Name: _

Math 152 Calculus II - Crawford

Books, notes (in any form), and calculators are not allowed. Show all your work. Good Luck!

1. (5 pts) Given a curve defined by the parametric equations x = t - 3 and $y = \sqrt{t}$,

(a). Make a table of values and sketch the curve. Indicate with an arrow the direction in which the curve is traced as t increases. Plot at least 4 points. [Choose the t-values wisely.]



(b). Eliminate the parameter to find a Cartesian equation of the curve.

2. (6 pts) Given $x = 2 + \ln t$, $y = 2t^2 + 3$,

(a). Find and simplify
$$\frac{dy}{dx}$$
. (b). Find and simplify $\frac{d^2y}{dx^2}$

(c). Find the slope of the tangent line at the point (2,5).

3. (4 pts) Set up, <u>but do not evaluate</u>, the integral(s) to find the area enclosed by the parametric curve $x = t^2 - 4$ and $y = 3t - t^2$ and the x-axis.

