Math 026L.04 Spring 2002
Assignment #7

This assignment is due Monday, March 25, 2002. You must work through all problems on your own. You may consult any reference materials, and seek help in the Help Room, but do not discuss these problems with anyone else in the class. Answers must be justified whenever possible in order to earn full credit.

1. Calculus Page 250 #1, #2

2. Calculus Page 251 #12

3. Calculus Page 251 #21

4. Calculus Section 6.2 (Not to be handed in.)
All problems listed on the syllabus for Day 11-3.

5. Compute the following.

(a) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos(x)\, dx$

(b) $\int \frac{t^3+1}{t}\, dt$

(c) $\int_{1}^{-1} 2^y\, dy$

(d) $\int \frac{1}{1+x^2}\, dx$

6. Consider the function $f(x) = x^{-2}$ on $[1, c]$. Find the value of c so that the average value of $f(x)$ on $[1, c]$ is equal to 1.

7. Suppose that $f(x) = \sqrt{x}$ and $g(x) = x^2$. Find the area *between* $f(x)$ and $g(x)$ from $x = 0$ to $x = 1$.
(Hint: Draw a picture and figure out where $f(x)$ and $g(x)$ intersect.)