1. **Homework 12**

**Due: In Lecture 11-9**

**Problem 1.** Complete the proof of the zig-zag lemma.

**Problem 2.** 15-1 out of Lee.

**Problem 3.** 15-3 out of Lee.

**Problem 4.** Use Meyer-Vietoris to show that if $N$ is the disjoint union of $k$ connected smooth manifolds, $\{M_i\}_{i=1}^k$, then

$$H^p_{DeR}(N) \cong \bigoplus_{i=1}^k H^p_{DeR}(M_i)$$