name : _____

section : 105

GSI : Charles Wang

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

1. (True False) There are differentiable functions that do not have antiderivatives.
2. (True False) Riemann sums using right endpoints usually overestimate the area for increasing functions.

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

3. (a) Find the antiderivative of $f(x) = 2x\cos(x^2)e^{\sin(x^2)} - \tan(x)$.

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