The Basic Mental Model of Alibre CAD

By R. G. Sparber

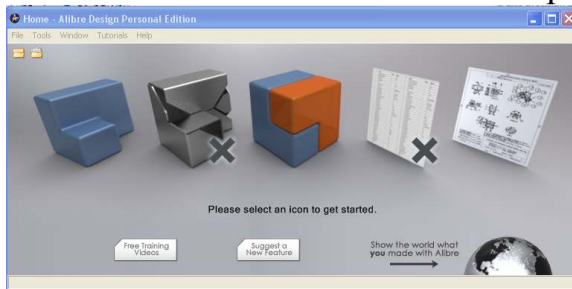Copyleft protects this document.[1]

I will attempt to present a mental model[2] of the Alibre Computer Aided Design program. My goal is to give you a taste, not to replace the massive library of documentation that comes with the program.

In my Shop
I walk into my shop and turn the lights on.

Alibre
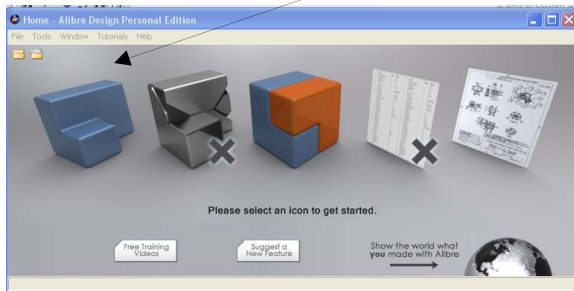I turn on the PC and start the Alibre program.

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[2] See http://en.wikipedia.org/wiki/Mental_model

In my Shop

I stand in front of my mill and see the table.

Alibre

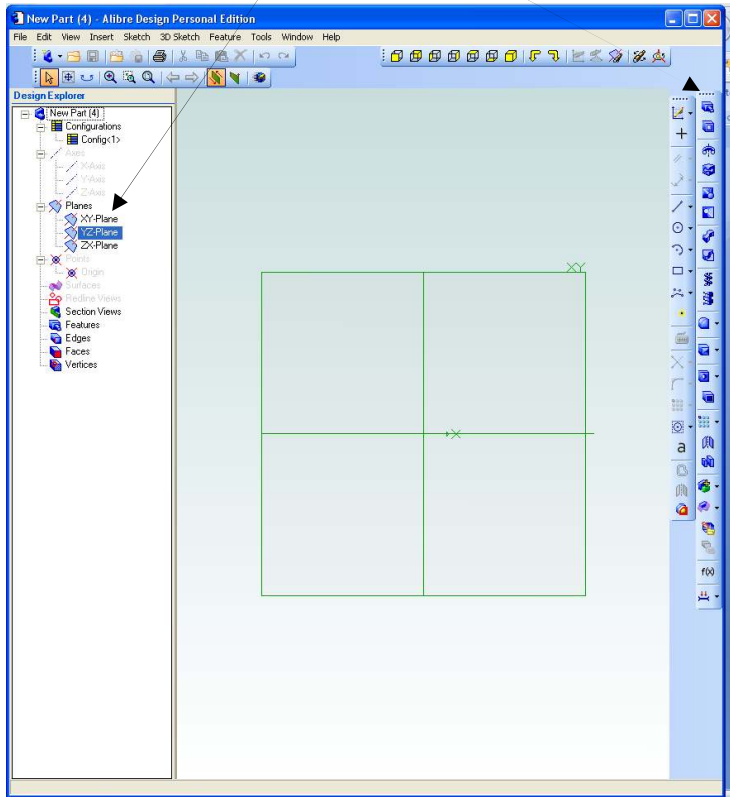I click on the "create new part" icon and it brings up the drafting window.

In my Shop

I choose my mill table surface as the place to put down my metal to be cut.

