
QUESTION 1 (1 pts)

Suppose you want to estimate the area under the graph of $f(x) = 1/x$ from $x = 1$ to $x = 2$ using 4 rectangles. What is the base value (Δx) for each rectangle?

A. $\Delta x = 1/2$

C. $\Delta x = 4$

B. $\Delta x = 1/4$

D. $\Delta x = 2$

QUESTION 2 (1 pts)

What are the right endpoints for the rectangles in Question 1?

A. $x_1 = 0, x_2 = 1/4, x_3 = 1/2$, and $x_4 = 3/4$.

C. $x_1 = 5/4, x_2 = 3/2, x_3 = 7/4$, and $x_4 = 2$.

B. $x_1 = 1, x_2 = 5/4, x_3 = 3/2$, and $x_4 = 7/4$.

D. $x_1 = 1/4, x_2 = 1/2, x_3 = 3/4$, and $x_4 = 1$.

QUESTION 3 (1 pts)

What is the estimated area under the graph $f(x) = 1/x$, given the information in Question 1 and Question 2?

A. ≈ 0.6345

C. ≈ 1.83

B. ≈ 2.083

D. ≈ 0.7595

QUESTION 4 (1 pts)

Find the value of $\sum_{i=1}^5 2(2i + 1)$.

A. 6

C. 70

B. 50

D. 35

QUESTION 5 (1 pts)

Write $1 + \frac{1}{4} + \frac{1}{9} + \frac{1}{16} + \frac{1}{25} + \frac{1}{36}$ in Sigma notation.

A. $\sum_{i=0}^6 \frac{1}{i^2}$.

C. $\sum_{i=1}^6 \frac{1}{2i}$.

B. $\sum_{i=1}^6 i^2$.

D. $\sum_{i=1}^6 \frac{1}{i^2}$.

QUESTION 6

(1 pts)

What does $\int_a^b f(x) dx$ mean in words?

A. The area of $f(x)$ from a to b .

C. The limit of $f(x)$ as x approaches $b - a$.

B. The definite integral of f from a to b .

D. The limit of $f(x)$ as a and b approaches infinity.

QUESTION 7

(1 pts)

We know that for a continuous function f , $\int_a^b f(x) dx = \lim_{n \rightarrow \infty} S_n$, where S_n are the Riemann Sums. What does $\int_a^b f(x) dx$ represent, if $f(x) \geq 0$?

A. $\lim_{n \rightarrow \infty} (S_b - S_a)$.

D. The area of the region bounded by the graph of $f(x)$ and the x -axis, from $x = a$ to $x = b$.

B. The integral of S_n .

C. The area of $f(x)$ from a to b .

QUESTION 8

(1 pts)

Evaluate $\int_1^2 x^2 dx$.

A. 3

C. $\frac{7}{3}$

B. $\frac{8}{3}$

D. 2

QUESTION 9

(1 pts)

Suppose $\int_a^b f(x) dx = 6$ and $\int_a^b g(x) dx = 8$. What is $\int_a^b (f(x) + g(x)) dx$?

A. 14

C. 48

B. 2

D. -2

QUESTION 10

(1 pts)

Suppose $\int_0^2 f(x) dx = 9$ and $\int_2^8 f(x) dx = 22$. What is $\int_0^8 f(x) dx$?

A. -5

C. 5

B. 204

D. 31