

Math 250A: Reading and Concepts for Weeks 3-4

- We are finishing solvable groups (talking about derived series). Same suggestions on what you should know and be comfortable with as last time. I expect you know what a commutator subgroup is.
- Semidirect products, recognition theorem, and applications thereof. You should be comfortable with automorphism groups, direct products of groups, and the class equation.
- Review of group actions and class equation. I assume you know what a direct product, center, and centralizer is, as well as what is meant by conjugate elements and groups. It might be helpful for you to be familiar with the dihedral groups D_n and their center, as well as to think about what the center of S_n is for $n \geq 3$.
- Sylow theorems. Think about or look up proof of the following: an abelian group whose order is divisible by a prime p has an element of order p . I will assume you are comfortable with the conjugation action.