

## Algebraic Topology (Fall 2023): Homework 4

- You **must email your submission** as a **PDF file** to kbala@wsu.edu. You are welcome to write answers by hand, and scan or take photos of the writings. Put all the images on a PDF file, though.
- Your file name should identify you **in the following manner**. For instance, if you are Eric Marsh, you should name your submission EricMarsh\_Hw4.pdf (and **NOT** “Eric Marsh\*.pdf” or “Ericmarsh\_\*.pdf” or ...). **Please avoid white spaces in the file name :-).**
- **Begin the SUBJECT of your email submission with the same FirstnameLastname, expression, e.g., “EricMarsh Hw4 submission”.**
- The book of Munkres (Elements of Algebraic Topology) is denoted [M].
- **This homework is due by 11:59 PM on Thursday, October 12.**

1. (20) [M] Problem 2, Page 33.
2. (20) [M] Problem 4, Page 33.
3. (15) [M] Problem 5, Page 33.
4. (35) [M] Problem 6, Page 33.
5. (20) [M] Problem 1, Page 40. You could use the triangulation of Klein bottle we presented in class (see Lecture 10) instead of the one presented in Figure 6.6 of [M].
6. (40) [M] Problem 2, Page 40. You are welcome to start with an arguably simpler simplicial complex, i.e., one with a smaller number of triangles, than the one presented in Figure 6.11 of [M].