Algebraic topology

Homework 9. Due Monday, December 4.

Exercise 41 at the end of section 2.2.

Exercises 1, 2, 5, 6, 10 for section 3.1.

1. Compute homology groups (with coefficients in $\mathbb{Z}$ and $\mathbb{Z}_p$ for all primes p) of $\mathbb{CP}^n \times \mathbb{CP}^m$, $\mathbb{CP}^n \times \mathbb{RP}^m$, and $\mathbb{RP}^n \times \mathbb{RP}^m$. What are Euler characteristics of these spaces?

2. Check that any two free resolutions $0 \to F_1 \to F_0 \to 0$ of an abelian group G are chain homotopy equivalent.