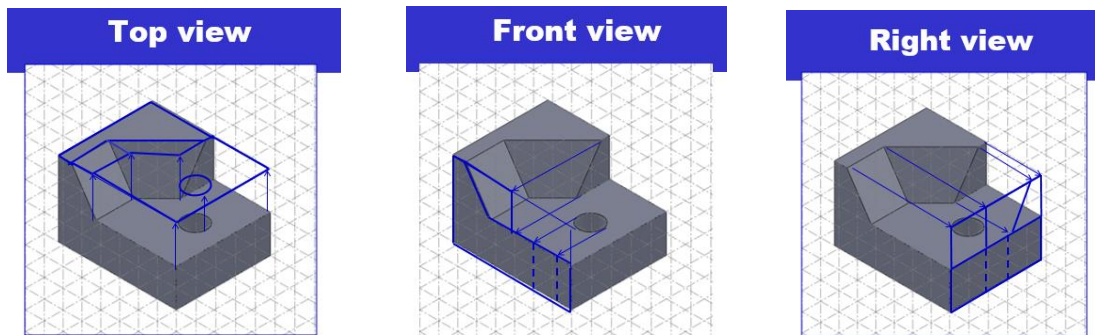


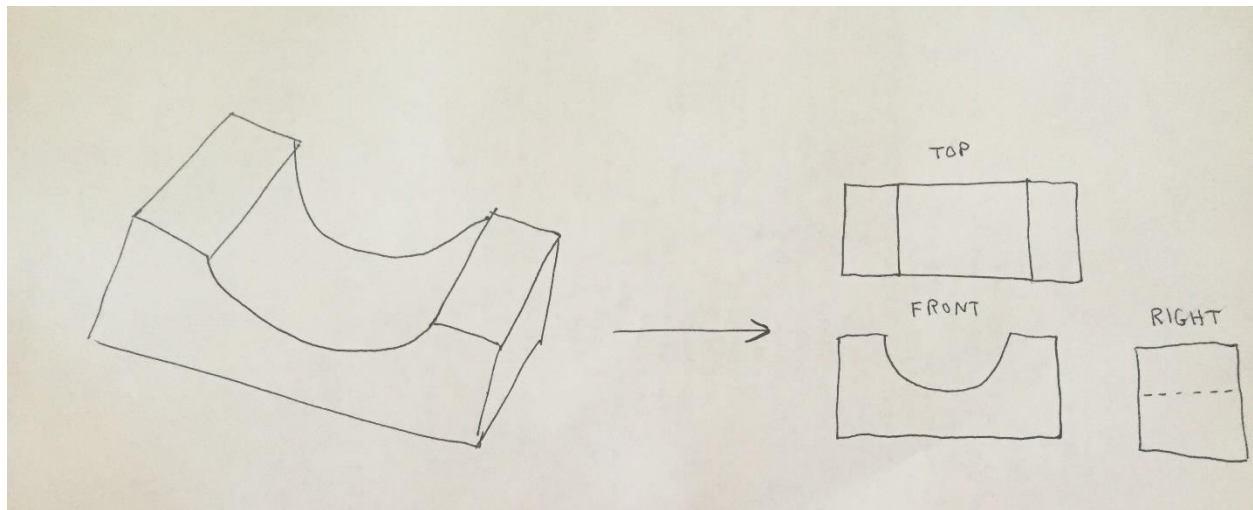
This semester I learned how to make multi-view and isometric view drawings. I also learned about full section and half section views.

