Proposition 1. Let a be an object. Then $|\{a\}| = 1$.

Proof. Define $f(x) := 0$ for $x \in \{a\}$. Then f is a map from $\{a\}$ to 1. f is injective and surjective onto 1. Hence f is a bijection between $\{a\}$ and 1. Consequently $\{a\}$ and 1 are equinumerous. Thus $|\{a\}| = |1| = 1$. ■