Algebra 1 (2011)-Aalborg University
Lecture 13, October 27th

13th Lecture: Thursday October 27th, 12:30-16:15 at room KS3 4.110 (Krogstræde 3).

- 12:30-13:00 Repetition from last lecture. Normal subgroups. Quotient groups of the integers. The multiplicative group of prime residue classes (pages 64–67).
- 13:00-15:00 Work in groups. Exercises from [Lau], 2.11 (page 104): 19, 14, 13, 12 (only second question, hint: the answer is yes, consider $(\mathbb{Z}/8\mathbb{Z})^*$), A, B, 15.

  Exercise A: Let $G = S_3$. Prove that $N = \{e, d, f\}$ is a normal subgroup of G. What is the index of N?. Compute the composition table of G/N. Compare it with the composition table of $\mathbb{Z}/2\mathbb{Z}$

  Exercise B: Compare the groups $(\mathbb{Z}/8\mathbb{Z})^*$ and $\mathbb{Z}/4\mathbb{Z}$ with the groups in exercise 2.11.2. Are they "equal"?
- 15:00-16:15 Lecture: Group homomorphisms. The isomorphism theorem (pages 68–72).

Best regards,

Diego