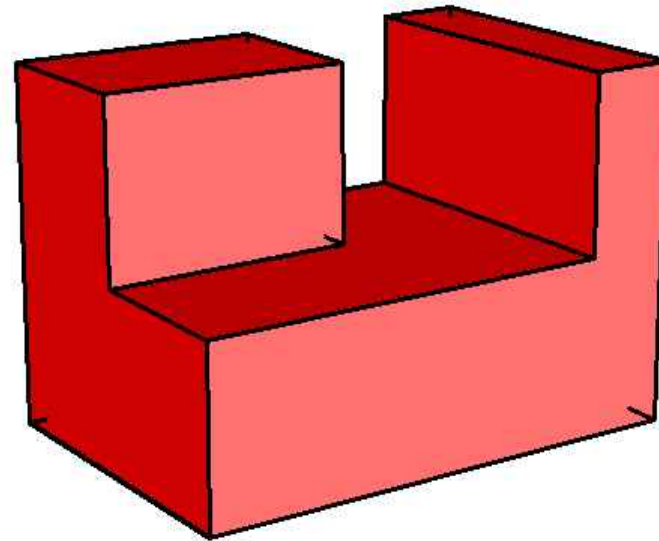


# The Language of Drawing

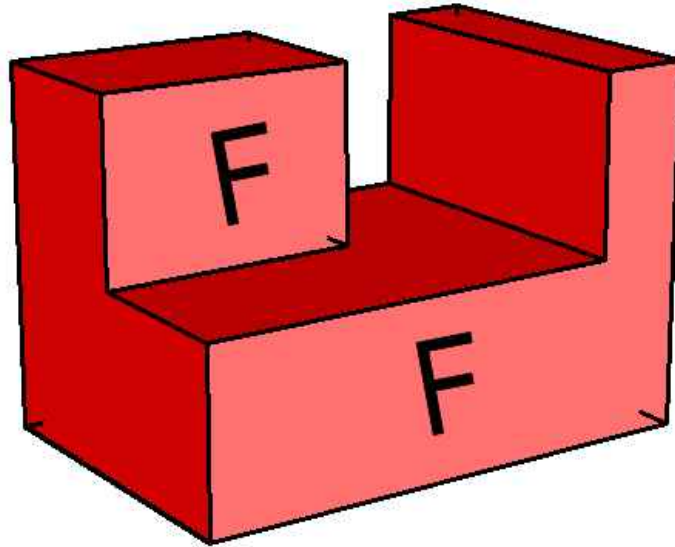
## Chapter 2:

## Orthographic Views

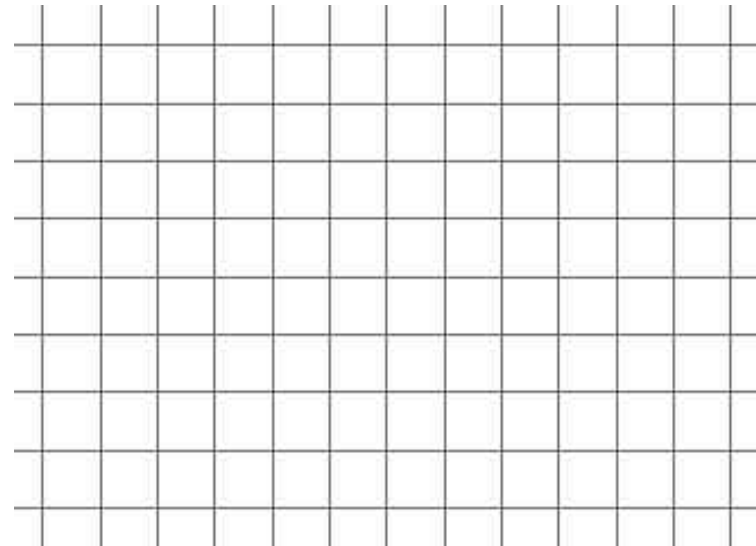
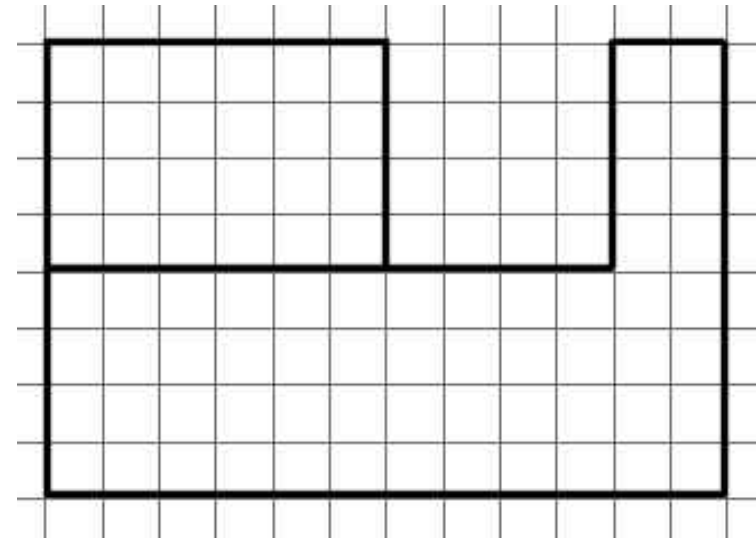
Here you can see a picture of a part.



