Writing Assignment 6

Due Monday, March 29, 11:59 PM

One theme in topology is to replace "topological" data (like that of a topological space) with "combinatorial data" (like a triangulation, or a polyhedral structure).

(i) Think about whether the (surfaces of) the platonic solids are homeomorphic to S^2. Sketch an argument why or why not. If they are, we can ask whether combinatorial properties of platonic solids tell us something topological about the sphere.

(ii) Explore whether you can encode a "polyhedron" (for simplicity, perhaps we can just think of shape made of vertices, edges, and triangles) equivalent to $\mathbb{R}P^2$. Try to find more than one. What can you say about $V - E + F$ for your polyhedra?