Math 361: Introduction to Topology
Asst. 4, due F., 2/17

• read sections 1.6, 2.1, 2.2 of Messer/Straffin

You should submit at least 6 of the following problems.

Required

1. Last week you showed that the spaces $(0, 1)$ and $\mathbb{R}$ are homeomorphic. Are the spaces $[0, 1]$ and $\mathbb{R}$ homeomorphic? Either give a map between them that is a homeomorphism or show that no such map can exist (using invariants).

2. 1.6.3

3. 1.6.9

Optional Problems

4. Similar to the first problem, determine whether the closed unit disk $D^2 = \{x^2 + y^2 \leq 1]\}$ and $\mathbb{R}^2$ are homeomorphic?

These problems are also optional: 1.5.11
1.6.4, 1.6.5, 1.6.7
2.1.2, 2.1.10