MTH 337, Sample Quiz 4
Fall 2020

You will have **15 minutes** to take the actual quiz in Gradescope. The quiz will start exactly **5 minutes** after the start of class, 9:15 AM, and will close at 9:30 AM.

1. Consider the following population model

$$P(t+1) = a(M^2 - P(t)^2)P(t).$$

   Perform a parameter reduction (similar to the project) to reduce the number of parameters from 3 down to two.

2. Write a function to simulate the following pedator-prey model for $t \in [0, T]$:

$$R(t+1) = (a - pF(t))R(t)$$
$$F(t+1) = (qR(t) - b)F(t).$$

3. Describe what a bifurcation diagram is for the model in the project. What does the bifurcation diagram tell you about the model.