Name:
AP Calculus AB: Average Value of a Function Homework

Date:
Ms. Loughran

1. Find the average value of $f(x)=3 x$ from $x=1$ to $x=3$.
2. Find the average value of $f(x)=\sin x$ from $x=0$ to $x=\pi$.
3. Find the average value of $f(x)=\frac{1}{x}$ on the interval $[1, e]$.
4. (a) Find the average value of $f(x)=x^{2}$ from $x=0$ to $x=2$.
(b) Find a point $x^{*}$ in $[0,2]$ such that $f\left(x^{*}\right)=f_{\text {average }}$.
(c) Sketch the graph of $f(x)=x^{2}$ over [0, 2] and construct a rectangle over the interval whose area is the same as the area under the graph of $f$ over the interval.
