Exercise session 8

Algebraic Topology 2022-2023

Due 24 April

Exercise 0

Look through the previous exercise sheets and find some exercises you would like to discuss again in class.

Exercise 1

See Exercise 7 from homework 4.

Exercise 2

See Exercise 5 from homework 4.

Exercise 3 (Exercise 5.5.2 from the notes)

Compute the homology groups of following abstract simplicial complexes, over any ring R:

- the hollow triangle;

- the n-simplex;

- $\Delta_{\leq n-1}$ for Δ an n-simplex.

Exercise 4

Determine whether one can have an exact sequence of the form

$$0 \to \mathbb{Z}/4\mathbb{Z} \to \mathbb{Z}/8\mathbb{Z} \oplus \mathbb{Z}/2\mathbb{Z} \to \mathbb{Z}/4\mathbb{Z} \to 0.$$