Population Growth

Formulas:

$N_1 = N_0 + rN_0$

$r = \frac{N_1 - N_0}{N_0}$

You start with 20 rabbits (assume there are and equal number of males and females).

Your rabbits are a slow breeding variety that you allow to breed only once a year. On average you only get three baby rabbits a year for every 10 adults in your breeding population.

What is N_0 (That is, the number you have right now, at the start)? _____

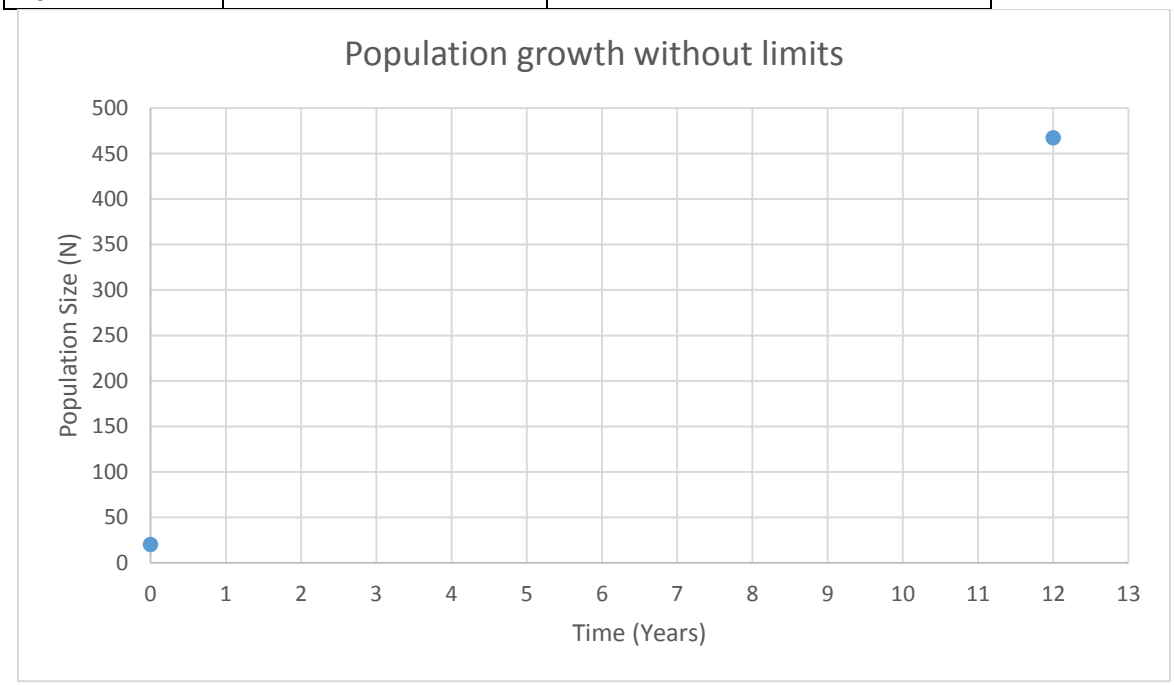
How many baby rabbits will you have next year? _____

How many total rabbits will you have in your population next year (N_1)? _____

What is the value of *r* for this population? _____

Calculate the following values and then draw a graph of the population size over time.

t (Time in years)	*N* (Current Pop. Size)	rN_t Number of baby rabbits produced
0	20	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		



When was the change in population size the slowest and when was it the fastest? (Look at either rN_t or the steepness of the line on your graph).

If the population growth rate (*r*) was the same throughout, why wasn't the change in population size constant? (Why isn't your graph a straight line?

Growth with limits

In the real world, what are some of the likely consequences that might occur when a population becomes too large?