Homework Two, due Monday, September 7.

1. Do Exercise 2.1 in *The natural numbers and arithmetic*.

2. Do Exercise 2.1 in *Sets, relations and functions*.

3. Prove Proposition 2.3 in *Sets relations and functions*.

4. Do Exercise 1.2 in *Initial segments, well ordering and the axiom of choice*.

5. Prove Theorem 1.1 in *The real numbers*.

6. Prove Theorem 1.4 in *The real numbers*.

7. Do Exercise 1.1 *The real numbers*.

8. Show that the mapping $d$ on page 7 of *The real numbers* is such that if $p, q$ are rational numbers and $p < q$ then $d(p) < d(q)$.

Exercises 4 and 7 count three times as much as the other exercises.