Homework 13

Due Friday, November 14, 2008

NOTA BENE: The second midterm is scheduled for Monday, November 17.

(a) Study for the midterm. Prepare yourself to do your very best.

(b) On page 632, in section 12.9, do problems: 4, 14, 22, 28, 44.

(c) Here is another way to get a series equal to π. Geometrically, we know that

$$\pi = 4 \cdot \int_0^1 \sqrt{1 - x^2}\, dx.$$

We also know that for $|x| < 1$,

$$\sqrt{1 - x} = \sum_{n=0}^{\infty} \frac{(2n)!}{(1 - 2n)\,(n!)^2\, 4^n} x^n.$$

Combine these facts to find a series converging to π.