SURFACE MODELING

Mesh & Surface Modeling:

Surface model is creating a skin on an object. It can be compared with building physical models by using thin layers, such as balsa wood. You can apply material properties and shading on surface models.
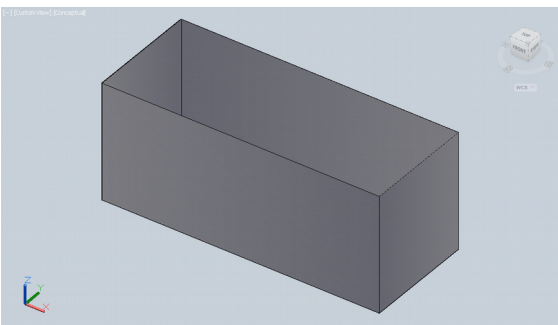
Mesh and Surface Modeling Commands:

- 3DFace
- Tabulated Mesh
- Ruled Mesh
- Revolved Mesh
- Edge Mesh
- Planesurf
- Surfnetwork

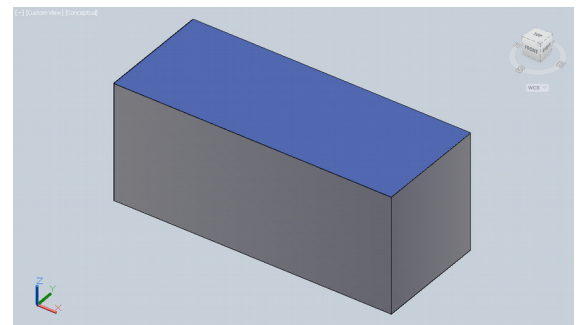## 3DFace:

The simplest form of a surface in AutoCAD is a 3DFace. The 3DFACE command is used to create 3DFaces. 3DFaces are flat surfaces with 3 or 4 straight edges.

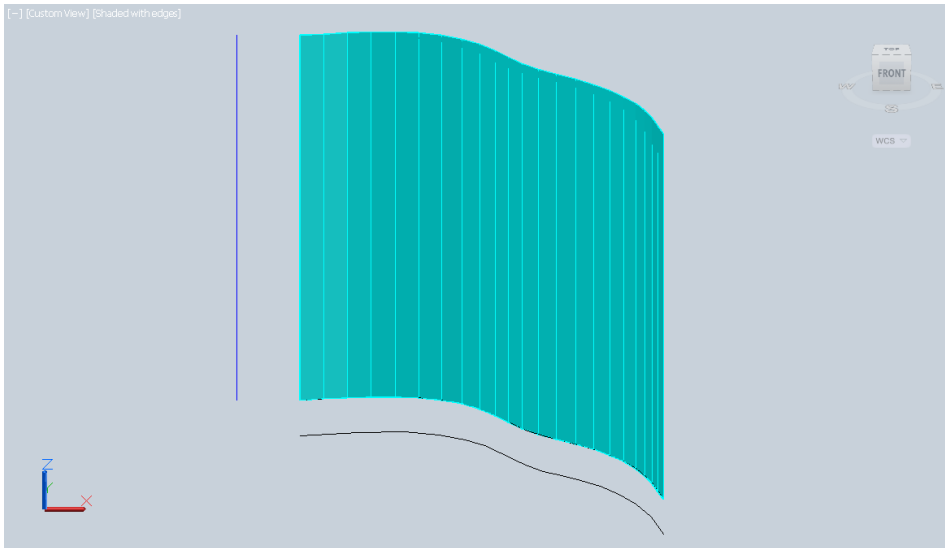A rectangle given thickness, top and bottom are open.

3DFace added to the top, gives the effect of a solid.

