Always justify your answers, even if the question does not explicitly say so! Write your own solutions, independently of anyone else. For the problems in Section 7.3, use Burnside’s Theorem. Be sure to justify your answers carefully by saying what $S$ and $G$ are, and explaining how you computed $|\text{Fix}(g)|$ for each element $g \in G$.

Core Problems: Everyone must turn these problems in.

I. Sec. 7.2 # 1, 4, 7 ab, 8 [In e., it’s easier to work with the dodecahedron — see figure on next page.]

II. Sec. 7.3 # 1, 4, 6b.

Advanced Problems: Due Wed. Mar. 16:

III. Sec. 7.2 # 12 [Use computer algebra software, such as Maple or Mathematica, if desired.]

IV. Suppose you have twelve sticks with which to assemble a cube (so these will be the twelve edges). How many distinguishable cubes can you construct if you use

(1) 6 white and 6 blue sticks?
(2) 4 white, 4 blue, and 4 red sticks?