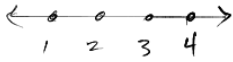


X

$$Y = \{1, 2, 3, 4\} \subseteq \mathbb{R}$$



1. Let $X = \{a, b, c\}$ with the topology shown
 $\frac{1}{2}$ $Y = \{1, 2, 3, 4\} \subseteq (\mathbb{R}, \text{std})$ w/ the subspace topology
 How many continuous maps exist b/w $X \xrightarrow{f} Y$?

a. Does there exist a ^{non-trivial} homeomorphism $f: X \rightarrow X$?

3. What are all basis elements of $X \times Y$?