Tabulated Mesh "*TABSURF*" (Tabulated Surface):

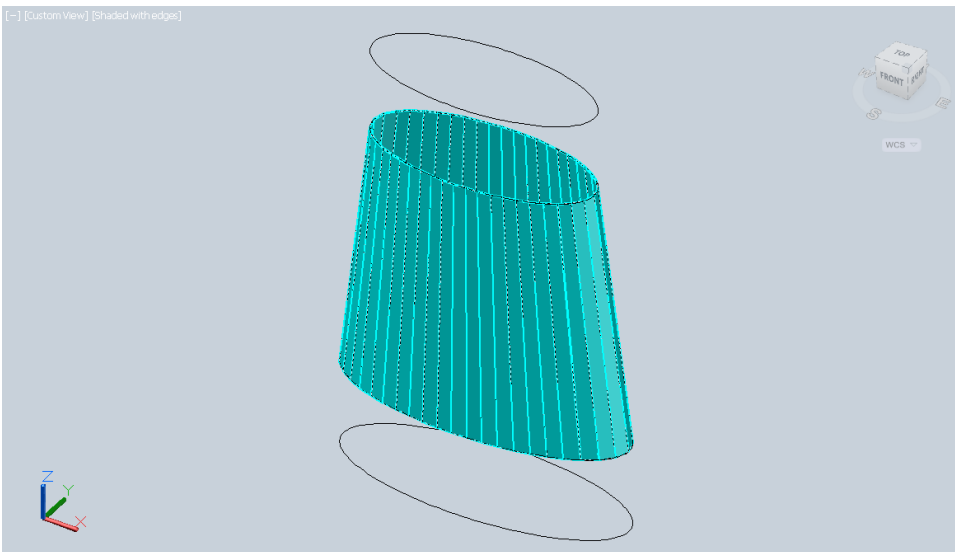**TABULATED MESH builds a surface with the help of a path curve and a vector.**

The Pline on the ground is the path curve, a vertical line the direction vector.

Surftab1 and Surftab2 are system variables, which control the density of a created Mesh.

Ruled Mesh "*RULESURF*" (Ruled Surface):

RULED MESH connects 2 curves (objects) with a 3DMesh.
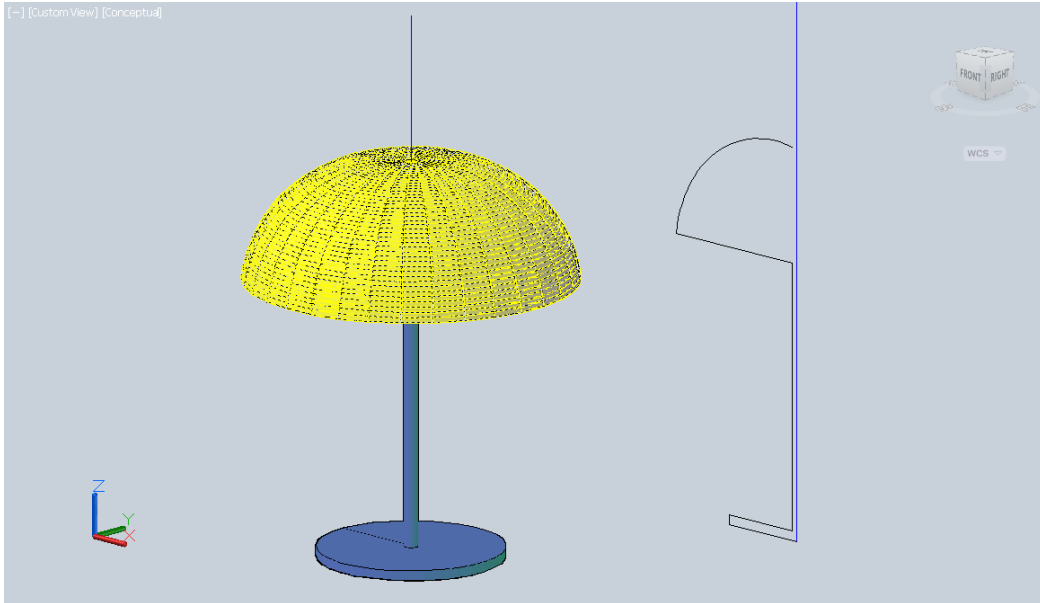

