

GEORGIA TECH

SCHOOL OF MATHEMATICS

MATH 1502

CALCULUS II, SECTION K

Quiz # 1

September 1st 2010

First Name : -----

Last Name : -----

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

$$\lim_{x \rightarrow 0} \frac{\sqrt{x^2 + 1} - 1}{x^3 + 3x^2} =$$

$$\lim_{x \rightarrow 0} \frac{1 - \cos x}{\sin^2 x} =$$

$$\lim_{n \rightarrow \infty} \left(\sin(2\pi/n) \right)^{1/n} =$$

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

$$\int_1^{+\infty} \frac{1}{(1 + 5x^3)^{1/4}} dx$$

3. Give the set of values of β for which the following integral converges?

$$\int_0^{\infty} \frac{dx}{(1 + 351x + x^3)^\beta}$$