

TOPIC

Mathematics – Section I – Question 8

QUESTIONThe mean value of a function $f(x)$ from a to b is given by

(A) $\frac{f(a)+f(b)}{2}$

(B) $\frac{f(a)+2f\left(\frac{a+b}{2}\right)+f(b)}{4}$

(C) $\int_a^b f(x)dx$

(D) $\frac{\int_a^b f(x)dx}{(b-a)}$

HINT

Remember the definition of the mean of a function from the integral calculus course.

SOLUTIONThe mean value of a function $f(x)$ from a to b is given by

$$\begin{aligned}\bar{f} &= \frac{\text{Area under the curve from } a \text{ to } b}{\text{Width of the interval from } a \text{ to } b} \\ &= \frac{\int_a^b f(x)dx}{b-a}\end{aligned}$$

ANSWER

(D)

CONTRIBUTOR

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