In the following problems, you can only use the original version of the axioms of Peano.

(1) Prove that for every natural number $m \neq 1$, there is one and only one natural number $q$ such that $m = q'$. (10 points)

(2) Prove that $n' \neq n$ for every natural number $n$. (10 points)

(3) Prove that $m + n \neq n$ for every pair $m, n$ of natural numbers. (10 points)

(4) Prove that if $m$ and $n$ are natural numbers then $m + n \neq 1$. (10 points)

(5) If $m \neq n$, prove that $m + p \neq n + p$, where $m, n, p$ are natural numbers. (10 points)