Algebra 1 (2012)-Aalborg University
Lecture 2, September 11th

2nd Lecture: Tuesday September 11th, 8:15-12:00 at room G5-112.

- 8:15-8:45 Repetition from last lecture. The natural numbers and the integers. Well ordering and mathematical induction. Division with remainder. Congruences. Greatest common divisor (pages 1-9).
- 8:45-10:45 Work in groups. Exercises from [Lau], 1.12 (page 41): 4, A, B, 11, 8, C, 9, D, E, 6, 7, 5.

  Exercise A: Find all integers n such that $9 \equiv -3 \pmod{n}$

  Exercise B: If $a \equiv b \pmod{n}$ and $m \mid n$, show that $a \equiv b \pmod{m}$

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

  Exercise D: Show that $n(n+1)(n+2) \equiv 0 \pmod{6}$, for any $n \in \mathbb{Z}$.

  Exercise E: Show that congruence modulo 0 is equality. What is the congruence modulo 1?
- 10:45-12:00 Lecture: The Euclidean algorithm (pages 9-14).

Best regards,

Diego