Topics covered in this Lesson:

Putting the concepts into practice

There is only one way to get better at AutoCAD and that is to practice. In 3D, you not only need to know the commands, but also how best to use them. As you start drawing in 3D, you may start looking at everyday objects and think about how they would be drawn. Look at the sample drawing page and think about how they were done - using only the commands shown in this level.
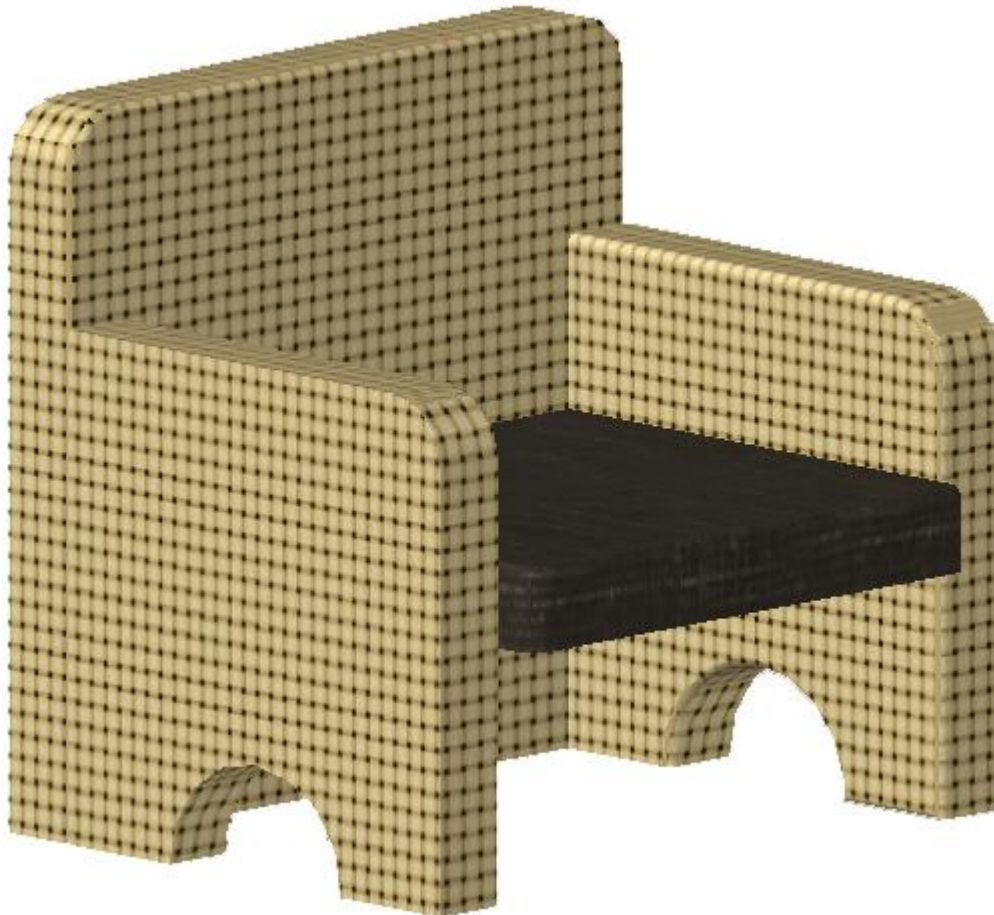
EXTRA PROJECT - A

If you have finished the previous exercises and would like more practice, try this:

Sketch out a simple coffee table on paper. Add the basic dimensions. Draw this in AutoCAD using any 3-D method. Once you've done this, draw another lamp and place it on the table. Use `rotate3d` if you need to turn it right-side up. Find a good view to display what you have drawn. Add materials.

EXTRA PROJECT - B

Take your file from **Lesson 3-7** that gave you a solid model and use the fillet and chamfer commands to add some smoother corners to your chair.

