

Math 9024 Homework 5

Do over break – no need to hand in

1. Download *Hyperbolic Games*, by Jeff Weeks. Learn how to use the mouse (it's not entirely easy). Then play some of the games. Billiards is particularly hard!

<http://geometrygames.org/HyperbolicGames/>

2. Download *SnapPy*, by Culler, Dunfield, and Weeks. Watch the YouTube tutorial. Draw the 5_2 knot and send it back to SnapPy. What is the volume of the complement? What does the cusp neighborhood look like? What is the volume of the $(3, 4)$ Dehn filling? How about the $(2, 3)$ and $(2, 1)$ Dehn fillings? See if you can find all the non-hyperbolic fillings.

<http://www.math.uic.edu/t3m/SnapPy/>