NAME _____ Rec. Instr._____

Signature _____ Rec. Time_____

CALCULUS 2
EXAM II
March 16, 1999

Show all work for full credit. No calculators, books or notes are allowed. The point value of each problem is given in the margin.

problem	1	2	3	4	5	6	7	8	total
points									
points possible	12	12	12	12	15	12	12	13	100

In problems 1-7, evaluate the given integrals.

(12) 1. $\int_0^{\pi/8} \cos^3 4x \, dx$

(12) 2. $\int x \sec^2 x \, dx$

(12) 3. $\int \frac{x \, dx}{\sqrt{1 - x^4}}$ (Hint: Substitution works.)

(12) 4. $\int \sec^4 x \, dx$

(15) 5. $\displaystyle\int \frac{x^3+1}{x^4+x^2}\,dx$

(12) 6. $\int \sqrt{9+4x^2}\,dx$

(12) 7. $\displaystyle\int \frac{dx}{\sqrt{2x - x^2}}$

(13) 8. "Raphael's horn" is the solid figure obtained by rotating the graph of $y = e^{-x}$ around the y-axis, from 0 to ∞. Find the volume of Raphael's horn. (For full credit, set up the "volume element" in full detail.)