Assignment 3

Inventor

## Extruding A Notch

Objectives

When you complete this assignment you will:

1. sketch and create models that are 2" x 6" x 3".
2. sketch and dimension angle lines.
3. cut notched surfaces in the model using the cut feature of the extrusion command.
4. view and rotate three-dimensional models.

Getting Started

You will continue drawing models from Drafting Set 1. In both problems you will be working with notches that stop in the block. You will use the Extrude command from the features menu to control the depth of the cut on IN-3 and IN-4.

1. Launch Autodesk Inventor Professional 2016 and launch the Standard .ipt template file. Create the same standard model that is 2" x 6" x 3".

2. Left-click the right side view to create the new sketch. You will notice the surface changes colors.

3. Right click and select new sketch. If the view did not rotate to a two-dimensional view, select the **Look at** icon on the Standard Toolbar. Again left click the right side view and the view should rotate to a two-dimensional view of the right side view.

Select Look At.
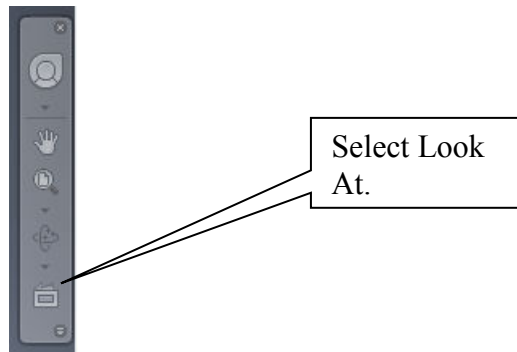
4. The rotated two-dimensional view should have graph lines for editing.
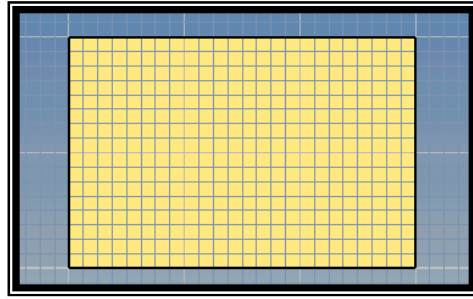
5. Select the **Line tool** from the Sketch menu and draw an **angle line** that intersects the left **vertical** line and the top **horizontal** line. Do not be concerned with accuracy at this time but be sure that they connect to the two lines.

Angle line
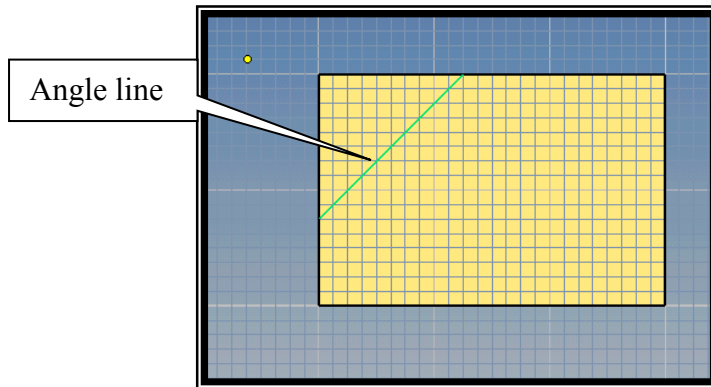
6. If you look at the drawing of the Chamfered Block IN-3. You will notice that the angle does not extend completely to the end of the block. The angle is 45 degrees for the chamfer. It is one inch in from the corner of the object both directions. You are going to dimension the line by locating the angle first.

7. First select the **dimension tool** and then select the angle line and the left vertical line. Move the mouse between the two lines and left click. The **angle** should appear.

Select Vertical line second

42.00

Position dimension third

Select angle line first
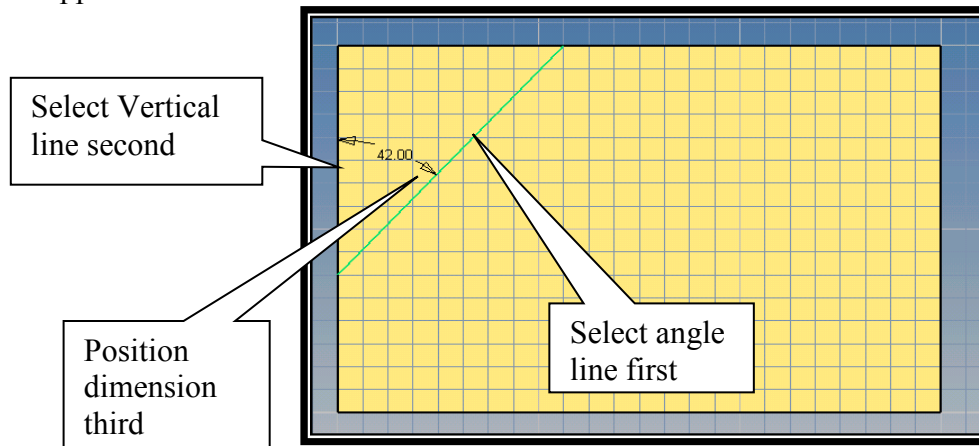
(Remember to edit the angle to 45 degrees)

