Algebra 1 (2011)-Aalborg University
Lecture 22, December 1st

22nd Lecture: Thursday December 1st, 12:30-16:15 at room G5-112.

- 12:30-13:00 Repetition. Simple transpositions. The alternating group (pages 83–86).

- 13:00-15:00 Work in groups. Exercises from [Lau], 2.11 (page 104): A, 39 (hint: use exercise 15(iii)), 43, 40 (hint: use $\tau = (1\ 2)$ and lemma 2.9.8 for (ii)), 49 (i)(ii)(iii), B, 41, C.

  Exercise A: Compute the order of the permutation $(1\ 2\ 3\ 4)(5\ 6\ 7)(8\ 9)$. Compute the order of the permutation $(1\ 2\ 3\ 4)(2\ 6\ 7)(8\ 9)$. (Hint: the first one is easy. We have to do some computations for the second one)

  Exercise B: Write all the elements of S_4, each factored into disjoint cycles. Compute A_4.

  Exercise C: Let $H = \{e, (1\ 2)(3\ 4), (1\ 3)(2\ 4), (1\ 4)(2\ 3)\}$. Show that H is a normal subgroup of A_4. Compute A_4/H and write down the composition table of A_4/H.

- 15:00-16:15 Lecture: Simple groups. Actions of groups (pages 86–88 and 92–100).

Best regards,

Diego