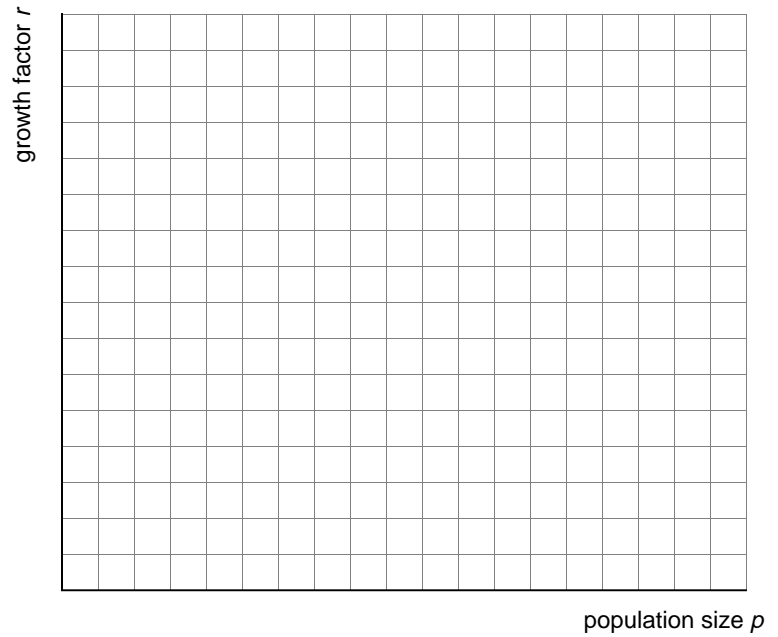


Logistic Model for Mold Growth Experiment

Nutrient Test Solution _____

1. Find the equation for r as a function of p .



2. Find the difference equation for this population model in the form $p_{n+1} = m(L - p_n)p_n$.

$m =$ _____

$L =$ _____

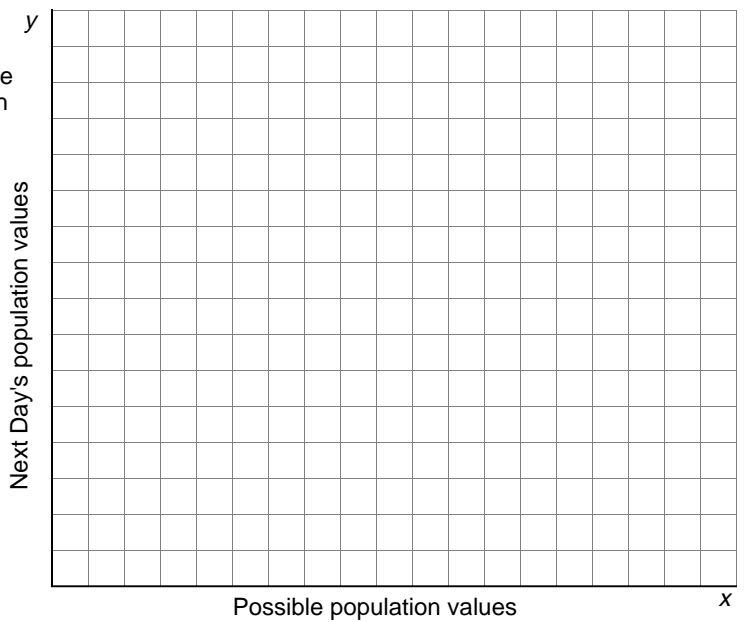
3. Graph using x for any possible population size, and y as the population size one day later. Write the equation for the graph here:

$y =$ _____

x intercepts _____

axis of symmetry _____

High point _____



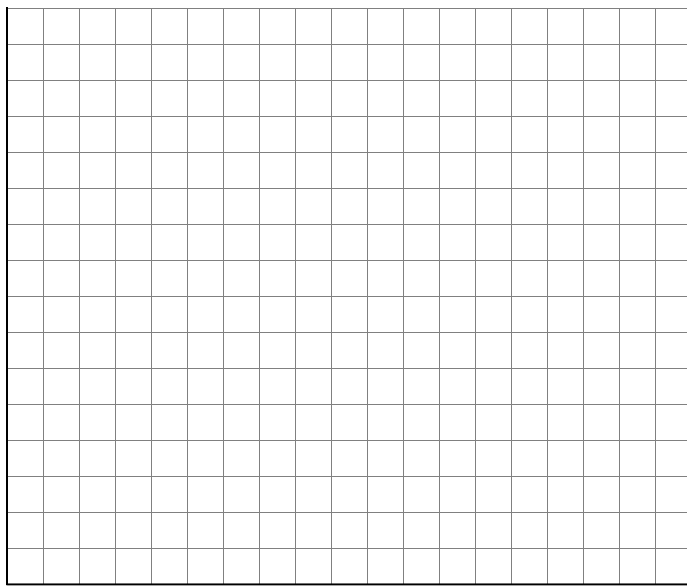
4. Fixed Point Calculation. Use your equation for r and p to find a value of p that makes r equal to 1 and write the answer below

$p =$ _____

$L-(1/m) =$ _____

Could p_n ever reach the value you found above? _____ If so, what will p_{n+1} be?

5. Testing the model. Based on your work above, what do you think will happen with this model? Will the model ever lead to negative values for the population? Will it eventually level off? Will the population just go down to 0, indicating that all the mold will simply die off? Write a short explanation below.



0 5 10 15

Day (n)	Population size (p_n)
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	