$f'(1) = -1$

$g(x) = \int_{-2}^{x} f(t)dt$

Area

$g'(x) = f(x)$

Look at y-coord of graph

$g''(x) = f'(x)$

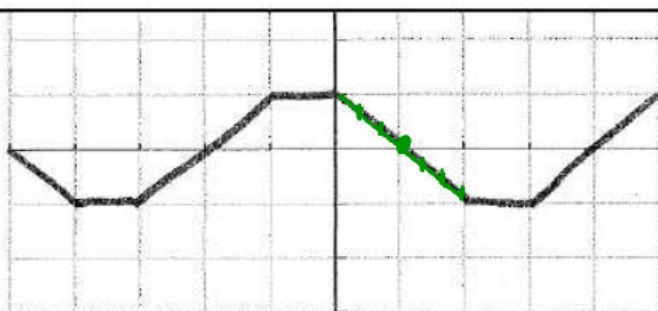Slope of given graph

Graph of f(t)

11. Let h(x) = g(x) - .5x² - x. Determine the critical values of h(x) on -5 < x < 5.

$h'(x) = 0$

$h(x) = g(x) - .5x^2 - x$

$h'(x) = g'(x) - 1x - 1$

$0 = g'(x) - 1x - 1$

$x + 1 = f(x)$

$x = 0$

Find when the graph of x+1 intersects f(x)

$g(1) = \int_{-2}^{1} f(t)dt = 2$

$g'(1) = 0$

y-value of graph

$f'(1) = g''(1) = -1$

Slope of f(x) at x=1

12. Let n(x) = [g(x)]² + f(x). Find $n'(1) =$

$n'(x) = 2[g(x)] \cdot g'(x) + f'(x)$

$n'(1) = 2[g(1)] \cdot g'(1) + f'(1)$

$= 2(2)(0) + (-1)$

$= -1$