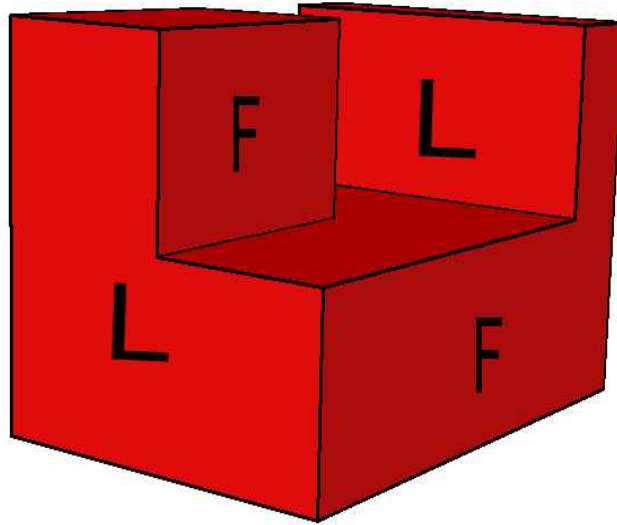
Your job is to create a drawing for a machinist. Start by drawing the front side of the part. All the front edges are labeled with an "F" below.



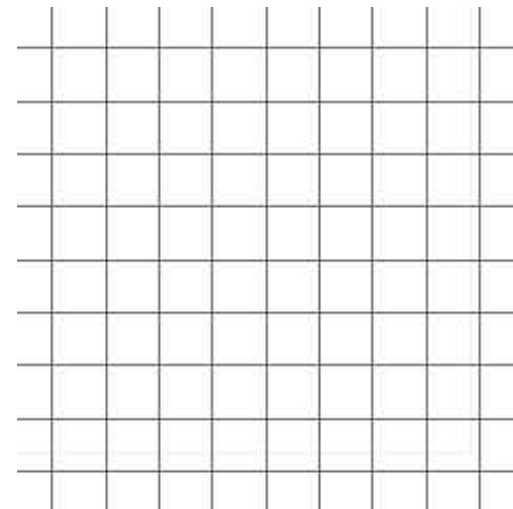
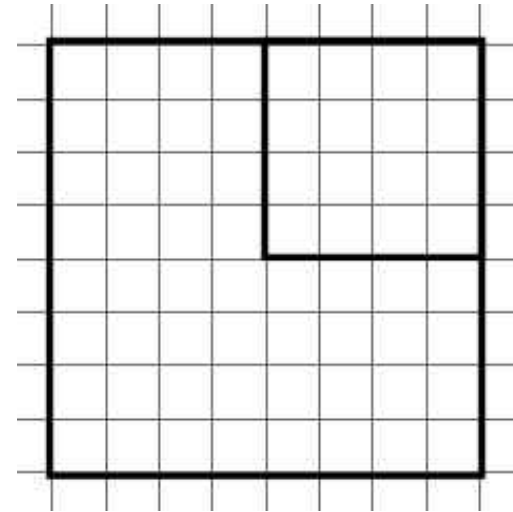
Example:

