

Homework 12, due Friday 4/15

1. p. 471, problems 1, 6
2. Compute the area of the surface given by $\phi(r, \theta) = (r \cos(\theta), r \sin(\theta), \theta)$. Use the fact that $\int_0^1 \sqrt{1+x^2} dx = \frac{1}{2} (\sqrt{2} + \log(1 + \sqrt{2}))$.
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