MAT 132 **Name (Print):** _____
Summer II 2019
Quiz 1
07/15/19
Time Limit: 50 minutes ID number _____

Instructions

- This exam contains 7 pages (including this cover page) and 4 problems. Check to see if any pages are missing. Enter all requested information on the top of this page, and put your initials on the top of every page, in case the pages become separated.
- You may *not* use your books, notes, or any device that is capable of accessing the internet on this exam (e.g., smartphones, smartwatches, tablets). You may not use a calculator.
- **Organize your work**, in a reasonably neat and coherent way, in the space provided. Work scattered all over the page without a clear ordering will receive very little credit.
- **Mysterious or unsupported answers will not receive full credit**.

Problem	Points	Score
1	2	
2	7	
3	7	
4	4	
Total:	20	

1. (2 points) Express the area under the graph of the function $f(x) = e^{3x}$, in the region $0 \leq x \leq 2$, as a limit of Riemann sums. Clearly indicate the choice of sampling points, and the width of the subintervals (that is, do not simply write x_i^* and Δx, respectively).

2. Compute the indefinite integrals below:

   (a) (3 points)

$$\int \sin(x)\cos(\cos(x))\ dx$$

(b) (4 points)

$$\int \frac{x-3}{x(x^2+4)}\,dx$$

3. Compute the definite integrals below:

   (a) (3 points)

$$\int_1^2 \frac{\ln(x)}{x^2}\, dx$$

(b) (4 points)

$$\int_0^{\frac{\pi}{4}} (\sin(x))^3 (\cos(x))^2 \, dx$$

4. (4 points) Find the derivative of the function $f(x)$, defined by the integral below

$$f(x) = \int_0^{x^2+2x+1} \sqrt{1+3x}\, dx$$