

1. (1 pt) Consider the integral

$$\int_0^3 (2x^2 + 2x + 3) dx$$

(a) Find the Riemann sum for this integral using right endpoints and  $n = 3$ .

$R_3 =$  \_\_\_\_\_

(b) Find the Riemann sum for this same integral, using left endpoints and  $n = 3$ .

$L_3 =$  \_\_\_\_\_

Answer(s) submitted:

- 49
- 25

(correct)

2. (1 pt) Consider the integral

$$\int_2^6 \left( \frac{4}{x} + 5 \right) dx$$

(a) Find the Riemann sum for this integral using right endpoints and  $n = 4$ .

(b) Find the Riemann sum for this same integral, using left endpoints and  $n = 4$

Answer(s) submitted:

- 23.8
- 25.13

(correct)

3. (1 pt) Use the Midpoint Rule to approximate  $\int_{-1.5}^{5.5} x^3 dx$  with  $n = 7$ .

Answer: \_\_\_\_\_

Answer(s) submitted:

- 224

(correct)

4. (1 pt) The following sum

$\sqrt{36 - \left(\frac{6}{n}\right)^2} \cdot \frac{6}{n} + \sqrt{36 - \left(\frac{12}{n}\right)^2} \cdot \frac{6}{n} + \dots + \sqrt{36 - \left(\frac{6n}{n}\right)^2} \cdot \frac{6}{n}$   
is a right Riemann sum for the definite integral

$$\int_0^b f(x) dx$$

where  $b =$  \_\_\_\_\_

and  $f(x) =$  \_\_\_\_\_

The limit of these Riemann sums as  $n \rightarrow \infty$  is \_\_\_\_\_

Answer(s) submitted:

- 6
- sqrt(36-x^2)
- 9 pi

(correct)

5. (1 pt) Evaluate the definite integral by interpreting it in terms of areas.

$$\int_2^6 (4x - 12) dx$$

Answer(s) submitted:

- 16

(correct)

6. (1 pt) Evaluate the integral below by interpreting it in terms of areas. In other words, draw a picture of the region the integral represents, and find the area using high school geometry.

$$\int_{-5}^5 \sqrt{25 - x^2} dx$$

Answer(s) submitted:

- ((25 pi) / 2)

(correct)

7. (1 pt) Evaluate the integral by interpreting it in terms of areas. In other words, draw a picture of the region the integral represents, and find the area using high school geometry.

$$\int_0^5 |7x - 6| dx$$

Answer(s) submitted:

- (877/14)

(correct)

8. (1 pt) Evaluate the integral by interpreting it in terms of areas:

$$\int_{-6}^6 (5 - |x|) dx =$$

Answer(s) submitted:

- 24

(correct)

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9. (1 pt)

$$\int_1^{11} f(x) - \int_1^3 f(x) = \int_a^b f(x)$$

where  $a = \underline{\hspace{1cm}}$  and  $b = \underline{\hspace{1cm}}$

Answer(s) submitted:

- 3
- 11

(correct)

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10. (1 pt) Let  $\int_{-9}^{-4.5} f(x)dx = 9$ ,  $\int_{-9}^{-7.5} f(x)dx =$

3,  $\int_{-6}^{-4.5} f(x)dx = 7$ .

Find  $\int_{-7.5}^{-6} f(x)dx = \underline{\hspace{1cm}}$

and  $\int_{-6}^{-7.5} (9f(x) - 3)dx = \underline{\hspace{1cm}}$

Answer(s) submitted:

- -1
- 13.5

(correct)

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11. (1 pt) Given that  $6 \leq f(x) \leq 8$  for  $-5 \leq x \leq 6$ , use property 8 on page 271 of the Stewart Essential Calculus textbook to estimate the value of  $\int_{-5}^6 f(x)dx$

$\underline{\hspace{1cm}} \leq \int_{-5}^6 f(x)dx \leq \underline{\hspace{1cm}}$

Answer(s) submitted:

- 66
- 88

(correct)