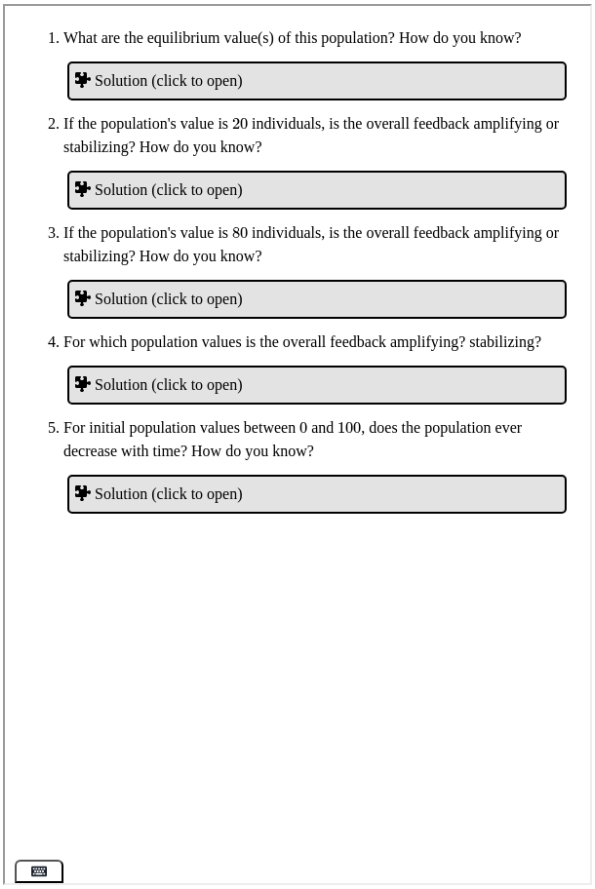
1 Logistic Behavior

In your groups, use the graph to answer the following questions.



2 Step 1: Stabilizing/Amplifying, Increasing/Decreasing

Work in your group to match each population over time graph below to the correct description. Write a short summary explaining your choices.

A.

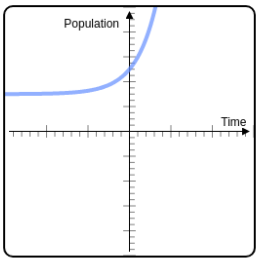


Figure: A line graph showing a population increasing at an increasing rate over time.

B.

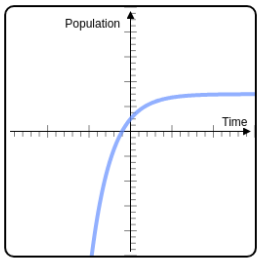


Figure: A line graph showing a population increasing at a decreasing rate over time.

C.

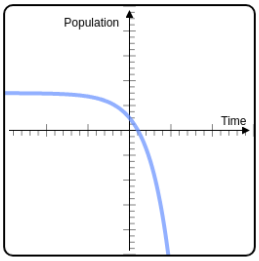


Figure: A line graph showing a population decreasing at a decreasing rate over time.

D.

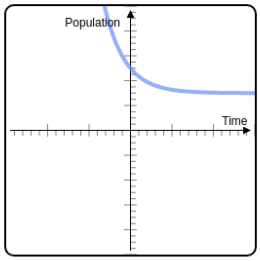


Figure: A line graph showing a population decreasing at an increasing rate over time.

Amplifying and **Increasing**:

