

March 17, 2003

### 18.702 Problem Set 6

due Monday, March 24

1. Chapter 11, 6.8
2. Chapter 11, 9.3
3. Chapter 11, 9.7
4. Use the method of Proposition 7.9 to describe the ideals in the ring  $R$  of integers in  $\mathbb{Q}[\delta]$ , where  $\delta = \sqrt{-6}$ . Draw the shapes of the ideals, and don't forget to show that the shapes you draw are represented by ideals of the ring.
5. Chapter 11, 9.2 and 10.4 c
6. Show that the ring of integers in  $\mathbb{Q}(\sqrt{-67})$  is a unique factorization domain.