

Math 310 Homework 1, Due Sept. 13, 2007

In the following problems, you can only use the axioms of Peano, the property that $=$ is an equivalence relation, and the properties established in Class Notes 1.

- (1) Prove that $n' \neq n$ for every natural number n . (10 points)
- (2) Prove that $m + n \neq n$ for every pair m, n of natural numbers. (10 points)
- (3) Prove that if m and n are natural numbers then $m + n \neq 1$. (10 points)
- (4) If $m \neq n$, prove that $m + p \neq n + p$, where m, n , and p are natural numbers. (10 points)