

GEORGIA TECH

SCHOOL OF MATHEMATICS

MATH 1502

CALCULUS II, SECTION D

Quiz # 4

September 16, 2009

First Name : _____

Last Name : _____

1. Determine whether the following series converge

(Indicate which criterion is used)

$$\sum \frac{k^k}{(1.5)^{k^2}}$$

2. Indicate whether the following series is absolutely convergent or conditionally convergent. *(Indicate which criterion is used and check carefully that the conditions for this criterion are satisfied!)*

$$\sum \frac{(-1)^k}{\sqrt{k(k+1)}} =$$

3. Find the interval of convergence of

$$\sum_{k=1}^{\infty} \frac{\ln k}{5^{k/2}} (x - 1)^k$$

4. Give the power series representation of $f(x) = (1 - x^2)^{-2}$

(Hint : compute f from the derivative of the harmonic series)

$$f(x) =$$

5. Give the power series representation of

(Hint : use the power series expansion of $\arctan t$)

$$\int_0^x \frac{\arctan t}{t} dt$$