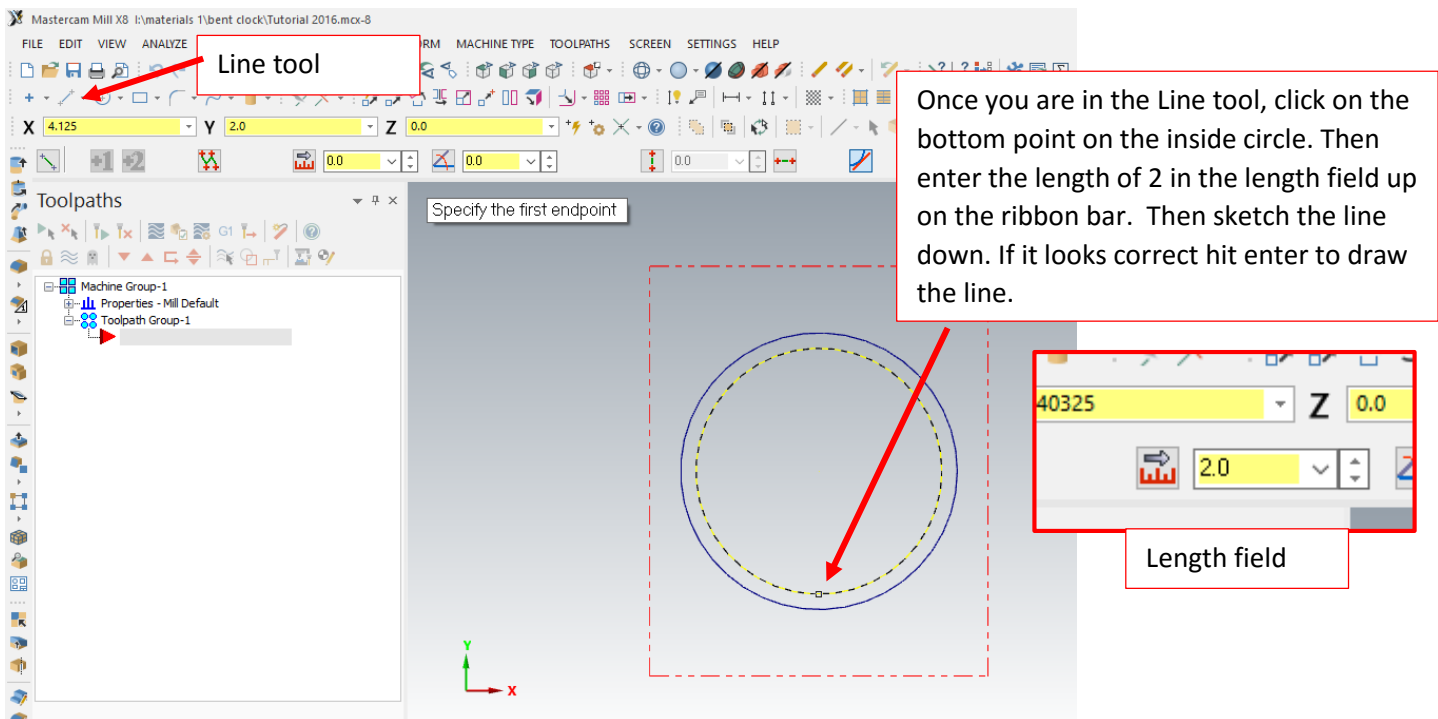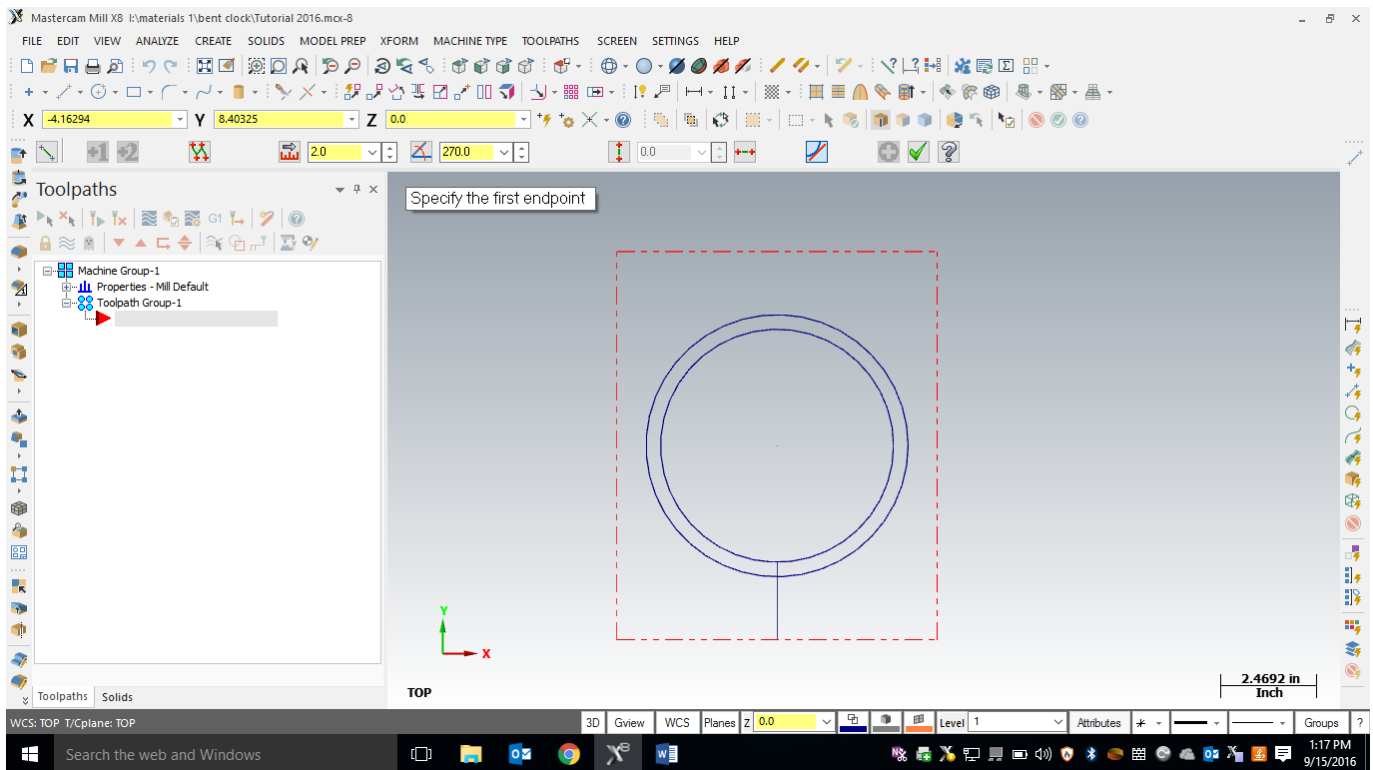
Result:
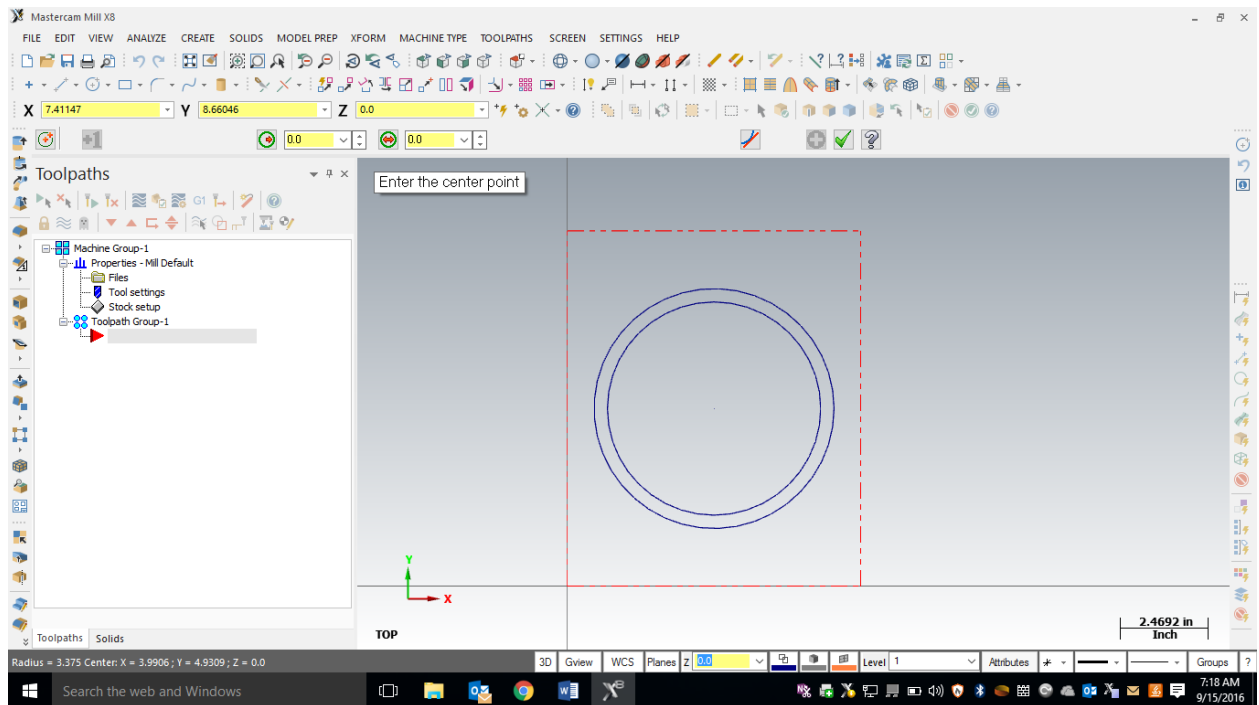
You can finally exit the circle tool, by hitting escape or the green check.

Plow for the clock movement:

The geometry for the clock front needs to include a plow to allow the clock movement to be slid into the case. All we need to include in the drawing is a line. We will later add a toolpath over the line to let the cutter cut a plow on that path. The line starts at the bottom of the inside circle and is drawn down vertically, 2 inches.

Line tool

Once you are in the Line tool, click on the bottom point on the inside circle. Then enter the length of 2 in the length field up on the ribbon bar. Then sketch the line down. If it looks correct hit enter to draw the line.

Length field

Result:

Hit enter or the green check to exit the line tool.

Save your clock front geometry file, include your name and block in the name of the file.

Congratulations, you drew all the geometry you need for the clock front**. Please show Mr. Marmor so he can sign off on your completion of the process.** The clock front toolpaths information will help you complete the toolpaths.