

Definite Integral Properties

Given $\int_2^4 f(x) dx = 10$, $\int_4^9 f(x) dx = -2$, $\int_2^4 g(x) dx = 5$, and $\int_9^4 g(x) dx = 1$. Both f and g are everywhere continuous. Evaluate each of the following expressions.

$$[1] \int_4^2 f(x) dx$$

$$[2] \int_2^4 [3 + f(x)] dx$$

$$[3] \int_2^4 [2x + f(x)] dx$$

$$[4] \int_4^2 [f(x) + g(x)] dx$$

$$[5] \int_2^4 [3f(x) - 2g(x)] dx$$

$$[6] \int_2^4 [3f(x) - x] dx$$

$$[7] \int_2^9 f(x) dx$$

$$[8] \int_2^9 g(x) dx$$

$$[9] \int_2^{-3} g(x) dx - \int_4^{-3} g(x) dx$$

$$[10] \int_3^3 f(x) dx$$

$$[11] \int_9^3 g(x) dx + \int_3^4 g(x) dx$$

$$[12] \int_4^6 g(x-2) dx$$

$$[13] \int_4^2 [5g(x) - 1] dx$$

$$[14] \int_8^{18} f\left(\frac{x}{2}\right) dx$$