Homework 12, due Friday 4/14

1. p. 471, problems 1, 6
2. Compute the area of the surface given by $\phi(r, \theta) = (r\cos(\theta), r\sin(\theta), \theta)$ with $\theta \in [0, 2\pi$ and $r \in [0, 1]$. Use the fact that $\int_0^1 \sqrt{1+x^2}\, dx = \frac{1}{2}\left(\sqrt{2} + \log(1+\sqrt{2})\right)$.
3. p. 471, problem 7. (to be precise, show that its surface area is infinite, but that the volume is finite)
4. p. 471, problem 8 (note that you are *not* required to evaluate the integral)
5. Read p. 466-467 in the book.
6. p. 480, problems 1, 3, 7
7. p. 481, problem 11