

# Algebra 1 (2012)-Aalborg University

## Lecture 3, September 13th

**3rd Lecture:** Thursday September 13th, 8:15-12:00 at room G5-112.

- 8:15-8:45 Repetition from last lecture. Greatest common divisor. The Euclidean algorithm (pages 8-14).
- 8:45-10:45 Work in groups. Exercises from [Lau], 1.12 (page 41): A, B, 9, 12, C, 13, 14, 15, 16, D.

Exercise A: Given 3 consecutive integers, show that one should be a multiple of 3.

Exercise B: Show that congruence modulo 0 is equality. What is the congruence modulo 1?

Exercise C: Read exercise 17 and think a bit about how one could solve it: we have not seen the theorem that will allow us to solve it but we are about to do it.

Exercise D: For exercise 12 you may consider other integers besides 89 and 55, for instance some negative integers.

- 10:45-12:00 Lecture: The Chinese remainder theorem. Euler's theorem,  $\varphi$  function. Prime numbers (pages 14-22).

Best regards,

Diego