

Section 5.2

1) Find a formula for the accumulation function. Draw the graph, shading a region whose area the formula represents.

a) $\int_3^x 7 dt$ b) $\int_0^x -3t dt$ c) $\int_2^x 5t dt$

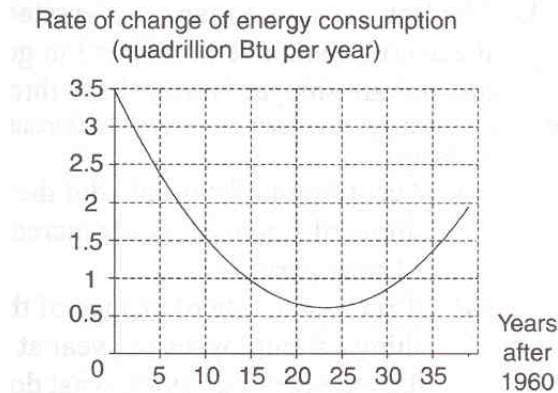
2) The figure shows a graph of the rate of change of the amount of energy consumed in the U.S. from 1960 through 1999.

(Source: Based on data from the U.S. Energy Information Administration)

a) What does the area of each box on the grid represent?

b) What is the interpretation of the accumulation

function $C(x) = \int_0^x c(t) dt$ in the context of energy consumption?



Section 5.3

1) An investment worth \$5000 in 2000 has been growing at a rate of

$$f(t) = 0.0676586(1.07)^t \text{ dollars per year } t \text{ years after 2000.}$$

a) Recover the amount function, and determine the current value of the investment and its projected value next year.

b) Determine how much the investment has grown since 2000 and how much it is projected to grow over the next year.

Section 5.4

1) The rate of change of annual U.S. factory sales of electronics from 1990 through 1996 can be modeled by the equation $s(t) = -0.23t^3 + 2.257t - 1.51t + 42.8$ billions of dollars per

year where t is the number of years since 1990. Evaluate $\int_0^6 s(t) dt$ and interpret your answer.

2a) Find a formula for $\int_3^x (2t^2 - 1) dt$

b) Use the formula from part a to find the area of the region between the graph of $f(t) = 2t^2 - 1$ and the horizontal axis from 3 to 5.

c) If $f(t)$ is the rate of change of Gotham City's population in thousands of people per year and t is the number of years since 1995, what is the interpretation of the answer to part b?