Last name: _____

First name: _____

Section: _____

Instructions: You must answer all the questions below and give your solutions to the TA at the end of the recitation. Write your solutions directly on the worksheet. Late worksheet will not be accepted.

——————————————— QUESTION 1 ——————————————— **(10 pts)**

(a) (5 points) Find the most general antiderivative of $f(t) = 2t - \sin t$.

(b) (5 points) Find the function f satisfying $f'(u) = \frac{u^2 + \sqrt{u}}{u}$ and $f(1) = 3$.

$$\underline{\qquad\qquad} \text{QUESTION 2} \underline{\qquad\qquad} \textbf{(10 pts)}$$

Let $f(x) = x + 1$.

(a) (5 points) Use the left endpoint rule with 4 rectangles to approximate the area under the curve of $f(x)$ from $x = 1$ to $x = 2$.

(b) (5 points) Draw the graph of $f(x)$ with the four approximating rectangles. Is it over approximating or under approximating the area under the curve of $f(x)$?