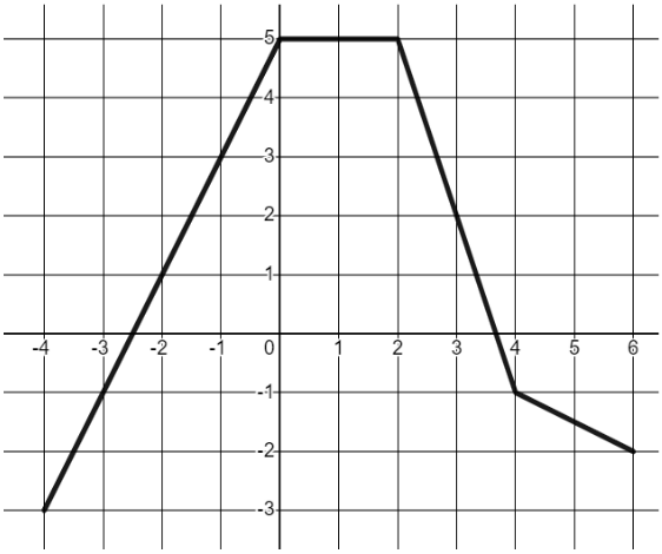
2023 AP Daily: Practice Sessions

AP Calculus AB

Session 8 – FRQ (No Calculator)



Graph of $b(x)$

x	$a(x)$	$a'(x)$
-4	12	-2
-3	9	-1
-2	6	0
-1	3	-3
0	2	-1
1	-2	-4

Let a be a differentiable function. The table gives values of a and its derivative a' at selected values of x.

Let b be the function whose graph, consisting of four line segments, is shown.

a. Let P be the function defined by $P(x) = a(x) \cdot b(x)$. Find $P'(-3)$.

b. Let C be the function defined by $C(x) = 5b(a(x))$. Find $C'(-1)$.

c. Let $V(x)$ be the function defined by $V(x) = a^{-1}(x)$. Find $V'(-2)$.

d. Find the value of $\lim_{x \to 1} \frac{-5+\int_0^x b(t)dt}{x^2+\cos(\pi x)}$. Show the work that leads to your answer.

All problems written by Mark & Virge