



LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

MATHEMATISCHES INSTITUT



Fall term 2017

Prof. T. Vogel
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Topology I

Sheet 3

Exercise 1. Show that $\overline{D^n}$ is a CW-complex.

Exercise 2. Find a CW-complex $X = X^2 \supset X^1 \supset X^0$ such that the image of the characteristic map of a cell is not a union of cells.

Exercise 3. Show that the product of n finite CW-complexes is a CW-complex.

Exercise 4. Let $X_n = \{x \in \mathbb{R}^2 \mid \|x - (\frac{1}{n}, 0)\| = \frac{1}{n}\}$ and $X = \bigcup_{n \in \mathbb{N}} X_n$. Show that X is not a CW-complex.

Exercise 5. Let X be a CW complex and $A \subset X$ a subcomplex. Show that X/A has a canonical CW-structure.

Hand in: during the lecture on Monday, November 6th.