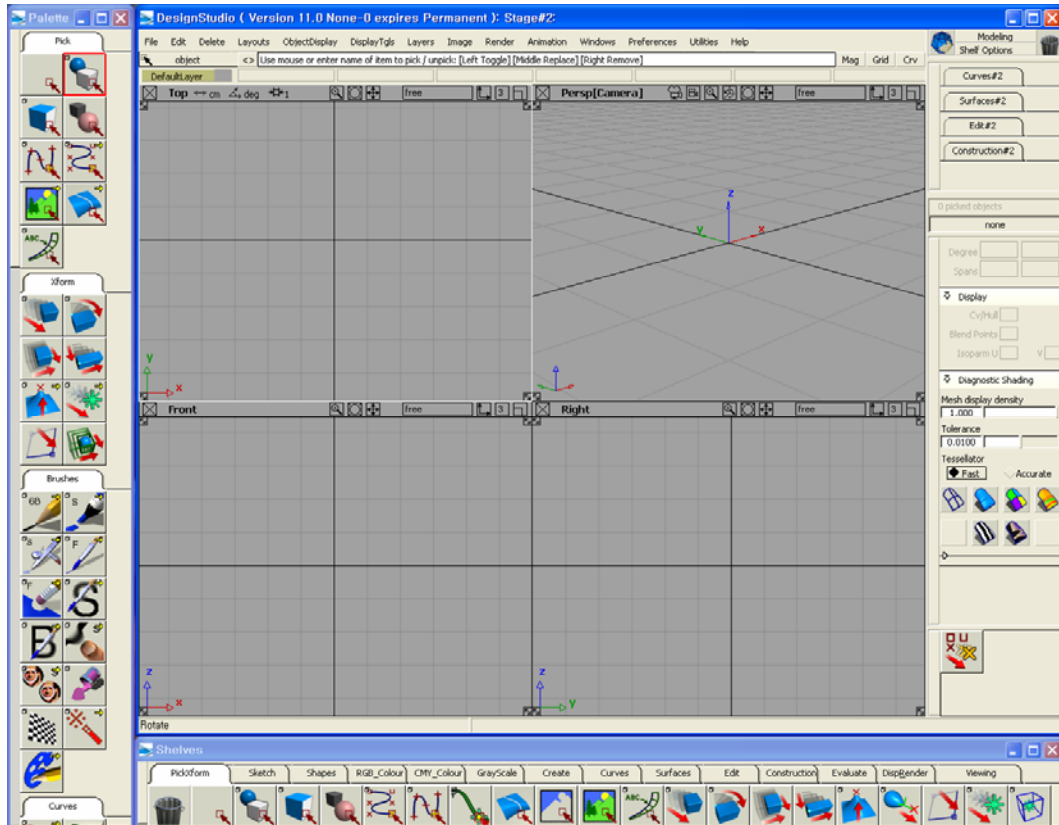


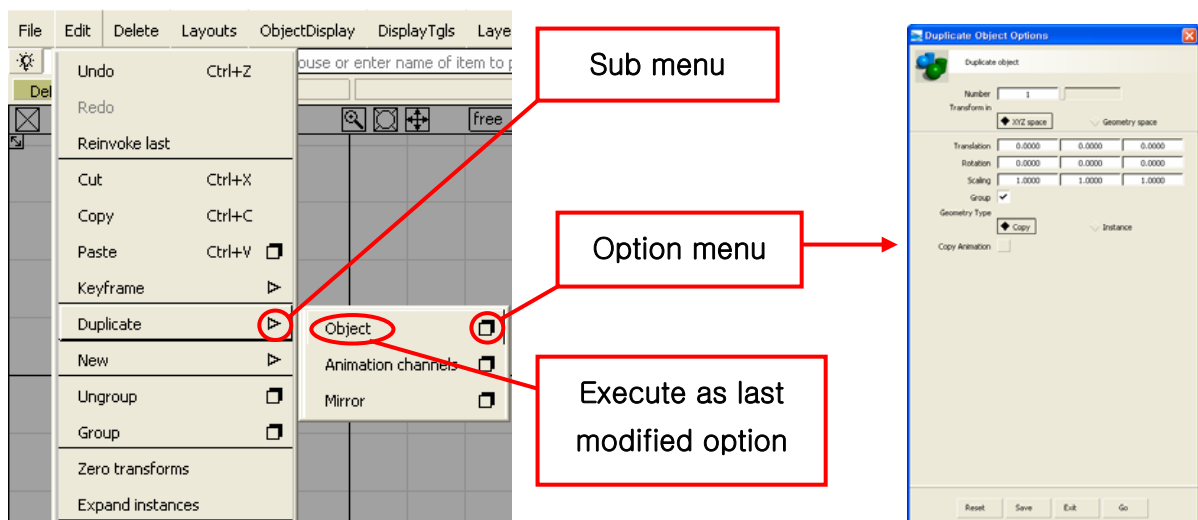
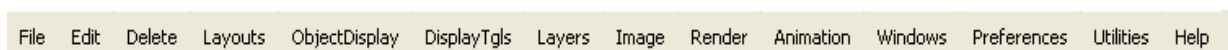
# Alias Studio Tools Exercise I

## 1. Interface



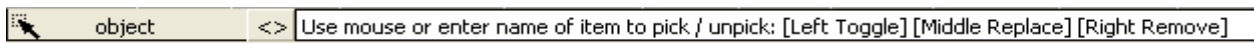
< Interface of Alias >

### (1) Menu bar



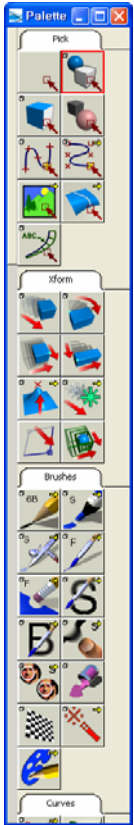
< sub and option menu of each menu >

## (2) Prompt Line



Display notice or warning message. Input some dimensions directly.

## (3) Palette



To open or close: Click: Menu bar→Windows→Palette

**Pick:** tools for picking

**Xform:** tools for moving, rotating, scaling, etc

**Curves:** tools for making curve

**Curve Edit:** tools for editing curve

**Objects:** tools for making some objects

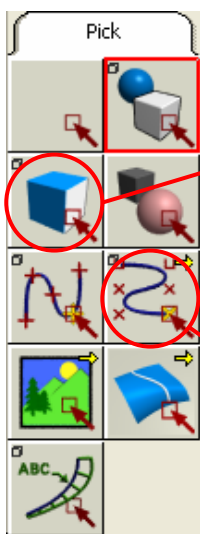
**Object Edit:** tools for editing object

**Surface:** tools for making surface

**Surface Edit:** tools for editing surface

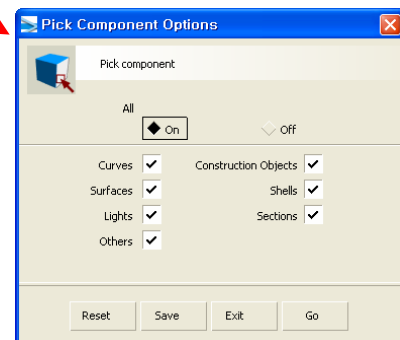
The Yellow arrow on upper light side of each button means that the button has some sub buttons. The sub buttons can be seen by right button click of mouse.

The box symbol on upper left side of each button means that the button has an option menu.