8. You will now dimension the top horizontal line from the angle line to the right side of the object.

First dimension point

Second dimension point
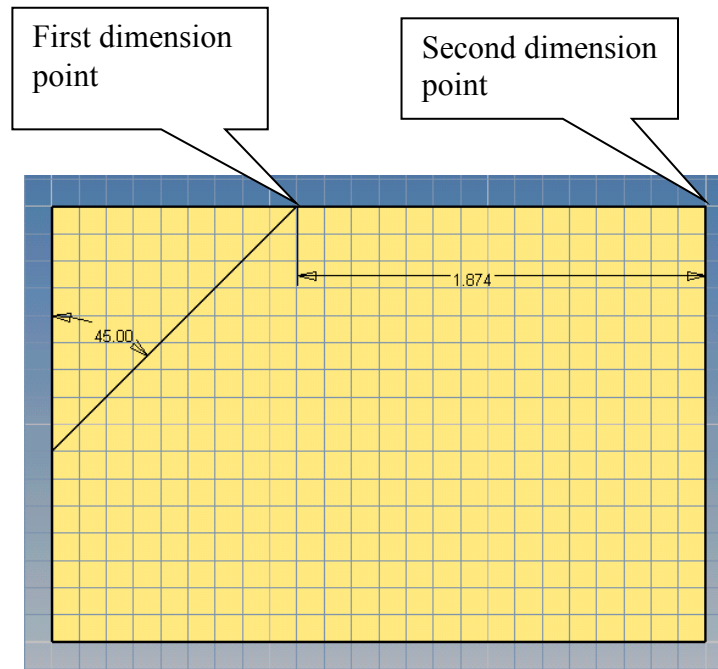
9. **Edit** and **change** the dimension to 2". Right-click the drawing and select done. **Rotate** the drawing into the isometric view.
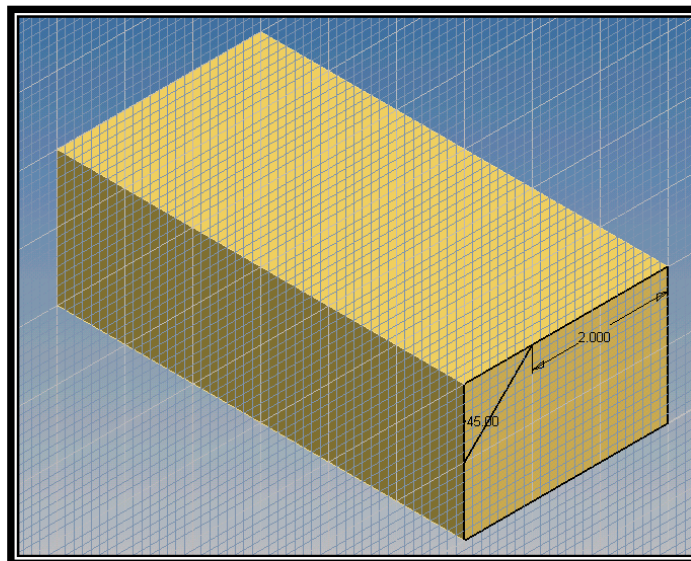
10. Select the **Extrude** command from the Features menu. Study the drawing of the Chamfered Block IN-3 from Drafting Set 1. **Select** the **angled surface** on the sketch and make the following edits. **Extents distance of 4"**, select the cut icon, and **select the correct direction** as illustrated:
