

**Quiz 11**

Mon. June 29, 2009

Last name: \_\_\_\_\_ First name: \_\_\_\_\_

**Instructions.** You have 15 minutes to work on the following problems. Indicate the final answer clearly, but show all your work. You may use the full capabilities of your graphing calculator. It is also acceptable to use drawing tools (rulers and compasses), but you are not allowed to use the book, your notes, nor any other aid.

**Problem 1.**

For the equation specified, determine the frequency of the beats and of the rapid oscillations.

$$\frac{d^2y}{dt^2} + 25y = \cos 4t.$$

**Problem 2.** Find the general solution of the given equation. Express the steady state term in the form  $A \sin(\omega t + \phi)$ .

$$\frac{d^2y}{dt^2} + 4\frac{dy}{dt} + 5y = \sin 3t$$