

**Homework 1**

due April 13, 2005 in class

We will use Artin's numbering system so that "Artin 11.1.9" means Chapter 11, Section 1, Problem 9.

- (1) Artin 11.1.9 (pg. 441)
- (2) Artin 11.1.15 (pg. 441)
- (3) Artin 11.2.1 (pg. 441)
- (4) Artin 11.2.6 (pg. 442)
- (5) Artin 11.2.12 (pg. 442)
- (6) Artin 11.2.18 (pg. 442)
- (7) Consider the ring  $R = \mathbb{Z}[\sqrt{-5}]$ . Show that  $R$  is not a principal ideal domain by explicitly checking that the ideal  $I = (3, 2 + \sqrt{-5})$  is not principal.