Zhengdong Zhang
Email: zhengz@uoregon.edu
Course: MATH 636 - Algebraic Topology III
Instructor: Dr.Daniel Dugger

Homework 3
ID: 952091294
Term: Spring 2025
Due Date: ^{24th} April, 2025

Problem 1
Compute both $\mathrm{Tor}_i(A, B)$ and $\mathrm{Ext}^i(A, B)$ for all i in the following cases:

(a) $A = \mathbb{Z}/9$ and $B = \mathbb{Z}/6$.

(b) $A = \mathbb{Z}/9$ and $B = \mathbb{Z}$.

(c) $A = \mathbb{Z}^2 \oplus \mathbb{Z}/4 \oplus \mathbb{Z}/5 \oplus \mathbb{Z}/10$ and $B = \mathbb{Z} \oplus \mathbb{Z}/3 \oplus \mathbb{Z}/4 \oplus \mathbb{Z}/6$.

Solution:

Problem 1
Let A be an abelian group and