1. The size $P$ of an insect population at time $t$ (in days) obeys the function $P(t) = 100e^{0.04t}$
   a) Determine the number of insects at $t = 0$ days.
   b) What is the growth rate of the insect population?
   c) What is the population after 10 days?
   d) When will the insect population reach 1000?

2. $3000$ is deposited in a savings account. How long does it take the money to grow to $5000$ if it earn 6% a year compounded continuously?

3. A colony contained 2000 bacteria at 6 AM, 3000 at 8 AM.
   a) How many will there be at noon?
   b) When will there be 10000 bacteria?
4. The fox population in a certain region has a relative growth rate of 7% per year. It is estimated that the population in the year 2000 was 10,400.
   a) Find the function that models the population $t$ years after 2000 ($t = 0$ for 2000)
   b) Use the function from part (a) to estimate the fox population in the year 2008.

5. A bacteria culture initially contains 1500 bacteria and doubles every half hour.
   a) Find the size of the bacteria population after 20 minutes.
   b) Find the size of the bacteria population after 8 hours.