GEORGIA TECH SCHOOL OF MATHEMATICS
MATH 1502

CALCULUS II, SECTION D
Quiz # 1
August 26th 2009

First Name : _____

Last Name : _____

1. Compute the following limits (*what method are you using ?*)

$$\lim_{x\to\pi/2} \frac{\cos^2 x}{1-\sin^5 x} =$$

$$\lim_{x\to 0} \frac{\ln\cos x}{x^2} =$$

$$\lim_{n\to\infty} (n^2+2n)^{1/n} =$$

2. Is the following integral convergent or not ?(*give the method of proof*)

$$\int_1^{+\infty} \frac{\ln^2 x}{x^2}\, dx$$

3. Give the set of values of α for which the following integral converges ? (*Hint : beware of the two limit points !*)

$$\int_0^{\infty} \frac{dx}{x^{1-\alpha}(1+x)}$$