Hand-In Assignment 3

1. Show that $\mathbb{N}$ and $\mathbb{Z}$ are homeomorphic under the usual metric by exhibiting a homeomorphism.   [10 pts]

2. Prove that A is totally bounded if and only if every sequence $\{x_n\}$ in A has a subsequence $\{x_{n_k}\}$ for which $d\left(x_{n_k}, \ x_{n_{k+1}}\right) < 2^{-k}$.

                    [10 pts]