Exercise sheet 2

1. Prove that the fundamental groups of homotopically equivalent spaces are isomorphic.
2. Prove that a map $f : S^1 \to X$ is null homotopic if and only if it extends to a continuous map from the closed disc to X.
3. Prove that the if $f : S^1 \to S^1$ satisfies the property that $f(-x) = -f(x)$, then the induced map f_* is a non-trivial homomorphism. Here we are treating S^1 as the subspace of unit complex numbers.

to be updated