NAME: _____ STU. NO: _____

Tuesday, June 19, 2001
MAT 187H1F Last Quiz
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) Does the infinite series $\sum_{n=1}^{\infty} \frac{1}{n^2+n}$ converge or diverge? Justify your answer.

2. (5 marks) Does the infinite series $\sum_{n=1}^{\infty} \frac{1}{n}\left(\frac{n+1}{n}\right)^n$ converge or diverge? Justify your answer.

3. (5 marks) Find the exact sum of the series $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n3^n}$

4. (5 marks) Approximate the value of $\int_0^{0.5} \sin(x^2)\,dx$ correct to within 0.001, and explain why your approximation *is* correct to within 0.001