Space: Its Light, Its Shape.
Chapter 7: Flat Manifolds, Part I

Assignment: For Wednesday, February 2, 2005

- Read Chapter 7.
- Though everyone is responsible for reading all of the material and for working out all of the exercises, teams have been assigned specific material and exercises for which they are responsible in class presentations. You may want to come to class early to firm up and smooth out the exercises with your teammates.

Team 3: Carefully explain and illustrate why the biplane pilot sees herself in infinitely many directions.

Team 4: Present Exercise 7.1.

Team 1: Show the appropriate coloring of Figure 7.5 as described in "Do-It-Yourself Coloring" on page 103. Explain how the results illustrate the three-torus. A downloadable copy of Figure 7.9 is on this website and may be helpful here.

Team 2: Show the appropriate coloring of Figure 7.7 as described in "Do-It-Yourself Coloring" on page 103. Explain how the results illustrate $K^2 \times S^1$, A downloadable copy of Figure 7.9 is on this website and may be helpful here.

Team 3: Present Exercise 7.3. A downloadable copy of Figure 7.9 is on this website and may be helpful here.

Team 4: Carefully explain how to use a picture such as Figure 7.7 to determine how the cube's faces were glued together.

Team 1: Present Exercise 7.4.

Team 2: Present Exercise 7.5.

Team 3: Suppose you live in a three-manifold made from gluing opposite sides of a cube. Describe how you can tell which of these you live in? What does this tell you these types of three-mainifolds?