HW 7

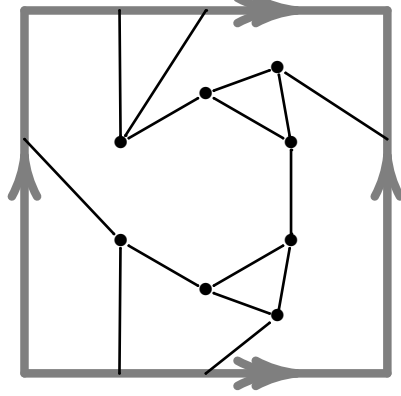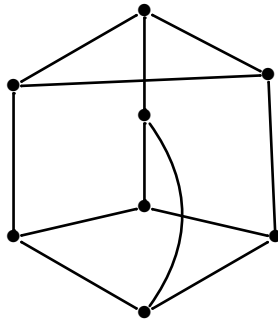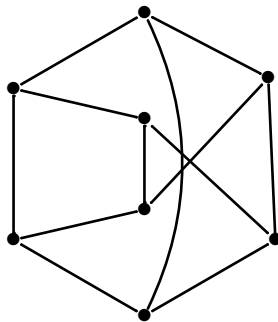**Problem 1.** I have drawn a graph on the torus with no edges crossing. Find a planar drawing of this graph.
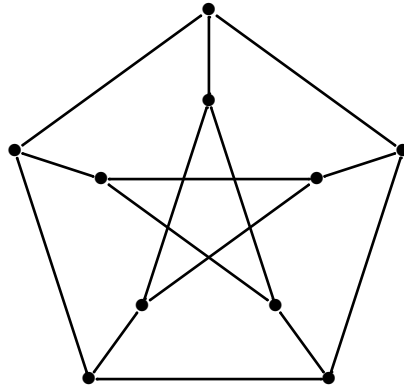
Problem 2. Show that that the following graph is not planar:

Problem 3. Show that that the following graph is not planar:

Problem 4. Here, again, is the Peterson graph.

Find a drawing of this graph on the torus such that no two edges intersect.

Problem 5. Find a plane graph with 13 vertices and 33 edges. (Thus $q = 3p - 6$.)

Problem 6. Color this in four colors: