Math 103A Fall 2005 HW 5

HW Due 10/31/05 in class

All exercise and page numbers refer to Gallian, 6th edition.

0. These exercises are suggestions for extra practice at home (or in section) and are not to be turned in!

Gallian Section 6, # 1, 3, 5, 7, 17, 19

Gallian Section 7, # 5, 7, 9, 15, 23, 25, 27

1. In class, we constructed an isomorphism $D_3 \to S_3$ between the dihedral group of symmetries of a triangle and the symmetric group on three elements. We also constructed an isomorphism from $D_4$ to a subgroup of $S_4$. Following the method of these examples calculated in class, construct a subgroup $H$ of $S_5$ which is isomorphic to $D_5$, the dihedral group of symmetries of a regular pentagon. You do not have to prove that $H$ is a subgroup or that your map is an isomorphism.

2. Gallian Chapter 6, # 4, 10, 20, 22, 25 (Note that the back of the book just gives a hint for #25, not a full answer.)

3. Gallian Chapter 7, # 2, 6, 8, 20, 24, 26