

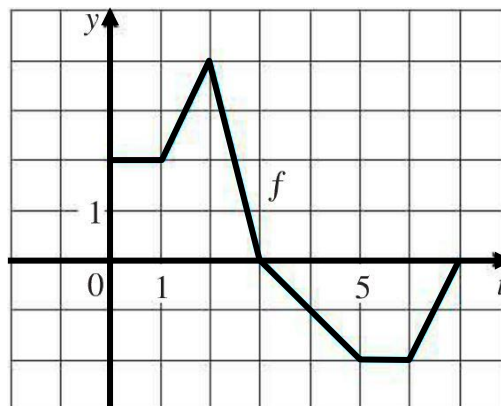
Class Drill: Area Function

The graph of $f(t)$ is shown at right.

The function $g(x)$ is defined by the equation

$$g(x) = \int_{t=0}^{t=x} f(t) dt$$

g is an *area function* for f



Part 1: The first goal is to build a graph of $g(x)$.

On the back of this page are eight copies of the graph of $f(t)$.

(a) Using these graphs, make eight pictures that illustrate the quantity

$$g(x) = \int_{t=0}^{t=x} f(t) dt$$

for the eight x values $x = 0, 1, 2, 3, 4, 5, 6, 7$

(b) Using the pictures, find the value of $g(x)$ for $x = 0, 1, 2, 3, 4, 5, 6, 7$ and write those values in the table at right.

(c) Using the data from your table, make a graph of $g(x)$ on the interval $0 \leq x \leq 7$.

| x | $g(x)$ |
|-----|--------|
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |

Part 2: Questions to be answered *without* using your graph from **Part 1**.

(d) What is the value of $g'(2)$?

(e) What is the value of $g'(5)$?

(e) At what x value does g have a local max?