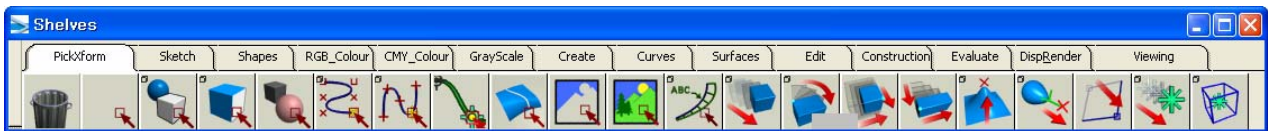
Double click to see  
option menu

Mouse right click to  
see sub buttons



< Sub buttons and option menu of palette buttons >

#### (4) Shelves



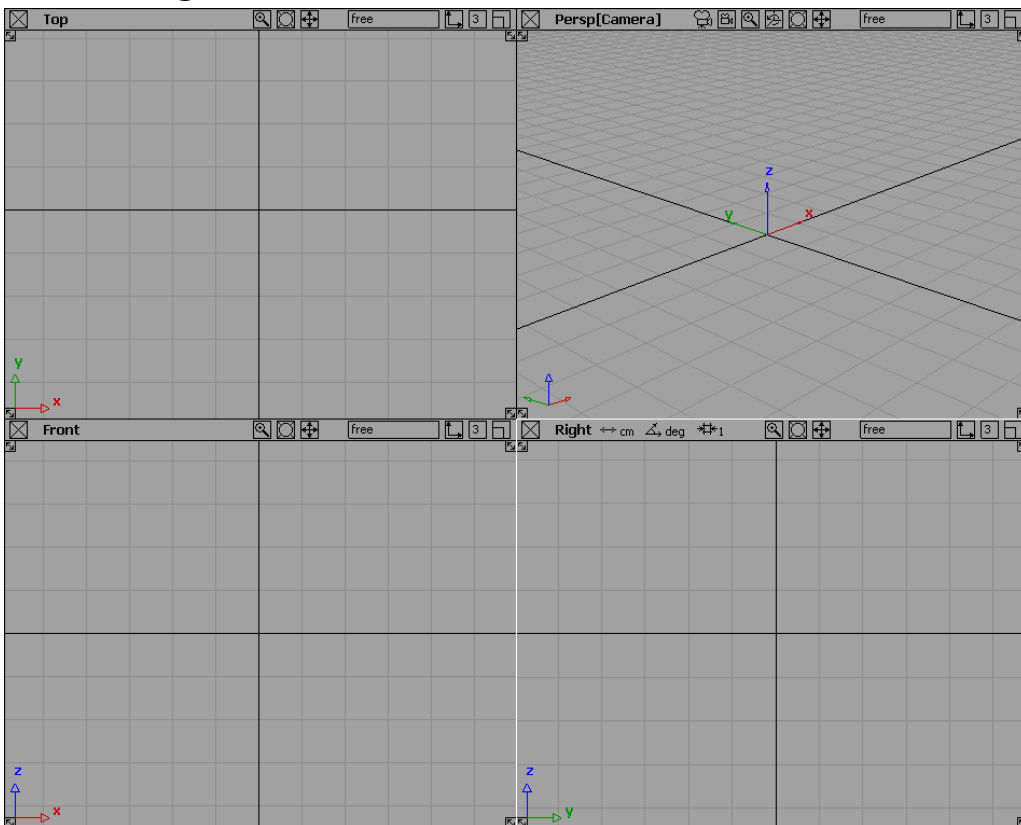
Tools used very often can be gathered on shelves from palette and menu.

Open or close with Menu bar→Windows→Shelves.

To add a tool to shelves, drop it down to shelves with middle button of mouse clicked.

To delete a tool, drop it down to trash can in shelves with middle button of mouse clicked.

#### (5) Modeling Window



Adjust position and size on Menu bar→Layout

Controls are as follows.



Close



Zoom selected section



Select resolution



Set resolution manually



View change

**Rotating**

Shift + Alt + left button of mouse

**Zooming**

Shift + Alt + right button of mouse

**Panning**

Shift + Alt + middle button of mouse

## (6) Layer



Can manage each layer independently from others

To make new layer: Menu bar→Layers→New

Can change layer name with double click

To delete a layer: Menu bar→Layers→Delete

## (7) Diagnostic Shading



Instant shading for check the surface on modeling

## (8) Snapping



Snap cursor to special position when drawing curves

**Mag:** Snap to the nearest point. Ctrl key has the same function.

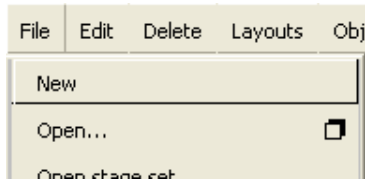
**Grid:** Snap to the nearest grid on modeling window. Alt key has the same function.

**Crv:** Snap to the nearest curve. Ctrl + Alt key have the same function.

## 2. Modeling of steering wheel

Make new project.

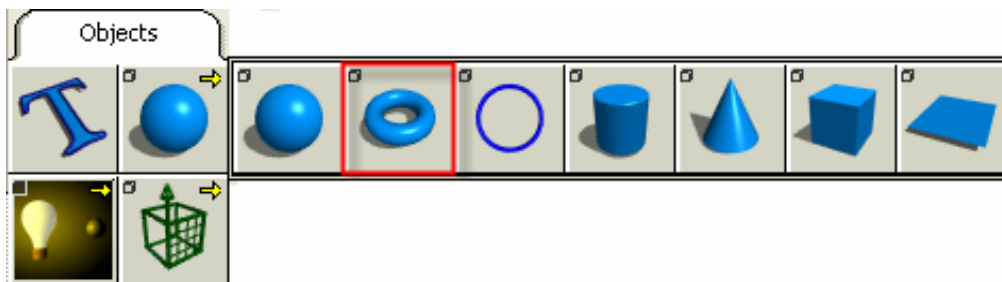
Click: Menu bar→File→New



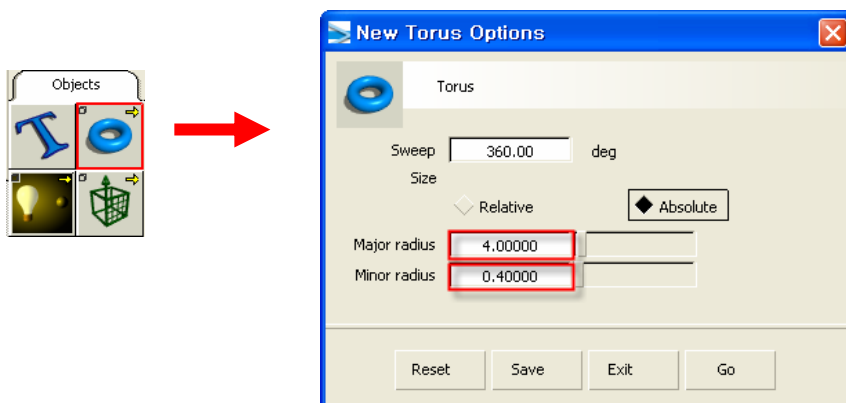
Save it as many-time as possible. Because undo function does not work in many cases in Alias

Make a torus.

Click: Palette→Objects→Sphere (right click)→Torus



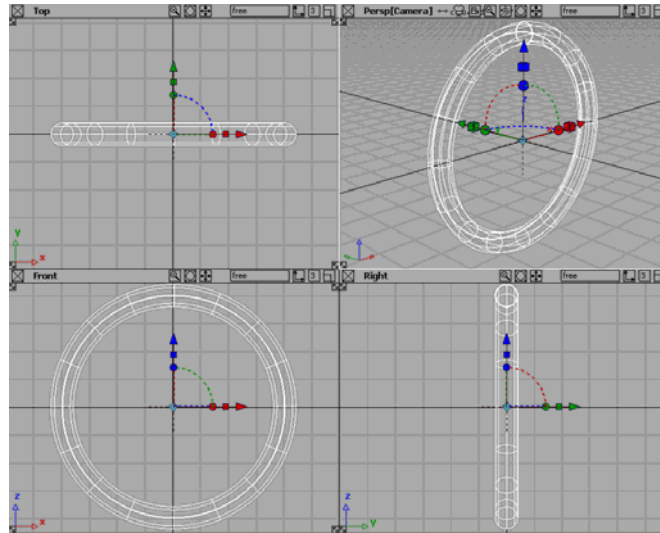
Double Click: Torus→Set radius in option menu→Go



Minor radius: radius of the section

Major radius: radius of the circular trajectory

Click: the center of front view



< torus >

Click: Palette→Pick→Pick Nothing



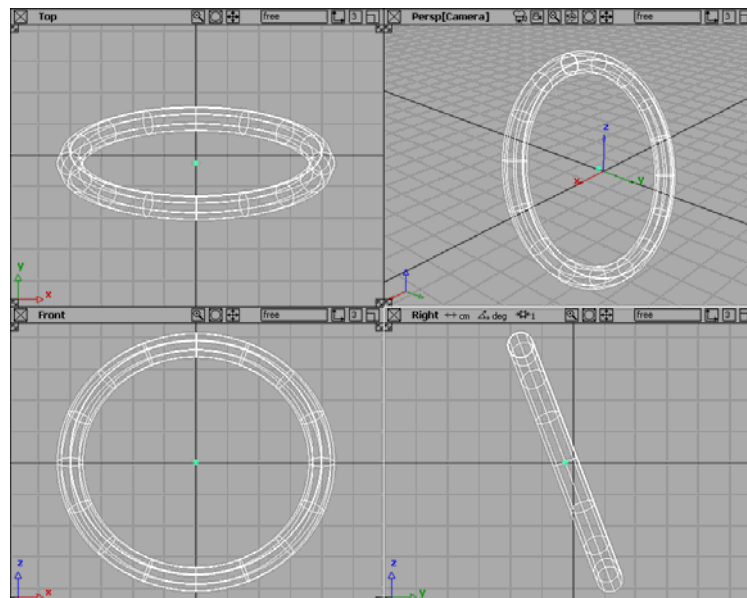
Click 'pick nothing' to escape from a certain mode.

Click: Palette→Xform→Rotate



Select: torus

Rotate with X-axis.



