NAME: _____ STU. NO: _____

Tuesday 5 PM, March 27, 2001
MAT 187H1S Quiz 3
Calculus II
Duration: 30 minutes
Only aids allowed for this quiz: a non-programmable calculator.

Instructions: Present your solutions to the following questions on this sheet, using both sides. Make sure to fill in your name and student number at the top of this sheet.

TOTAL MARKS: 20

1. (5 marks) Use the Maclaurin series for $\frac{1}{1+x}$ to find the $4th$ degree Taylor polynomial of $f(x) = \frac{x^2}{1+x}$ about $x = 0$.

2. (5 marks) Find the radius of convergence of the power series $\sum_{n=0}^{\infty} \frac{(n!)^3}{(3n)!} x^{2n}$

3. (5 marks) Find the sum of the power series $\sum_{n=2}^{\infty} n(n-1)x^{n-2}$

4. (5 marks) Use the first three (non-zero) terms of the Maclaurin series for $\sin(x^2)$ to approximate the value of the integral $\int_0^{1/2} \sin(x^2)\,dx$