name : _____

section : 105

GSI : Charles Wang

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

1. (True False) Numerical integration will never exactly compute the value of a definite integral, because we are always approximating the function to be integrated.

2. (True False) Doing u-sub before integration by parts is usually recommended to simplify the problem.

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

3. (a) Compute $\int x^3 e^{x^2} dx$.

(b) How many subintervals do we need to make the error of using the midpoint rule less than $\frac{1}{100}$ for the integral $\int_0^1 2x^4 dx$. (What n makes $|E_M| < \frac{1}{100}$?)