

Homework 3

Due Wednesday, 2/8

1. In this problem draw gluing diagrams (squares with labels) and give a name of:
 - a) an orientable closed surface with flat local geometry.
 - b) a nonorientable closed surface with flat local geometry.
 - c) an orientable open surface with flat local geometry.
 - d) a nonorientable closed surface with curved local geometry.
2. What is a projective plane (as always give ALL relevant information, draw pictures, etc. Start with an actual definition and then give two gluing diagrams for it)?
3. What is a connected sum of two tori topologically? Go through the process step by step, and draw pictures to justify your answer.
4. Explain why the connected sum of a sphere with any other surface gives you that surface.