

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 $D_3 \rightarrow S_3$ 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