1. [3 points] **There is work to submit for this problem. Read it carefully.**

- You may use your one pre-written page of notes, on an 8.5" by 11" standard sheet of paper, with whatever you want handwritten (not typed) on both sides.
- You are not allowed to use any other resources, including calculators, other notes, or the book.
- You may not use any electronic device or the internet, except to access the Zoom meeting for the exam, to access the exam file itself, to submit your work, or to report technological problems via the Google forms we will provide to do so. The one exception is that you may use headphones (e.g. for white noise) if you prefer, though please note that you need to be able to hear when the end of the exam is called in the Zoom meeting.
- You may not use help from any other individuals (other students, tutors, online help forums, etc.), and may not communicate with any other person about the exam until **8am on Tuesday, November 10** (Ann Arbor time).
- The one exception to the above policy is that you may contact the proctors in your exam room via the chat in Zoom if needed.
- Violation of any of the policies above may result in a score of zero for the exam, and, depending on the violation, may result in a failing grade in the course.

As your submission for this problem, you must write "I agree," and write your initials and UMID number to signify that you understand and agree to this policy. By doing this you are attesting that you have not violated this policy.

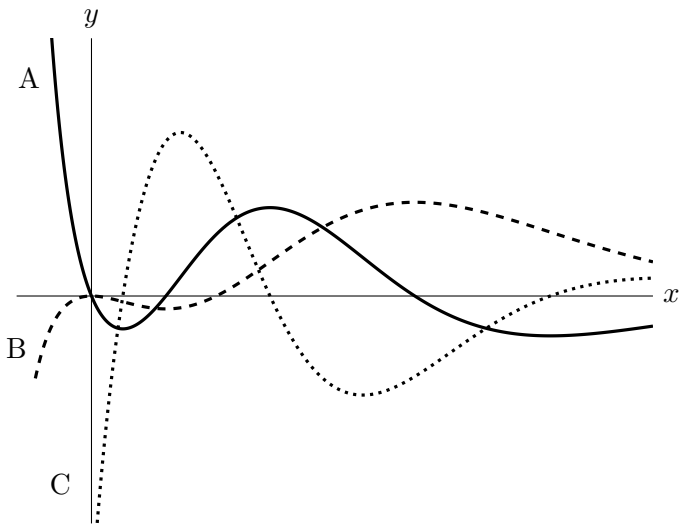
2. [5 points] Shown on the axes below are portions of the graphs of $y = f(x)$, $y = f'(x)$, and $y = f''(x)$.

Determine which graph is which.
Write your answer as a list of the form

$f(x)$:
$f'(x)$:
$f''(x)$:

indicating after each function the letter A, B, or C that corresponds to its graph.

No work or justification is needed.



3. [6 points] The function $g(x)$ is given by the equation

$$g(x) = \begin{cases} ax^2 & x \leq 1 \\ b - \ln(3x) & x > 1 \end{cases}$$

where a and b are constants. Find one pair of **exact** values for a and b such that $g(x)$ is differentiable, or write NONE if there are none. Be sure your work is clear.