Alibre

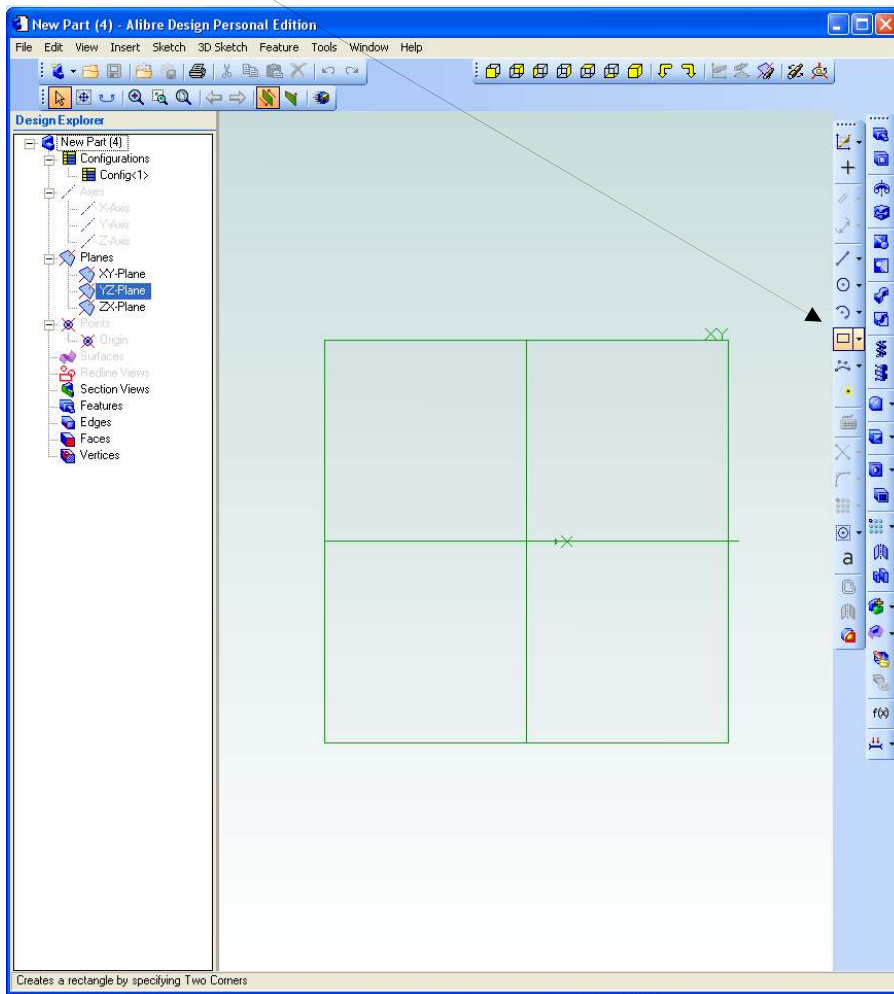I select the 2D sketch tool and
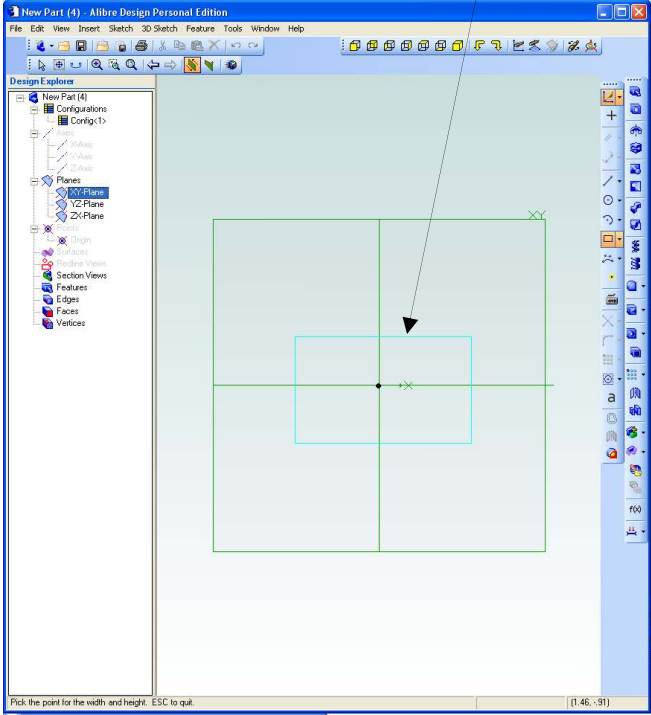click on the XY-Plane

