Homework 8

Due Monday, March 12, 2011

1. Let $X = S^2$, let $A \subset X$ consist of two points, and let $i : A \to X$ be the inclusion. In earlier homework we computed $\pi_1(X/A)$.

   (a) What is $H_0(A)$? $H_0(X)$? The induced map $i_* : H_0(A) \to H_0(X)$? Its kernel?

   (b) Compute the homology of $X/A$ using the long exact sequence of the pair.

2. Show that the antipodal map $S^n \to S^n$ is homotopic to the identity if $n$ is odd.

3. What is one question you have about last week’s lectures?