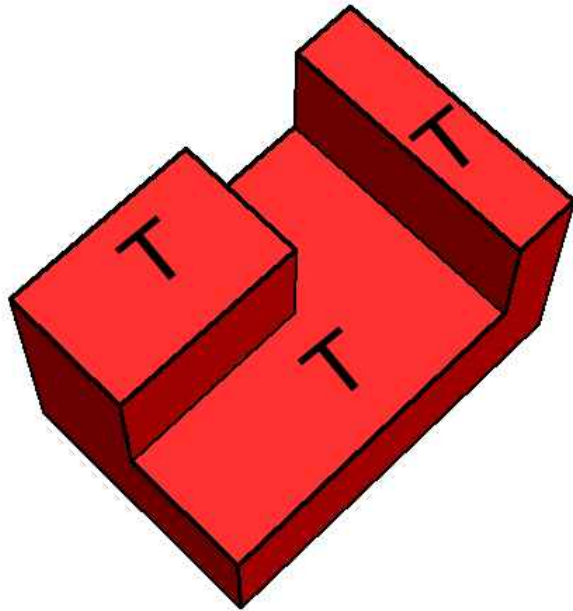


We will assume that every unit on the graph paper equals  $\frac{1}{2}$ ". The bottom front edge of the part is 6" long. The height of the entire part is 4". The high right side has a width of 1", and the high left side has a width of 3". Draw the front side of the part using the example as a guide.



Here is the same part from the left side. The edges on the left side are labeled with an "L". The bottom edge of the left side is 4" long. The part is still 4" high. Draw the left side using the example as a guide.  
Example:

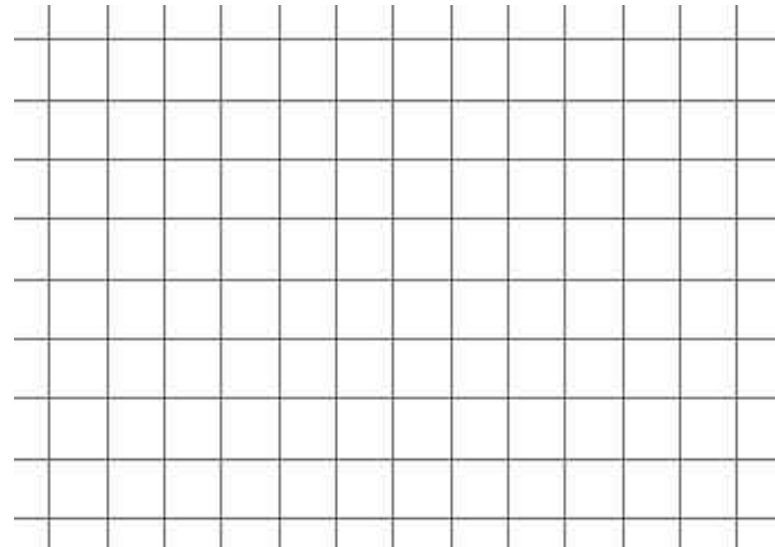
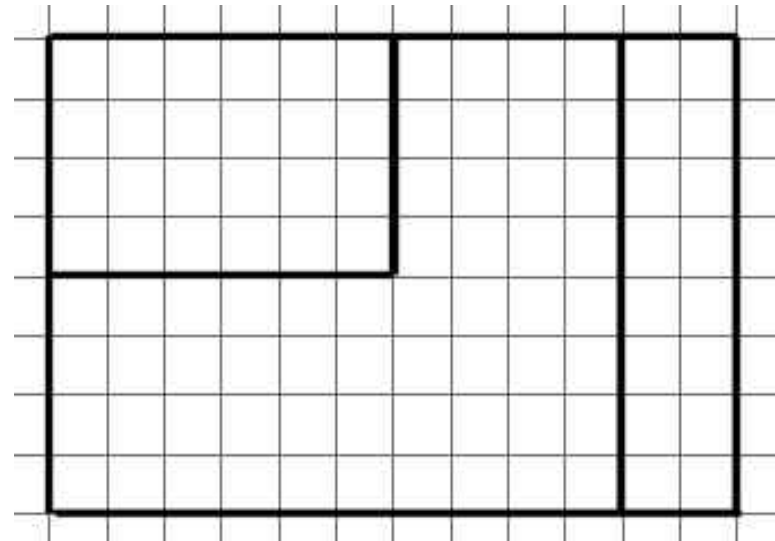