In my Shop

I place a rectangular piece of metal down on the table.
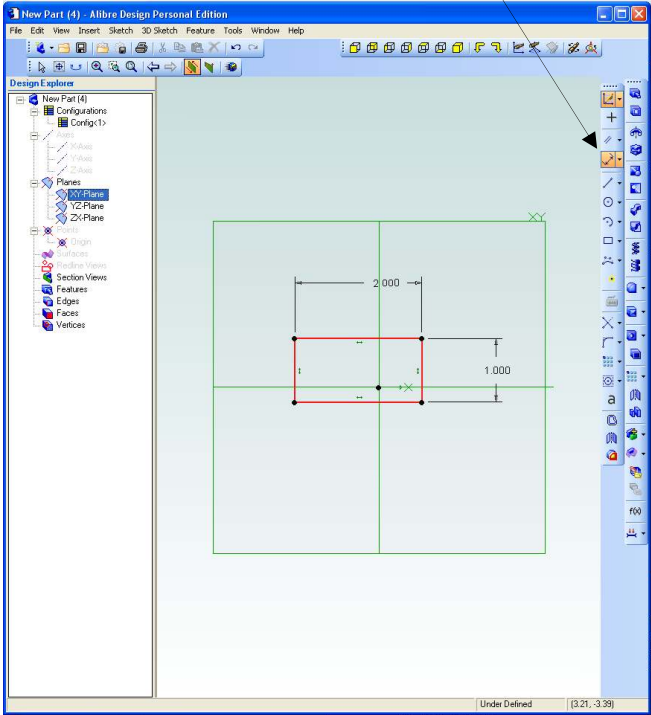
Alibre
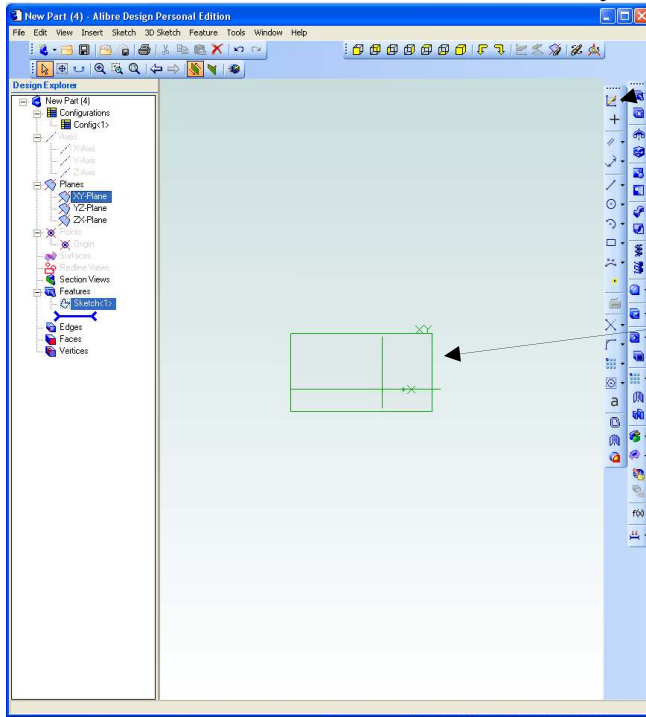
I choose the rectangle drawing tool

and move the cursor over to the sketching area. Then I left click, drag, and left click in order to define my rectangle.
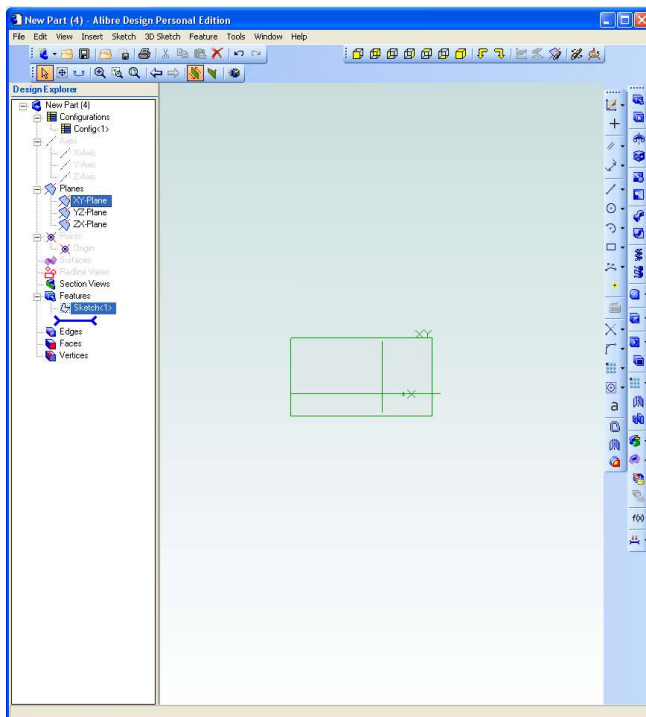

