MATH 270
SUMMER 2007
QUIZ 2

1. (5 pt) Let k be a natural number. Show that $|\mathbb{N}^k| = |\mathbb{N}|$.

2. Let $f : A \longrightarrow B$ be a function.
   a) (5 pt) Show that f is one to one if and only if $|f^{-1}(b)| \leq 1$ for all $b \in B$.
   b) (5 pt) Show that f is onto if and only if $f^{-1}(b) \neq \emptyset$ for all $b \in B$.
   c) (5 pt) Show that f is a bijection if and only if $|f^{-1}(b)| = 1$ for all $b \in B$.