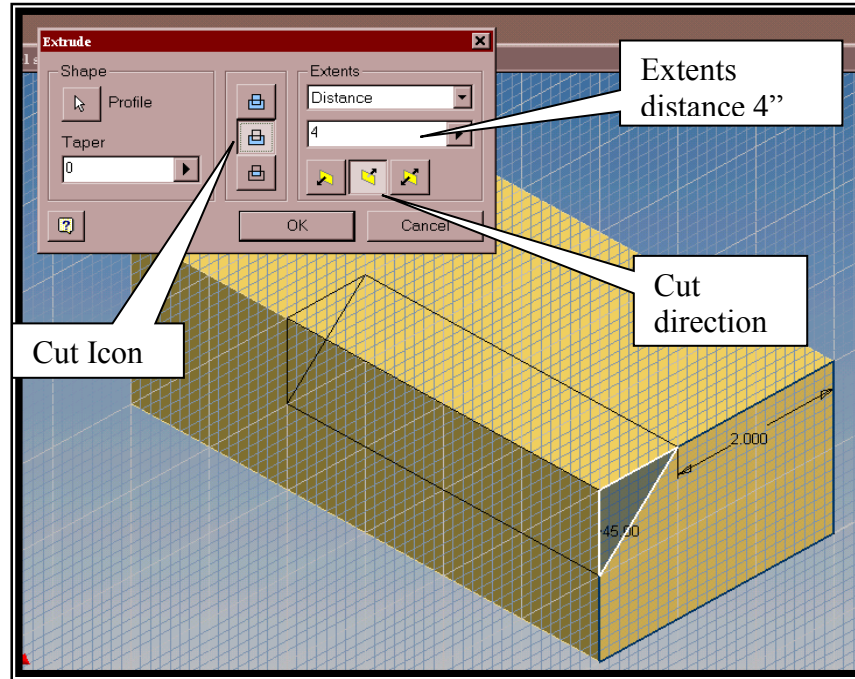
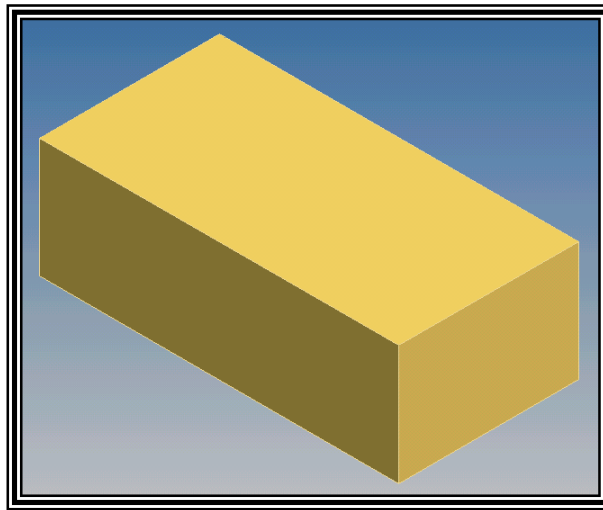11. When you click OK the model should be completed as illustrated:
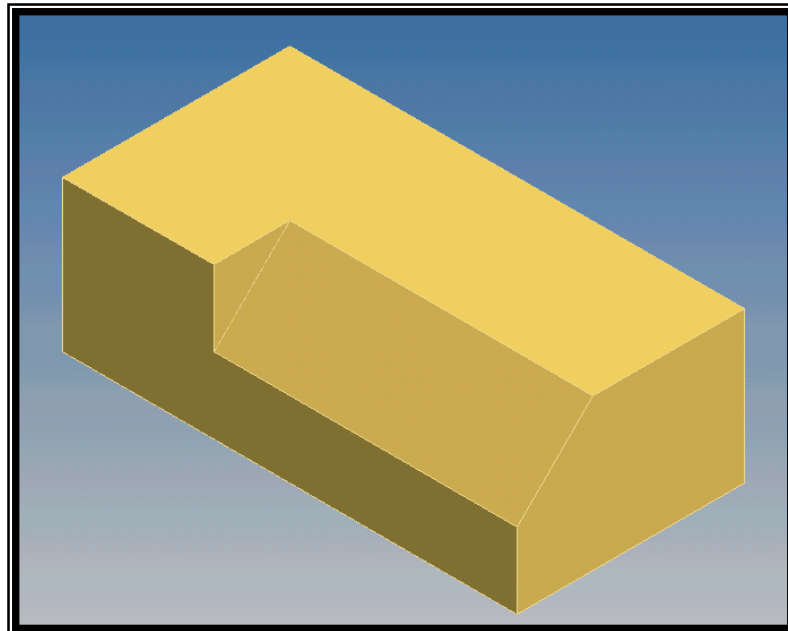
12. **Save the model as IN-3**(Last Name, First Initial) (Pd) in your server folder.

Preparations for the Notched Block IN-4

This problem will be a continuation of the skills learned in Assignments 1-3. You will create the block that is 2" x 6" x 3" the exact same way that you did in the previous activities. When the solid model block is finished, you extrude the right side view of this problem.