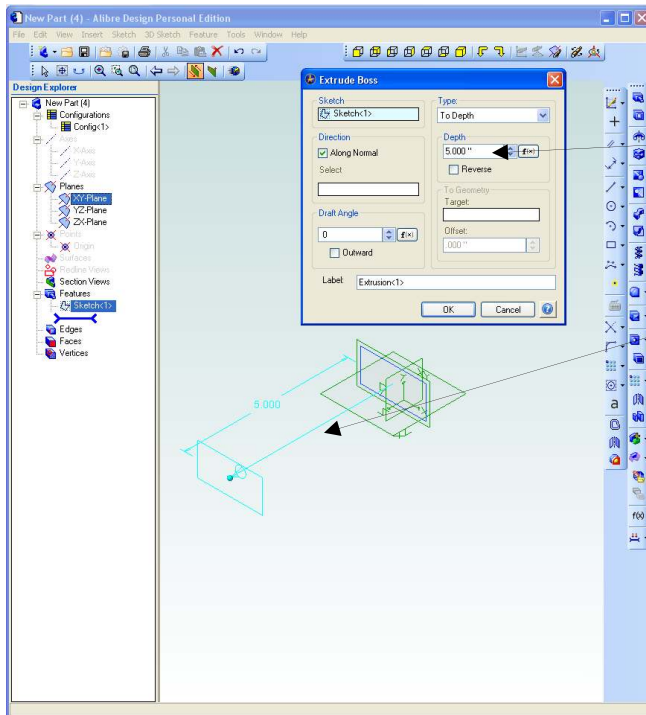I can change its size by using the dimension tool.

I extrude it into a 3 dimensional block by first deselecting the 2D sketch too.

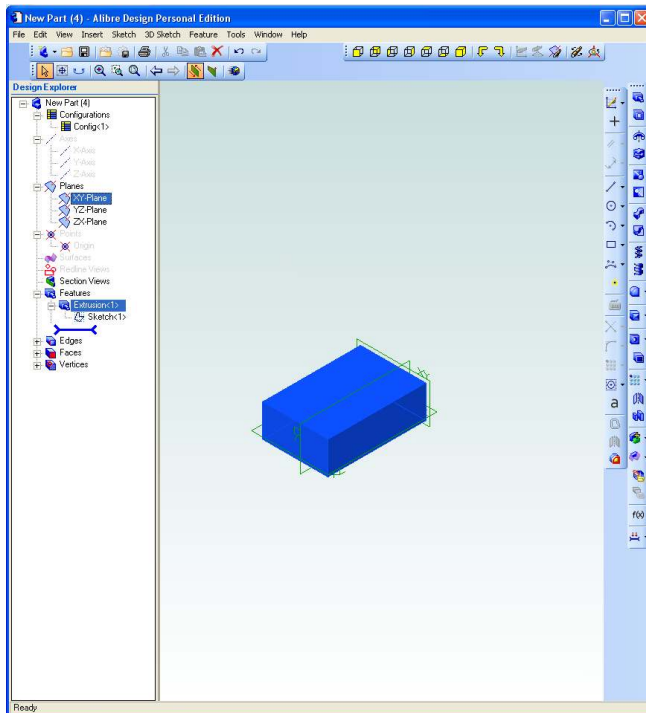Note that my red rectangle is now light green.

Leaving the 2D sketch mode lets me access the 3D tools which include Extrude Boss.

Clicking this Extrude Boss icon brings up a dialog window that lets me set the "Depth" of the object.

The 3D drawing shows this depth and the direction relative to my XY-plane.

I now have my rectangular piece of "metal" sitting on my XY-plane.

Note that my XY-plane is shown oriented vertically.

I have defined a block 1" x 2" x 3" tall.

