name : _____

section : 105

GSI : Charles Wang

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

1. (True False) Riemann sums are mostly useless because they tend to be very difficult to compute.

2. (True False) u-substitution is a useful integration rule because it undoes the product rule of differentiation.

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

3.   (a) Compute $\int \sin(x)\cos(x)dx$ using u-substitution.

(b) If a car is accelerating with a constant acceleration of $a(t) = 10$, find a formula for the position, $x(t)$, of the car at time t. The car starts from rest (initial velocity is 0) at initial position 0.