

Math 111

Ali Nesin

November 13, 2003

- i. Show that for all $x, y \in \omega$, if $x \in y$ then $x \subseteq y$.
- ii. Show that for all $x \in \omega$, either $\emptyset \in x$ or $x = \emptyset$.
- iii. Show that for all $x \in \omega$, $x \notin x$.
- iv. Show that for all $x, y \in \omega$, if $y \in x$ then either $S(y) \in x$ or $S(y) = x$.
- v. Show that if $x, y, z \in \omega$ are such that $x \in y$ and $y \in z$ then $x \in z$.
- vi. Show that any nonempty subset of ω has a least element (for ϵ).
- vii. Show that if $x \in \omega$ then $x \subseteq \omega$.