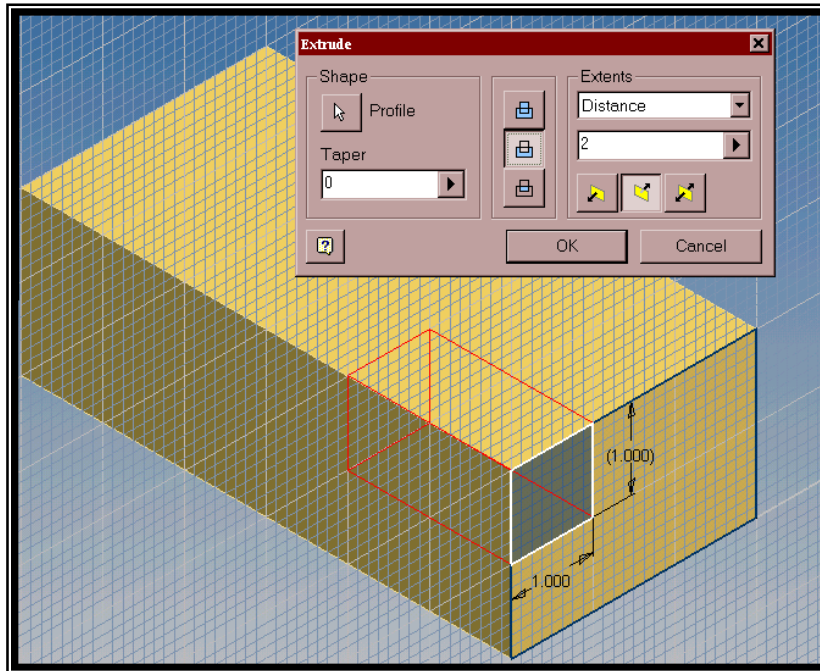1. Draw the problem the same way as done in previous assignments.

2"x 6"x 3"

2. Select the right side view and draw the following lines. The final dimensions should be as illustrated below:
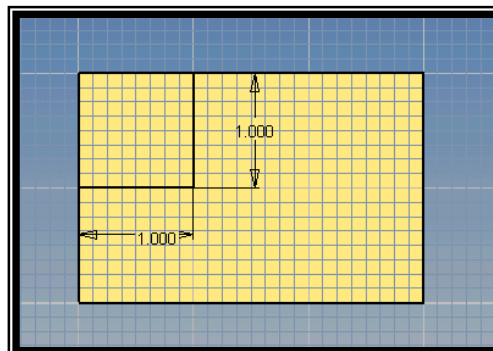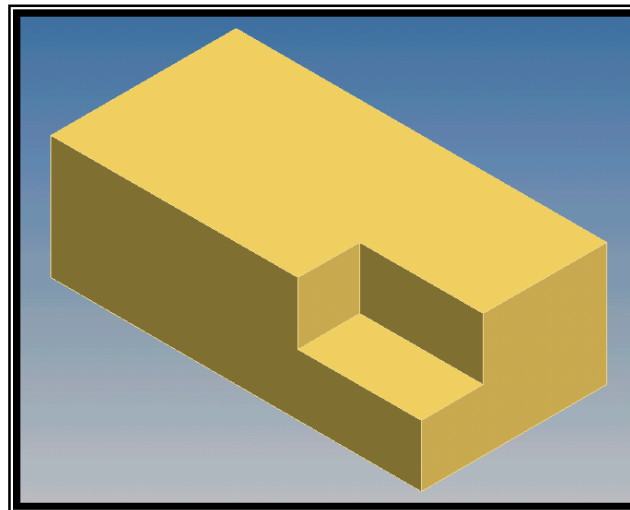

Right Side View

3. Extrude the model with the selected settings as illustrated:

4. When you click OK the model should be extruded as illustrated:

5. Save the file as IN-4(Last Name, First Initial) (Pd). Each problem will continue to add to your problem solving skills.

What Do You Know?

Review Questions at this time.

1. True or False? Inventor can dimension angles with ease.

2. True or False? The extrude command must cut through an entire model.

3. The drawings you completed in this activity should have been saved as:

    a. IN-3 & IN-4   b. block 1 & block 2
    c. IN-5 & IN-6   d. My Blocks

4. The angle for the chamfer on drawing IN-3 is
    a.   15 degrees
    b.   30 degrees
    c.   45 degrees
    d.   60 degrees