1.(1 pt)
A bacteria culture initially contains 2500 bacteria and doubles every half hour.
Find the size of the baterial population after 40 minutes. ____
Find the size of the baterial population after 4 hours. _____

2.(1 pt)
A certain bacteria population is known to doubles every 90 minutes. Suppose that there are initially 190 bacteria.
What is the size of the population after t hours? _____

3.(1 pt) If a bateria culture starts with 7000 bateria and doubles every 25 minutes, how many minutes will it take the population to reach 30000? _____

4.(1 pt) The count in a bateria culture was 600 after 10 minutes and 1500 after 35 minutes. What was the initial size of the culture? _____ Find the doubling period. _____ Find the population after 120 minutes. ____ When will the population reach 15000. _____

5.(1 pt) The doubling period of a baterial population is 20 minutes. At time $t = 110$ minutes, the baterial population was 80000. What was the initial population at time $t = 0$? _____
Find the size of the baterial population after 5 hours. _____

6.(1 pt)
A bacteria culture initially contains 2000 bacteria and doubles every half hour. The formula for the population is $p(t) = 2000e^{kt}$ for some constant k. (You will need to find k to answer the following.)
Find the size of the baterial population after 20 minutes. ____
Find the size of the baterial population after 4 hours. _____

7.(1 pt) The doubling period of a baterial population is 15 minutes. At time $t = 80$ minutes, the baterial population was 70000. For some constant A, the formula for the population is $p(t) = Ae^{kt}$ where $k = \frac{\ln 2}{15}$. What was the initial population at time $t = 0$? _____
Find the size of the baterial population after 4 hours. _____

8.(1 pt)
The rat population in a major metropolitan city is given by the formula $n(t) = 44e^{0.03t}$ where t is measured in years since 1990 and $n(t)$ is measured in millions.
What was the rat population in 1990 ? _____
What is the rat population going to be in the year 2001 ? ____

9.(1 pt) The half-life of Radium-226 is 1590 years. If a sample contains 100 mg, how many mg will remain after 4000 years? _____

10.(1 pt) The half-life of Palladium-100 is 4 days. After 12 days a sample of Palladium-100 has been reduced to a mass of 3 mg. What was the initial mass (in mg) of the sample? _____
What is the mass 7 weeks after the start? _____

11.(1 pt) If 8000 dollars is invested in a bank account at an interest rate of 4 per cent per year, find the amount in the bank after 11 years if interest is compounded annually _____
Find the amount in the bank after 11 years if interest is compounded quaterly _____
Find the amount in the bank after 11 years if interest is compounded monthly _____
Finally, find the amount in the bank after 11 years if interest is compounded continuously _____

12.(1 pt) The 1906 San Francisco earthquake had a magnitude of 8.3 on the Richter scale. At the same time in South America there was an eathquake with magnitude 4.5 that caused only minor damage. How many times more intense was the San Francisco earthquake than the South American one? _____

13.(1 pt) The pH scale for acidity is defined by $\text{pH} = -\log_{10}[\text{H}^+]$ where $[\text{H}^+]$is the concentration of hydrogen ions measured in moles per liter (M). A substance has a hydrogen ion concentration of $[\text{H}^+] = 2.8 \times 10^{-5}\text{M}$. Calculate the pH of the substance. _____