< Rotating torus >

Click: Pick Nothing

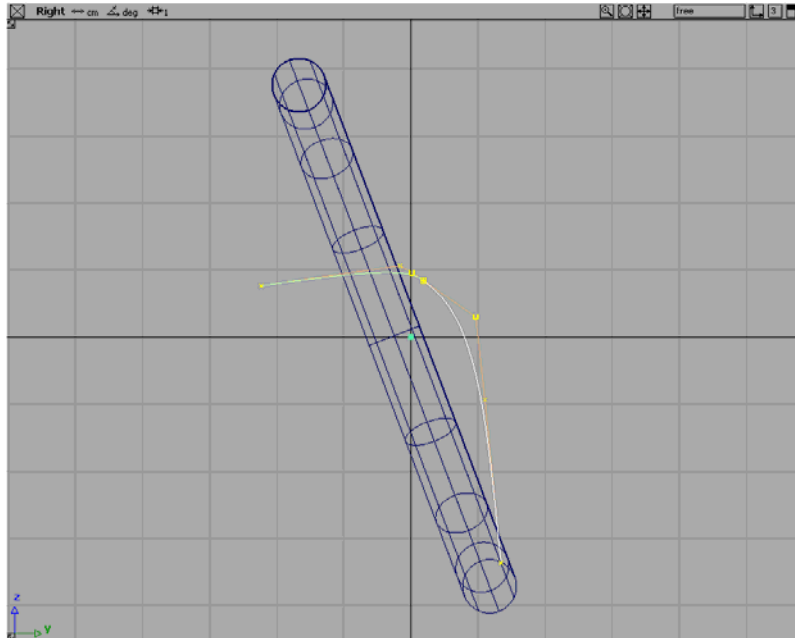
Now, modeling inner part

Click: Palette→Curves→New curve



View: Right

Draw two joined curves



< Two joined curves >

Click: Pick Nothing

Click: Palette→Object Edit→Align



Select: Two curves

'Align' makes two curves have same slope on the joined spot.

Click: Pick Nothing

Click: Palette→ Pick→ Pick Component



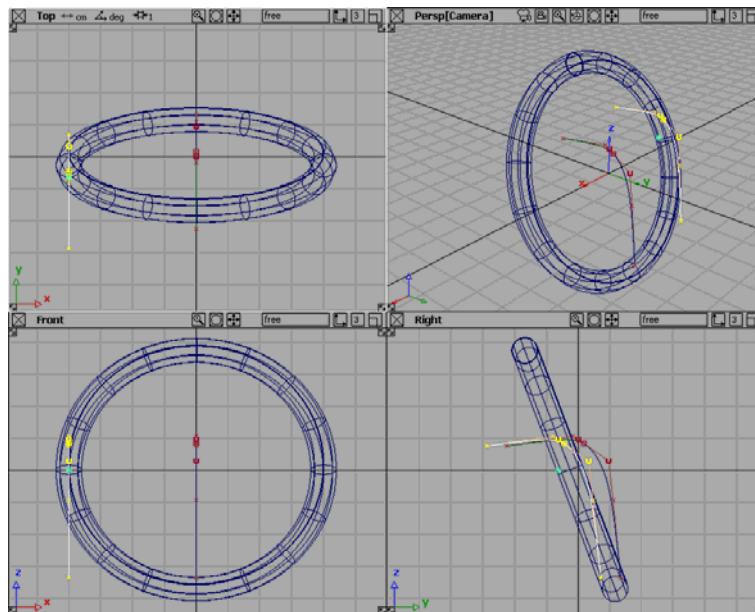
Select: Two curves

Keyboard: Ctrl + C→Ctrl + V(Copy curves)

Click: Palette→Xform→Move



Move using key-board or mouse on appropriate view. Move left or right until it meets the trajectory of torus. Then move to -Z direction a little.



< Copy and move curves >

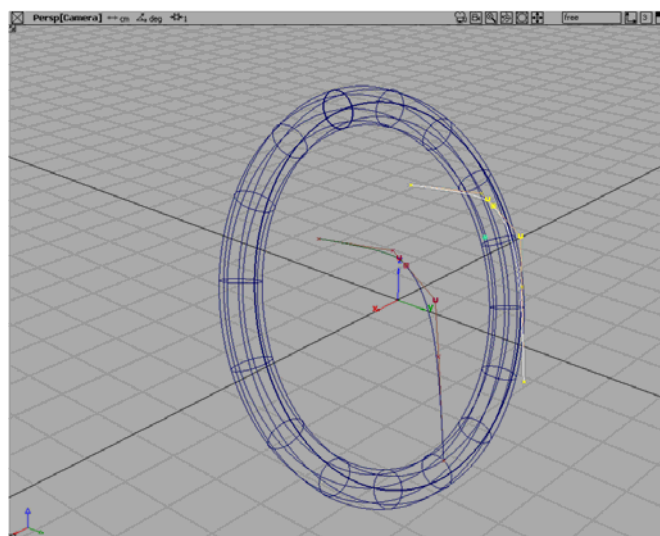
In Alias, to move the selected object horizontally, drag it with middle button of mouse clicked. And to move it vertically, drag it with right button of mouse clicked. For free dragging use left button.

Click: Pick Nothing

Now, duplicate curves to opposite side.

Click: Pick Component

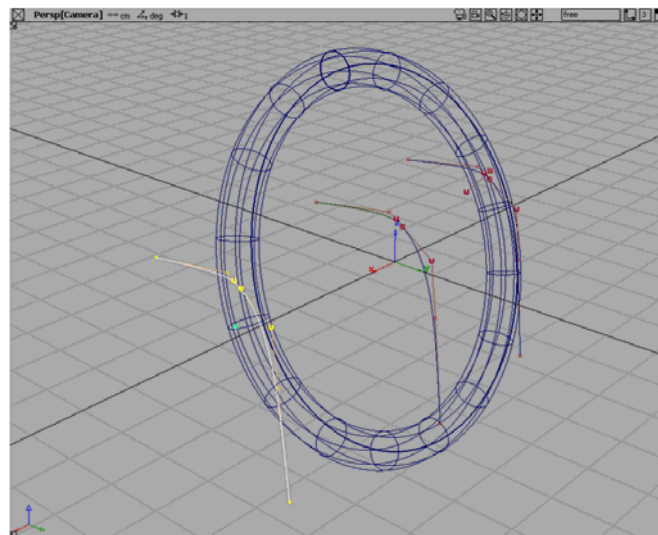
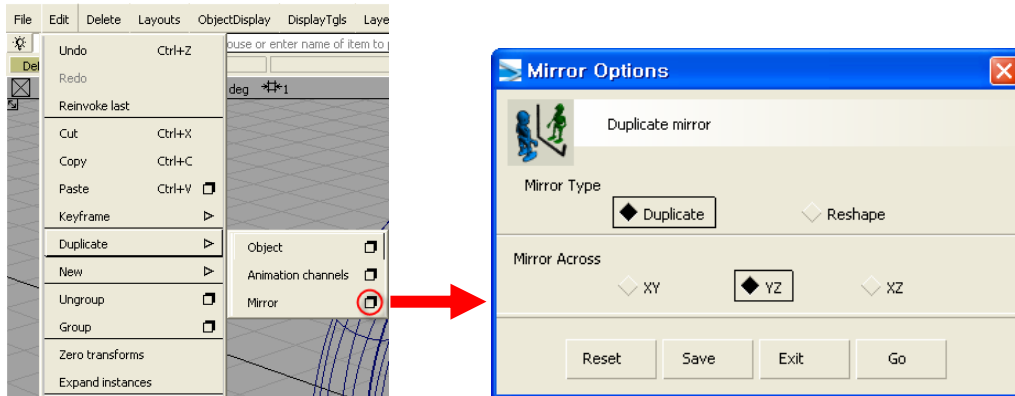
Select: Two copied curves



< Selected curves >



Click: Menu bar→Edit→Duplicate Option→Mirror→YZ→Go



< After mirroring >

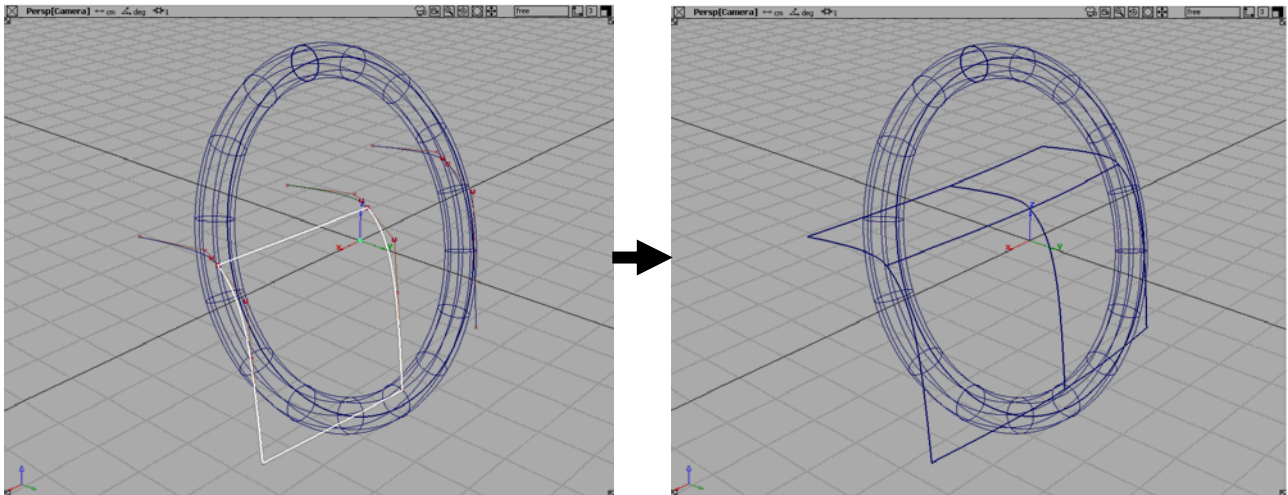
Click: Pick Nothing

Now, make surfaces.

