Name_____

Student I.D._____

Math 2250-010
Quiz 7 Take-home
March 21, 2014
Due at the start of class on Monday

1) Consider the following four mechanical oscillation differential equations. In each case answer the following questions:

(i) Find the general solution, if the differential equation is homogeneous. If the problem is inhomogeneous write the "undetermined coefficients" guess for a particular solution. You do not need to find the numerical values of the undetermined coefficients on this quiz, although that is something you should be able to do.
(ii) What physical phenomenon is exhibited by the general solutions to this differential equation?

1a) $x''(t) + 2x'(t) + 17x(t) = 0$

(2 points)

1b) $x''(t) + 16x(t) = 0$

(2 points)

1c) $x''(t) + 16x(t) = 4\cos(4t)$.

(3 points)

1d) $x''(t) + 16x(t) = 4\cos(4.5t)$.

(3 points)