Math 869:Assignment 3

Due Friday April 3

Problem 1. Solve Exercise 4 on page 131 of Hatcher's book.

Problem 2. Solve Exercise 11 on page 132 of Hatcher's book.

Problem 3. Solve Exercise 17 on page 132 of Hatcher's book.

Problem 4. Solve Exercise 27 on page 133 of Hatcher's book.

Problem 5. Given a map $f : S^{2n} \longrightarrow S^{2n}$, show that there is some point $x \in S^{2n}$ such that $f(x) = x$ or $f(x) = -x$. Deduce that every map from the real projective space RP^{2n} to itself has a fixed point.

Problem 6. Let X be the quotient space of the 2-sphere S^2 under the identification $x \sim -x$, for x on the equator S^1. Compute the homology groups $H_i(X)$.