1. For each pair of sets, determine whether they have the same cardinality. If so, try to describe a bijection from one to the other. If not, try to prove that no such bijection can exist.

(a) \([0, 1]\) and \([-10, 3]\)
(b) \(\mathbb{R}\) and \(\{y \in \mathbb{R} \mid y > 0\}\)
(c) \(\mathbb{N}\) and \(\mathbb{N} \cup \{\spadesuit, \heartsuit, \diamondsuit, \clubsuit\}\)

2. Suppose \(A\) and \(B\) are sets with \(|A| = |B| = |\mathbb{N}|\). Show that \(|A \cup B| = |\mathbb{N}|\)