Score: 0 of 1 pt

1 of 26

Test Sco

5.1.5

Using rectangles whose height is given by the value of the function at the midpoint of the rectangle's base, e
graph using first two and then four rectangles.

$f(x) = x^2$ between $x = 0$ and $x = 1$

Using two rectangles to estimate, the area under f(x) is approximately $\frac{5}{16}$.

(Type an integer or a simplified fraction.)

Using four rectangles to estimate, the area under f(x) is approximately $\frac{21}{64}$.

(Type an integer or a simplified fraction.)

Score: 1 of 1 pt

2 of 26

Test Score:

5.2.1

Write the sum without sigma notation. Then evaluate the sum.

$$\sum_{k=1}^{2} \frac{42k}{k+5}$$

Write the sum without sigma notation. Choose the correct answer below.

A. $\left(\frac{42 \cdot 1}{1+5}\right) + \left(\frac{42 \cdot 2}{2+5}\right) + \left(\frac{42 \cdot 3}{3+5}\right)$

B. $\frac{42 \cdot 2}{2+5}$

C. $\left(\frac{42 \cdot 1}{1+5}\right) + \left(\frac{42 \cdot 2}{2+5}\right)$

D. $\frac{42k}{2+5}$

The value of the sum is 19.

(Simplify your answer.)

5.2.4

Write the sum without sigma notation. Then evaluate.

$$\sum_{k=3}^{7} \cos k\pi$$

Write out the sum.

$$\sum_{k=3}^{7} \cos k\pi = \cos(3\pi) + \cos(4\pi) + \cos(5\pi) + \cos(6\pi) + \cos(7\pi)$$

Evaluate the sum.

$$\sum_{k=3}^{7} \cos k\pi = -1$$ (Simplify your answer.)

5.2.5

Write the sum without sigma notation. Then evaluate.

$$\sum_{k=1}^{3} (-1)^{k+4} \sin \frac{\pi}{k}$$

Write the sum without sigma notation. Choose the correct answer below.

- A. $(-1)^{1+4}\sin\frac{\pi}{1} + (-1)^{3+4}\sin\frac{\pi}{3}$
- B. $(-1)^{3+4}\sin\frac{\pi}{3}$
- C. $(-1)^{k+4}\sin\frac{\pi}{k}$
- ✔ D. $(-1)^{1+4}\sin\frac{\pi}{1} + (-1)^{2+4}\sin\frac{\pi}{2} + (-1)^{3+4}\sin\frac{\pi}{3}$

Evaluate the sum.

$$\sum_{k=1}^{3} (-1)^{k+4} \sin \frac{\pi}{k} = -\frac{\sqrt{3}}{2} + 1$$

(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions f

Score: 1 of 1 pt | 5 of 26 | Test Score: 88.46

5.2.11

Express the following sum in sigma notation. Use 1 as the lower limit of summation and k for the index of summation.

$1+2+3+\cdots+23$

Choose the correct answer below.

A. $\sum_{k=1}^{22}(k+1)$

B. $\sum_{k=1}^{23}(k+1)$

C. $\sum_{k=1}^{22}k$

D. $\sum_{k=1}^{23}k$

Score: 1 of 1 pt | 6 of 26 | Test

5.2.17

If $\sum_{k=1}^{n} a_k = 12$ and $\sum_{k=1}^{n} b_k = 24$, find the following values.

$\sum_{k=1}^{n} 8a_k$, $\sum_{k=1}^{n} \frac{b_k}{24}$, $\sum_{k=1}^{n} (a_k+b_k)$, $\sum_{k=1}^{n} (a_k-b_k)$, $\sum_{k=1}^{n} (b_k-6a_k)$

$\sum_{k=1}^{n} 8a_k = 96$

(Simplify your answer.)

$\sum_{k=1}^{n} \frac{b_k}{24} = 1$

(Simplify your answer.)

$\sum_{k=1}^{n} (a_k+b_k) = 36$

(Simplify your answer.)

$\sum_{k=1}^{n} (a_k-b_k) = -12$

(Simplify your answer.)

Question is complete.

Score: 1 of 1 pt ◀ 7 of 26 ▼ ▶ **Test Scor**

5.3.1

Express the limit $\lim_{\|P\|\to 0} \sum_{k=1}^{n} c_k^9 \Delta x_k$, P a partition of [3,10], as a definite integral.

The $\lim_{\|P\|\to 0} \sum_{k=1}^{n} c_k^9 \Delta x_k$, with P a partition of [3,10], expressed as a definite integral, is $\int_{3}^{10} x^9 \, dx$.

Score: 1 of 1 pt ◀ 8 of 26 ▼ ▶

5.3.3

Express the limit $\lim_{\|P\|\to 0} \sum_{k=1}^{n} \left(c_k^9 - 4c_k\right) \Delta x_k$, P a partition of [−5,14], as a definite integral.

The limit expressed as a definite integral is $\int_{-5}^{14} \left(x^9 - 4x\right) dx$.

Score: 1 of 1 pt ◀ 9 of 26 ▼ ▶ **Test Sco**

5.3.7

Express the limit $\lim_{\|P\|\to 0} \sum_{k=1}^{n} \left(\csc c_k\right) \Delta x_k$ as a definite integral where P is a partition of $\left[\frac{\pi}{4}, \frac{2\pi}{3}\right]$.

The limit expressed as a definite integral, is $\int_{\frac{\pi}{4}}^{\frac{2\pi}{3}} \left(\csc x\right) dx$.

(Type an exact answer, using π as needed.)

Score: 1 of 1 pt ◀ 10 of 26 ▼ ▶ **Test Score:** 88.

