Math 026L.04 Spring 2002
Quiz #4   Name: _____

You have 20 minutes to complete this quiz which is worth 20 points. Calculators are permitted, but no other aids are allowed. Show all work neatly and in order, and clearly indicate your final answers. Answers must be justified whenever possible in order to earn full credit. When you do use your calculator, sketch all relevant graphs and write down all relevant mathematics.

1. (*10 points*) Solve the following initial value problems.

(a) $\dfrac{dP}{dt} = -2P,\ P(0) = 1$

(b) $\dfrac{dB}{dt} + 2B = 50,\ B(1) = 100$

2. (*10 points*) Suppose that the number of bacteria in a colony increases at a rate proportional to the number there with constant of proportionality $k = 2.3$ when time is measured in days. If we start with 20 bacteria, how many will we have after 8 days?