Click: Palette→Surface→Skin surface



Select: With shift key down, click lower three curves(original, copied, mirrored) and click 'pick nothing' and click upper three curves

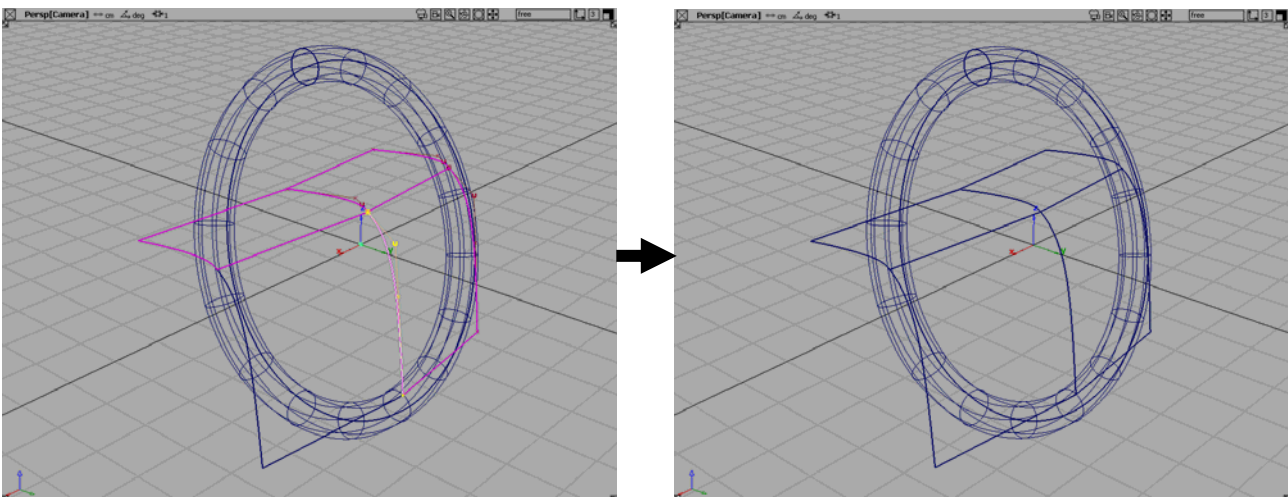


< Skin surface >

Delete curves.

Click: **Pick Component**

Select: **All curves**→Delete



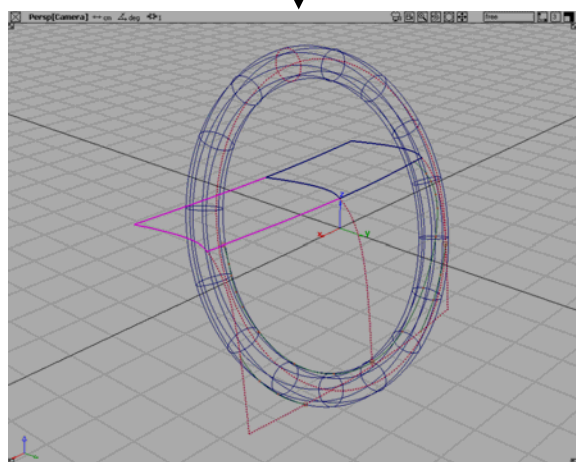
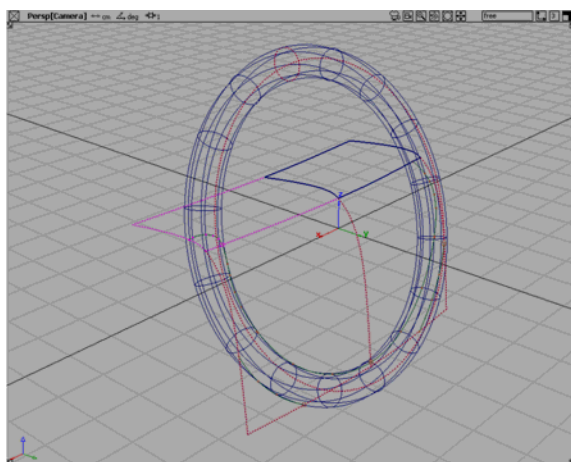
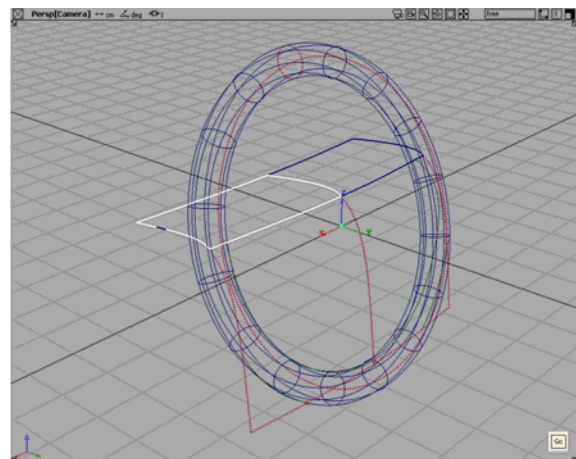
< Delete curves >

Now, we study about projection and trim.

First, using the intersection between objects

Click: **Palette**→**Surface Edit**→**Intersect**

Select: **Skin surfaces (target of intersection)**



< Projection using intersection >

Click: [GO] (in the lower right side of modeling window)

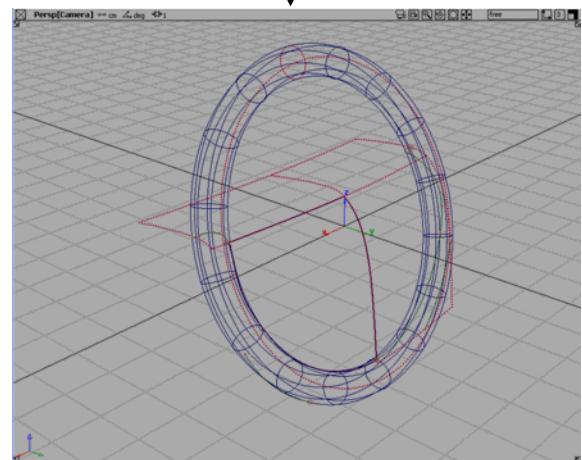
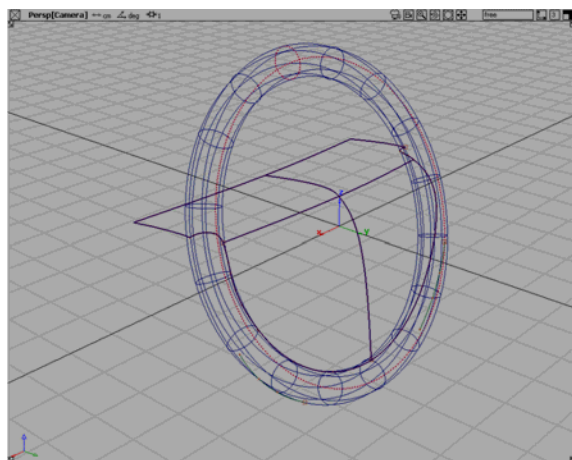
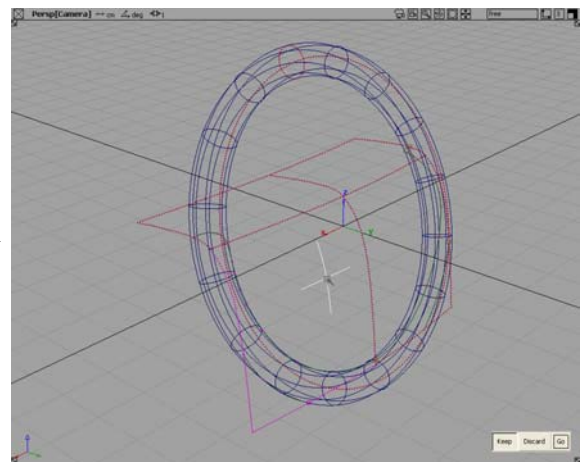
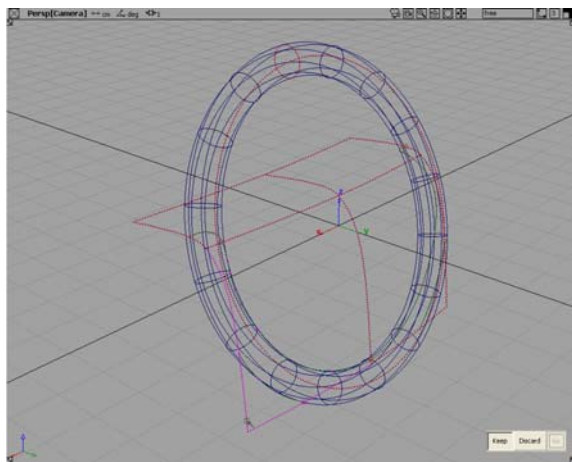
Select: Torus (Tool of intersection)

Click: [go]

Now trim the surfaces.

