

# MAT 541: Algebraic Topology

## Suggested Problems for Week 7

You may hand in solutions to at *most* 2 problems every 2 weeks and no later than 2 weeks after the necessary material for them is covered in class.

From Munkres: 21.2, 22.1, 22.5, 28.1-3, 29.2, 30.1, 30.3, 30.4, 30.7

### Problem L

Show that  $\mathbb{R}^m$  is not homeomorphic to  $\mathbb{R}^n$  for any  $n \neq m$  and to  $\mathbb{H}^n \equiv \mathbb{R}^{n-1} \times \mathbb{R}^{\geq 0}$  for any  $n$  and that  $\mathbb{H}^m$  is not homeomorphic to  $\mathbb{H}^n$  for any  $n \neq m$ .