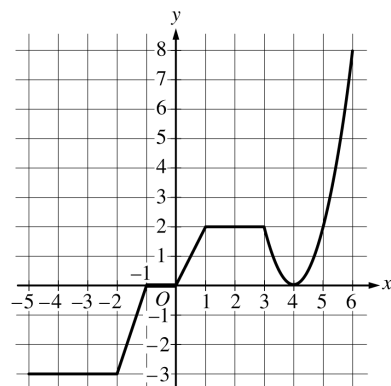


CALCULUS BC
SECTION II, Part B

Time—1 hour
Number of questions—4

NO CALCULATOR IS ALLOWED FOR THESE QUESTIONS.

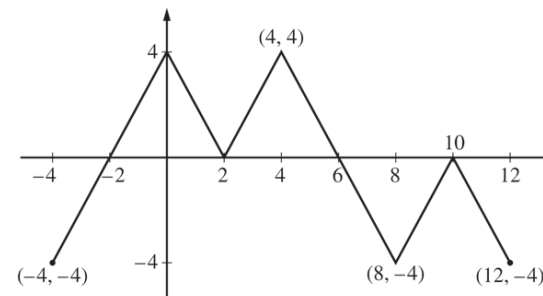


Graph of g

3. The graph of the continuous function g , the derivative of the function f , is shown above. The function g is piecewise linear for $-5 \leq x < 3$, and $g(x) = 2(x - 4)^2$ for $3 \leq x \leq 6$.
- If $f(1) = 3$, what is the value of $f(-5)$?
 - Evaluate $\int_1^6 g(x) \, dx$.
 - For $-5 < x < 6$, on what open intervals, if any, is the graph of f both increasing and concave up? Give a reason for your answer.
 - Find the x -coordinate of each point of inflection of the graph of f . Give a reason for your answer.

CALCULUS BC
SECTION II, Part B
Time—60 minutes
Number of problems—4

No calculator is allowed for these problems.



Graph of f

3. The figure above shows the graph of the piecewise-linear function f . For $-4 \leq x \leq 12$, the function g is defined by $g(x) = \int_2^x f(t) \, dt$.
- Does g have a relative minimum, a relative maximum, or neither at $x = 10$? Justify your answer.
 - Does the graph of g have a point of inflection at $x = 4$? Justify your answer.
 - Find the absolute minimum value and the absolute maximum value of g on the interval $-4 \leq x \leq 12$. Justify your answers.
 - For $-4 \leq x \leq 12$, find all intervals for which $g(x) \leq 0$.