Georgia Tech School of Mathematics
Math 1502

Calculus II, Section D

Quiz # 3

September 9 2009

First Name : _____

Last Name : _____

1. Transform the first expression into the second by a change of indices *(Check ALL details carefully!!)*

$$\sum_{n=2}^{25} \frac{(-1)^n}{n-1}; \qquad \sum_{k=1}^{24} \frac{(-1)^{k+1}}{k}$$

2. Find the *sum* of the series *(Hint : transform it as a telescopic sum.)*

$$\sum_{n=3}^{\infty} \frac{1}{n(n-1)} =$$

3. Find the *sum* of the series *(Hint : use the geometric series.)*

$$\sum_{j=0}^{\infty}(-1)^j x^{2j} \;=$$

4. Are the following series convergent or not ? *(Indicate explicitly the test used to conclude. Be careful there is a trap !)*

(a)

$$\sum \frac{n+117}{(n^3+4n^2)^{5/6}}$$

(b)

$$\sum \frac{5n+3\cos\left(n\pi/\sqrt{3}\right)}{(n^3+4n^2)^{1/3}}$$