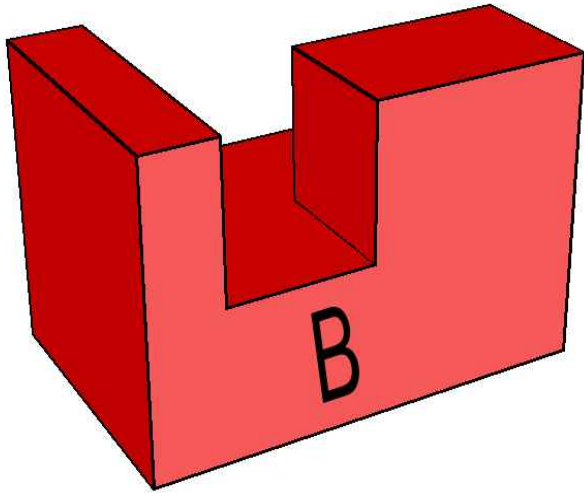


Here is the part from the top side. The edges on the top are labeled with a "T". You should be familiar with the part's dimensions from the previous drawings. Refer back to the previous pages for help.

Draw the left side using the example as a guide.

Example:



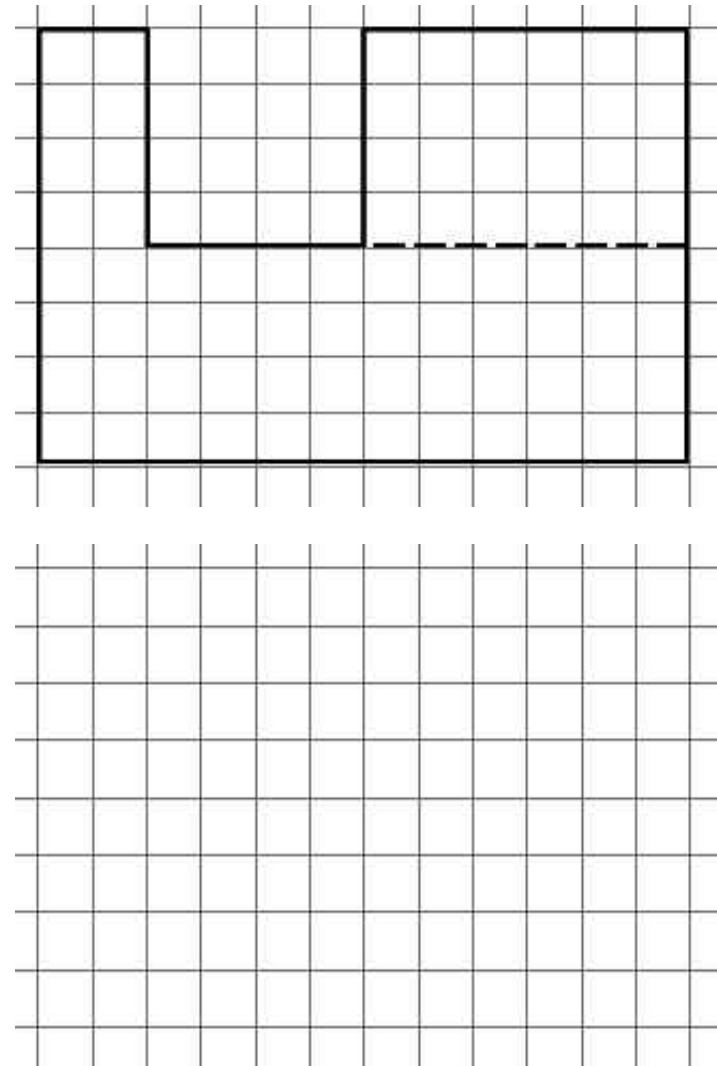


Here is the back of the part. The back is labeled with a “B”. Before you can draw this side, you need to learn about a different type of line used in a situation like this.

