Exercise Set 4:
Tate's Cohomology Groups

Math 582e, Winter 2010, University of Washington

Due Monday, February 8, 2010

1. Let G be a finite group and A a co-induced module. In class we proved that $\hat{H}^0(G, A) = 0$. Prove that $\hat{H}_0(G, A) = 0$ as well.

2. Prove that $H_1(G, \mathbb{Z}) = G/G'$, where G' is the commutator subgroup of G. This is proved in Serre's *Local Fields* book, but there may be gaps in the argument, so fill them in.