Name_____

QUIZ 1 - MATH 53

SEPTEMBER 4, 2008

Consider the curve given by the parametric equations

$$x = 1 + \sin(t), \qquad y = \cos^2(t), \qquad -\pi/2 \leq t \leq \pi/2.$$

a)[3pts] Compute $\dfrac{dy}{dx}$ and $\dfrac{d^2y}{dx^2}$ as functions of t.

b)[3pts] Set up integrals to compute the length of the curve and the area under the curve. *You do not need to evaluate the integrals.*

c)[3pts] Eliminate t and plot the curve, indicating direction with an arrow.