Math 101 (03): Homework #10

due Thursday, Oct.28

Problems 2,4,6,8,10 from Chapter 10 (pages 89-90).

2. A Pseudomonas bacteria culture grows continuously at an instanteneous rate of 4% a minute. If the population is currently 1000, what will it be in one hour? Ten hours?

4. How long will it take money in the bank to triple at 7% interest compounded continuously? At 14%?

6. Two hundred thirty-eight grams of uranium-238 (half-life 4.5 billion years) contain Avogadro's number, about 6×10^{23}, atoms. How many will decay in the first year? In the first second?

8. The amount of carbon-14 (half-life 5730 years) left after 10,000 years is 5 grams. How much was there to start with?

10. In the first hour a culture of *E. coli* bacteria grows from 1000 to 7500. Predict the population after one day.