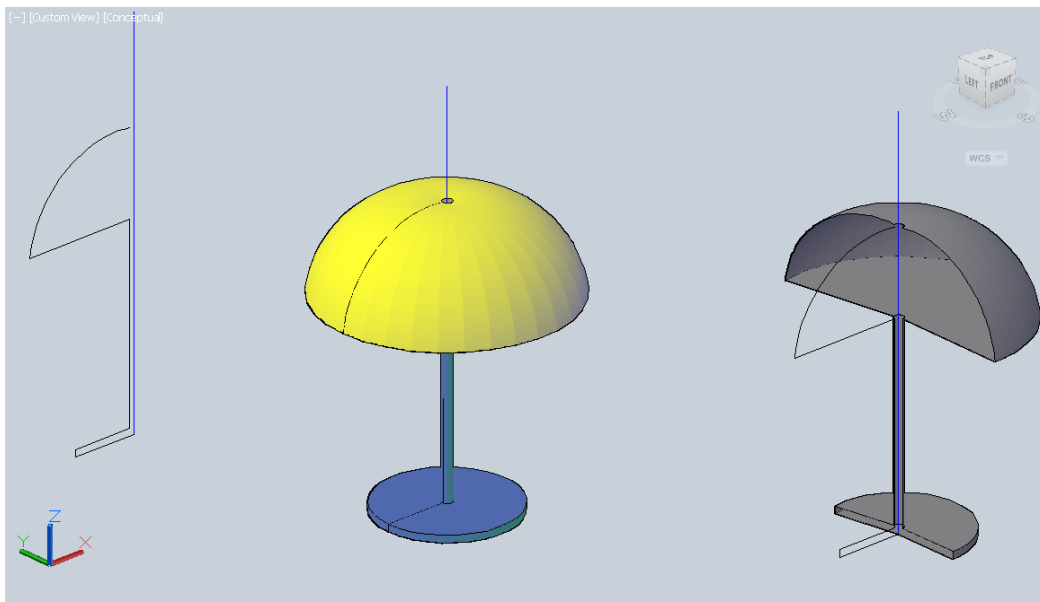Ellipses are the defining curves; in between wish the surface appears.

Revolved Mesh "REVSURF" (Revolved Surface):

The REVOLVED MESH command enables you to create a surface, based on the revolution of a curve about an axis. The curve can be a line, spline, polyline, arc, circle, ellipse, or elliptical arc.

The blue, vertical line is the axis of revolution.

Start and end angle of the revolved surface can be changed.

Edge Mesh "*EDGESURF*" (Edge Surface):

The EDGE MESH command is one of the most powerful mesh creators. The command constructs a polygon mesh on four adjoining curves. The curves can be lines, arcs, splines, 2D polylines or 3D polylines. The curves must touch at their endpoints to form a closed path.

Surface - Mesh Primitives:

