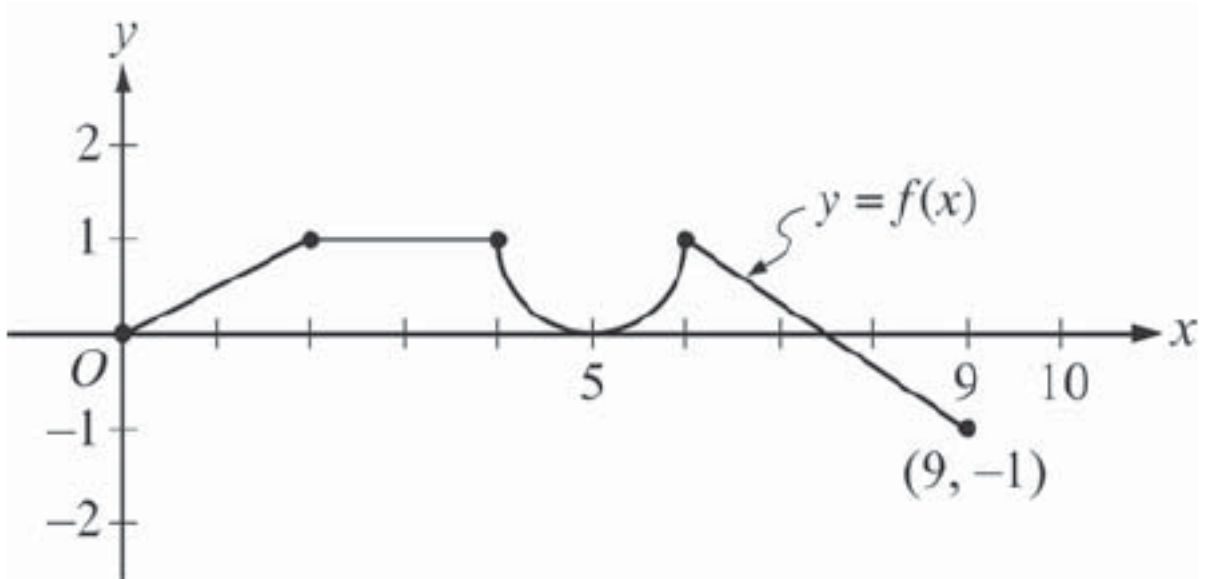


I.5 Integrals and Integral Properties



1. $\int_4^0 f(t) dt$

2. $\int_0^6 f(t) dt$

3. $\int_4^2 f(t) dt$

4. $\int_2^0 2f(t) dt$

5. $\int_0^4 [f(t) + 2] dt$

6. $\int_8^8 f(t) dt$

7. $\int_6^9 [3f(t) - 1] dt$

8. $\int_6^9 |f(t)| dt$

9. Major Integral Rules:

Suppose $\int_{-2}^5 f(x) dx = 18$, $\int_{-2}^5 g(x) dx = 5$, $\int_{-2}^5 h(x) dx = -11$ and $\int_{-2}^8 f(x) dx = 0$, find

10. $\int_{-2}^5 (f(x) + g(x)) dx$

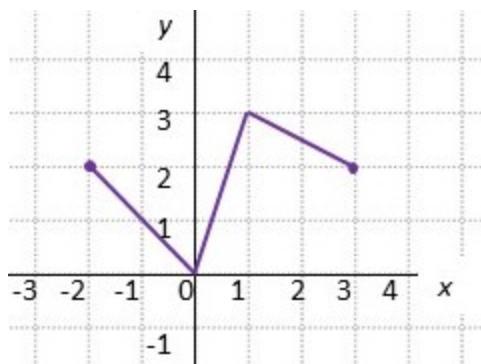
11. $\int_{-2}^5 (f(x) - h(x)) dx$

12. $\int_5^{-2} 4g(x) dx$

13. $\int_{-2}^5 (2g(x) + 2) dx$

14. If $f(-1) = 2$ and the graph of f' , the derivative of f , is given below, what is the value of $f(3)$?

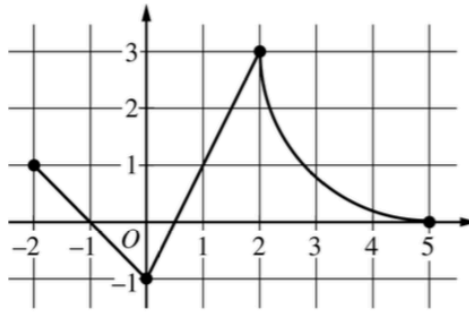
f'



15. The average value of function g on the interval $3 \leq x \leq 9$ is 7. What is the value of $\int_3^9 g(x) dx$?

Average value:

BC 2019 #3 No Calc



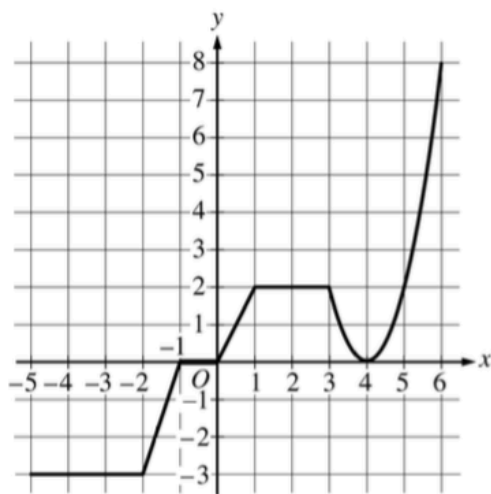
Graph of f

3. The continuous function f is defined on the closed interval $-6 \leq x \leq 5$. The figure above shows a portion of the graph of f , consisting of two line segments and a quarter of a circle centered at the point $(5, 3)$. It is known that the point $(3, 3 - \sqrt{5})$ is on the graph of f .

(a) If $\int_{-6}^5 f(x) dx = 7$, find the value of $\int_{-6}^{-2} f(x) dx$. Show the work that leads to your answer.

(b) Evaluate $\int_3^5 (2f'(x) + 4) dx$.

BC 2018 #3



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 $3 \leq x \leq 6$.

(a) If $f(1) = 3$, what is the value of $f(-5)$?

(b) Evaluate $\int_1^6 g(x) dx$.