Algebra 1 (2011)-Aalborg University
Lecture 24, December 7th

24th Lecture: Wednesday December 7th, 8:15-12:00 at room G5-112.

I will not be present during this lecture. The group G3-112 will be responsible for the lecture.

- 8:15-8:45 Repetition. Group G3-112 will give this lecture. Actions of groups (pages 92–97).

- 8:45-11:45 Self-study: *Rubik's cube and group theory.* Janet Chen's notes for Honors Summer Math Camp at http://www.math.harvard.edu/~jjchen/. Our main objectives are understanding how a group acts on the Rubik's cube, Theorem 11.1 and Remark 11.15 (why do "only" 1/12 of the configurations are valid?).

  You already know many things from this paper. The new concepts are in:

  - Chapter 3: The Rubik's cube and subgroups (Errata: In page 11, line -13, for D read R. In page 11, line -11, for D read R).
  - Example 4.10.
  - Section 5.2: Rubik's cube.
  - Chapter 6: Configurations of the Rubik's cube.
  - Example 7.3.
  - Chapter 10: Group actions. You know most of it, but the notation is different. You can read it.
  - Chapter 11: Valid configurations of the Rubik's cube.

  A computer program for working with Rubik's cube, by Tom Davis: http://www.geometer.org/rubik/. The documentation can be found here. For instance, in "Edit/Input Cube" you can check whether a configuration is valid or not.

- 11:45-12:00 Common discussion in the lecture room directed by group G3-112. At the end of the lecture, group G3-112 will orientate the teacher, by e-mail, about the <u>concrete</u> successes and difficulties during the lecture.

Best regards,

Diego