Problem Set 10 Foundations Due 4/26/2005

Each problem is worth 5 points. Clear and complete justification is required for full credit. You are welcome to discuss these problems with anyone and everyone, but must write up your own final submission without reference to any sources other than the textbook and instructor.

1. a) Prove that $0 < 1$.
   b) Prove that for any natural number n, we have $n < n + 1$.

2. Prove that for natural numbers n and m, if $n \leq m$ and $m \leq n$, then $n = m$.

3. Use the definition of addition to prove that $2 + 2 = 4$.

4. Prove that addition of natural numbers is commutative.