

**Homework # 6- Due Tuesday 1/31/06, Assigned Thursday
1/26/06**

0. Read p. 27 (bottom) -p. 29 (top), 70-77. Vocabulary: left coset, right coset, equivalence relation, equivalence class
1. Exercise 3-31, 3-39, 3-41, 3-44.
2. Let G be a finite group and $g \in G$. Use Lagrange's theorem to prove that the order of g must divide $|G|$.
3. Suppose H is a subgroup of G with index two. Show that every left coset of H is also a right coset of H .
4. Write down all the elements in D_4 which have order 2. Do the same for S_4 and S_5 . (Hint: your list for S_5 should have 25 elements on it.)