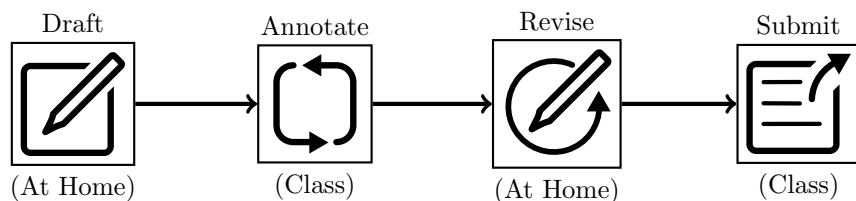


Math 130: PAR05

Initial Solution due Wed, March 18

Name: _____

Final Solution due Fri, March 20

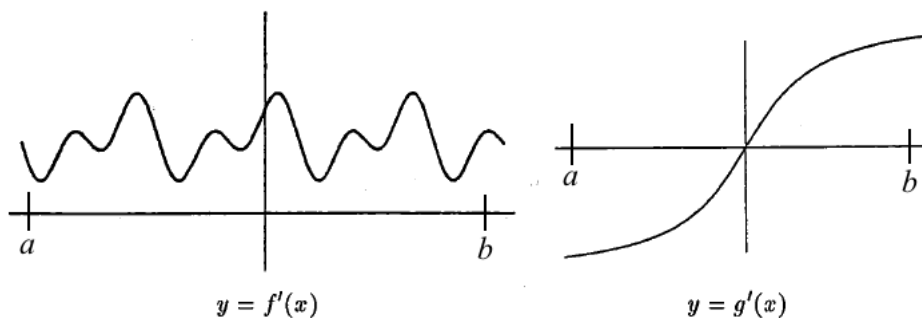


Bring your initial thoughts about the problem to class on the initial due date to discuss it with your peers. Based on the discussion and feedback, you may revise your solution before turning in your final solution. Your final solution should follow the guidelines outlined in the syllabus.

(Developed from D. Reinholz’s work on PAR. https://newscenter.sdsu.edu/education/crmse/daniel_reinholz.aspx)

Problem Statement (Derivative Solutions)

The graphs of the *derivatives* of two functions f and g are given below.



For each of the following questions, explain how you know, elaborating each possible case (e.g., if you say the function could have 0, 1, or 2 possible solutions, talk about each of these scenarios).

1. Where does f take on its minimum and maximum value(s) on $a \leq x \leq b$?
2. How many solutions can the equation $f(x) = 0$ have on the interval $a \leq x \leq b$?
3. Where does g take on its minimum and maximum value(s) on $a \leq x \leq b$?
4. How many solutions can the equation $g(x) = 0$ have on the interval $a \leq x \leq b$?
5. Suppose $g(x) = 0$ has two solutions on $a \leq x \leq b$. What can you say where about these solutions lie?

