August 31 PtTA

Turn in written solutions by the end of the period.

S.14 Since $(0,1)$ and $[0,1]$ have the same cardinality, there must be a bijection $\sigma : (0,1) \to [0,1]$ between them. Find an explicit formula for one.

S.15 Let $\mathbb{N} = \{n \in \mathbb{Z} \mid n \geq 0\}$. ($\mathbb{N}$ is often called the set of natural numbers.) Let $\mathcal{F}(\mathbb{N})$ be the collection of all *finite* subsets of $\mathbb{N}$. Find an explicit bijection $\sigma : \mathcal{F}(\mathbb{N}) \to \mathbb{N}$. (Hint: Think about binary representation of integers.)