

The Fundamental Theorem of Calculus Part 2

1. If f and g are differentiable functions, then $\int_0^{g(x)} f'(t) dt =$

(a) $f(g(x))$

(b) $g(f(x))$

(c) $g(f(x)) - g(f(0))$

(d) $f(g(x)) - f(0)$

(e) $f(g(x)) - f(g(0))$

2. $\frac{d}{dx} \int_2^{h(x)} f(t) dt =$

(a) $f(h(x)) \cdot h'(x)$

(b) $f'(h(x)) \cdot h'(x)$

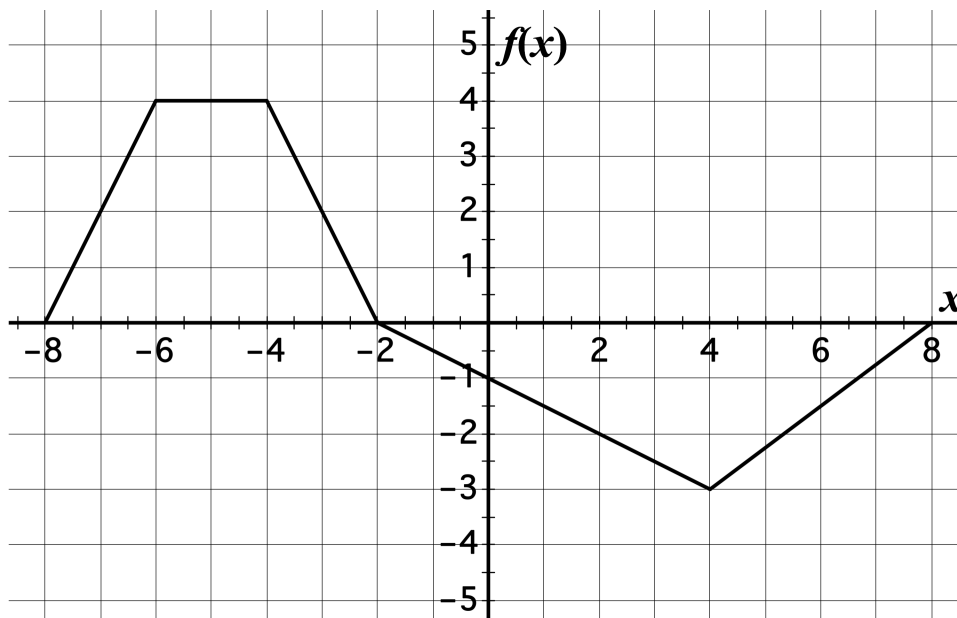
(c) $f(h(x)) - f(2)$

(d) $f(h(x))$

(e) $f'(h(x))$

3. $\frac{d}{dx} \int_x^7 \sqrt{2t^4 + t + 1} dt =$

4. The function A is defined as $A(x) = \int_{-6}^x f(t) dt$. The graph of f is shown below.



- (a) Evaluate $A(4)$ and $A(-8)$.
- (b) Find $A'(2)$.
- (c) According to the information provided, does $A(x)$ have a maximum? Why?
- (d) According to the information provided, does $A(x)$ have a minimum? Why?
5. $\frac{d}{d\theta} \int_{-2}^{\cos(\theta)} x^4 dx =$