

Let $X = [0, 1]$ as a subspace of \mathbb{E} . Let $Y = [0, 1]$ as a subspace of \mathbb{R} with the co-finite topology. Let $f : X \rightarrow Y$ with $f(x) = x$, for all $x \in X$. It is clear that f is 1-1 and onto, and since all co-finite sets are also open, f is continuous. On the other hand $f([0, 1)) = [0, 1)$ which is open in X but not in Y . Thus f^{-1} is not continuous. ■