EXTRA PROJECT - C

Draw the object that you draw in the **isometric** lesson in 3-D using extruded regions. You will have to first create the outline, then the circle. Turn both objects into regions. Subtract the circle from the outline to have one remaining region. Extrude this to get your solid object.

TUTORIAL - CREATING A 3D OBJECT FROM A 2D PROFILE

For this tutorial, you should be familiar with these commands: `region`, `extrude`, `union`, `subtract`.

This tutorial shows you a method for quickly turning 2D shapes into 3D objects. One of biggest problems with 2D objects is that they are not always drawn properly. This is something that should have been addressed when it was first drawn, but here is a way of working around it.

First lets start with a basic shape (remember the array command). This is the profile for a gasket. It is drawn in 2D with lines, arc and circles.
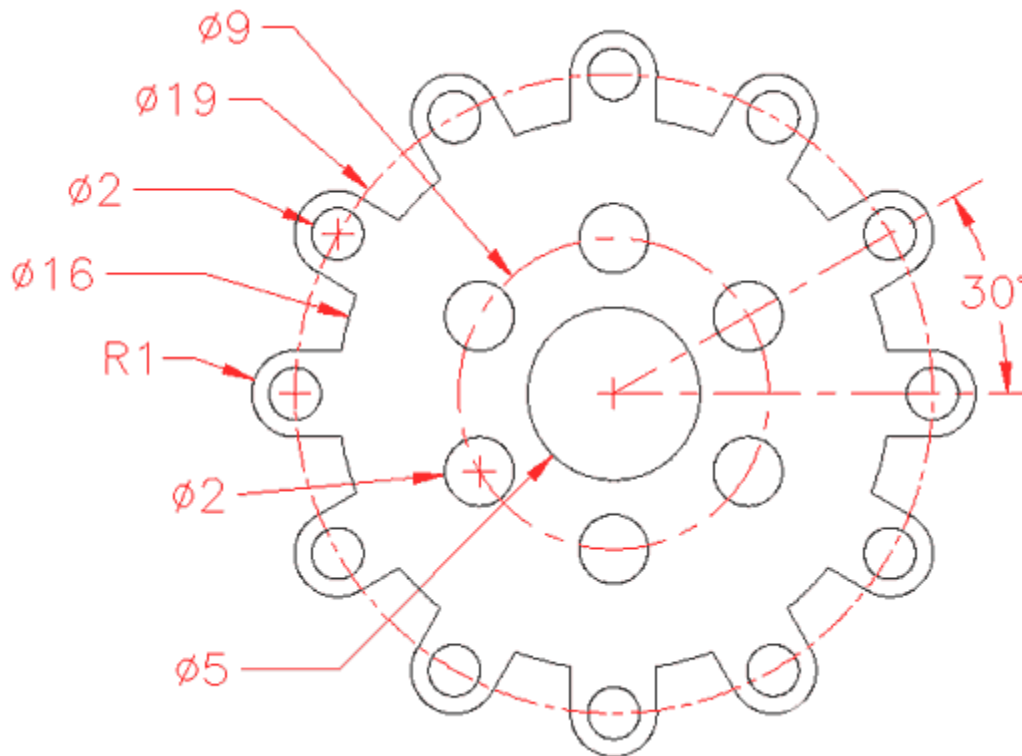
Let's hope it was well drawn, meaning no overlapping lines, gaps, etc. **Copy** the objects over to the side for the next section.

