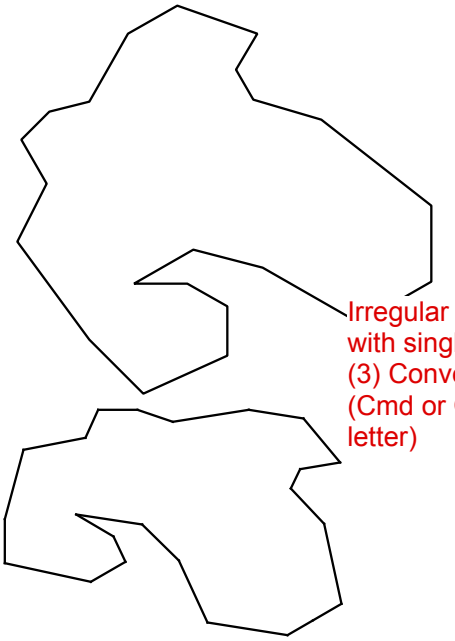
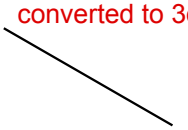
MiniCAD / Vectorworks Tutorial #3: Polygons

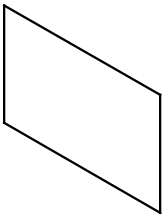
lines or shapes can be converted to 3d polygons directly without being extruded. Lines can be extruded



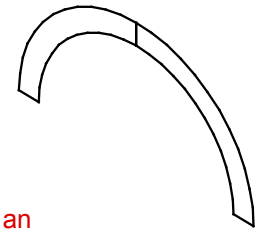
Irregular shape drawn with single line polygon (3) Converted to 3d Poly (Cmd or Control O -the letter)



3d line drawn 2d, converted to 3d polys

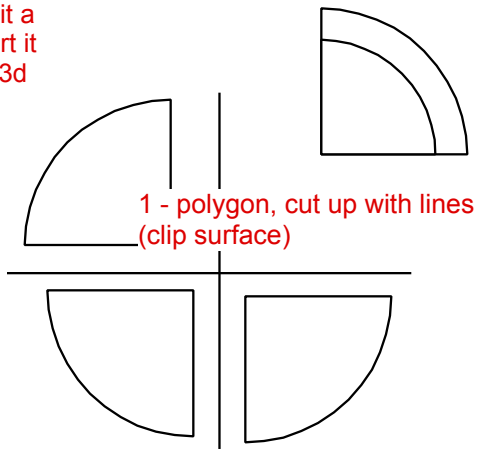


line drawn with line tool (\), and extruded

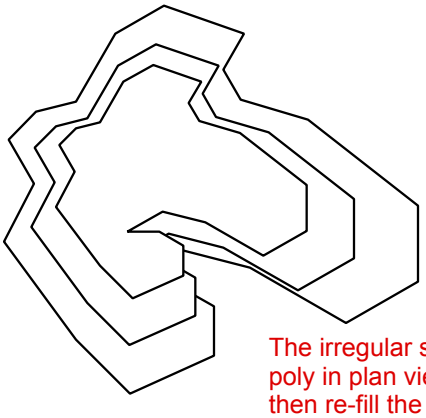


see process below

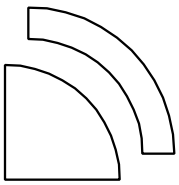
MiniCAD / Vectorworks defines an extruded object as a "solid." To edit a solid as a polygon, you must convert it into one. You can convert it into a 3d polygon or a 2d polygon.



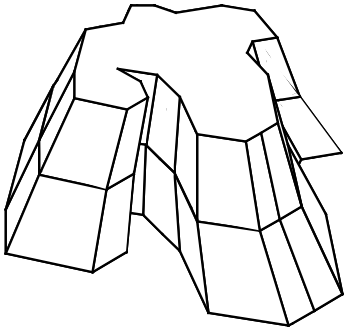
1 - polygon, cut up with lines (clip surface)



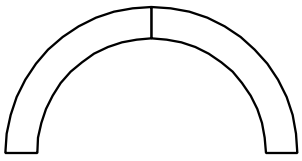
The irregular shape above converted to a 2d poly in plan view. (choose wireframe rendering then re-fill the object). That object duplicated and scaled, 3 objects (all 2d) stacked as shown using send to front or back



