MAT511 homework, due Nov 19, 2003

(1) Prove that the two intervals (0,1) and (-47,47) have the same cardinality.

(2) Prove that if A is an infinite set and $A \subseteq B$, then B is an infinite set.

(3) Let $3\mathbb{N}$ be the set of naturals that are multiples of 3, that is $3\mathbb{N}=\{3,6,9,12\ldots\}$. Prove that $\mathbb{N}-3\mathbb{N}$ is a countably infinite set.