Quiz 1 Information

MATH 261 Computational Geometry

The first quiz will be Wednesday, January 8. To prepare for this quiz, you should study the material in Sections 1.1 to 1.3 of the text. Focus on the *definitions*, *examples*, *theorems*, and *questions* in the text.

In particular, you should be able to do the following:

1. Be able to state precise definitions of the following terms and give examples of them:

- polygon, edge, vertex, polyhedron
- convex vertex, reflex vertex, convex polygon
- diagonal, triangulation, tetrahedralization
- ear (of a polygon)
- visible, covers (as on page 14 in the text)

2. Be able to give precise answers to the following questions:

- Does every polygon have a triangulation? Why or why not?
- If polygon P has more than one triangulation, does each triangulation contain the same number of triangles? Why or why not?
- Does every polyhedron have a tetrahedralization? Why or why not?
- How does the number of triangulations of a polygon with n sides relate to the Catalan numbers?
- What does the Art Gallery Theorem say? (That is, Theorem 1.32 in the text.) What techniques are involved in its proof?
- Does a version of the Art Gallery Theorem hold for polyhedra? Why is this more challenging in 3D than in 2D?