2 - copy a quarter, scale symmetrical, use to clip surface of larger piece



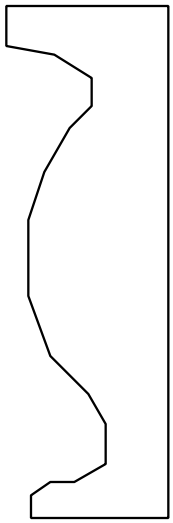
a multiple extrude of those 2d polys try it



3 - mirror and duplicate,convert to 3d polys

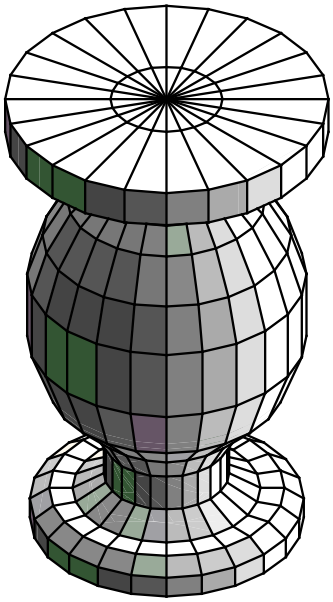
MiniCAD / Vectorworks Tutorial #3: Sweeps

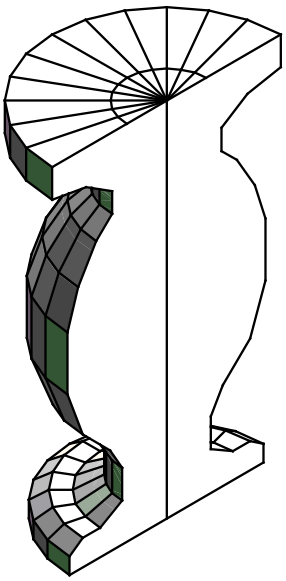
Make a new layer called Sweeps. Draw a figure similar to the one below with the single line polygon (3)



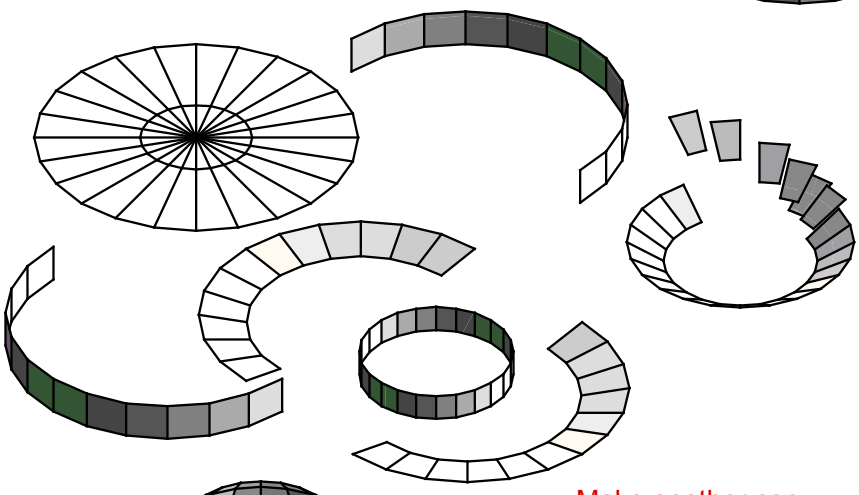
Set a 2d locus at the lower right corner of he object, select the locus and the object, and use the menu command "sweep."

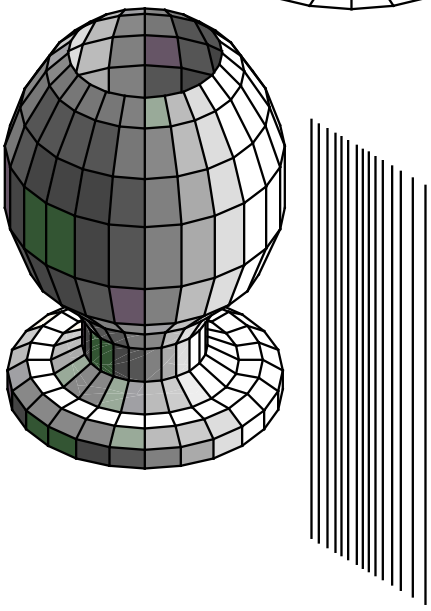
Set the segment angle to 15 degrees.