In my Shop

I install my drill chuck with a ½" drill. Then I move the table so my center of rotation is centered on the block. I drill all the way through the block being careful not to drill the table.
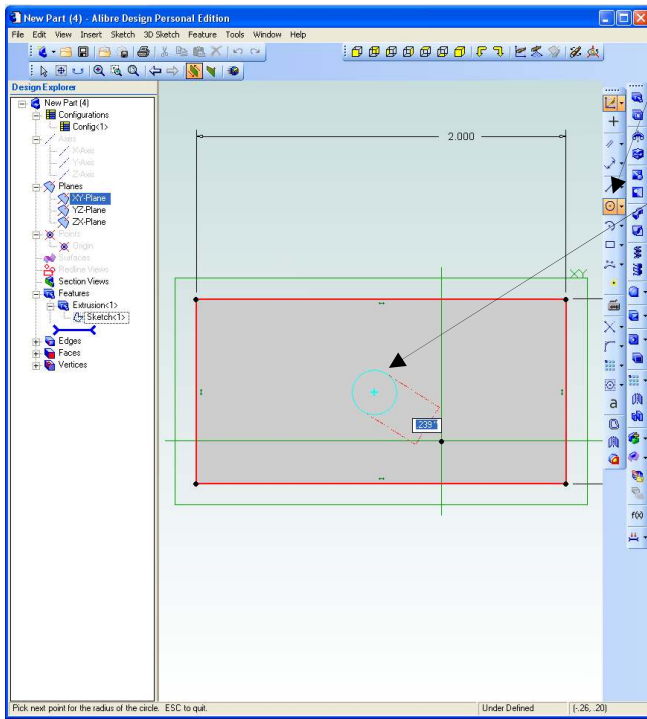
Alibre

I want to define a through hole along the Z axis. The hole will be started on my 2D sketch so I go to the Design Explorer and move my cursor over the sketch entry. Then I right click and select edit.
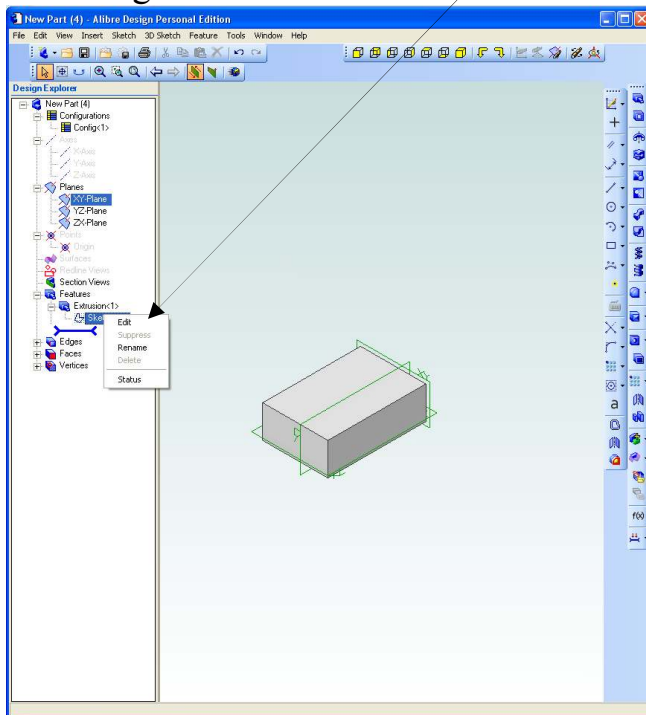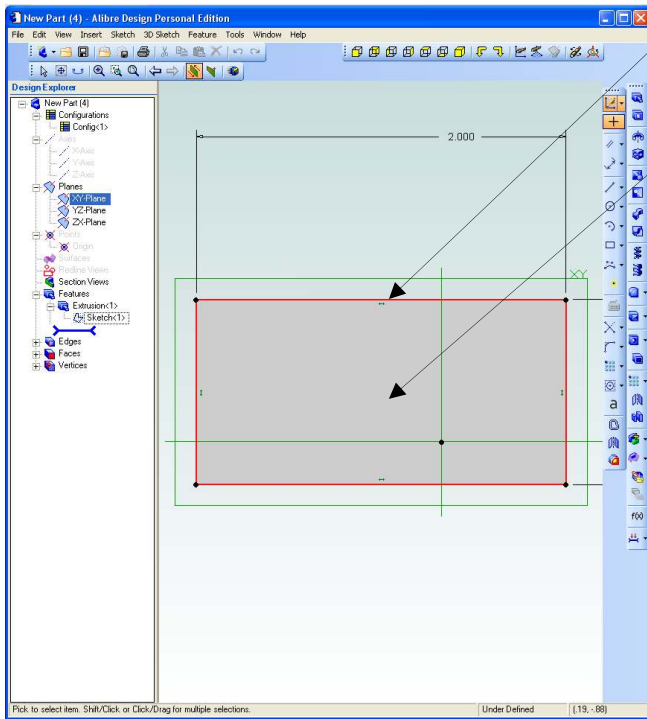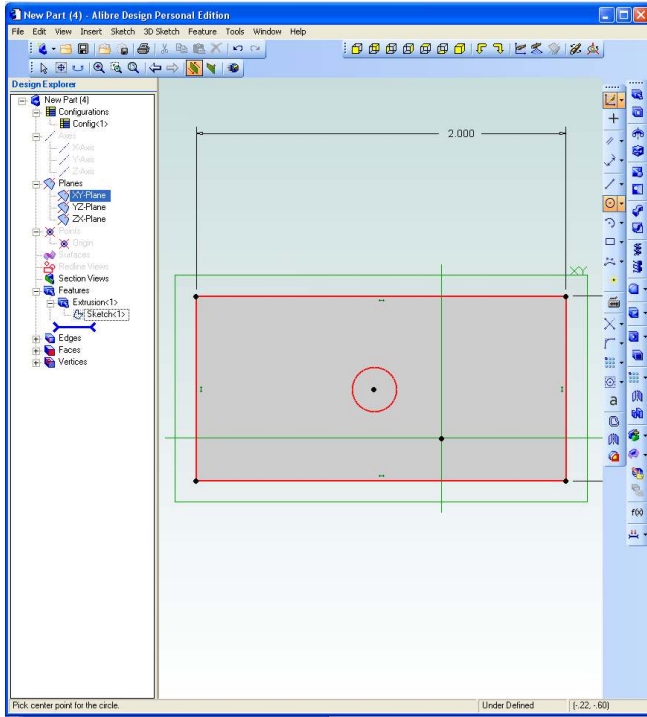
The red outline is what I originally drew.

