I. Prove that $2^n \geq (2n + 1), \ n = 3, 4, 5, \ldots$ [4 pts]

II. Prove that $2^n \geq N^2, \ n = 4, 5, \ldots$ [4 pts]

III. Prove that if $ab = ac$, then either $a = 0$ or $b = c$. [3 pts]