

18.786 Problem Set 3 (due Thursday Feb 25 in class)

1. An order of a number field K is a subring (with 1) of \mathcal{O}_K which is free of rank $[K : \mathbb{Q}]$ as a \mathbb{Z} -module. Describe (with proof) all the orders of a quadratic field $\mathbb{Q}(\sqrt{d})$.
2. Let $m > 1$ be a squarefree composite integer. Show that $\mathbb{Z}[\sqrt{-m}]$ is not a PID.
3. Let A be a Dedekind domain which has a unique nonzero maximal ideal. Show that A is a PID.

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