

name : \_\_\_\_\_

section : 109

GSI : Charles Wang

(2 pts) Circle True or False. (+1 for correct, 0 for blank, -1 for incorrect)

1. (True False) Continuous functions may not have antiderivatives.
2. (True False) Riemann sums using left endpoints generally underestimate the area under the graph of a function.

(10 pts) For the following, you must **justify** your answer to receive credit. (Showing your work counts as justification.)

3. (a) Compute the antiderivative of  $f(x) = 2xe^{x^2}e^{e^{x^2}} + \cot(x)$ .

- (b) Use left endpoints to approximate the area under the graph of  $f(x) = |\cos(x)|$  on the interval  $[0, 2\pi]$  with  $n = 4$  (use 4 rectangles).