Name: _____

Read Section 5.2, on dihedral groups.

Reading Questions

1. Make sure you know the definition of the dihedral group D_n and its presentation in terms of generators and relations (Theorem 5.23).

2. The smallest dihedral group, D_3, is the group $\{\mathrm{id}, \rho_1, \rho_2, \mu_1, \mu_2, \mu_3\}$ of symmetries of an equilateral triangle, discussed in Section 3.1, on pages 31-32.

   (a) Write the elements of D_3 in cycle notation, labeling the vertices with numbers, as opposed to letters as was done in Section 3.1.

   (b) Verify that Theorem 5.20 holds for D_3.

   (c) Verify that Theorem 5.23 holds for D_3. In particular, find elements r and s in D_3 satisfying the relations given in the theorem, and show that every element of D_3 can be written in terms of r and s.

3. What struck you in this reading? What is still unclear? What remaining questions do you have?