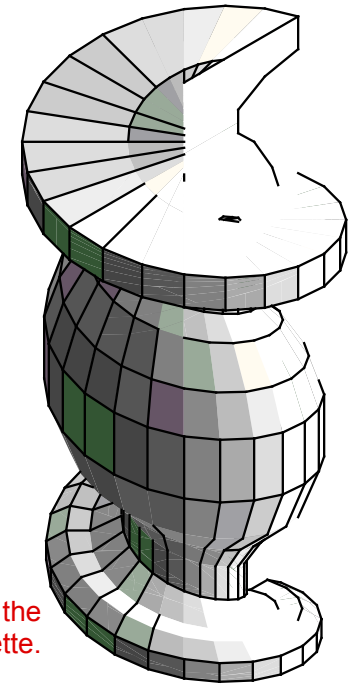
Make a copy and edit the "sweep" in the object info palette to get half a vase.





Make another copy, convert it to 3d polygons, ungroup it, and take it apart, as you did with your house.

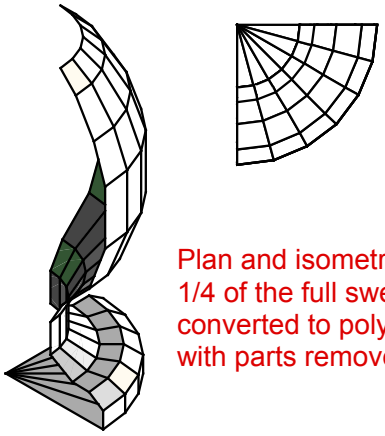
practice putting parts back together in a 3d view, checking your work in other views. Observe screen hints.



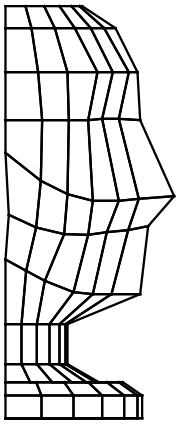
Make another copy and edit the "pitch" in the object info palette.

MiniCAD / Vectorworks Tutorial #3: Mesh, Polygons

Make a figure that looks like the one below. I used a copy from the previous page - its a group of polygons

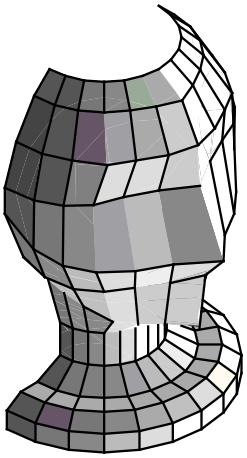


Plan and isometric - it's 1/4 of the full sweep, converted to polygons with parts removed



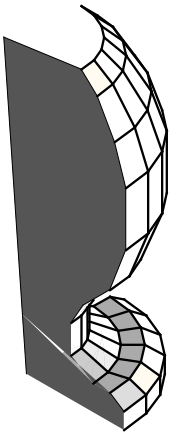
Convert the object to mesh. By working with the settings in the object info palette you can move one vertex of the mesh at a time

I did this in one view in about 5 minutes

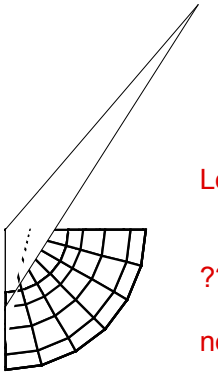


then mirror and duplicate to get something like this.

That's how mesh works.



copy your 1st figure, and in a 3d view, use the 3d polygon tool to make a new edge piece as shown. Notice that one of the points I set has nothing to "snap" to, and no screen hint came up.



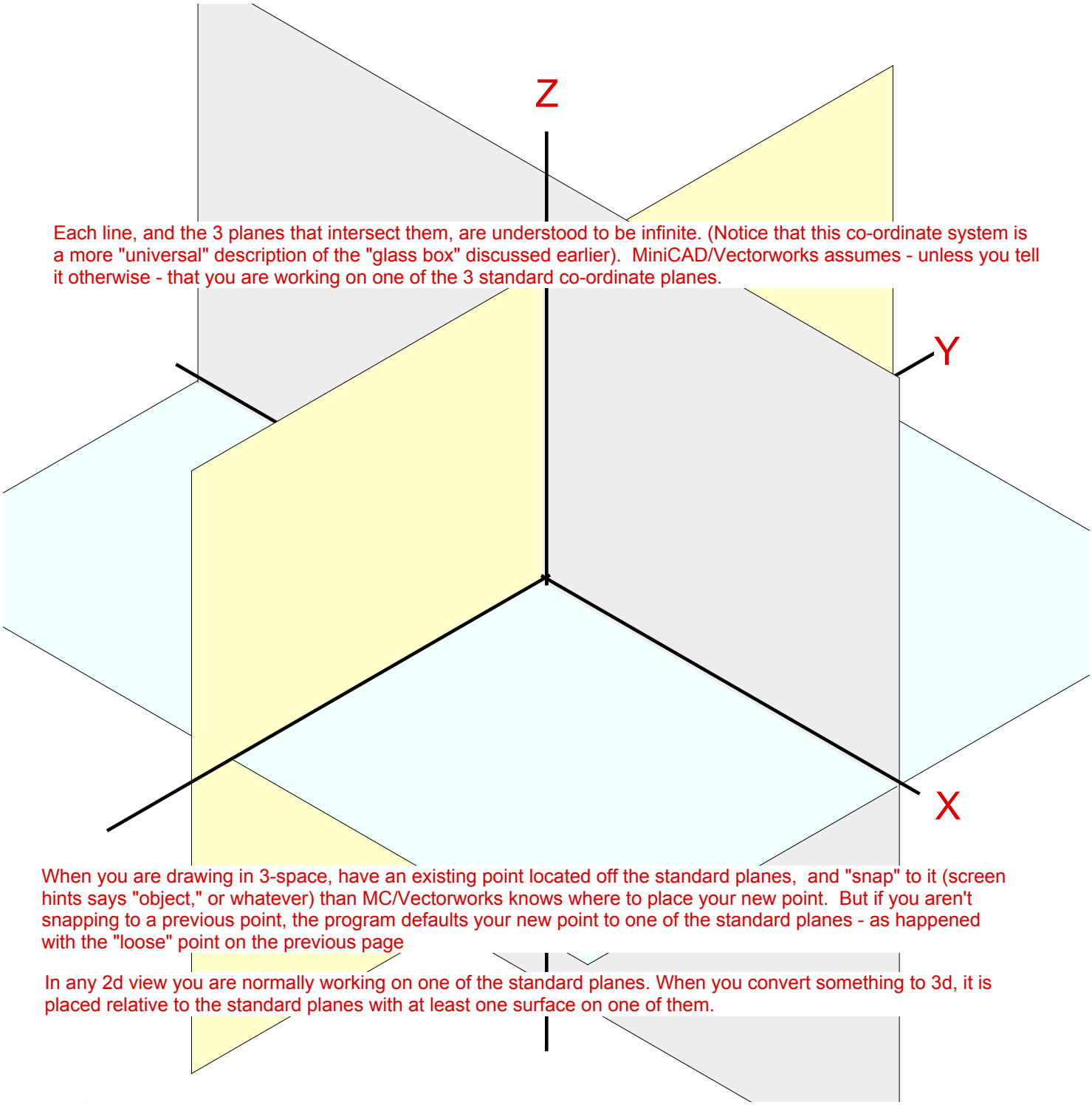
Look at the shape you made in plan view.

????????????

next page for an explanation.....

MiniCAD / Vectorworks Tutorial #3: 3d Axis Planes

All vector-based CAD programs (MiniCAD/Vectorworks included) understand 3-space in terms of the standard geometrical X-Y-Z co-ordinate grid. Points are located with reference to two horizontal and one vertical line. The vertical line is the "Z" axis.



Each line, and the 3 planes that intersect them, are understood to be infinite. (Notice that this co-ordinate system is a more "universal" description of the "glass box" discussed earlier). MiniCAD/Vectorworks assumes - unless you tell it otherwise - that you are working on one of the 3 standard co-ordinate planes.

