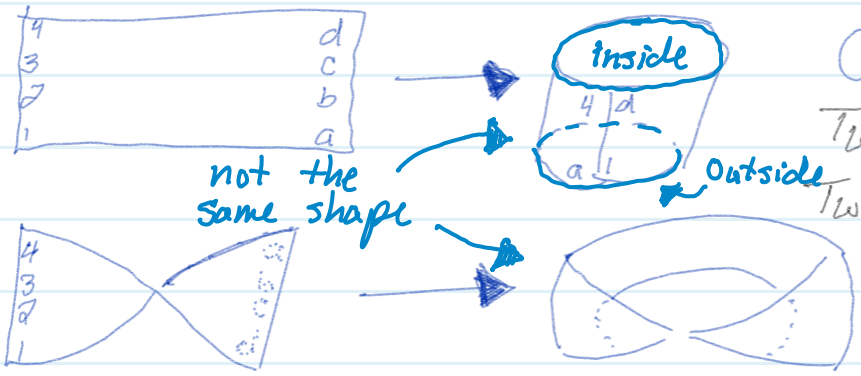
General Topology

8/22

The Mobius Band/Strip



Cylinder
Two Boundary Components
Two Faces

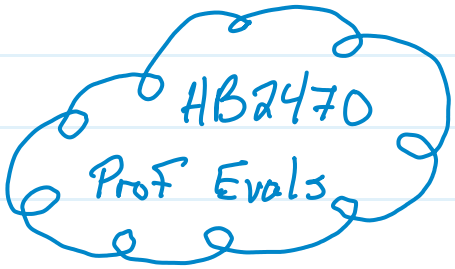
Mobius Strip
How many boundaries?
One Face (no inside/outside)

An example of Mobius Band

Q: What does it mean for shapes to be equivalent?

For class:
- Read notes before lectures
- Weekly writting Assignments
- Weekly homeworks
  - ↳ site sources
  - ↳ list collaborators
- Weekly quizzes
- Weekly extra credit

This Week:
- Complete the survey
- Meet w/ Hiro



Sets:

Defn (informal) A set is a collection of things.

Notation: We write, e.g. $A = \{a, b, \text{banana}, \pi\} = \{\text{banana}, \pi, a, b\}$ to mean A is a set w/ elements a, b, banana, π.

Notation: We write $\emptyset$ for the empty set

Ex $\emptyset = \{\}$

Ex $B = \{b, A, \{b\}, \emptyset\}$

Ex $\emptyset, \{\emptyset\}, \{\emptyset, \{\emptyset\}\}, \{\emptyset, \{\emptyset\}, \{\emptyset, \{\emptyset\}\}\}, \ldots$

# of elements: 0, 1, 2, 3, ...

Defn: Fix two sets A & B. We say A is a subset of B if $\forall\, a \in A,\ a \in B$.

"for all" / "for every"; "is an element of"

Defn: Fix a set A. The power set of A is the set of all subsets of A. We let $P(A)$ denote the power set of A.