Name: _____

Read Section 15.1, up to and including the definition of a Sylow p-subgroup.

Reading Questions

1. Make sure you know the definitions of p-group and Sylow p-subgroup. Study the proofs of Cauchy's Theorem and Sylow's First Theorem.

2. True or false, with reasons and/or citations.

   (a) For any prime p dividing the order of a finite group G, there is an element in G of order p.

   (b) For any prime power p^r, $0 \leq r \in \mathbb{Z}$, dividing the order of a finite group G, there is an element in G of order p^r.

   (c) For every prime p dividing the order of a finite group G, there is a Sylow p-subgroup of G.

3. Reread the proof of Cauchy's Theorem carefully.

   (a) In Case 1, we use the fact that $C(x_i)$ is a proper subgroup of G. How do we know this?

   (b) If G is abelian, which case (Case 1 or Case 2) applies?

4. Prove Corollary 15.2.

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