Quiz 1

Time: 30 minutes

1. Prove that the inclusion $i : S^1 \to S^1 \times S^1$, defined by $i(s) = (s, t_0)$ for some fixed $t_0 \in S^1$, induces an injective map on homology.
2. Use the long exact sequence of pairs for reduced homology to compute $\tilde{H}_i(S^k)$ for all i and k, i.e. $i_* : H_i(S^1) \to H_i(S^1 \times S^1)$ is injective.