

Computeralgebra (2013)-Aalborg Universitet

Spiseseddel 16

16. gang, torsdag d. 7. november, 12:30-16:15 i lokale G5-109

- 12:30-14:15 Forelæsning: Monomial ideals and Hilbert's basis theorem, Gröbner bases and S-polynomials, Buchberger algorithm (pages 601–610).
- 14:15-16:15 Arbejde i grupper: Opgaver fra [GG]: A, B, C, D, 21.21, 21.23, 21.17, E, 21.9 (kun i).

Opgave A: Let $R = \mathbb{F}_3[X, Y]$. Let $f = X^2Y + 2XY^2 + XY + X$, $f_1 = X + 2Y^2 + 1$, $f_2 = Y^2 + Y$. Divide f by $\{f_1, f_2\}$ considering the monomial order $<_{\text{lex}}$. Divide f by $\{f_1, f_2\}$ considering now the monomial order $<_{\text{grlex}}$.

Opgave B: Investigate how to define monomial orders in Maple or Sage.

Opgave C: Compute, in Maple or Sage, the S-polynomial of two polynomials in $\mathbb{F}_q[x_1, x_2, x_3, x_4]$.

Opgave D: Compute, in Maple or Sage, a Gröbner basis of an ideal in $\mathbb{F}_q[x_1, x_2, x_3, x_4]$ with respect to the 3 monomial orders considered in the lecture.

Opgave E: Read examples 21.1, 21.2, 21.3.

Med venlig hilsen,

Diego