Problem Set 1. Due Thursday January 16.

1. Prove, without using the Fundamental Theorem of Arithmetic, that an integer p is prime if and only if it has the following property: for any two integers a, b, if $p|ab$ then $p|a$ or $p|b$.

2. Section 0.2, Problem 11 (p. 8).

3. Section 0.2, Problem 4. (p. 8).

4. Section 0.3, Problem 15 b) (p.12).

5. Section 7.1, Problem 6.

6. Section 7.1, Problem 7.

7. Section 7.1, Problem 15.

8. Section 7.1, Problem 13.

9. Section 7.2, Problem 12 (if this is easy, also look at the next problem 13).