Math 540: Exercises for Week 9

Reading: Hatcher Section 2.2

1. Hatcher 2.2.1

2. Hatcher 2.2.2

3. Hatcher 2.2.9

4. Hatcher 2.2.11

5. Hatcher 2.2.12 [Remark: This is an example of a map which induces the trivial map on all *homotopy* groups but is not nulhomotopic.]

6. Hatcher 2.2.22 and 2.2.23. [These are really two parts of the same problem.]

7. Hatcher 2.2.24 [Also, complete the argument that these two graphs are nonplanar if you haven't seen it before.]