Algebra 2010-Aalborg University

15th Lecture: Tuesday November 7th, 8:15-12:00 at room G5-112.

- 8:15-8:45 Repetition from last lecture. The unique ring homomorphism from $\mathbb{Z}$. Binomial formula in prime characteristic. Equivalence relations (pages 120–123 and Appendices A1 and A2).

- 8:45-10:45 Work in groups. Exercises from [Lau], 3.6 (page 138) + 1 exercise: 11, A, 18, 19, 23, 16, 13, 15 + some exercises from 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 condition is not satisfied.

- 10:45-12:00 Lecture: Equivalence relations and construction of $\mathbb{Q}$. Field of fractions. Unique factorization (pages 227, 123–124 (only two first lines of 124), introduction of 3.5 (page 125) and 3.5.1 (page 126)).

Best regards,

Diego Ruano