

Homework 4

Topology I, Math 70800, Spring 2021

Instructor: Abhijit Champanerkar

Due: Monday April 12th

(upload pdf scan on CUNY BlackBoard in Homework Section)

Topic: Mayer-Vietoris sequence, cellular homology and Applications

Reading¹

1. Proof, discussion and example of Theorem 2A.1 ($H_1(X)$ and $\pi_1(X)$), pages 167-168.
2. *Alexander Horned Sphere* 2B.2, pages 170-171.
3. Read about homology with coefficients in abelian groups other than \mathbb{Z} (no tensoring involved) - pages 153-155.
4. Read about Homology of groups, pages 148-149.

Problems

1. Section 2.2, page 155 2,4, 8
2. Section 2.2, page 156: 9ac, 11, 12
3. Section 2.2, page 157: 19, 28
4. Section 2.2, page 158: 29, 33
5. Section 2B, page 176: 1,2

Hand-in:

Pages 155-159: 8, 9a, 19, Pages 176: 2

¹All section, chapter, page and example numbers refer to the book "Algebraic Topology" by Allen Hatcher freely available at <http://www.math.cornell.edu/~hatcher/AT/ATpage.html>