

# Algebra 2 (2012)-Aalborg University

## Lecture 3, February 9th

**3rd Lecture (B):** Thursday February 9th, 8:15-12:00 at room G5-112.

- 8:15-10:00 Repetition from last lecture (pages 116–119). Lecture: Ring homomorphisms. The unique ring homomorphism from  $\mathbb{Z}$ . Binomial formula in prime characteristic (119–123).
- 10:00-12:00 Work in groups: exercises + proofs.

Proofs: Theorem 3.1.11, Proposition 3.2.2, Proposition 3.2.6, Proposition 3.2.7.

Exercises from [Lau], 3.6 (page 138): 11, A, 19, 13, 18, 15, 23 + some exercises from the previous lectures that you did not solved yet.

Exercise A: Check that

$$\begin{aligned}\varphi : \mathbb{Z}/6\mathbb{Z} &\rightarrow \mathbb{Z}/6\mathbb{Z} \\ [x] &\mapsto [3][x]\end{aligned}$$

is not a ring homomorphism because (only) one of the necessary conditions is not satisfied.

Best regards,

Diego