

Name\_\_\_\_\_

Student I.D.\_\_\_\_\_

**Math 2250–1**  
**Quiz 9**  
**November 4, 2011**

1) Consider the differential equation for  $x(t)$  , which could arise in a model for forced damped mechanical motion:

$$x''(t) + 2 \cdot x'(t) + 5 \cdot x(t) = 10 \cdot \sin(t).$$

1a) Find a particular solution to this differential equation using the method of undetermined coefficients. (6 points)

1b) What is the general solution to the differential equation above? (3 point)

1c) Why is the particular solution you found in part (1a) called the steady–periodic solution for this forced and damped oscillation problem? (1 point)

