Math 616
Class notes for Monday, Oct. 17

We went over the exam, and solved some of the problems.
Then we went back to subgroups.
We computed the center for some symmetric groups, and then we started to talk about the task of creating the list of all subgroups for a given group. We discussed the subgroups generated by a single element, denoted by \( \langle g \rangle \). We proved the if and only if statement for \( \langle g \rangle = \langle g' \rangle \), and then we started to talk about 2-element generated subgroups. We proved the lemma that the intersection of any system of subgroups is a subgroup again, and defined the subgroup generated by a subset \( \emptyset \neq S \subseteq G \). We proved that for any \( S \) like that, there exists a unique ”smallest” subgroup containing \( S \), namely \( \langle S \rangle = \cap_{H \leq G, S \subseteq H} H \).

Relevant material can be found in Dummit and Foote, Section 2.3.
Suggested exercises: p61 / 1, 2, 8, 9, 11, 13, 16, 18, 19, 23, 26