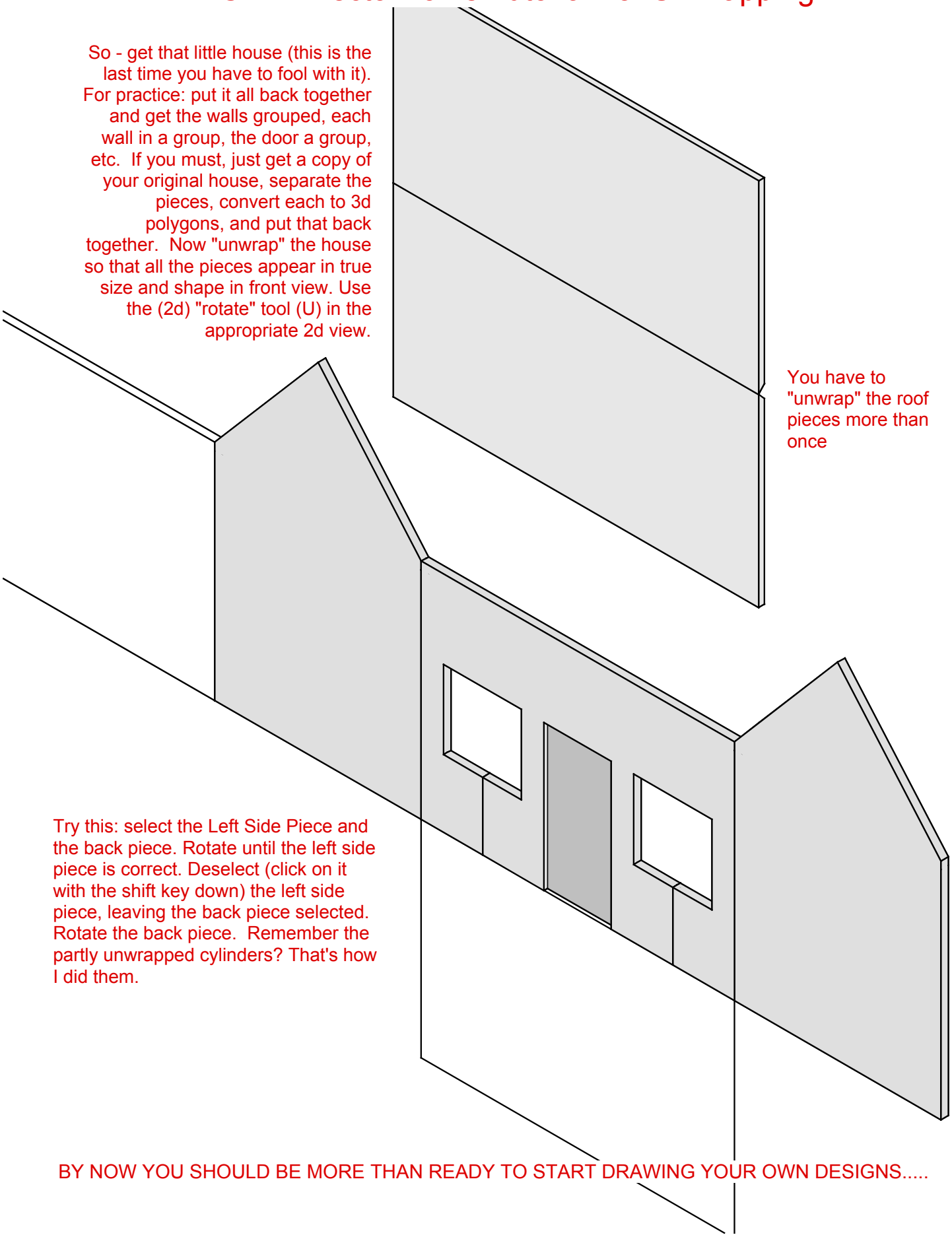
When you are drawing in 3-space, have an existing point located off the standard planes, and "snap" to it (screen hints says "object," or whatever) than MC/Vectorworks knows where to place your new point. But if you aren't snapping to a previous point, the program defaults your new point to one of the standard planes - as happened with the "loose" point on the previous page

In any 2d view you are normally working on one of the standard planes. When you convert something to 3d, it is placed relative to the standard planes with at least one surface on one of them.

MiniCAD/Vectorworks allows you to set "working planes" that are not the standard co-ordinate ones. When you do, new points will default to one of the alternate working planes that you set. One can also make "flagpoles" and "layout guides" to locate points that have nothing to "snap" to: make a line or shape in the appropriate view, convert it to 3d, hook it up to your object where you need it, and snap your new point to this "flagpole/guide." You should experiment with both working methods.

MiniCAD / Vectorworks Tutorial #3: Unwrapping

So - get that little house (this is the last time you have to fool with it). For practice: put it all back together and get the walls grouped, each wall in a group, the door a group, etc. If you must, just get a copy of your original house, separate the pieces, convert each to 3d polygons, and put that back together. Now "unwrap" the house so that all the pieces appear in true size and shape in front view. Use the (2d) "rotate" tool (U) in the appropriate 2d view.



You have to "unwrap" the roof pieces more than once

Try this: select the Left Side Piece and the back piece. Rotate until the left side piece is correct. Deselect (click on it with the shift key down) the left side piece, leaving the back piece selected. Rotate the back piece. Remember the partly unwrapped cylinders? That's how I did them.

BY NOW YOU SHOULD BE MORE THAN READY TO START DRAWING YOUR OWN DESIGNS.....