

MTH 961: Suggested Exercises for Week 9

- Show that $\pi_k(S^n)$ is finite for n odd and $n < k$.
 - Show that $\pi_k(S^n)$ is finite for n even and $n < k < 2n-2$. Show that $\pi_{4m-1}(S^{2m}) \otimes \mathbb{Q} \simeq \mathbb{Q}$.
2. Show that the countable abelian groups form a Serre class.
3. Compute the Serre spectral sequence for homology with \mathbb{Z} coefficients for the fibration $K(\mathbb{Z}_2, 1) \rightarrow K(\mathbb{Z}_8, 1) \rightarrow K(\mathbb{Z}_4, 1)$.
4. Show that the construction of G -equivariant cohomology given in class satisfies the following property: If $f : X \rightarrow Y$ is a G -equivariant homotopy equivalence, then $H_G^*(X) \simeq H_G^*(Y)$.