With predefined 3D objects you can create some 3D geometrical shapes such as box, wedge, sphere, cylinder, torus, pyramid, cone.
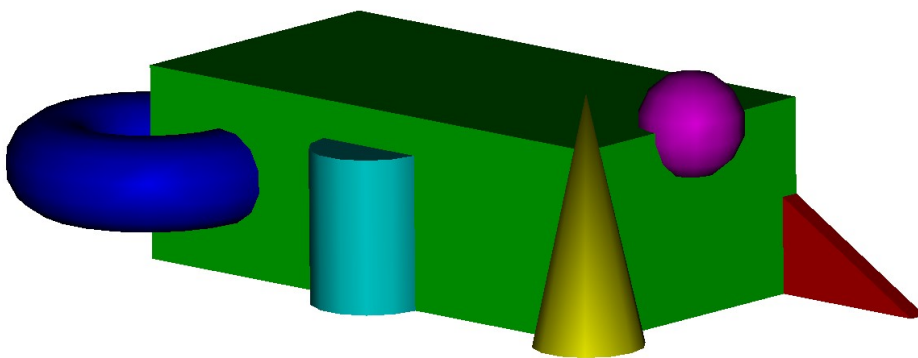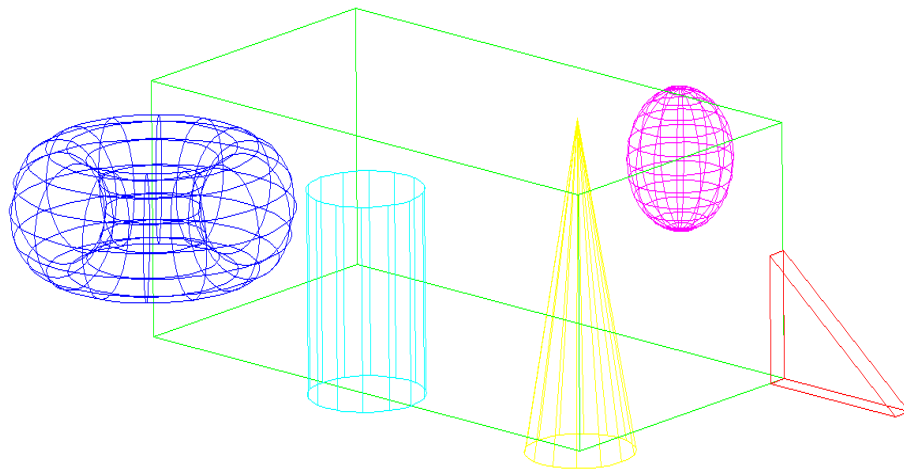
Vports:

Tiled viewports are applicable to Model space. Viewports enable you to view the models from different view points at the same time. Various display settings such as snap and grid spacings, zoom factor and shade modes can be applied to each viewport differently. Only one viewport can be active at a time, that is the one with a bolder border and where the crosshairs appear. You can switch from one viewport to another while a command is still activ.
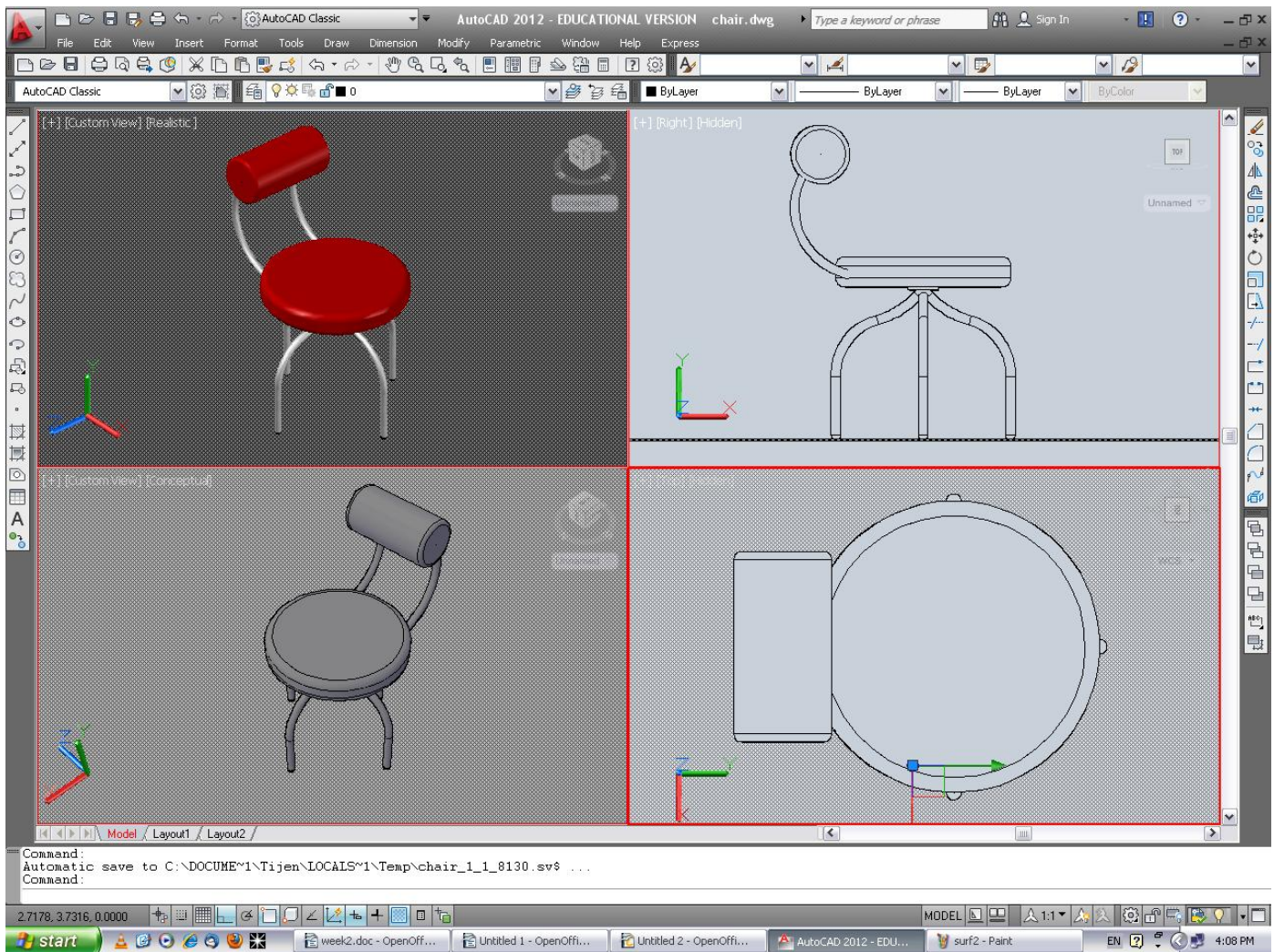
Use the viewports dialog box to create multiple viewports configurations.

