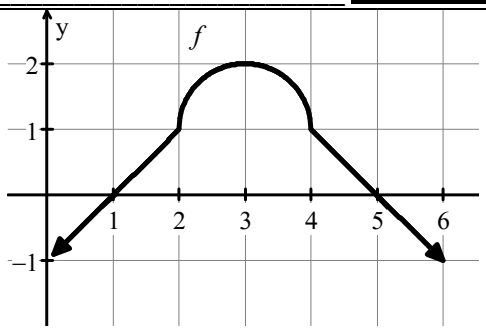
6.5 Behavior of Accumulation Functions

Calculus Name: _____ **CA #1**

1. Let $g(x) = \int_a^x f(t)\,dt$ with the graph of f shown above and a is a constant. Find the x-values of g regarding each of the following conditions.



a. Relative minimum(s)

b. Relative maximum(s)

c. Concave up

d. Concave down

e. Increasing

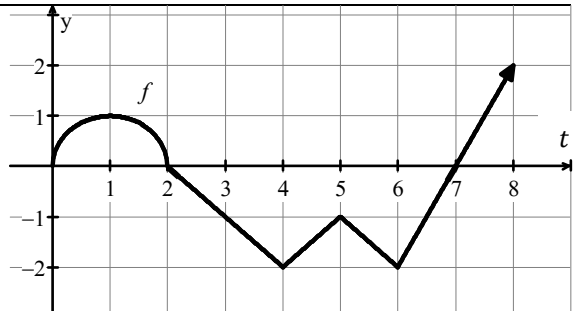
f. Decreasing

g. Point(s) of inflection

h. If $g(1) = -5$, what is the maximum **value** of g on the interval $[0, 6]$?

i. Given $h(x) = \int_0^{\frac{x}{2}+3} f(t)\,dt$. Find the x-value where h has a relative minimum.

2. Let $g(x) = \int_a^x f(t)\,dt$ with the graph of f shown above and a is a constant. Find the x-values of g regarding each of the following conditions.



a. Relative minimum(s)

b. Relative maximum(s)

c. Concave up

d. Concave down

e. Increasing

f. Decreasing

g. Point(s) of inflection

h. If $g(4) = 3$, what is the minimum **value** of g on the interval $[0, 8]$?

i. Given $h(x) = \int_0^{2x-6} f(t)\,dt$. Find the x-value where h has a relative maximum.

Answers to 6.5 CA #1

1a. $x = 1$	1b. $x = 5$	1c. $(-\infty, 2)$ and $(2, 3)$	1d. $(3, 4)$ and $(4, \infty)$	1e. $(1, 5)$	1f. $(-\infty, 1)$ and $(5, \infty)$	
1g. $x = 3$	1h. $-2 + \frac{\pi}{2}$	1i. $x = -4$	2a. $x = 7$	2b. $x = 2$	2c. $(0, 1), (4, 5)$, and $(6, \infty)$	
2d. $(1, 4)$ and $(5, 6)$	2e. $(0, 2)$ and $(7, \infty)$	2f. $(2, 7)$	2g. $x = 1, 4, 5, 6$	2h. -1	2i. $x = 4$	