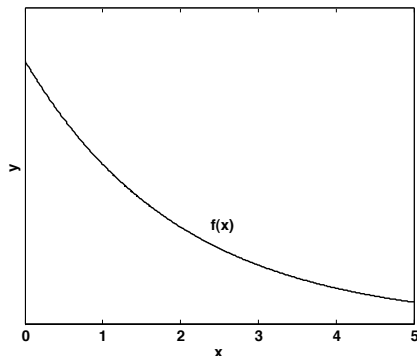


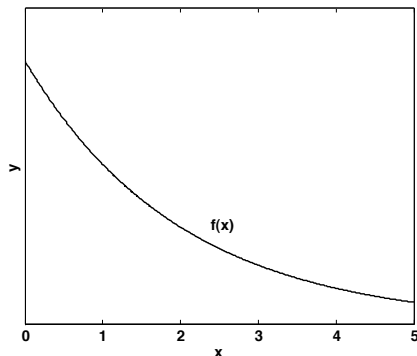
8. [12 points] For each of the following questions, draw a visual interpretation on the provided graph that would be useful in determining the specified quantity. Then write one complete sentence to explain your sketch.

a. [4 points]  $\frac{f(4)-f(1)}{4-1}$



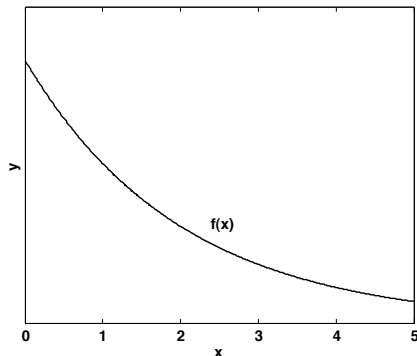
*Solution:* This is the slope of the secant line between  $(1, f(1))$  and  $(4, f(4))$ .

b. [4 points]  $\frac{1}{3} \int_1^4 f(x) dx$



*Solution:* This is the average value of  $f(x)$  on  $[1, 4]$ .

c. [4 points]  $(f(2) + f(3) + f(4))$



*Solution:* This is the RHS approximation for  $\int_1^4 f(x) dx$ . (LHS for  $\int_2^5 f(x) dx$ .)