

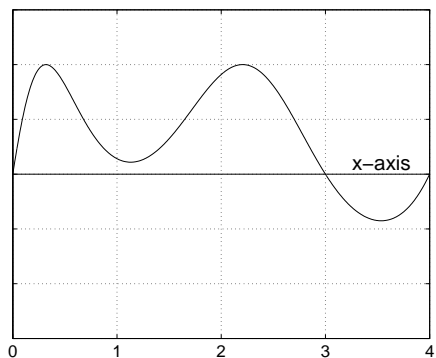
1. (11 points) **(a)** What is the average of the function x^3 on the interval $1 < x < 3$?

(b) If it is known that $\int_1^3 f(x) dx = 4$ and $\int_1^3 (f(x))^2 dx = 5$, then

$$\int_1^3 (1 + f(x))^2 dx = \underline{\hspace{2cm}}$$

(c) A function $f(x)$ has a graph as shown below, and it is known that $\int_0^4 f(x) dx = 10$, while the area of the region below the x -axis and above the graph of f is 2. Find

$$\int_0^3 f(x) dx = \underline{\hspace{2cm}}$$



(d) The average price (in dollars) of a new house that is A square feet in area is a function $P = f(A)$. What are the units of $dP/dA = f'(A)$.