Math 1B Name _____

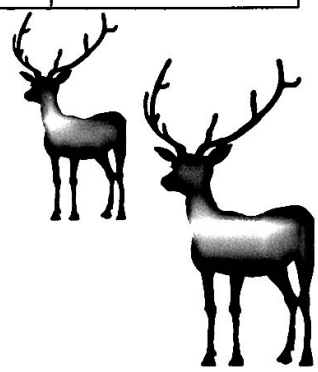
Homework: Population Growth & Other Word Problems

Unit 10 Day 2

The Elk Population

Time (Year) (n)	Population (p)
0	30
1	57
2	108
3	206
4	391
5	743

1) The table shows that the elk population in a state forest is growing exponentially. Hint: DIVIDE! 743 ÷ 391 = 391 ÷ 206 =
   a) What is the growth factor?
   b) By what percent is the population growing?
   c) Write a recursive equation you could use to predict the elk population.
   d) Write an explicit equation in function notation to predict the elk population *p* for any year *n* after the elk were first counted.
   e) Suppose this growth pattern continues. How many elk will these be after 10 years? How many elk will there be after 15 years?
   f) In how many years will the elk population **exceed** one million?



Movie Ticket Costs

2) Suppose a movie ticket costs about $7, and inflation causes ticket prices to increase by 4.5% a year for the next several years.
   a) Write an explicit formula.
   b) Write a recursive equation you could use to predict the movie ticket costs.
   c) At this rate, how much will tickets cost 5 years from now?
   d) After which year will a ticket cost $25?

3) **Suppose there are 5,000 giraffes in my backyard and the population is growing at a rate of 2.5% each year.**

Year	Number of Giraffes
0	
1	
2	
3	

a) Complete the table to show the projected number of giraffes at the end of 3 years.
b) What is the initial population? _____
c) What is the common ratio? _____
d) Write an explicit equation in function notation form that models the growth of the giraffe population.

_____

e) How long will it take the population to **exceed** 6,500? _____