1. Consider the function $f(x) = \sin(x)$ over the interval $[0, \pi]$

   (a) Look at the graph of $y = f(x)$. Do you think the average value of $f(x)$ over the interval is greater than $\frac{1}{2}$ or less than $\frac{1}{2}$?

   (b) Compute the average value of $f(x)$ over the interval.
   How does this compare to your answer in (a)?

2. Consider the function $g(x) = 5xe^{-x^2}$ over the interval $[0, 2]$

   (a) Look at the graph of $y = g(x)$.
   Estimate the average value of $g(x)$ over the interval.

   (b) Compute the average value of $g(x)$ over the interval.
   How does this compare to your answer in (a)?