Georgia Tech School of Mathematics
Math 1502

Calculus II
Quiz # 1
August 29th, 2007

First Name : _____

Last Name : _____

1. Give the Taylor series for

$$\cos(x) \;=$$

2. If $p(x) = 1 + 7x^{11}/11! - 8x^{17}/17!$ give the values of

$$p^{(17)}(0) \;=$$

3. Give the Taylor series for

$$\frac{1}{(1+2x)^{1/2}}$$

4. Give the Taylor *polynomial* up to order $2n-1$ of

$$\ln\left(\frac{1+x}{1-x}\right) =$$

5. One will admit that the remainder R_{2n+1} of the previous expansion, in question 4, is bounded by

$$R_{2n+1} \leq \frac{2x^{2n+1}}{(2n+1)(1-x^2)}$$

Use question 4, with $n=3$, to compute the number $\ln 3$ with less than 1% of error. *(Use* $1/12 = .08333333$*,* $1/80 = .0125$*,* $1/336 \leq .003$*)*