Algebraic topology, Fall 2013

Homework 9, due Wednesday, November 13

Exercise 40 on page 159. Exercises 2, 4, 6, 7 on page 184. Exercises 1, 2, 6 on page 267.

1. Suppose that X has integral homology groups

$$H_0(X) = \mathbb{Z}, \quad H_1(X) = \mathbb{Z}/4 \oplus \mathbb{Q}, \quad H_3(X) = \mathbb{Z}/72 \oplus \mathbb{Z},$$

and all other groups are zero. Determine homology groups of X with coefficients in $\mathbb{Q}$, $\mathbb{Z}/8$, $\mathbb{Z}/2$, $\mathbb{Z}/3$, and $\mathbb{Z}/5$.