

# NKU CSC 480

## Spring 2006

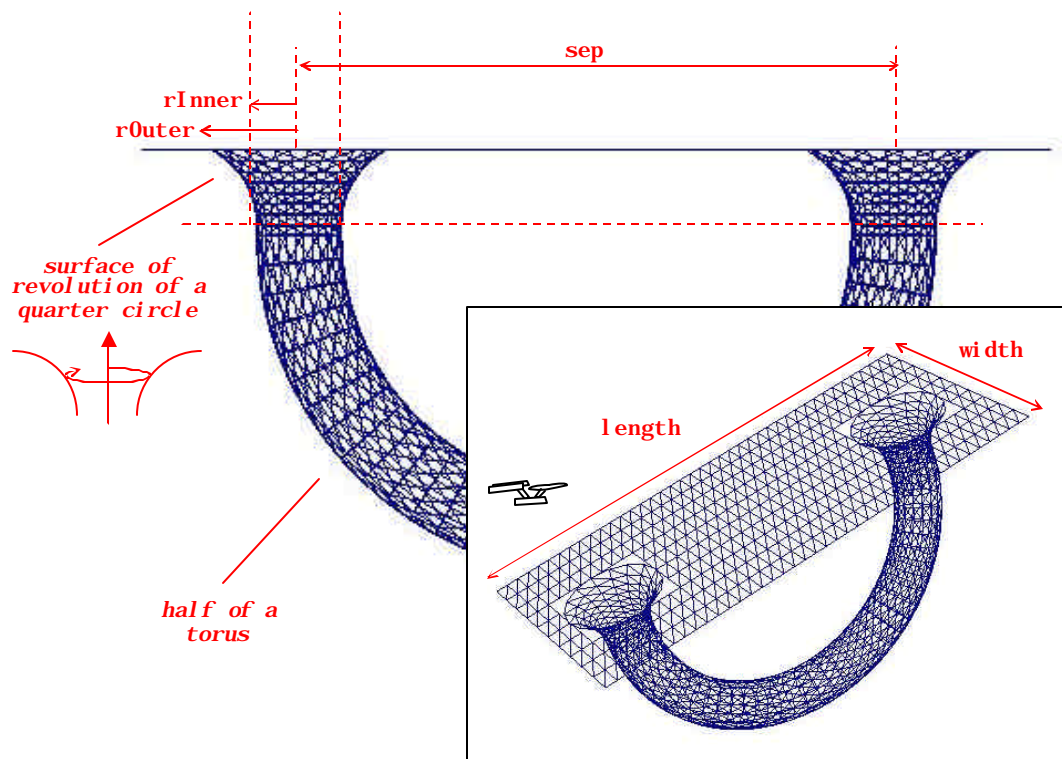
### Programming Assignment 1

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Write a C++ function that uses OpenGL to draw a “wormhole.” The signature should be:

```
void wormhole( double length, double width, double sep, double rOuter, double rInner )
```

It will draw the wormhole using triangle strips. The five parameters determine the geometry as shown below:



Enforce reasonable preconditions on these parameters using assertions. For example:

```
assert( sep + 2*rOuter < length )
```

Choose the polygon levels to roughly match the illustrations above. Do not set colors, fill modes, and so on, in your function. It is client who *calls* your function who should be able to control those features. Leave the OpenGL state unchanged. You can test your function inside the program we used for displaying and spinning surfaces of revolution (**Revo.cpp**). I will call it from my own test driver. In later assignments, we will make the wormhole ripple, we will fly through it, and give it textures.

**DUE:** By 9am Thursday **February 9**. Submit your function (along with any helper functions) in a single file named **wormhole\_\*.cpp**, with your last name replacing \*. No late assignments will be accepted. As always, programs are graded on design and style as well as nominal correctness. Start early, work incrementally, test as you go.

**CSC 480 Spring 2006**  
**Program 1: Wormhole – Evaluation Sheet**

**Correctness (20)**

- \_\_\_ /3      plane drawn correctly
- \_\_\_ /10     tube drawn correctly
- \_\_\_ /5      tube-to-hole “adapters” drawn correctly
- \_\_\_ /1      assertion checks are thorough
- \_\_\_ /1      OpenGL state unchanged

**Design / Style (5)**

- \_\_\_ / 3      appropriate modularity (helper functions)
- \_\_\_ / 2      style: appropriate commenting, layout, naming

**Total: \_\_\_ / 25**

**Notes:**