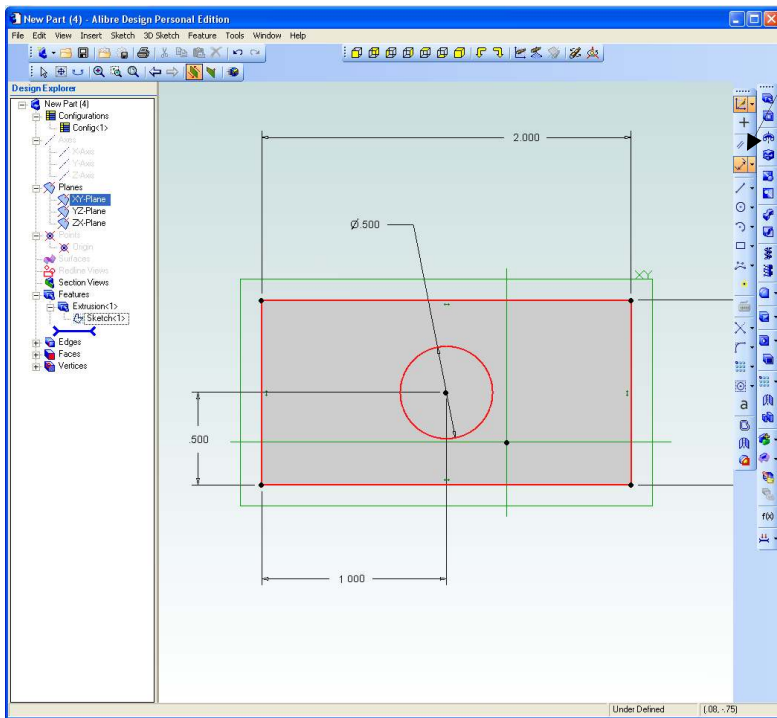The gray area is what was filled in by the 3D tool.