Here is how you turn it into a 3D object easily. Start the **REGION** command. Draw a crossing window around the whole area and press enter. Once you have your regions created, you can extrude them. Start the **EXTRUDE** command and select all objects. Press enter and enter your extrusion height and taper angle. When these are extruded, begin your **SUBTRACT** command and first select the larger object first (to be subtracted from), press enter then select all the other objects and press enter. When you change to your SW Isometric view, type in **HIDE** (enter) and you should see the object as shown below.
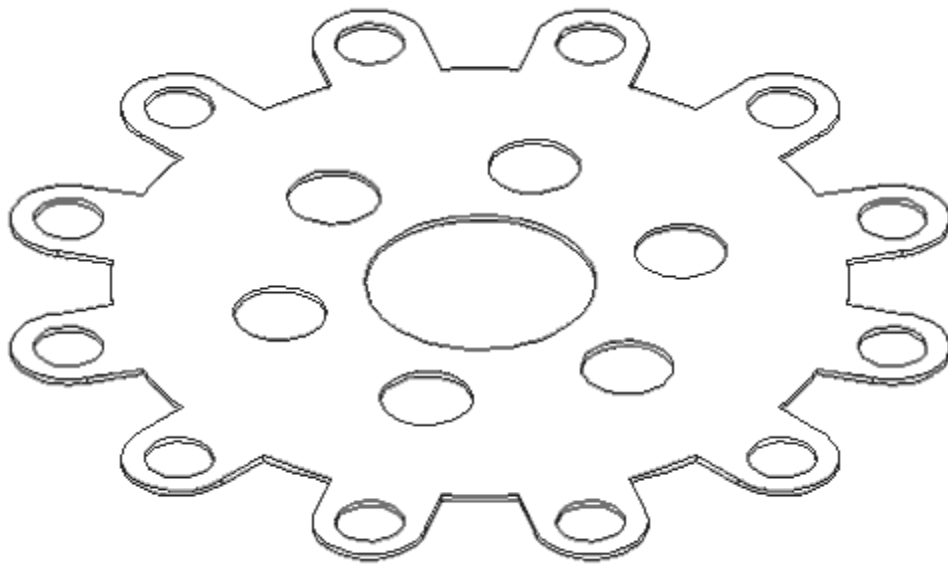
Remember that you can always work in your SW Isometric view to see the progress of your 3D work.

There is one problem when using the **REGION** command. If have two lines that are overlapping, AutoCAD can not make a region out of the objects. You could search until find the offending line, but there is an easier way. Here's this approach:

Now look at the copy of the shape that you made you earlier. Instead of using the region command, use the **BPOLY** command. This command works similar to the **HATCH** command in that it finds the boundaries for you. Start the command and you will see this dialog box come up:
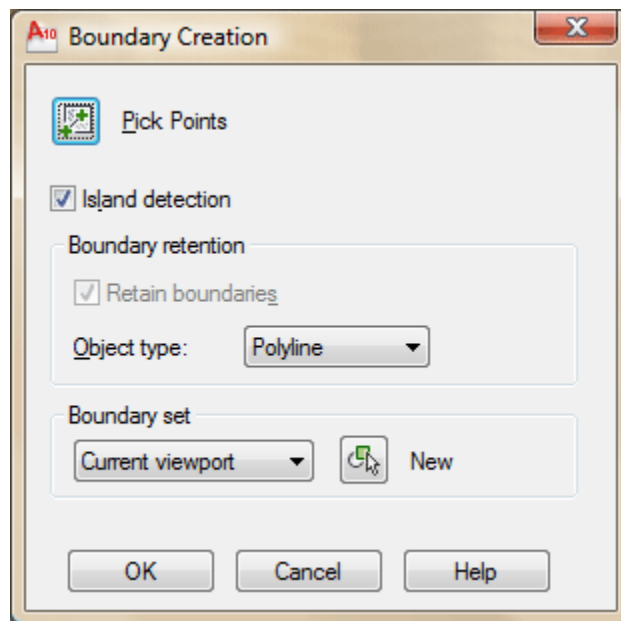
Accept the defaults and press on the **Pick Points** button. In your drawing screen, pick an internal point as if you were hatching it and

then press enter.

Now start your **EXTRUDE** command and select the last (L) object created and extrude it. Now begin the **SUBTRACT** command and select the outside object, (press enter) then use a crossing box to select everything else and press enter. Use the **HIDE** command to ensure that everything is as it should be.