5.3.13

Suppose that f is integrable, and that $\int_1^7 f(z)dz = 4$ and $\int_1^8 f(z)dz = 9$. Find the value of the following definite integrals.

(a) $\int_7^8 f(z)dz = 5$ (Type an integer or a decimal.)

(b) $\int_8^7 f(z)dz = -5$ (Type an integer or a decimal.)

Score: 1 of 1 pt ◀ 11 of 26 ▼ ▶

5.3.29

Evaluate the integral $\int_2^{\sqrt{7}} x\,dx$.

The value of the integral $\int_2^{\sqrt{7}} x\,dx$ is $\frac{3}{2}$.

(Type an integer or a simplified fraction.)

Score: 1 of 1 pt ◀ 12 of 26 ▼ ▶ Te

5.3.37

Evaluate the integral $\int_a^{6a} x\,dx$.

The value of the integral $\int_a^{6a} x\,dx = \frac{35a^2}{2}$.

Score: 1 of 1 pt

5.4.1

Evaluate the following integral.

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

$$\int_0^2 x(x-3)dx = -\frac{10}{3}$$ (Simplify your answer.)

Score: 1 of 1 pt

5.4.5

Evaluate the given definite integral.

$$\int_2^3 \left(4x^3 - \frac{x^3}{5}\right)dx$$

$$\int_2^3 \left(4x^3 - \frac{x^3}{5}\right)dx = \frac{247}{4}$$ (Simplify your answer.)

Score: 1 of 1 pt

15 of 26

5.4.7

Evaluate the integral.

$$\int_0^1 \left(2x^2+\sqrt{x}\right)dx$$

$$\int_0^1 \left(2x^2+\sqrt{x}\right)dx = \frac{4}{3}$$ (Simplify your answer.)

Score: 1 of 1 pt

16 of 26

5.4.9

Evaluate the integral.

$$\int_0^{\pi/6} 9\sec^2 x\,dx$$

$$\int_0^{\pi/6} 9\sec^2 x\,dx = 3\sqrt{3}$$ (Type an exact answer, using radicals as needed.)

Score: 1 of 1 pt

17 of 26

5.4.17

Evaluate the following integral.

$$\int_0^{\frac{\pi}{8}} \sin 2x\,dx$$

$$\int_0^{\frac{\pi}{8}} \sin 2x\,dx = \frac{-1+\sqrt{2}}{2\sqrt{2}}$$

(Type an exact answer, using radicals as needed.)

Score: 1 of 1 pt 18 of 26 **Test Score:**

5.5.1

Evaluate the following indefinite integral by using the given substitution to reduce the integral to standard form.

$$\int 2(2x+4)^7 dx,\ u=2x+4$$

$$\int 2(2x+4)^7 dx = \frac{1}{8}(2x+4)^8 + c$$

(Use C as the arbitrary constant.)

Score: 1 of 1 pt 19 of 26 **Test Sco**

5.5.3

Evaluate the indefinite integral by using the substitution $u=x^2+9$ to reduce the integral to standard form.

$$\int 2x\left(x^2+9\right)^{-4} dx$$

$$\int 2x\left(x^2+9\right)^{-4} dx = -\frac{1}{3\left(x^2+9\right)^3} + c$$

(Use C as the arbitrary constant.)

Score: 1 of 1 pt 20 of 26 **T**

5.5.9

Use the indicated substitution to evaluate the integral.

$$\int 24\csc(4x)\cot(4x)dx, \quad u=4x$$

$$\int 24\csc(4x)\cot(4x)dx = -\frac{6}{\sin(4x)} + c$$

(Use C as an arbitrary constant.)

Score: 0 of 1 pt ◀ 21 of 26 ▼ ▶ **Test S**

5.5.11

Evaluate the indefinite integral by using the given substitution to reduce the integral to standard form.

$$\int \frac{28t^6\,dt}{\sqrt{5-t^7}},\ u = 5 - t^7$$

$$\int \frac{28t^6\,dt}{\sqrt{5-t^7}} = -8\left(5-t^7\right)^{1/2} + C$$

(Use C as the

You answered: $-8\left(5-x^7\right)^{\frac{1}{2}} + c$

Get answer feedback

Score: 0 of 1 pt ◀ 22 of 26 ▼ ▶ **Te**

5.5.17

Evaluate the integral $\int \sqrt{1+6s}\,ds$.

$$\int \sqrt{1+6s}\,ds = \frac{1}{9}(1+6s)^{\frac{3}{2}} + C$$

(Use C as the arbit...y constant.)

You answered: $\frac{(6x+1)^{\frac{3}{2}}}{9} + c$

Get answer feedback

Score: 1 of 1 pt

23 of 26

5.5.25

Evaluate the integral $\int \sin^5 \frac{x}{5} \cos \frac{x}{5} dx$.

$\int \sin^5 \frac{x}{5} \cos \frac{x}{5} dx = \dfrac{5 \sin^6\left(\frac{x}{5}\right)}{6} + c$

(Use C as the arbitrary constant.)

Score: 1 of 1 pt

24 of 26

5.5.33

Evaluate the integral $\int \frac{5}{t^6} \sin\left(\frac{1}{t^5} - 7\right) dt$.

$\int \frac{5}{t^6} \sin\left(\frac{1}{t^5} - 7\right) dt = \cos\left(\frac{1}{t^5} - 7\right) + c$

(Use C as the arbitrary constant.)

Score: 1 of 1 pt

25 of 26

5.6.3

Use the substitution formula to evaluate the integral.

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^2 x \cos x \, dx$$

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^2 x \cos x \, dx = \frac{2}{3}$$

5.6.41

Find the area of the region enclosed by the curves $y = x^2 - 1$ and $y = 8$.

The area of the region enclosed by the curves is 36.

(Type a simplified fraction.)