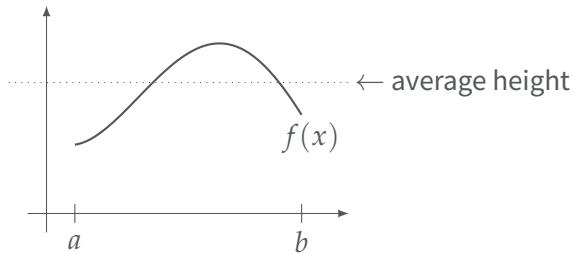


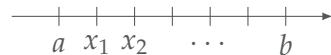
Math 142 Group Quiz 1

Names: _____

1. In this problem you will find a formula for the average height of the function $f(x)$ on $[a, b]$:



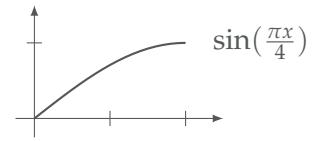
- a. Chop up $[a, b]$ into n evenly spaced intervals, like below. What is $(x_i - x_{i-1})$ in terms of a and b ?



- b. What is the average of the n function heights $f(x_1), f(x_2), \dots, f(x_n)$?

- c. Take $\lim_{n \rightarrow \infty}$ of the answer in part b. to find an integral formula for the average of $f(x)$ on $[a, b]$.

2. Find the average value of the function $\sin\left(\frac{\pi x}{4}\right)$ on $[0, 2]$:



3. Evaluate $\int_0^9 \sqrt{9-x} dx$

4. Evaluate $\int_0^9 \sqrt{3-\sqrt{x}} dx$