Differential Equations, Spring 2011
Quiz Feb 7

Name:

You have 20 minutes to do this quiz. You may not use any books or notes while you do the quiz nor discuss the quiz with anyone. You may not use a calculator. Show your work clearly.

1. Translate the following statement into a differential equation (do not solve it). State clearly what your variables represent and give units to your variables.

I have money in the bank that is earning interest. The rate of increase of my money is proportional to the amount of money I have in the bank.

2. a. Find the solution of the differential equation \( \frac{dy}{dt} = -3(y - 7) \) that satisfies the initial condition \( y(0) = 12 \).

(one more question on next page).
2b. What is the long term behavior of this solution? i.e. as \( t \to \infty \), what happens to \( y(t) \)? Sketch \( y(t) \).

Self evaluation: (Circle) Rate your level of understanding of the material on the quiz:

Mastery       Developing       Not Yet