Exercise sheet 6

- 1. Prove that every map from a simply connected space to S^1 is null homotopic.
- 2. Prove that every map from \mathbb{RP}^2 to S^1 is null homotopic.
- 3. Prove that if X has a simply connected cover, then given any point in $x \in X$, there exists a neighburhood U so that $i_*: \pi_1(U,x) \to \pi_1(X,x)$ is trivial (here, i_* is the homomorphism induced by the inclusion map $i: U \to X$.