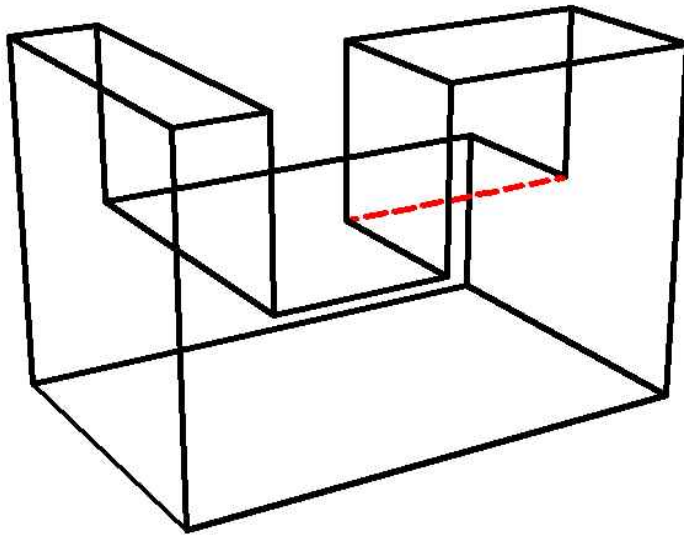
You have been using CONTINUOUS lines to draw up to this point. Continuous lines are solid lines that define visible edges in the drawing. In this instance, however, not all the edges are visible from the back. Using a HIDDEN line, you can still draw a line not visible from the side you are viewing.

Draw the back side of the part using the example as a guide.

Example:

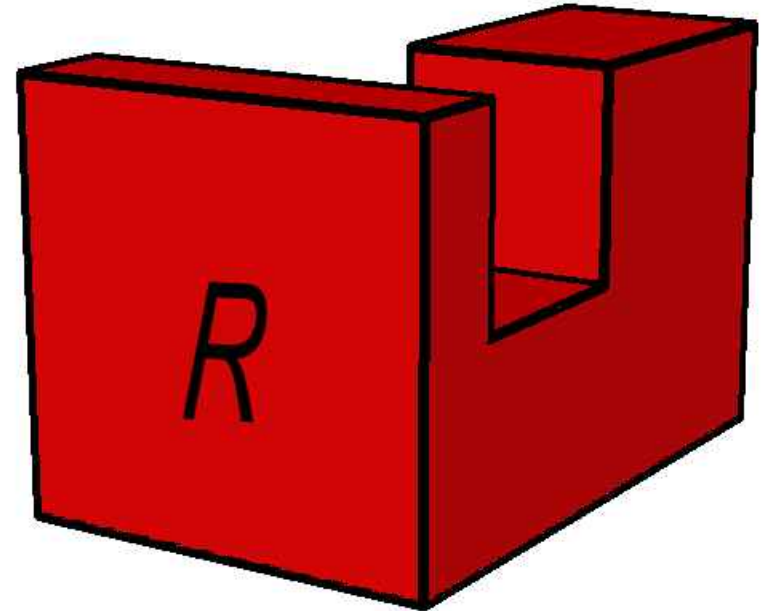


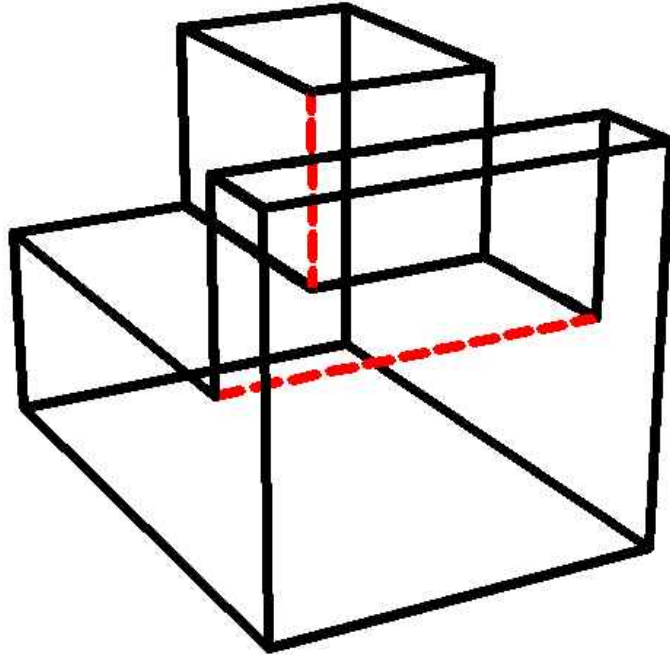
Like you can see in the example on the last page, a hidden line is dashed. Notice that the line intersects with the vertical line on the right, but does not touch the horizontal line on the left. A general rule to remember: leave a space so that hidden line dashes do not extend continuous lines.