Click: Palette→Surface Edit→Trim





< Surface Trim – Keep option >

Select: skin surfaces then [Go]

Click: [Keep] or [Discard]

Select: the position that you want to keep or discard

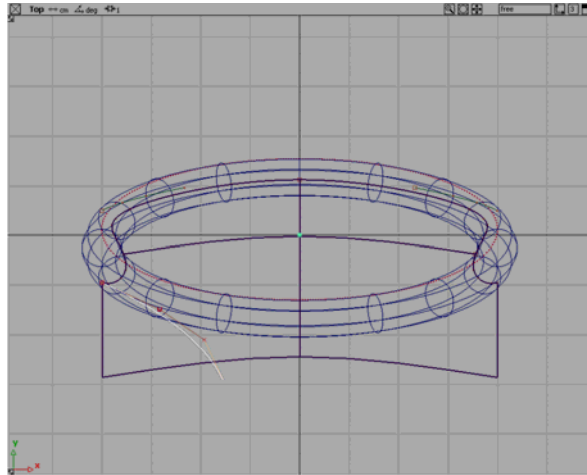
Click: [Go]

Now, projection and trim using curve.

First, draw a curve.

Click: New curve

View: Top

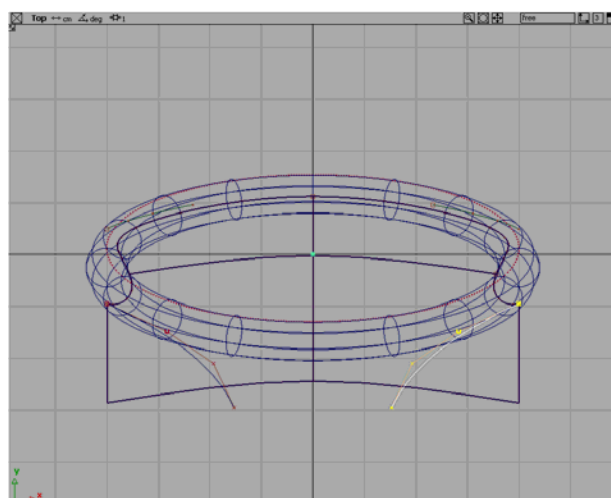
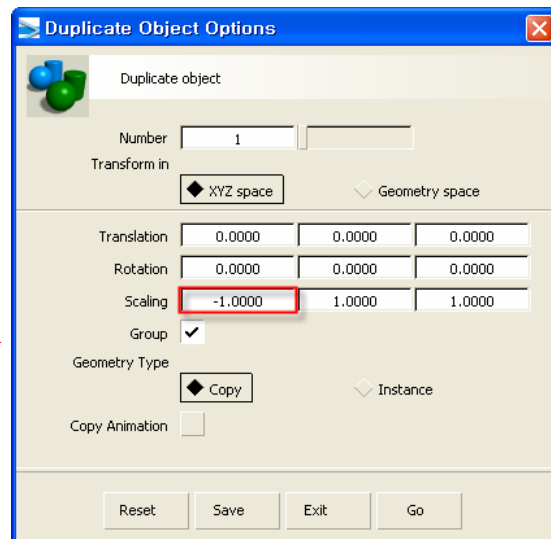
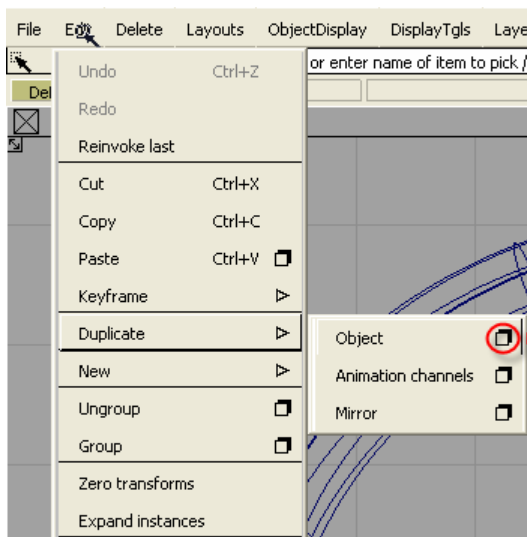


< New curve >

Click: Pick Component

Select: The curve just drawn

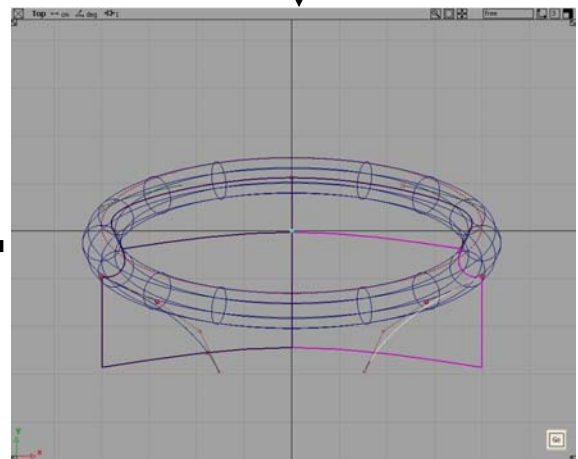
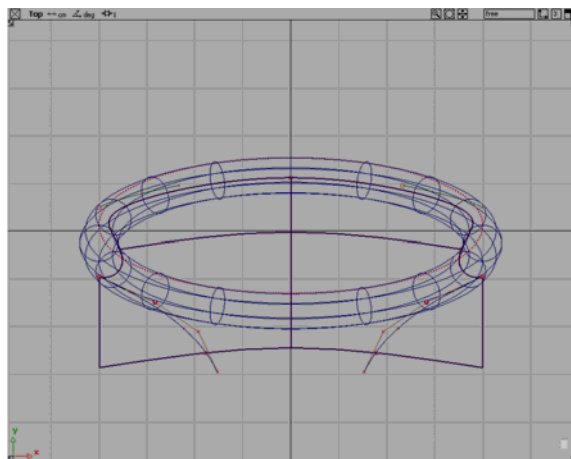
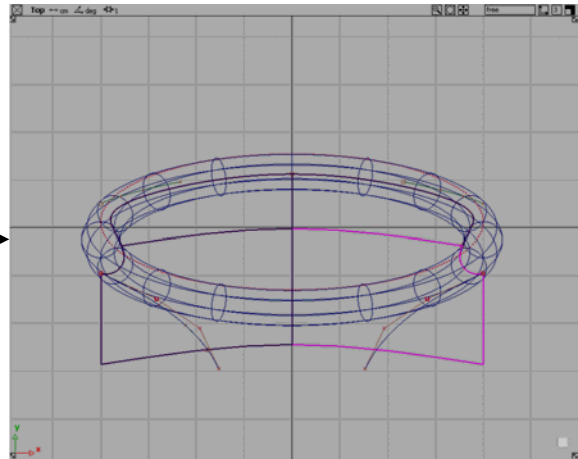
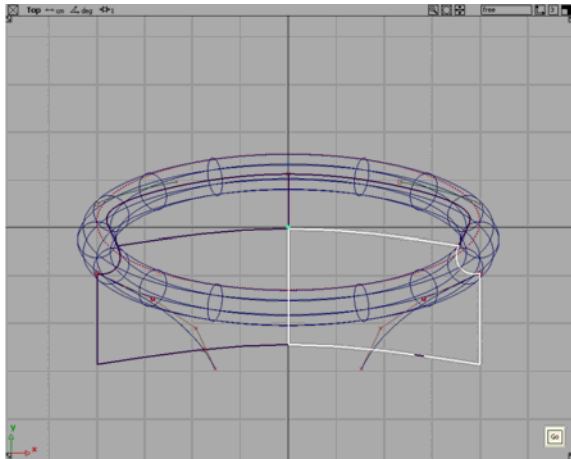
Click: Menu bar→Edit→Duplicate→Object→Option→X Scaling = -1 →Go



< Duplicated curve >

Now, project the original and duplicated curves to the skin surface.

Click: Palette→Surface Edit→Project



< Project curves to the surface >

Select: Skin surface (Target of intersection, white border on upper figure)

Click: [GO] (in the lower right side of modeling window)

