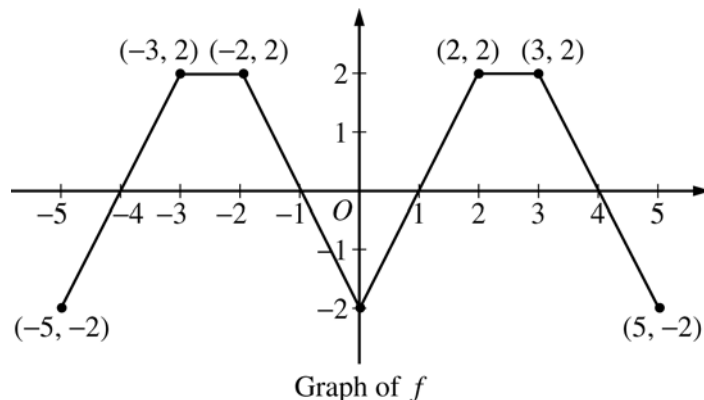


2006 AP[®] CALCULUS AB FREE-RESPONSE QUESTIONS



3. The graph of the function f shown above consists of six line segments. Let g be the function given by $g(x) = \int_0^x f(t) dt$.
- (a) Find $g(4)$, $g'(4)$, and $g''(4)$.
- (b) Does g have a relative minimum, a relative maximum, or neither at $x = 1$? Justify your answer.
- (c) Suppose that f is defined for all real numbers x and is periodic with a period of length 5. The graph above shows two periods of f . Given that $g(5) = 2$, find $g(10)$ and write an equation for the line tangent to the graph of g at $x = 108$.
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WRITE ALL WORK IN THE PINK EXAM BOOKLET.

END OF PART A OF SECTION II