Assignment 3

Due Thursday, Feb. 17.

Textbook exercises from Chapter 11
3.7
3.11
3.12 (this should be a “routine verification”, which doesn't mean it's easy)
3.13 (For the last part of the exercise, figure out whether $(n) \cdot (m)$ (the product of ideals in $\mathbb{Z}$) is the same as $(n) \cap (m)$. This depends on the prime factorizations of n and m.)
4.3, (b) and (c) only. “*Identify*” is a bit ambiguous. Think about finding a simple ring isomorphic to the one given. Is it finite or infinite? That kind of thing.
5.7 (another “routine verification”)
6.1 (an exercise in working through definitions)
6.8 (First check that the version of the Chinese remainder theorem in (b) is a generalization of the one that says if p and l are prime integers and a and b are given, then there is an integer x with $x = a \bmod p$ and $x = b \bmod l$. This more abstract version in used in studying algebraic number rings.)
7.1 (This argument is often used to show that $\mathbb{Z}/(p)$ is a field.)
8.1