Using the circle tool,

I draw a circle roughly of the right diameter and roughly in the right place. I can enter the desired diameter now or just deselect the circle and accept its size. I'll fix the diameter later.

I now have a red circle inside my original red rectangular box.

Then I use the dimension tool to define the diameter and the circle's location.
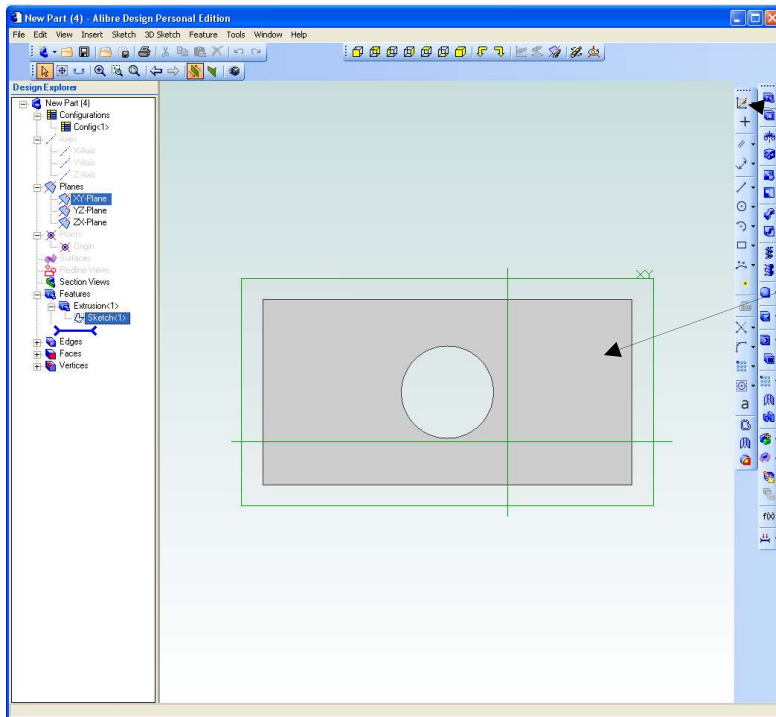
When I leave the 2D sketch mode, by deselecting the 2D sketch icon,

Alibre will understand that my 3D object is defined between red lines so will remove the material inside my 2D circle which has now become a 3D hole.

This is a top view looking down on the XY-plane so is not very impressive.
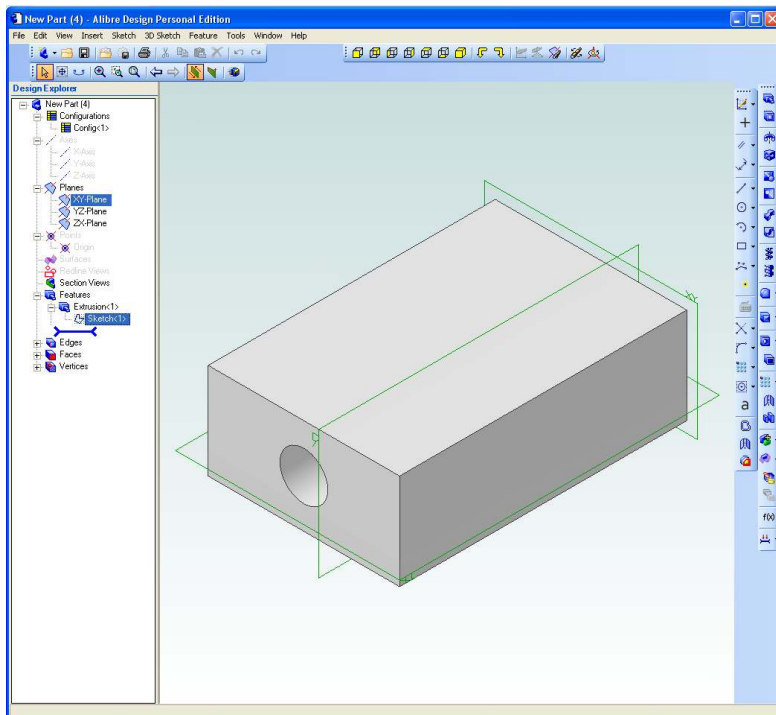
Here is an isometric view. All shading is done by the program although I can change it and the color of the part.

I welcome your comments and questions.

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