

Math 431/531 (Topology), Fall 2015
HW 9

Starred problems are for 531 students, and are extra credit for 431 students. 531 students must LaTeX their solutions.

Please read K, Ch 5, and try to really follow all the pictorial arguments! These are really nice, and I haven't done enough stuff like this in class. You can stop before 5.6, since I'm not assuming people know groups.

1. Exercises 5.3adef from K.
2. Exercises 8.14defi(jl*) from K
3. Exercises 2, 4 from Munkres p145 (I would read 3 too)
4. (a) Show that $\mathbb{R}/[0, 1]$ is homeomorphic to \mathbb{R} .
(b) Show that $\mathbb{R}/(0, 1)$ is not homeomorphic to a subspace of \mathbb{R} .
(c) (*) Show that $\mathbb{R}^2/\overline{D^2}$ is homeomorphic to \mathbb{R}^2 , where $\overline{D^2}$ is the closed unit ball around the origin.