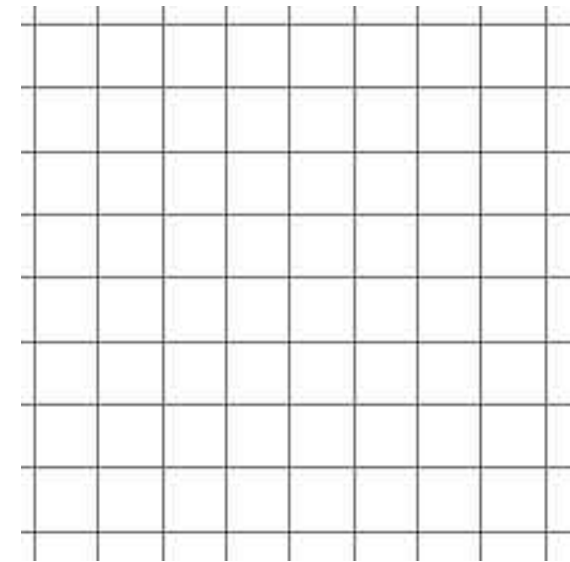
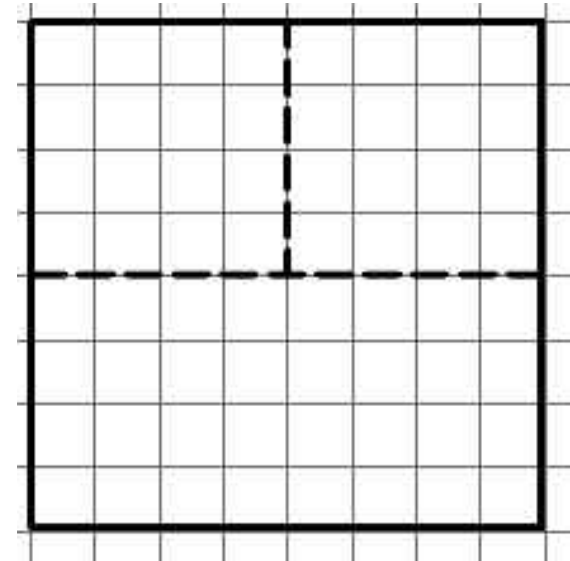
Hidden lines define the edge of the part that we cannot see from the back.

Here is the part from the right side. To draw this side, you will need to use hidden lines again. Recalling the dimensions from the previous drawings, draw the part from the right side as shown in the example.



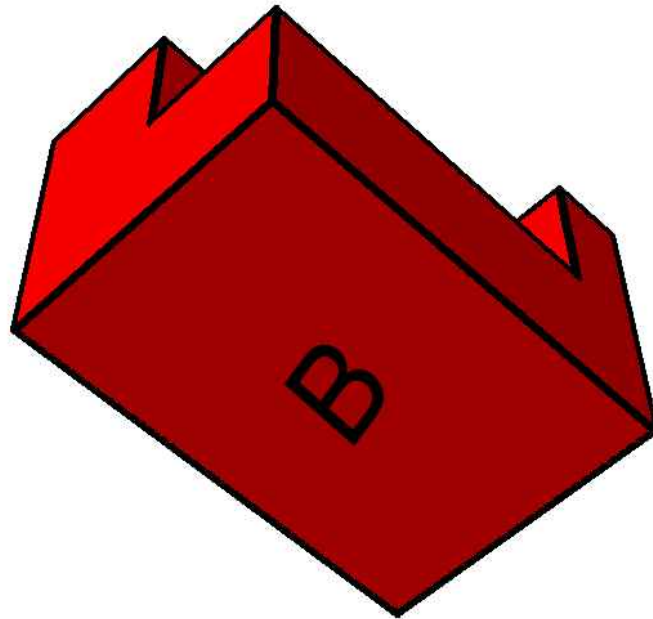


Example:



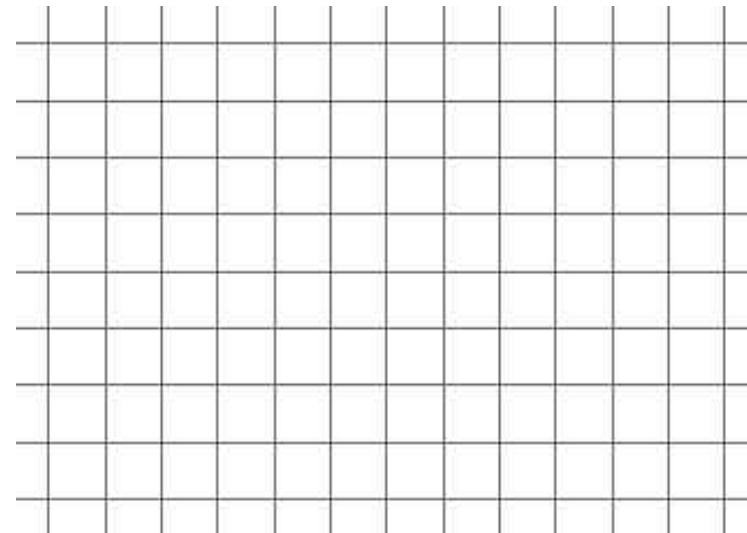
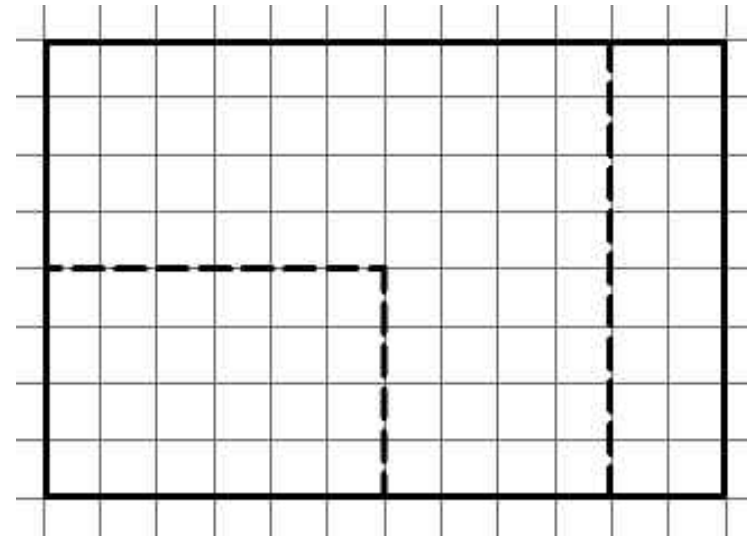
Here the edges that will be drawn with hidden lines are pictured in red. Because neither of them extends a continuous line, you can draw them all the way to the edges of the part.

Make your dashes about 5 mm long, but always uniform in size. Notice also that the hidden lines intersect at a "T" intersection. All hidden lines that intersect create an "L," "T", or "+" intersection depending on the number of lines involved.



The last side of the part to draw is the bottom. There is very little detail on this side, so many of the lines will be hidden. Draw the bottom of the part following the example, using the same dimensions as before.

Example:

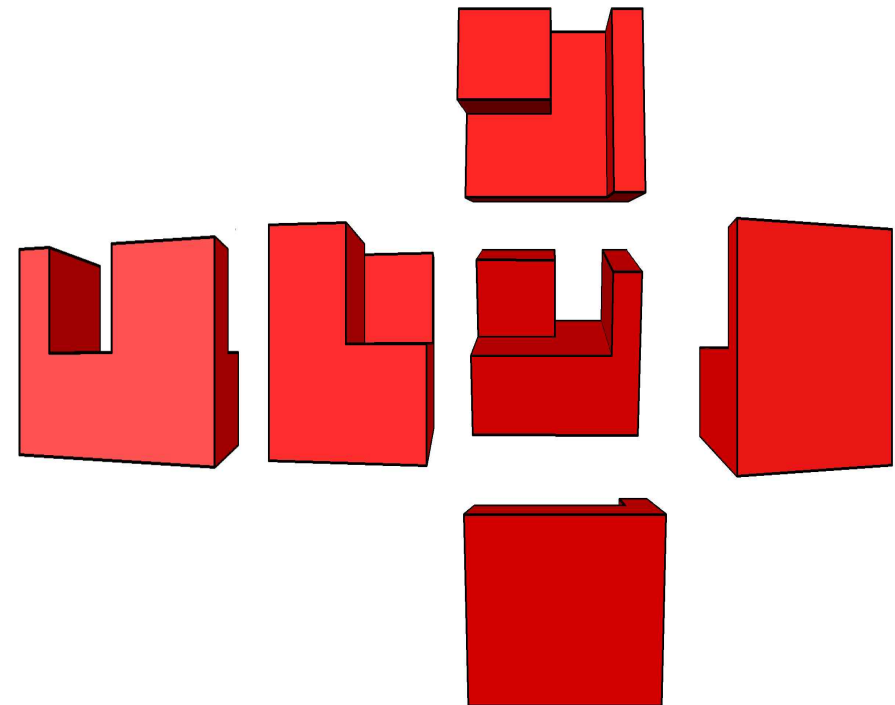
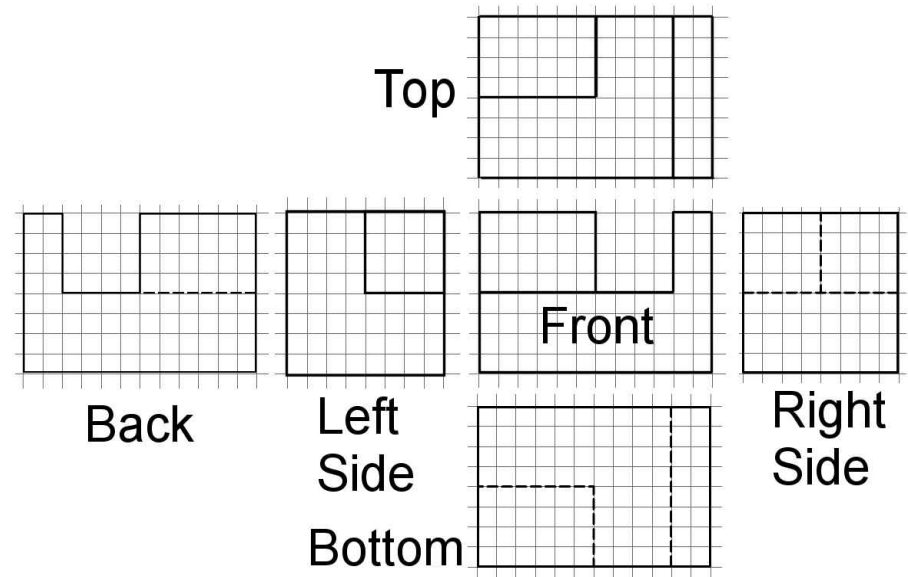


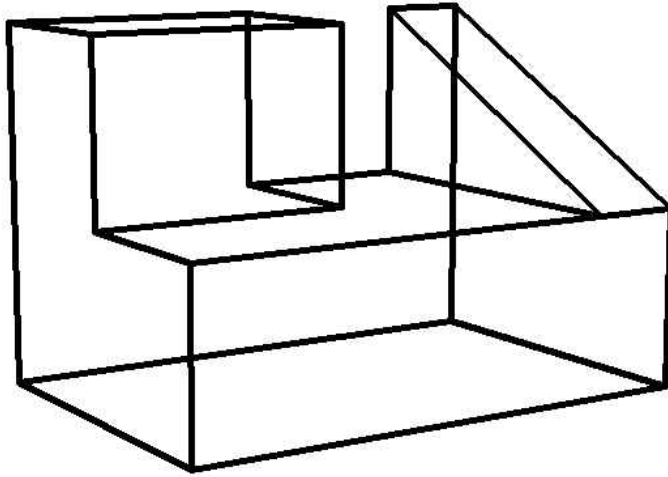


By drawing all six sides of the part, you have recorded enough visual information for the machinist to accurately manufacture the part.

The six drawings you have created are more commonly known as the SIX ORTHOGRAPHIC VIEWS. By drawing any part from the front, back, top, bottom, left, and right side, you can store almost all the information about its construction.

However, in many cases, not every view is needed to convey the necessary information about the part. In general, try to draw the part with the fewest amount of views but with enough to show all of the details. In addition, when choosing views, those with less hidden lines are preferable to those with more. For example, to draw this part, perhaps the only views necessary are the front, top, and left side. In many drawings, only the front, top, and right side are used.





NOTES:

If only the top and front views were used, the part you have been drawing could be confused with something like this. Make sure you provide enough information to clearly define all the details of the part.

Now that you understand the concept of orthographic drawing, work on the next few problems until you are comfortable with drawing the six views.

