

Math 122
Spring 2024
Exam 2 practice
3/14/2024
Time Limit: 75 Minutes

Name: _____

Signature: _____

This exam has 8 questions, for a total of 80 points and 0 bonus points. Unless otherwise specified, there is no form of technology allowed. Further, final solutions must be written in the prescribed boxes, and all work must be shown. There is paper provided in the front of the class for scratch work. Any numerical values given for a final answer must be precise.

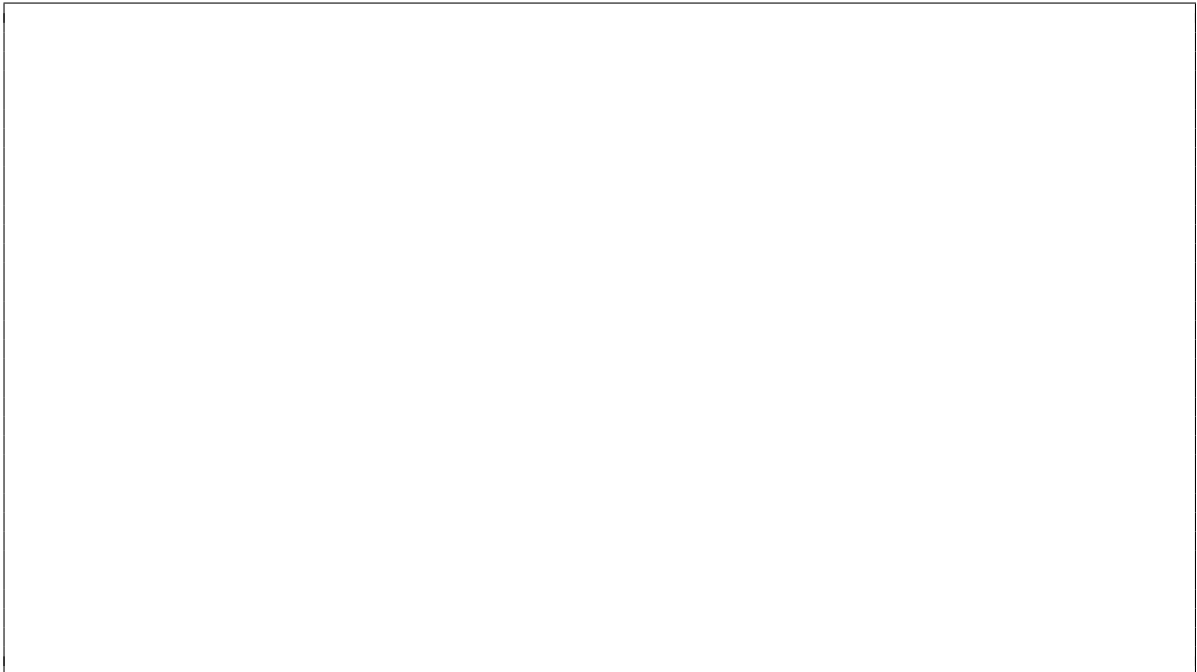
Grade Table (for teacher use only)

Question	Points	Bonus Points	Score
1	10	0	
2	10	0	
3	10	0	
4	10	0	
5	10	0	
6	10	0	
7	10	0	
8	10	0	
Total:	80	0	

1. (10 points) Show the following using the definition of a derivative as a limit (i.e. §2 theory section): If $f(x) = x^5$, then $f'(x) = 5x^4$.



