Calculus II - Test 1 Name: _____

September 18, 2001 Recitation Hour: _____

Coordinator: Louis Crane Recitation Instructor: _____

Problems	Score
1	
2a	
2b	
2c	
2d	
2e	
3a	
3b	
3c	
3d	
4	
5	
Total	

I. Short Answers

A) $e^{\ln(x)} =$

B) $\log_{10} 10^5 =$

C) $\log_{10} 1000000 =$

D) $\ln\left(e^{2x^2+3x}\right) =$

E) $\lim_{x \Rightarrow \infty} \frac{x^3}{e^{2x}} =$

II. Differentiate

A) $\ln\left(\frac{\sqrt[3]{x^2+1}}{(x^2+2x)^2}\right)$

B) $\ln(\cos(x))$

C) e^{2x^2+4x}

D) 3^{x^2}

E)$\tan^{-1}(2x^2)$

III. Integrate

A) $\displaystyle\int \frac{1}{2x+1}dx$

B) $\displaystyle\int \frac{\ln(x)}{x}dx$

C) $\displaystyle\int \frac{x^2}{4-x^3}dx$

D) $\displaystyle\int \frac{dx}{1+x^2}$

IV. A spill of a certain radioisotope has left a labratory contaminated at 15 times the allowable level. If the half life of the isotope is 6 weeks, when can the lab be reentered legally.

V. Derive the formula for the derivative of the inverse tangent function.