Multi-View

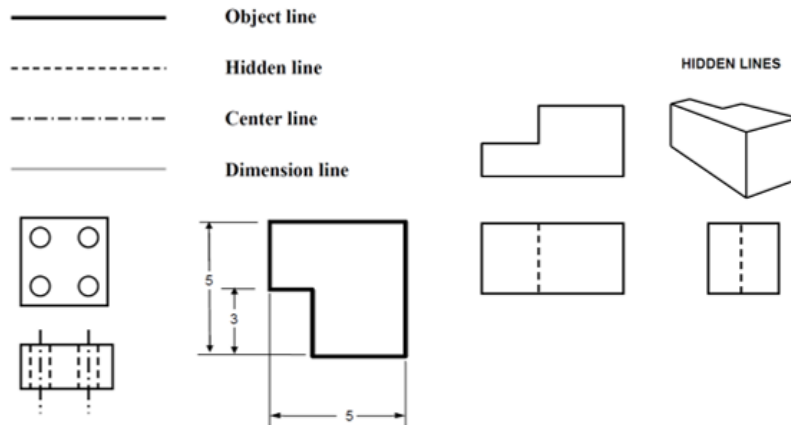
The way I learned how to make multi-view drawings is to pretend I'm holding a camera directly above the side that I'm drawing. That way you only see the lines from a parallel viewpoint and don't distort the lines due to the way the naked human eye sees things.



For example, if you're looking at a half-pipe from the front, you can see the curve of the ramp. But if you look at it from directly above, it just looks like a rectangle.

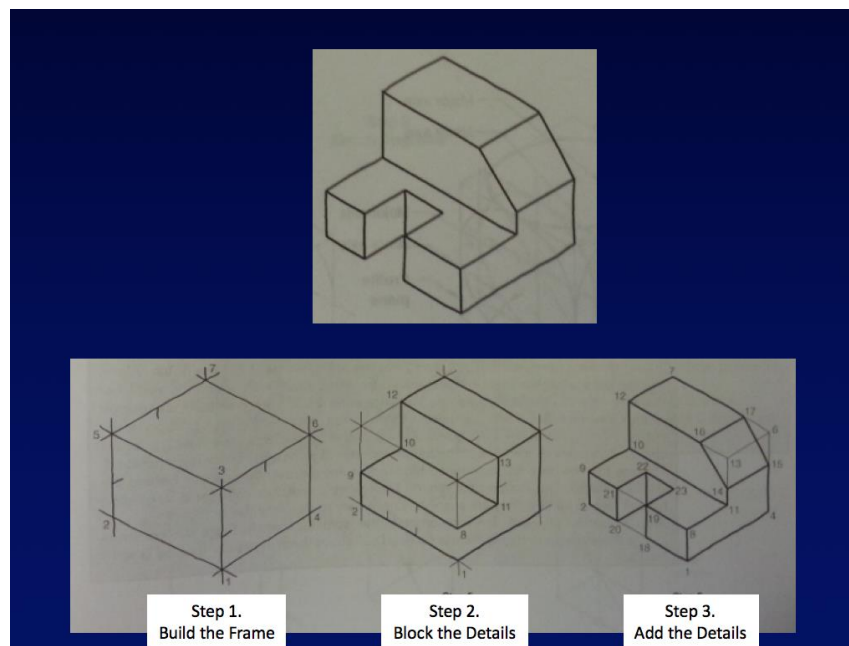


I also learned about the different lines used in multi-view drawings and when to use them. An object line is just a dark solid line used to draw the visible lines of the sketch, like in the front view above. A hidden line is a dashed line, with the medium sized dashes evenly spaced apart. It is used to represent a line that shows something behind the face created by object lines, like in the right view above. A center line is a dashed line with the dashes alternating between long and short. It's used to show where the center of a circle is that cuts the whole way through the object. And finally, a dimension line is solid just like an object line, but a little lighter so it can be distinguished from an object line. It's used to give dimensions of other lines.