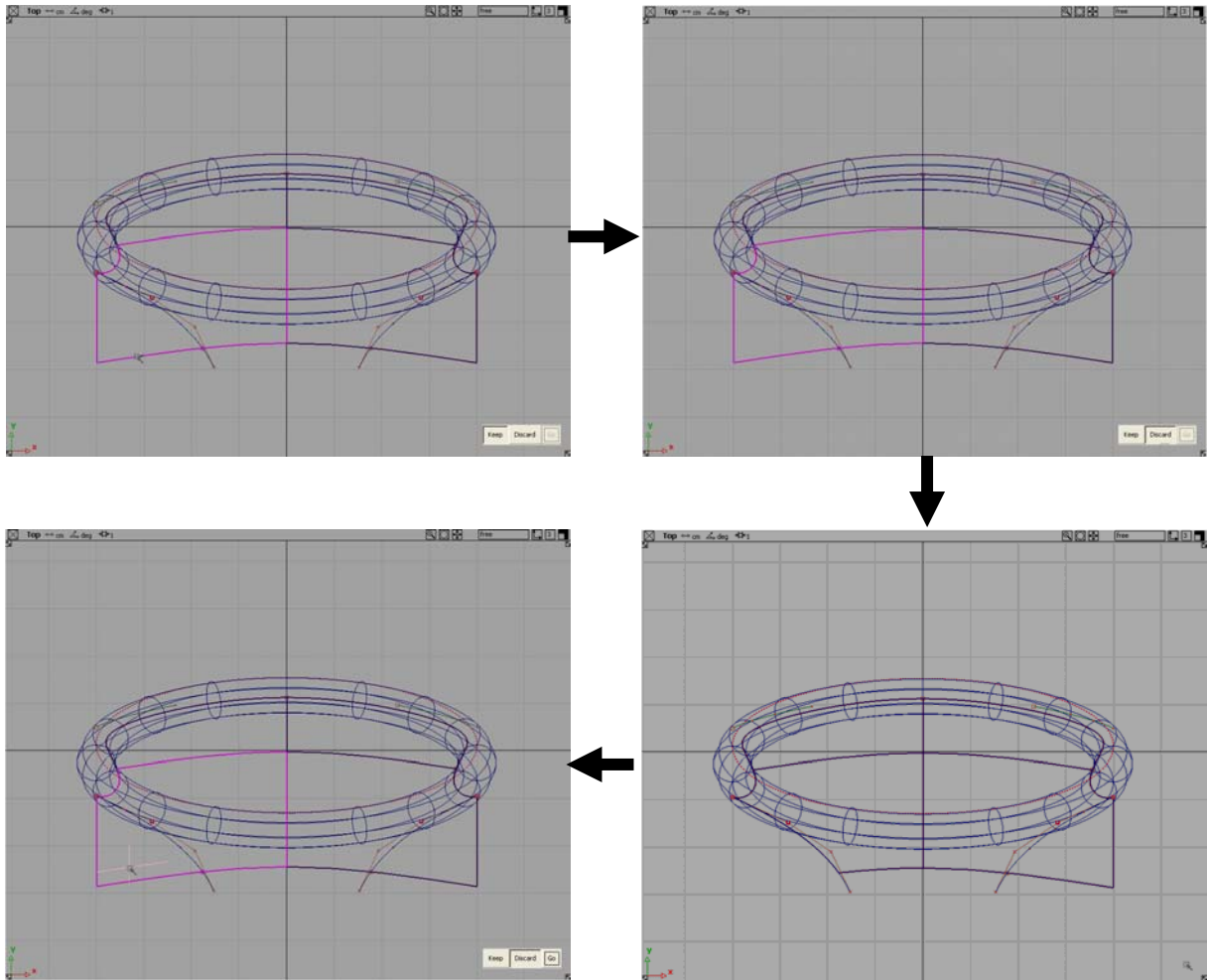
Select: original and duplicated curves (Tools of projection)

Click: [Go]

Now, trim the surfaces in the same way.

Click: Trim

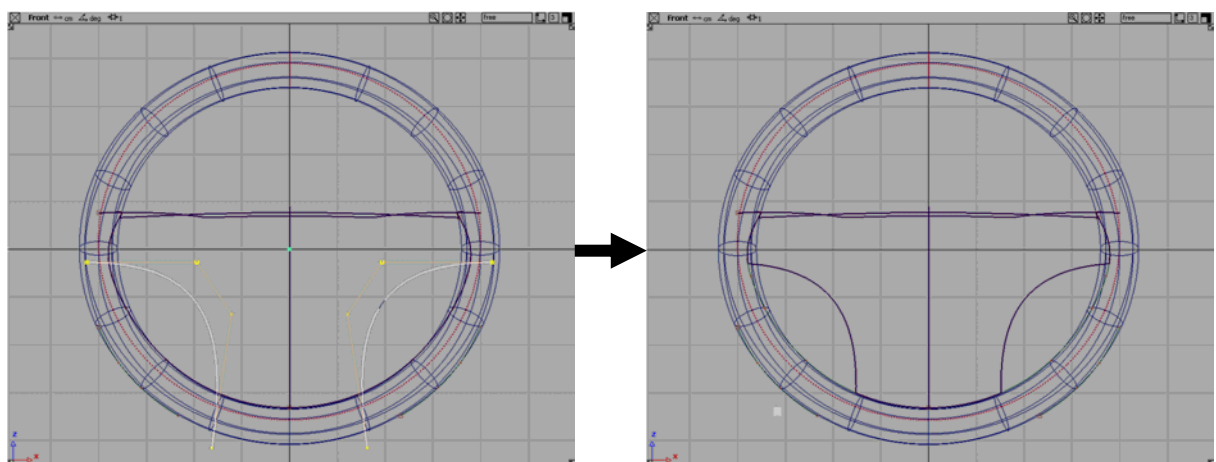




< Surface Trim – Discard option >

In the same way, draw below curves and trim the surfaces using them.

**View: Front**

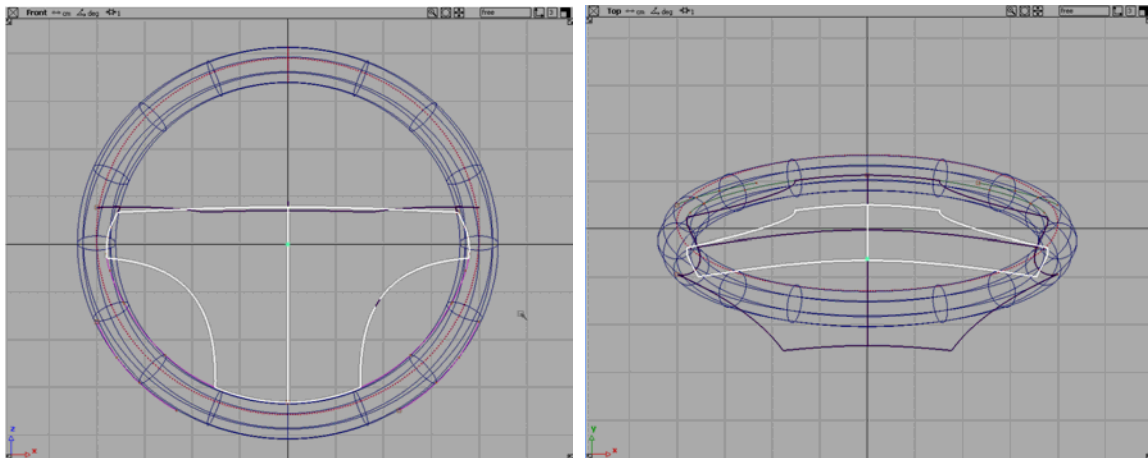


< Surface trim >

Now, make some volumes. (Not real volume, just group of surfaces)

Click: Pick Component

Select: Front surfaces

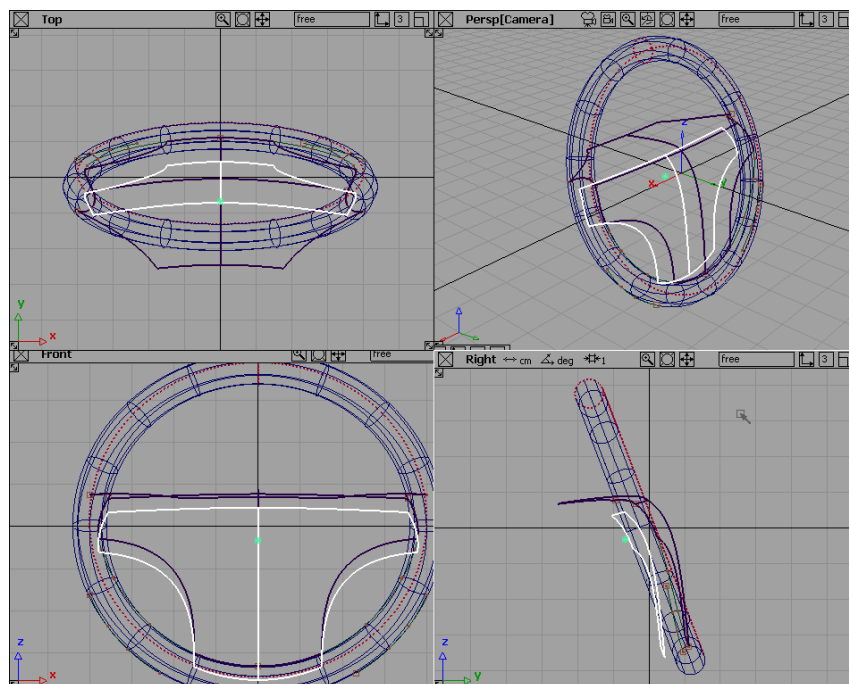


< Selected surface >

Keyboard: Ctrl + C → Ctrl + V (Copy the selected surfaces)

Click: Move

Move the copied surfaces as follows.



