

MATH 431/531 FALL 2016
HOMEWORK 10
DUE NOVEMBER 30, 2016.
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This is the last homework assignment of the course.

Problems:

- (1) Lee, Problem 5-3.
- (2) Lee, Problem 5-9. It's fine to just prove this for finite CW complexes, i.e., CW complexes built from finitely many cells.
- (3) Describe a CW complex homeomorphic to:
 - (a) S^1 (the unit circle in $\mathbb{R}^2$).
 - (b) $S^1 \times S^1$.
 - (c) $S^1 \times S^1 \times S^1$.
 - (d) $S^1 \times S^2$.
 - (e) The Möbius band.

(Here, by *describe* I mean say how many cells there are of each dimension, and how they are attached.) In at least one case, prove that your CW complex is homeomorphic to the specified space.

Challenge problems (required for Math 531, optional for 431):

- (4) Lee, Problem 5-12.
- (5) Lee, Problem 5-13.

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