With the *VIEWPORTS* command the entire drawing can be displayed in one port, in the other ports zoomed-in views or smaller sections of the drawing can be displayed.

Planesurf:

The PLANESURF command creates flat 3D surfaces.

You can create a planar surface through either of the following methods:

- Specify the opposite corners of a rectangle through the command.

- Select one or more objects that form one or more enclosed areas.

Surfnetwork:

The SURFNETWORK command creates a surface in the space between several curves in the U and V directions.

SurfV and SurfU are system variables, that control the density of created Surfaces.

led with edges]
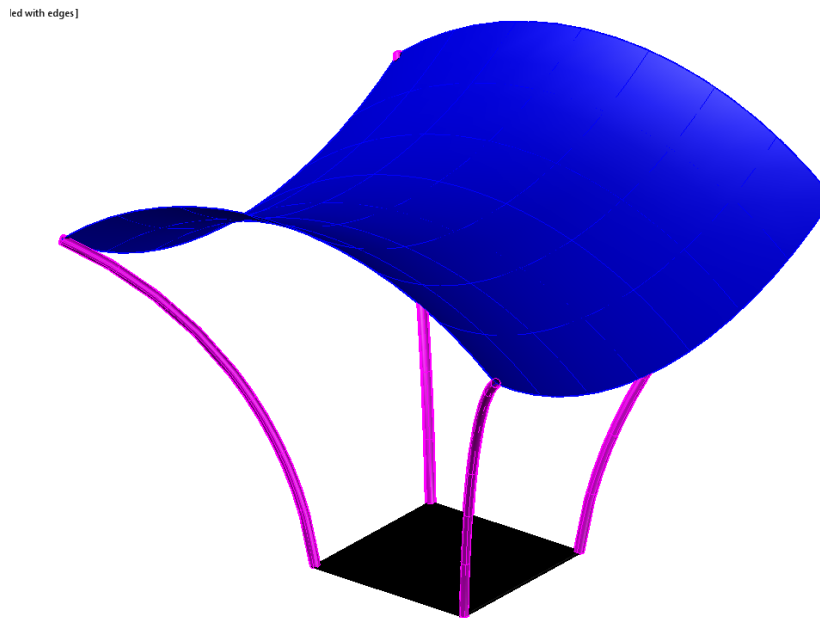
The Planesurf command was applied at the bottom, creating a square.

The Surfnetwork command was applied on the roof, using arc segments as curves in the U and V direction.