Math 2250-4
Quiz 1
January 11, 2013

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

A flu virus is introduced into an isolated city with a population of eight thousand people. As the flu spreds, the number $N(t)$ of infected people is proportional to the product of the number who are infected with the number who are not infected (because the probability that an infected person meets an uninfected person is also proportional to this product). On the day $t = 0$ that the flu epidemic becomes known to local authorities there are already one thousand people infected.

(4 points)

2) Find the position function for an object moving along a line with acceleration $a(t) = 6 \sin(3 t) \ \frac{m}{s^2}$ if

it's initial velocity is $v_0 = 0 \ \frac{m}{s}$ and its initial position is $x_0 = 5 \ m$.

(6 points)