

Riemann Sums Worksheet

Divide the interval $[a, b]$ into $n = 2$ subintervals of equal length and compute the sum of the areas: (a) from the left, (b) from the right, and (c) using midpoints.

$$1. \int_2^6 (3x + 1) dx$$

$$2. \int_0^{16} x^2 dx$$

$$3. \int_1^9 \frac{1}{x} dx$$

$$4. \int_1^4 \frac{1}{2} x dx$$

Use $n = 4$ subintervals:

$$5. \int_1^2 (2x - x^2) dx$$

$$6. \int_0^5 (-x + 5) dx$$

Use $n = 8$ subintervals:

$$7. \int_2^6 x^3 dx$$

$$8. \int_{-3}^{-1} (1 - x^3) dx$$

Trapezoidal Rule Worksheet

Use $n = 4$ subintervals to estimate each area.

1. $\int_1^2 x dx$

2. $\int_1^3 (2x - 1) dx$

3. $\int_{-1}^1 (x^2 + 1) dx$

4. $\int_{-2}^0 (x^2 - 1) dx$

5. $\int_0^2 (t^3 + t) dt$

6. $\int_{-1}^1 (t^2 + 1) dt$

7. $\int_1^2 \frac{1}{s^2} ds$

8. $\int_2^4 \frac{1}{(s-1)^2} ds$

9. $\int_0^{\pi} \sin t dt$

10. $\int_0^1 \sin \pi t dt$