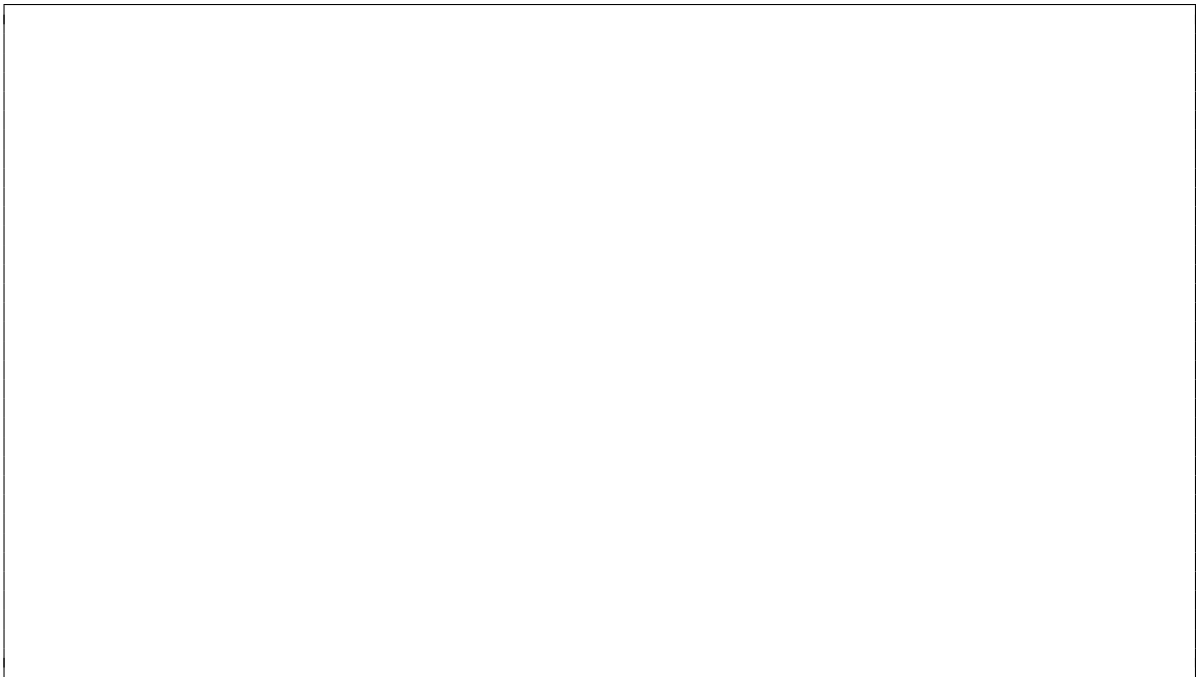
2. (10 points) Compute the derivative of $f(t) = \frac{e^t}{1+e^t}$.



3. (10 points) Compute the derivative of $g(x) = x^2 \ln(x)$.



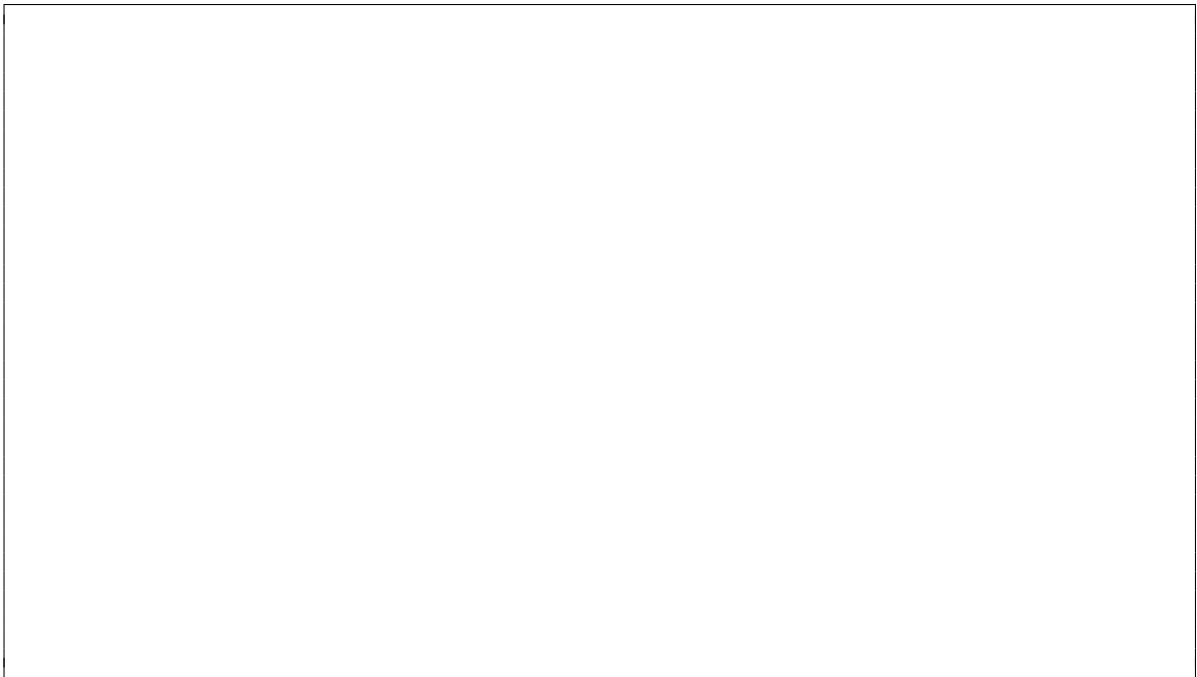
4. (10 points) Compute the derivative of $h(x) = \sqrt{e^x + 1}$.



5. (10 points) Compute the derivative of $i(x) = 2^x + 2 \cdot 3^x$.



6. (10 points) Compute the derivative of $j(x) = x^2 - 2 \ln(x)$.



7. (10 points) Compute the derivative of $k(x) = \sqrt{x}(x + 1)$



8. (10 points) Compute the second derivative of $f(x) = x^4 - 3x^2 + 5x$.