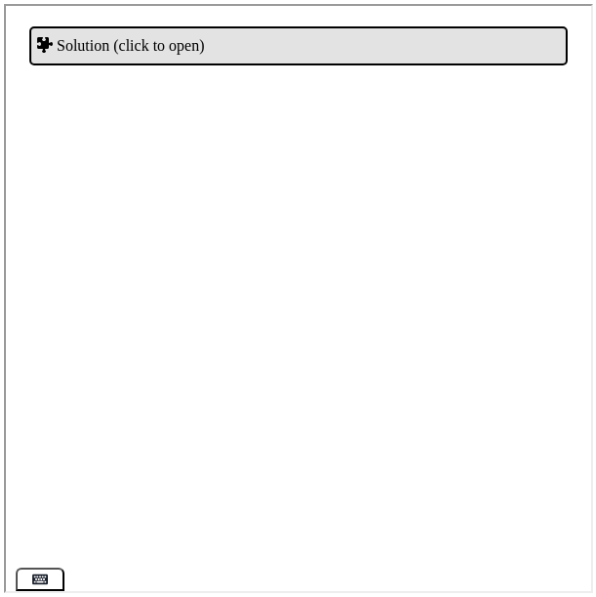
Amplifying and **Decreasing**:

Stabilizing and **Increasing**:

Stabilizing and **Decreasing**:

3 Logistic Line Graphs

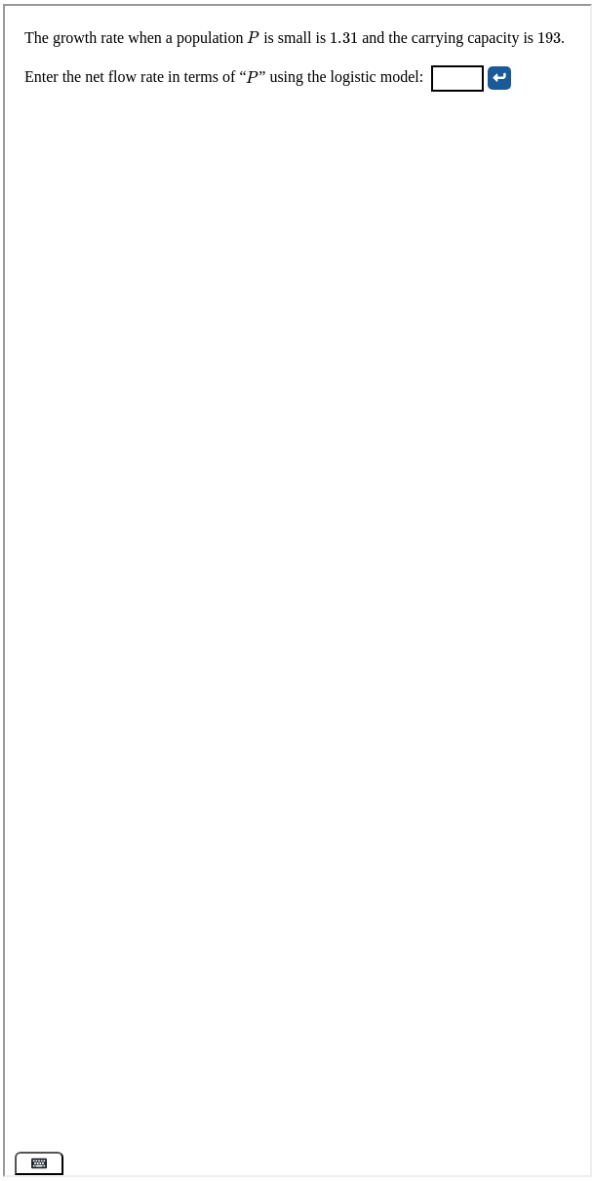
Work in your group to sketch a line graph of the population over time for each of the initial population values $P_0 = 20$, $P_0 = 50$, and $P_0 = 105$. When you have graphs your group agrees upon, use the interactive provided to check your work.



1. In what ways is the line graph for the logistic model similar to that of the exponential model? In what ways is it different?

4 Logistic Equations and Graphs

Below you will be given a growth rate and carrying capacity for a population. From that you will be asked to write the equation of the net flow rate using the logistic model. When this is correct, you will be asked to sketch the behavior of the population over time for different initial population values.



1. Choose new variations of the problem with the "New Variation" button. Before moving on, get at least 3 correct in a row, and write down an explanation for how to translate the net flow rate in a logistic model to population behavior over time as if you were explaining it to someone new.