

547 - Fall 2019 - HW6

Due Friday 25 October 2019

1. Use Mayer-Vietoris to compute the homology of $\mathbb{C}P^2$.
2. Prove that if (X, A) is a good pair and A is contractible, then $H_*(X, A, \mathbb{Z}) \cong \tilde{H}_*(X, \mathbb{Z})$.
3. Let X be a space and $x \in X$ a point which is a deformation retract of some open neighborhood of X . Compute $H_*(X - \{x\}, \mathbb{Z})$.
4. Hatcher, Exercise 2.1.16.
5. Hatcher, Exercise 2.1.17.
6. Hatcher, Exercise 2.1.20.
7. Hatcher, Exercise 2.1.29.
8. Compute the integral homology of $\mathbb{R}P^n$ for all $n \geq 2$.
9. Attach a 2-cell to S^1 along the multiplication-by- n map $S^1 \xrightarrow{n} S^1$. Compute the integral homology of the resulting space.