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 $\mathbf{d}$ on page 7 of **The real numbers** is such that if p, q are rational numbers and $p < q$ then $\mathbf{d}(p) < \mathbf{d}(q)$.

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