

Algebra 1 (2012)-Aalborg University

Lecture 16, October 30th

16th Lecture: Tuesday October 30th, 8:15-12:00 at room G5-112.

- 8:15-8:45 Repetition from last lecture. Group homomorphisms. The isomorphism theorem (pages 68–72)
- 8:45-10:45 Work in groups. Exercises from [Lau], 2.11 (page 104): 26, A, B, C, 22, 15, 21 (preparation next lecture)

Exercise A: Prove that the identity map $G \rightarrow G$, $g \mapsto g$ is a homomorphism for any group G .

Exercise B: Is $f : G \rightarrow G$, $g \mapsto 2g$ a group isomorphism, where $G = \mathbb{R}$? What about for $G = \mathbb{Z}$, $G = \mathbb{Z}_7 = \mathbb{Z}/7\mathbb{Z}$ or $G = \mathbb{Z}_8 = \mathbb{Z}/8\mathbb{Z}$?

Exercise C: Prove that for any two groups G, G' there is always an homomorphism $G \rightarrow G'$, this homomorphism is called trivial.

- 10:45-12:00 Lecture: Order of a group element, cyclic groups and (as much as we can from) Groups and numbers (pages 72–78).

Best regards,

Diego