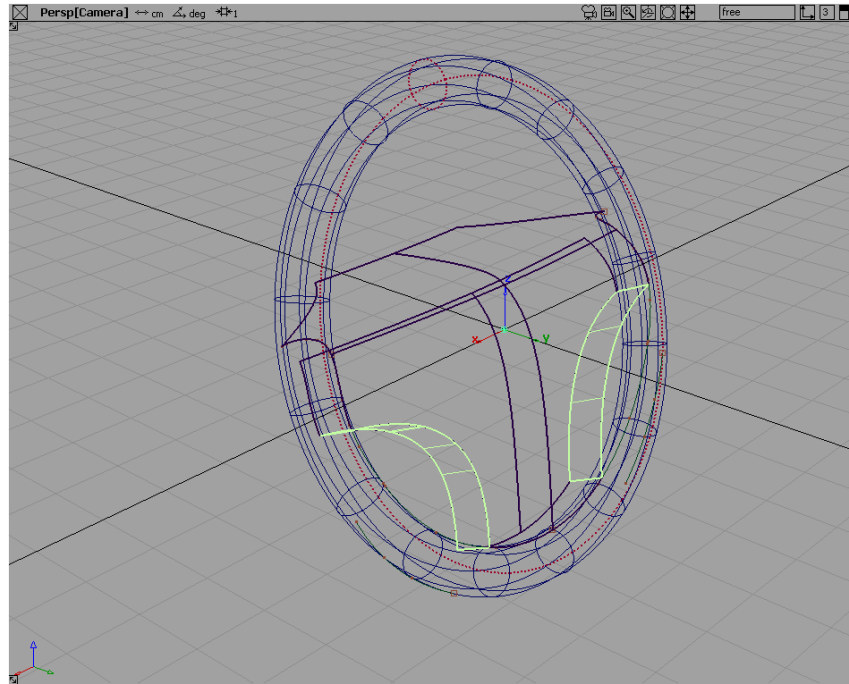
< Move copied surfaces >

Make another skin surface between original and copied surfaces.

Click: Skin surface

Select: original and copied surfaces

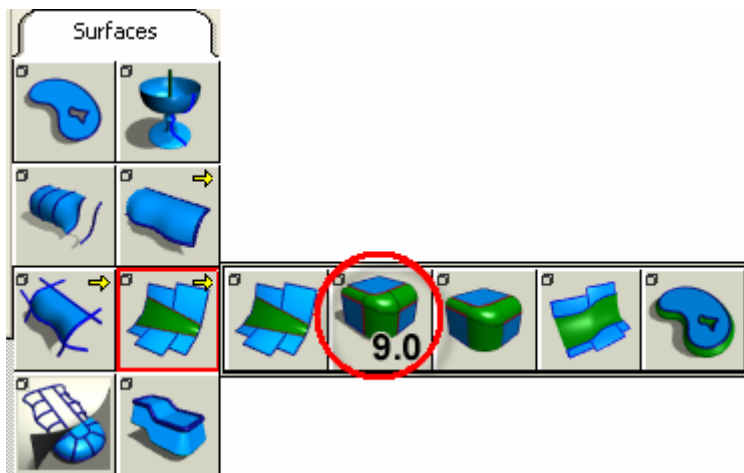




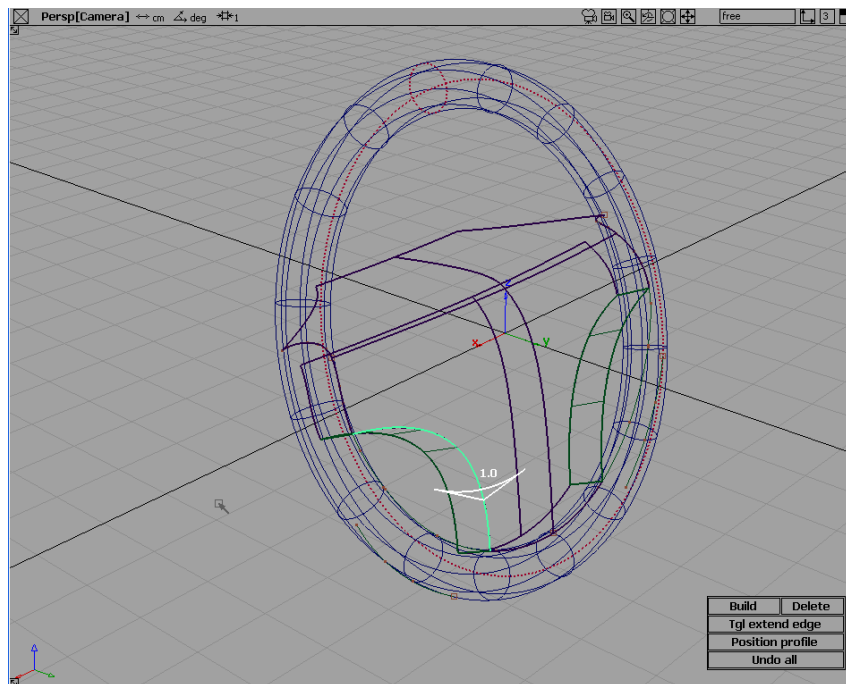
< Skin Surfaces between original and copied surfaces (green) >

Now, make some rounds and the edge.

Click: Surface→Surface fillet→9.0 Round

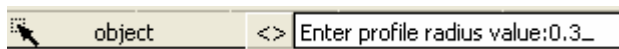


Select: Edge marked at the figure



< Round Edge >

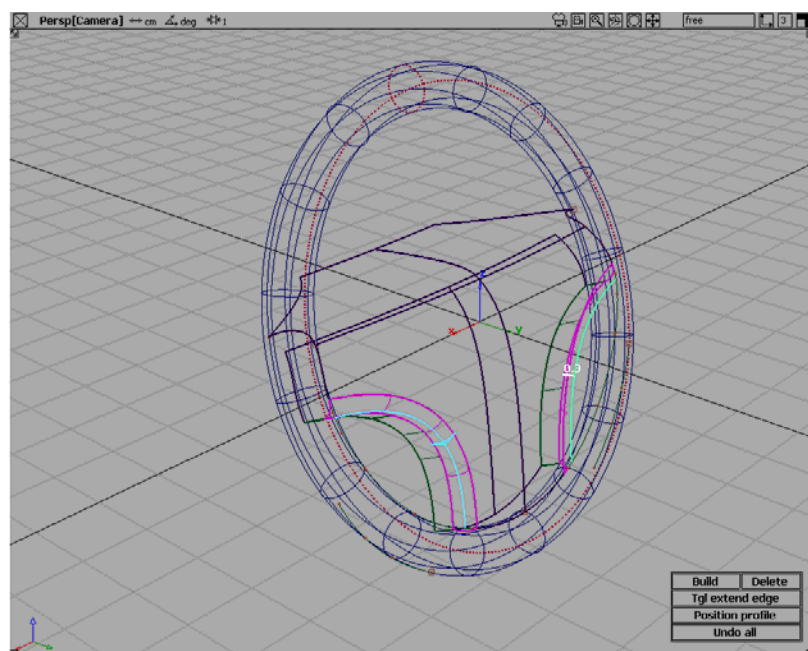
Keyboard: Type 0.3 as radius and Enter.



You can find it on the Prompt line.

Click: **Build**

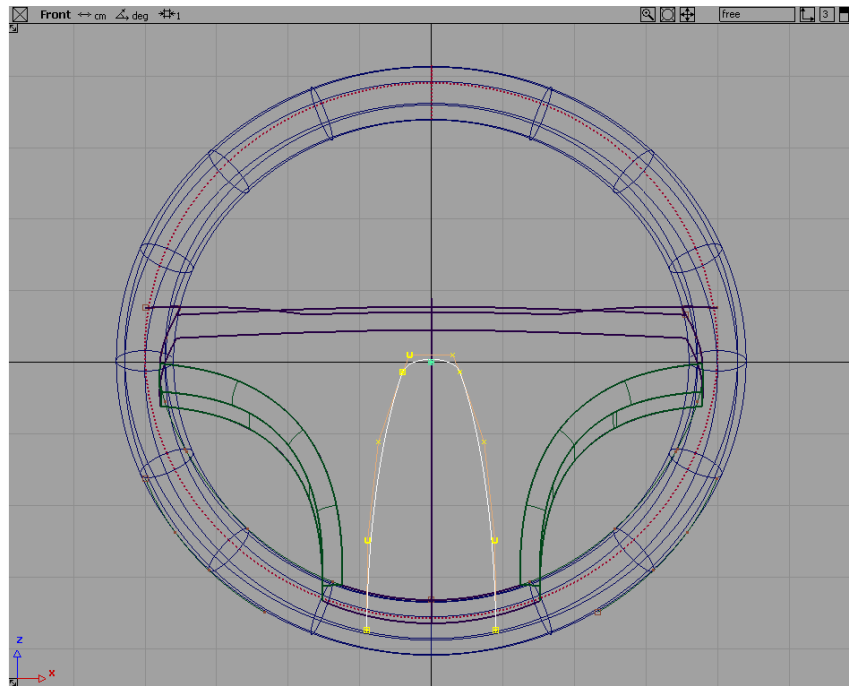
Do the same on the opposite side.



## < Rounds >

Now add some concave.

In front view, draw curves and project it to the surfaces.

