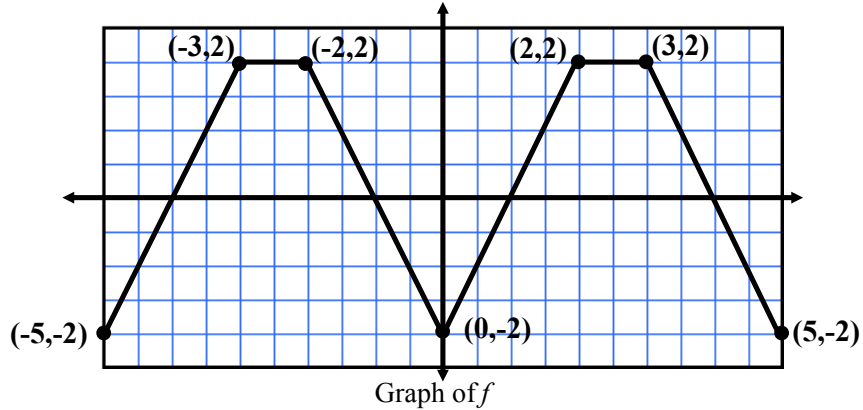


AP Test Question  
2006  
Part A - With Calculator



- 3) The graph of the function  $f$  shown above consists of six line segments. Let  $g$  be the function give 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  $x = 108$ .