Task card 1 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a right Riemann sum with the 3 subintervals shown to approximate ∫ from 2 to 8 of f(x) dx.

x	2	4	6	8
f(x)	10	13	9	13

Task card 2 Approximating Integrals: Riemann S...

The function f is decreasing on [1, 9]. Will a right Riemann sum with n = 8 overestimate or underestimate ∫ from 1 to 9 of f(x) dx? (A) overestimate (B) underestimate

Task card 3 Approximating Integrals: Riemann S...

Approximate the area under f(x) = 4x + 5 from x = 1 to x = 5 using a midpoint Riemann sum with n = 2 equal subintervals.

Task card 4 Approximating Integrals: Riemann S...

Approximate ∫ from 0 to 5 of (x^2 - 2x + 3) dx using the trapezoidal rule with n = 5 equal subintervals.

Task card 5 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a left Riemann sum with the 6 subintervals shown to approximate ∫ from 1 to 19 of f(x) dx.

x	1	4	7	10	13	16	19
f(x)	10	10	11	13	12	17	15

Task card 6 Approximating Integrals: Riemann S...

The table gives values of a function f. Use the trapezoidal rule with the 5 subintervals shown to approximate ∫ from 2 to 7 of f(x) dx.

x	2	3	4	5	6	7
f(x)	8	13	10	6	9	5

Task card 7 Approximating Integrals: Riemann S...

The function f is increasing on [-2, 3]. Will a left Riemann sum with n = 7 overestimate or underestimate ∫ from -2 to 3 of f(x) dx? (A) overestimate (B) underestimate

Task card 8 Approximating Integrals: Riemann S...

Approximate the area under f(x) = -x² + 25 from x = 1 to x = 5 using a right Riemann sum with n = 2 equal subintervals.

Task card 9 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a midpoint Riemann sum with 3 subintervals of equal width to approximate ∫ from 0 to 30 of f(x) dx.

x	0	5	10	15	20	25	30
f(x)	3	0	0	4	5	8	9

Task card 10 Approximating Integrals: Riemann S...

Approximate the area under f(x) = x² - 2x + 5 from x = 1 to x = 7 using a midpoint Riemann sum with n = 3 equal subintervals.

Task card 11 Approximating Integrals: Riemann S...

Approximate the area under f(x) = -x² + 36 from x = 0 to x = 6 using a midpoint Riemann sum with n = 3 equal subintervals.

Task card 12 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a right Riemann sum with the 3 subintervals shown to approximate ∫ from 2 to 17 of f(x) dx.

x	2	7	12	17
f(x)	2	0	5	3

Task card 13 Approximating Integrals: Riemann S...

The table gives values of a function f. Use the trapezoidal rule with the 3 subintervals shown to approximate ∫ from 0 to 9 of f(x) dx.

x	0	3	6	9
f(x)	2	8	10	11

Task card 14 Approximating Integrals: Riemann S...

The function f is decreasing on [-2, 5]. Will a left Riemann sum with n = 6 overestimate or underestimate ∫ from -2 to 5 of f(x) dx? (A) overestimate (B) underestimate

Task card 15 Approximating Integrals: Riemann S...

Approximate the area under $f(x) = -x^2 + 16$ from x = 0 to x = 4 using a right Riemann sum with n = 2 equal subintervals.

Task card 16 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a midpoint Riemann sum with 2 subintervals of equal width to approximate ∫ from 2 to 10 of f(x) dx.

x	2	4	6	8	10
f(x)	4	9	9	6	9

Task card 17 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a left Riemann sum with the 3 subintervals shown to approximate ∫ from 0 to 15 of f(x) dx.

x	0	5	10	15
f(x)	8	8	11	10

Task card 18 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a right Riemann sum with the 4 subintervals shown to approximate ∫ from 0 to 8 of f(x) dx.

x	0	2	4	6	8
f(x)	3	1	2	8	7

Task card 19 Approximating Integrals: Riemann S...

The function f is increasing on [-1, 7]. Will a right Riemann sum with n = 8 overestimate or underestimate ∫ from -1 to 7 of f(x) dx? (A) overestimate (B) underestimate

Task card 20 Approximating Integrals: Riemann S...

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.

Task card 21 Approximating Integrals: Riemann S...

Approximate ∫ from 1 to 6 of $(x^2 - 2x + 4)\,dx$ using the trapezoidal rule with n = 5 equal subintervals.

Task card 22 Approximating Integrals: Riemann S...

The table gives values of a function f. Use a right Riemann sum with the 4 subintervals shown to approximate ∫ from 2 to 14 of f(x) dx.

x	2	5	8	11	14
f(x)	1	0	7	10	16

Task card 23 Approximating Integrals: Riemann S...

The table gives values of a function f. Use the trapezoidal rule with the 5 subintervals shown to approximate ∫ from 0 to 15 of f(x) dx.

x	0	3	6	9	12	15
f(x)	2	2	0	4	6	2

Task card 24 Approximating Integrals: Riemann S...

Let f(x) = sin x on [0, π/2]. Will a right Riemann sum with n = 8 overestimate or underestimate ∫ from 0 to π/2 of f(x) dx? (A) overestimate (B) underestimate

Approximating Integrals: Riemann Sums & the Trapezoidal Rule Task Cards

Recording sheet · Grade 12 · Give each approximation as an exact number (a decimal such as 24.5 is fine). For overestimate or underestimate questions, answer with the letter A or B.

Scan to check your answers

Name: _____ Date: _____

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Approximating Integrals: Riemann Sums & the Trapezoidal Rule Task Cards: Answer Key

Grade 12 · Medium

The answers online

1. 70	**2.** B	**3.** 68
4. 32.5	**5.** 219	**6.** 44.5
7. B	**8.** 32	**9.** 120
10. 94	**11.** 146	**12.** 40
13. 73.5	**14.** A	**15.** 24
16. 60	**17.** 135	**18.** 36
19. A	**20.** 136	**21.** 57.5
22. 99	**23.** 42	**24.** A