

Math 527 - Homotopy Theory
Spring 2013
Homework 10, Lecture 3/27

Problem 2. (May § 15.2 Problems 3 and 4) Let $n \geq 1$ and let G be an abelian group.

a. Construct a connected CW complex X whose reduced integral homology is given by:

$$\tilde{H}_i(X; \mathbb{Z}) \simeq \begin{cases} G & \text{if } i = n \\ 0 & \text{if } i \neq n. \end{cases}$$

Such a space is called a **Moore space** and is denoted $M(G, n)$.

b. Construct a connected CW complex Y whose homotopy groups are given by:

$$\pi_i(Y) \simeq \begin{cases} G & \text{if } i = n \\ 0 & \text{if } i \neq n. \end{cases}$$

Such a space is called an **Eilenberg-MacLane space** and is denoted $K(G, n)$.