

Computer Algebra (2012)-Aalborg University

Lecture 10, October 8th

10th Lecture: Monday October 8th, 8:15-12:00 at room G5-109.

- 8:15-8:45 Repetition: Finite fields (Lauritzen Book, Justesen-Høholdt Book) in Sage and Maple.
- 8:45-10:45 Work in groups, Exercises: A, B, C, D, E.
Exercise A: list all the elements of \mathbb{F}_{16} in Maple.
Exercise B: Learn how to consider finite fields in Sage. List all the elements of \mathbb{F}_{16} in Sage.
Exercise C: Solve exercise 4.10 in [GG] using Maple and Sage.
Exercise D: Construct \mathbb{F}_{32} in Sage. Construct $\mathbb{F}_{32}[X]$ in Sage. Compute the GCD of two polynomials in $\mathbb{F}_3[X]$ using Sage.
Exercise E: Which elements of $\mathbb{F}_3/\langle X^3 + X + 1 \rangle$ are units and compute their inverse?
- 10:45-12:00 Lecture: Karatsuba's multiplication algorithm. The discrete Fourier Transform (pages 219–230).

Best regards,

Diego