

Take-Home Quiz 3

Math 282 Computational Geometry
Spring 2019

This quiz is like a regular homework assignment, except that:

- You must work by yourself. No collaboration or discussion with other students.
- You may only ask questions of Prof. Wright.

You may still use your textbook and computer. Submit your solutions (on Moodle or in the homework box) by 4:00pm on **Friday, May 3**.

1. If the sum of the face angles incident to each vertex of a polyhedron is at most 2π , is the polyhedron convex? Explain why or give a counterexample.
2. The image on the cover of our textbook shows the convex hull of 1000 points on the surface of a sphere, no four of which are coplanar. How many faces does the convex hull have?
3. Let P be the icosahedron. Let S be the set of points that are the centers of the faces of P . Finally, let H be the convex hull of S . What is the name of the polyhedron H ?
4. Exercise 6.22
5. Exercise 6.26
6. Exercise 6.33
7. Exercise 6.45
8. Exercise 6.51
9. Exercise 6.54 — do the cube and tetrahedron only

Please complete the St. Olaf honor pledge for this quiz. You may either do so on this paper, or indicate on your paper (or PDF) your response to the pledge.

St. Olaf Honor Pledge: I pledge my honor that on this examination I have neither given nor received assistance not explicitly approved by the professor and that I have seen no dishonest work.

Signed: _____

I have intentionally not signed the pledge. (Check the box if appropriate.)