Name_____
Student I.D._____

Math 2250−4
Quiz 1
January 13, 2012

1) Write down an initial value problem for the function $N(t)$, as described below. Do not attempt to find the actual solution function.

In a city with a population of 20 thousand people, the number of people *N* who have heard a certain rumor *t* days after the rumor began is increasing at a rate proportional to the product of the number who've heard the rumor and the number who haven't yet heard it. The rumor began when 3 thousand people heard it on the radio.

(4 points)

2) Find the position function $x(t)$ of a particle moving along a straight line, if the acceleration $a(t) = e^{-(0.5)t}\ \frac{m}{s^2}$, and the initial position and velocity are given by $x(0) = 0\ m$ and $v(0) = 3\ \frac{m}{s}$.

(6 points)