

Dror Bar-Natan: Classes: 2004-05: Math 1300Y - Topology:

## Homework Assignment 10

Assigned Tuesday March 15; due Thursday March 24, 3PM, in class

**Required reading.** Read, reread and reread your notes to this point, and make sure that you really, really really, really really really understand everything in them. Do the same every week! Also, read Hatcher's pages 134–155 and 166–176.

**Solve the following problems.** (But submit only the underlined ones). In Hatcher's book, problems 3, 4, 8, 9 (a, b, c, d), 12, 14, 28 and 32. on pages 155–159.

**Just for fun.** Remember the connected sum operation  $\#$  from our quick discussion of surfaces? Prove that the connected sum  $\mathbb{R}P^2 \# \mathbb{R}P^2 \# \mathbb{R}P^2$  of three copies of the projective plane  $\mathbb{R}P^2$  is homeomorphic to the connected sum  $\mathbb{R}P^2 \# T^2$  of a single projective plane  $\mathbb{R}P^2$  and single torus  $T^2$ .