

5D Checkup

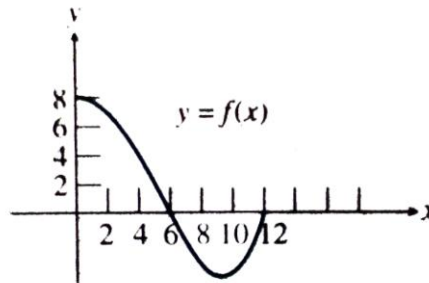
1. Find K so that

$$\int_a^x f(t)dt + K = \int_b^x f(t)dt$$

$$f(x) = x^2 - 3x + 1; \quad a = -1, \quad b = 2$$

2.
$$H(x) = \int_0^x f(t)dt$$

Where f is the continuous function with the domain $[0,12]$ graphed here



- Find $H(0)$
- On what interval is H increasing? Explain.
- On what interval is the graph of H concave up? Explain
- Is $H(12)$ positive or negative? Explain.
- Where does H achieve its maximum value? Explain.
- Where does H achieve its minimum value? Explain.

3. Suppose that f has a negative derivative for all values of x and that $f(1)=0$. Which of the following statements must be true of the function.

$$H(x) = \int_0^x f(t)dt$$

- h is a twice-differentiable function of x
- h and dh/dx are both continuous
- The graph of h has a horizontal tangent at $x = 1$
- h has a local maximum at $x = 1$
- h has a local minimum at $x = 1$
- The graph of h has an inflection point at $x = 1$
- The graph of dh/dx crosses the x -axis at $x = 1$