The table gives values of a function f. Use the trapezoidal rule with the 5 subintervals shown to approximate ∫ from 1 to 11 of f(x) dx.

x	1	3	5	7	9	11
f(x)	1	0	2	4	7	5

The table gives values of a function f at unequally spaced points. Use a trapezoidal sum with the 3 subintervals shown to approximate ∫ from 1 to 10 of f(x) dx.

x	1	4	8	10
f(x)	4	5	12	10

The table gives values of a function f. Use a midpoint Riemann sum with 3 subintervals of equal width to approximate ∫ from 0 to 6 of f(x) dx.

x	0	1	2	3	4	5	6
f(x)	6	2	6	10	14	13	10

Let f(x) = √x on [1, 9]. Will the trapezoidal rule with n = 4 overestimate or underestimate ∫ from 1 to 9 of f(x) dx? (A) overestimate (B) underestimate

Approximate ∫ from 2 to 6 of (2x + 1) dx using the trapezoidal rule with n = 2 equal subintervals.

Let f(x) = sin x on [0, π/2]. Will a left Riemann sum with n = 5 overestimate or underestimate ∫ from 0 to π/2 of f(x) dx? (A) overestimate (B) underestimate

Let f(x) = $(x - 5)^2$ on [0, 4]. Will a midpoint Riemann sum with n = 7 overestimate or underestimate ∫ from 0 to 4 of f(x) dx? (A) overestimate (B) underestimate

Approximate the area under f(x) = x^2 + 4 from x = 1 to x = 7 using a midpoint Riemann sum with n = 3 equal subintervals.

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 2

ANSWER

69.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 1

ANSWER

32

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 4

ANSWER

B

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 3

ANSWER

50

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 6

ANSWER

B

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 5

ANSWER

36

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 8

ANSWER

136

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 7

ANSWER

B

The table gives values of a function f. Use the trapezoidal rule with the 3 subintervals shown to approximate ∫ from 1 to 16 of f(x) dx.

x	1	6	11	16
f(x)	10	12	15	19

The table gives values of a function f at unequally spaced points. Use a trapezoidal sum with the 4 subintervals shown to approximate ∫ from 1 to 8 of f(x) dx.

x	1	3	4	5	8
f(x)	7	6	3	10	8

The table gives values of a function f. Use a midpoint Riemann sum with 2 subintervals of equal width to approximate ∫ from 1 to 9 of f(x) dx.

x	1	3	5	7	9
f(x)	5	8	8	11	14

Let $f(x) = x^3$ on [1, 3]. Will the trapezoidal rule with n = 6 overestimate or underestimate ∫ from 1 to 3 of f(x) dx? (A) overestimate (B) underestimate

Approximate ∫ from 1 to 5 of $(x^2 + 3)$ dx using the trapezoidal rule with n = 2 equal subintervals.

Let $f(x) = x^2$ on [0, 4]. Will a left Riemann sum with n = 3 overestimate or underestimate ∫ from 0 to 4 of f(x) dx? (A) overestimate (B) underestimate

Let $f(x) = 16 - x^2$ on [0, 4]. Will the trapezoidal rule with n = 8 overestimate or underestimate ∫ from 0 to 4 of f(x) dx? (A) overestimate (B) underestimate

Approximate the area under $f(x) = x^2 - 2x + 2$ from x = 0 to x = 4 using a midpoint Riemann sum with n = 2 equal subintervals.

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 10

ANSWER

51

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 9

ANSWER

207.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 12

ANSWER

A

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 11

ANSWER

76

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 14

ANSWER

B

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 13

ANSWER

56

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 16

ANSWER

12

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 15

ANSWER

B

The table gives values of a function f. Use the trapezoidal rule with the 5 subintervals shown to approximate ∫ from 0 to 25 of f(x) dx.

x	0	5	10	15	20	25
f(x)	9	10	8	10	10	16

The table gives values of a function f at unequally spaced points. Use a trapezoidal sum with the 4 subintervals shown to approximate ∫ from 1 to 8 of f(x) dx.

x	1	3	4	6	8
f(x)	6	9	8	11	17

The table gives values of a function f. Use a midpoint Riemann sum with 2 subintervals of equal width to approximate ∫ from 2 to 6 of f(x) dx.

x	2	3	4	5	6
f(x)	12	17	18	21	23

Let f(x) = sin x on [0, π/2]. Will the trapezoidal rule with n = 5 overestimate or underestimate ∫ from 0 to π/2 of f(x) dx? (A) overestimate (B) underestimate

Approximate ∫ from 2 to 5 of (3x + 4) dx using the trapezoidal rule with n = 3 equal subintervals.

The function f is decreasing on [0, 3]. Will a right Riemann sum with n = 5 overestimate or underestimate ∫ from 0 to 3 of f(x) dx? (A) overestimate (B) underestimate

Let $f(x) = x^3$ on [1, 3]. Will a midpoint Riemann sum with n = 5 overestimate or underestimate ∫ from 1 to 3 of f(x) dx? (A) overestimate (B) underestimate

Approximate the area under f(x) = x + 5 from x = 0 to x = 6 using a midpoint Riemann sum with n = 3 equal subintervals.

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 18

ANSWER

70.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 17

ANSWER

252.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 20

ANSWER

B

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 19

ANSWER

76

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 22

ANSWER

B

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 21

ANSWER

43.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 24

ANSWER

48

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 23

ANSWER

B