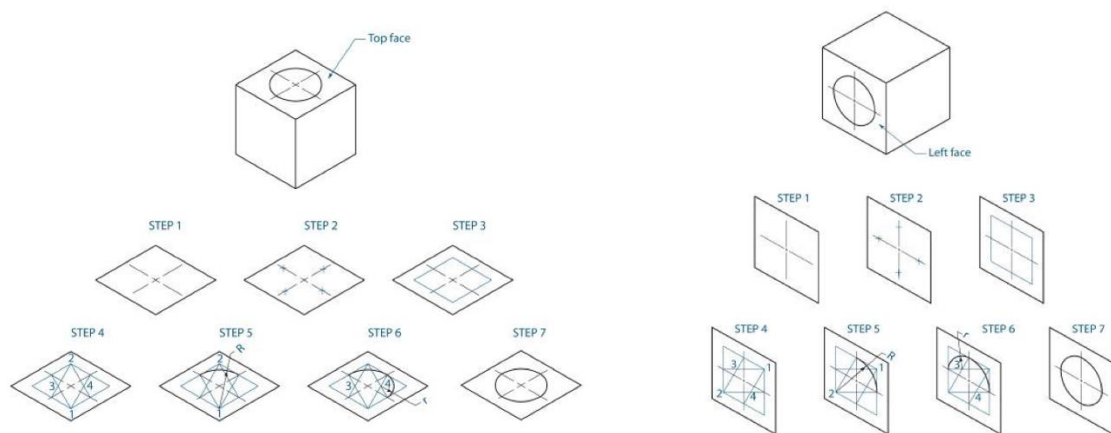


Isometric View

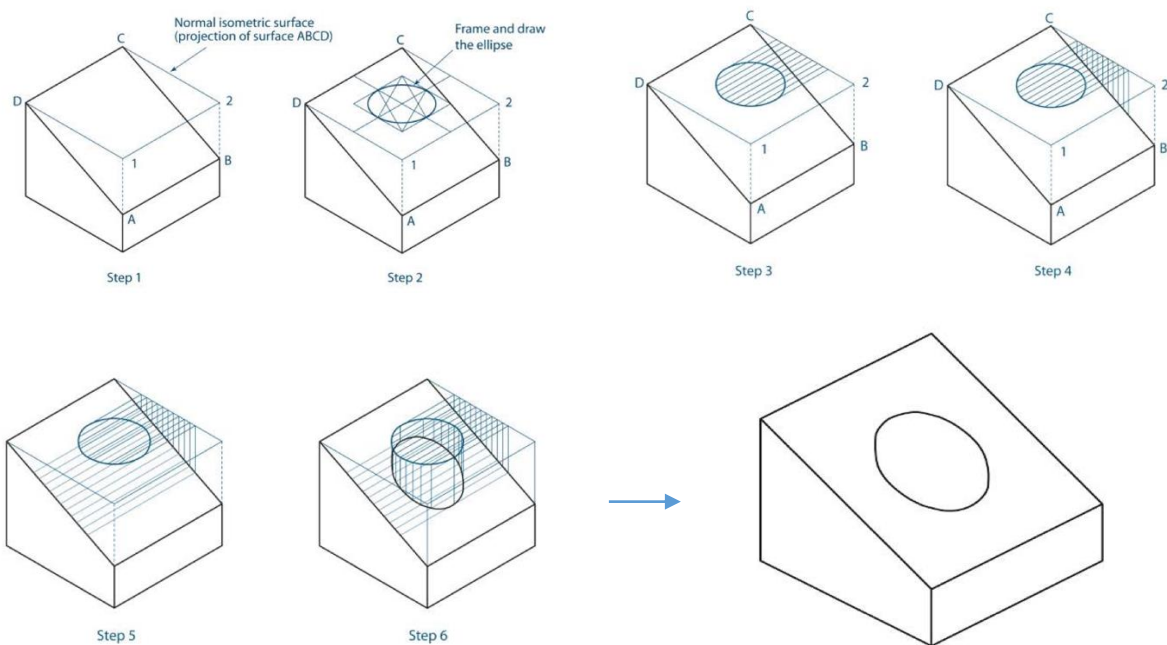
The way I learned to create isometric drawings is to first get the length, width, and height from the multi-view drawing and create a box using those dimensions. Next, I block the rest of the details so I can see how every detail will fit into the drawing. Finally, I add the details and erase the lines that I no longer need. Here's an example of the steps:



I also learned how to draw cylindrical surfaces. The easiest technique to use is the traditional four-center method. Depending on which face the circle is being drawn, the outline for the circle is drawn in a different direction, but the same idea applies to all 3 faces. Here is how it works:



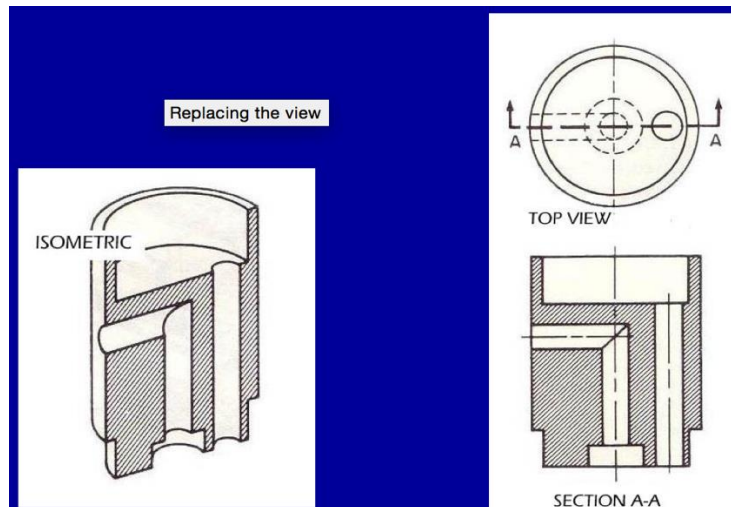
Another thing I learned about isometric drawings is how to draw ellipses on inclined surfaces. To start, project the inclined surface so that there is a flat surface directly above it. Then, use the four-center method to create a circle just like before. Next, use straight lines parallel to the sides of the projected surface to reflect the circle down onto the inclined surface below. Finally, use the lines to create the ellipse and erase the rest of the lines from your projected surface. Here are what the steps look like:



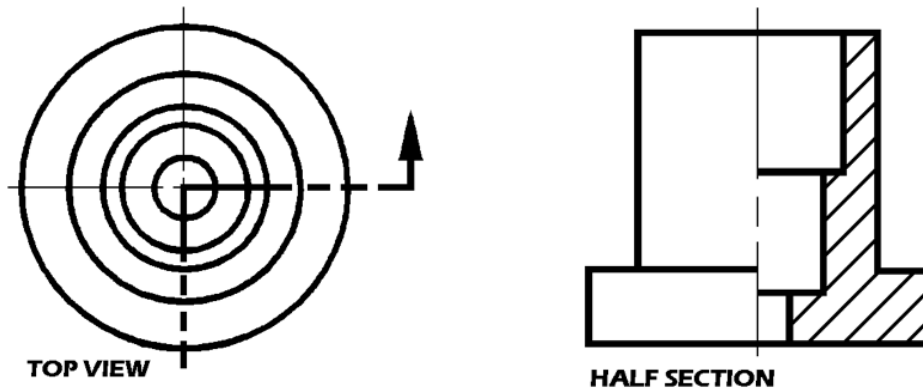
Section View

A section view is a view used on a drawing to show an area or hidden part of an object by cutting away or removing some of that object. The cut line is called a cutting plane and it can be done as both a full section and a half section.

1. Full Section – The cutting plane passes fully through the part. The section-lined areas are the portions that have been in actual contact with the cutting plane. Here is an example:



2. Half Section – Half sections are used to show both the exterior and interior in the same view. The cutting plane cuts halfway through the part and removes one quarter of the entire part. Here is an example:



There are multiple types of section linings that can be represented. There's 4 common materials that are used. The 4 common materials are cast iron, steel, bronze/brass, and aluminum. The symbol for cast iron can be used for most section views. Here is what they look like:

