

GEORGIA TECH

SCHOOL OF MATHEMATICS

MATH 1502

CALCULUS II, SECTION D

Quiz # 1

August 27th, 2008

First Name : -----

Last Name : -----

1. Give the Taylor series for

$$\sin(x) =$$

2. If $p(x) = 1 + 7x^{12}/12! - 8x^{27}/27!$ give the value of

$$p^{(27)}(0) =$$

3. Give the Taylor expansion to order 2 for

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

4. Give the Taylor *polynomial* up to order n of

$$-\ln(1-x) =$$

5. One will admit that the remainder R_n of the previous expansion, in question 4, is bounded by

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

Use question 4, with $n = 3$, to compute the number $2 \ln 2 - \ln 3$ with less than 1% of error. (Use $x = 1/4$ and $1/32 = .03125$, $1/192 = .0052$, $1/432 \leq 0.0025$)