INTEGRALS

PROPERTIES OF DEFINITE INTEGRALS

EXERCISE

Q.1 What does the difference property of definite integrals state?

(A) $\int_a^b [-f(x) - g(x)dx$

(B) $\int_a^b [-f(-x) + g(x)dx$

(C) $\int_a^b [f(x) - g(x)dx$

(D) $\int_a^b [f(x) + g(x)dx$

Q.2 The sum property pertaining to definite integrals is $\int_a^b [f(x) + g(x)dx$?

(A) False

(B) True

Q.3 What does the constant multiple property of definite integrals state?

(A) $\int_a^b k - f(x)\,dy$

(B) $\int_a^b [f(-x) + g(x)dx$

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

(D) $\int_a^b [f(x) + g(x)dx$

Q.4 What does the reverse integration property of definite integrals entail?

(A) $-\int_a^b f(x)dx = -\int_b^a g(x)dx$

(B) $-\int_a^b f(x)dx = \int_b^a g(x)dx$

(C) $\int_a^b f(x)dx = \int_b^a g(x)dx$

(D) $\int_a^b f(x)dx = -\int_b^a f(x)dx$

Q.5 Recognize the property of the zero-length interval.

(A) $\int_a^b f(x)dx = -1$

(B) $\int_a^b f(x)dx = 1$

(C) $\int_a^b f(x)dx = 0$

(D) $\int_a^b f(x)dx = 0.1$

Q.6 What does the property of adding intervals entail?

(A) $\int_a^c f(x)dx + \int_b^c f(x)dx = \int_a^c f(x)dx$ (B) $\int_a^b f(x)dx + \int_b^a f(x)dx = \int_a^c f(x)dx$

(C) $\int_a^b f(x)dx + \int_b^c f(x)dx = \int_a^c f(x)dx$ (D) $\int_a^b f(x)dx - \int_b^c f(x)dx = \int_a^c f(x)dx$

Q.7 What is the designation of the property $\int_a^b f(x)dx + \int_b^c f(x)dx = \int_a^c f(x)dx$?

(A) Zero interval property (B) Adding intervals property

(C) Adding integral property (D) Adding integrand property

Q.8 What is the designation of this property $\int_a^b f(x)dx = -\int_b^a f(x)dx$?

(A) Reverse integral property (B) Adding intervals property

(C) Zero interval property (D) Adding integrand property

Q.9 What is the title or designation of this property $\int_a^b f(x)dx = 0$?

(A) Reverse integral property (B) Adding intervals property

(C) Zero-length interval property (D) Adding integrand property

Q.10 Under which property does this equation fall $\int_{-1}^{1} \sin x dx = -\int_{1}^{-1} \sin x dx$?

(A) Reverse integral property (B) Adding intervals property

(C) Zero-length interval property (D) Adding integrand property

Q.11 Evaluate $\int_2^3 3f(x) - g(x)dx$, if $\int_2^3 f(x) = 4$ and $\int_2^3 g(x)dx = 4$.

(A) 38 (B) 12 (C) 8 (D) 7

Q.12 Compute $\int_3^2 f(x)dx$ if $\int_2^3 f(x) = 4$.

(A) –4 (B) 84 (C) 2 (D) –8

Q.13 Compute $\int_8^2 2f(x)dx$ if $\int_2^8 f(x) = -3$

(A) –4 (B) 84 (C) 2 (D) –8

Q.14 Compute $\int_2^6 7e^x dx$.

(A) 30.82 (B) 7 ($e^6 - e^2$) (C) 11.23 (D) 81 ($e^6 - e^3$)

Q.15 Evaluate $\int_3^7 2f(x) - g(x)dx$, if $\int_3^7 f(x) = 4$ and $\int_3^7 g(x)dx = 2$.

(A) 38 (B) 12 (C) 6 (D) 7

ANSWER KEY

1. (C)
2. (B)
3. (C)
4. (D)
5. (C)
6. (C)
7. (B)
8. (A)
9. (B)
10. (A)
11. (C)
12. (C)
13. (C)
14. (B)
15. (C)