1. Find the average value of f(x) = 3x 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 $f(x^*) = f_{average}$.
 - (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.