

NAME: _____ STU. NO: _____

Tuesday, May 29, 2001

MAT 187H1F 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) Plot the curve with polar equation $r = \cos(4\theta)$

2. (7 marks) Find the length of the curve with parametric equations $x = e^t - t$ and $y = 4e^{t/2}$ for $0 \leq t \leq 1$.

3. (8 marks) Consider the curve with parametric equations $x = 1 + t^2$ and $y = t \ln t$, for $t > 0$.

(a) (5 marks) Find both $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$

(b) (3 marks) Find the only critical point on the above curve, and determine if it is a relative maximum point, or a relative minimum point.