

# Algebra 2 (2014)-Aalborg Universitet

## Spiseseddel 7

7. gang (A), onsdag d. 26. februar, 8:15-12:00 i lokale G5-112

- 8:15-10:00 Forelesning: Repetition + Lecture: Fermat's two-square theorem, The Euclidean algorithm strikes again, Quadratic residues, Prime numbers congruent to 1 modulo 4. Fermat's last theorem (pages 36-38 and 133-138)

- 10:00-12:00 Opgaveregning [Lau]: 3.6 (side 138): 28, A, 29, 24, B, 23, C, D, 37, 32, 38, E, 34, 35, F, 36, 39, 31, 33, 16, 13, 15, 8 (i and ii), 9, 10, 26.

Exercise A: Prove that  $\mathbb{Z}[i]$  is a Euclidean domain (see pages 132 and 133).

Exercise B: Let  $R$  be an integral domain. Prove that for  $a, b \in R$ :  $ab \in R^*$  if and only if  $a, b \in R^*$ .

Exercise C: Check that the relation defined in page 123 is an equivalent relation and the two operations are well defined.

Exercise D: Let  $R$  be a ring. Prove that  $R$  is a field if and only if  $\langle 0 \rangle$  is a maximal ideal.

Exercise E: Solve exercise 1.52

Exercise F: Solve exercises 1.51 and 1.50

Med venlig hilsen,

Diego