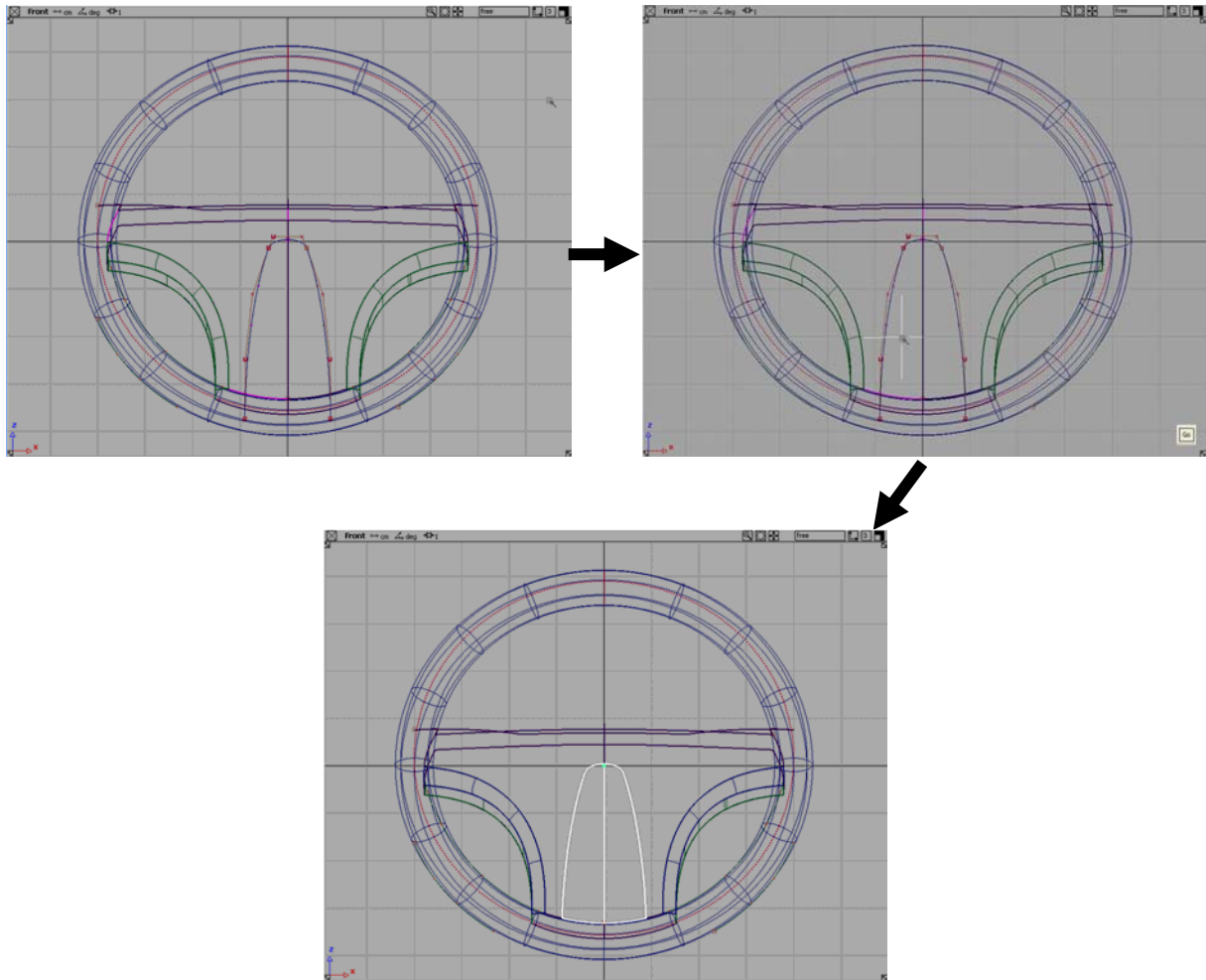


## < Project curves >

Then, Divide the surfaces with the projected curves.

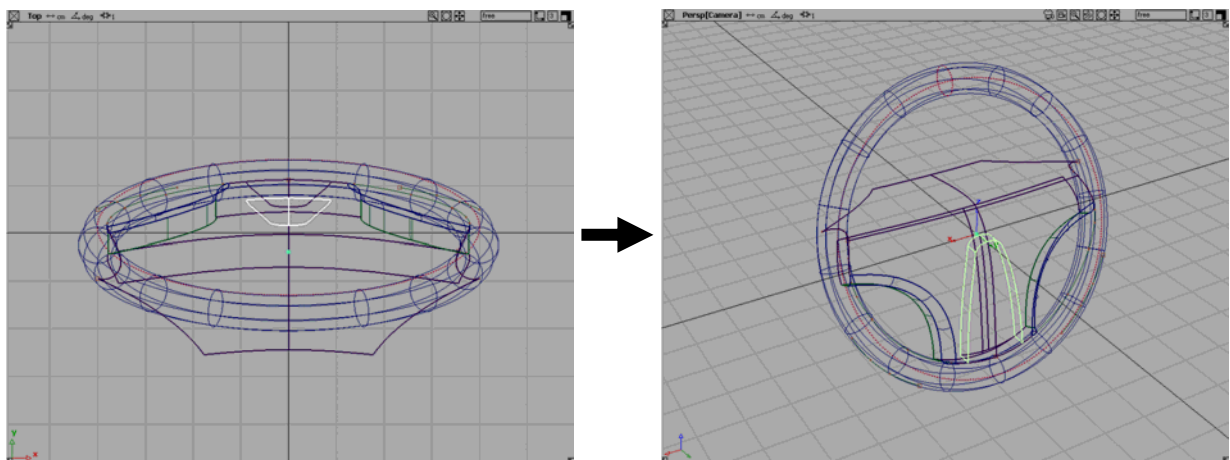
Click: Palette→Surface Edit→Divide





< Surface divide >

Then, copy two small part of front surface and move the copied surfaces to the inside of the steering wheel. Then make skin surfaces between original and copied surfaces.



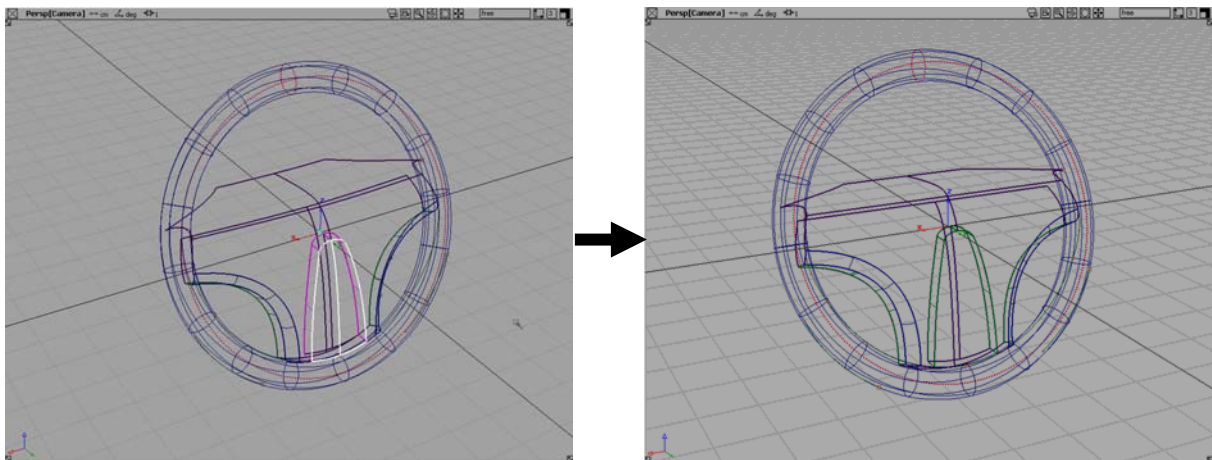
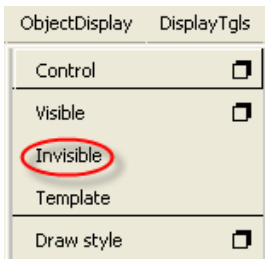
< Skin surface >

Now, make some useless surfaces invisible.

Click: Pick Component

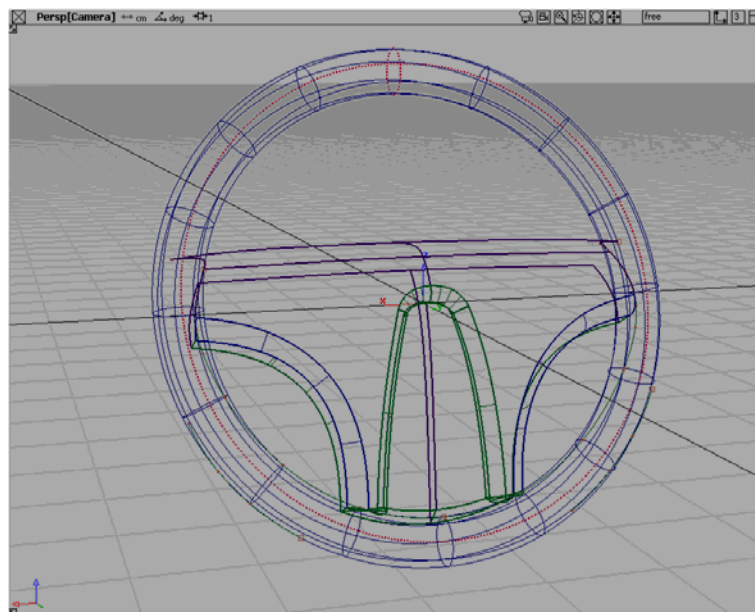
Select: White surfaces below figure (original surfaces)

Click: Menu bar→Object Display→Invisible



< Surface Invisible >

Now, make some rounds in the same way we studied. Then we can get the final result.



< Final result >