Lecture 5: Modeling shape with polygonal meshes

(1) The following figure shows how a face containing a hole can be captured in a face list. A pair of imaginary edges is added that bridge the gap between the outer edge of the face and the hold, as suggested in the figure.

![Face with hole](image)

The face is traversed so that the interior of the face lies to the left. Thus a hole is traversed in the CW direction. Assuming we are looking at the face in the figure from its outside, the list of vertices would be 5 4 3 8 9 6 7 8 3 2 1. Sketch this face with an additional hold in it and give the proper list of vertices for the face.

(2) Consider an octahedron that is the dual of a cube. Build vertex and face lists for this octahedron.

(3) Write out the vertex, normal and face lists for the unit sphere, when nSlices = 6 and nStacks = 4.