

1. (1 point) set10/s4_4_27.pg

Evaluate the definite integral

$$\int_1^7 \frac{4x^2 + 2}{\sqrt{x}} dx$$

Answer(s) submitted:

•

(incorrect)

Correct Answers:

• 212.409908031722

2. (1 point) set10/c4s4p1a.pg

If $f(x) = \int_0^x (t^3 + 3t^2 + 6) dt$

then

$f''(x) =$ _____

Answer(s) submitted:

•

(incorrect)

Correct Answers:

• $3x^2 + 2 \cdot 3x$

3. (1 point) set10/c4s4p3.pg

If $f(x) = \int_1^{x^3} t^2 dt$

then

$f'(x) =$ _____

$f'(3) =$ _____

Answer(s) submitted:

•

•

(incorrect)

Correct Answers:

• $3x^8$

• 19683

4. (1 point) set10/c4s4p7.pg

Given

$$f(x) = \int_0^x \frac{t^2 - 1}{1 + \cos^2(t)} dt$$

At what value of x does the local max of $f(x)$ occur?

$x =$ _____

Answer(s) submitted:

•

(incorrect)

Correct Answers:

• -1

5. (1 point) set10/golden-math1210fall2001-ps10-q6.pg

Let f be an odd function and g be an even function, and suppose that

$$\int_0^1 |f(x)| dx = \int_0^1 g(x) dx = 3.$$

Use geometric reasoning to calculate each of the following:

(a) $\int_{-1}^1 f(x) dx =$ _____.

(b) $\int_{-1}^1 g(x) dx =$ _____.

(c) $\int_{-1}^1 |f(x)| dx =$ _____.

(d) $\int_{-1}^1 xg(x) dx =$ _____.

Answer(s) submitted:

•

•

•

•

(incorrect)

Correct Answers:

• 0

• 6

• 6

• 0

6. (1 point) set10/golden-math1210fall2001-ps10-q7.pg

Suppose that

$$\int_0^1 f(x) dx = 2, \int_1^2 f(x) dx = 3,$$

$$\int_0^1 g(x) dx = -1, \text{ and } \int_0^2 g(x) dx = 4.$$

Use properties of definite integrals (linearity, interval additivity, and so on) to calculate the following integral:

$$\int_0^2 (\sqrt{3}f(t) + \sqrt{2}g(t) + \pi) dt.$$

Answer: _____.

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- 20.6002935953368

7. (1 point) set10/golden-math1210fall2001-ps10-q8.pg

Let

$$G(x) = \int_1^x xt \, dt.$$

Find

$$G'(x) = \underline{\hspace{2cm}}$$

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- $(3/2) * x^{**2} - 1/2$

8. (1 point) set10/golden-math1210fall2001-ps10-q9.pg

Find

$$\lim_{x \rightarrow 1} \frac{1}{x-1} \int_1^x \frac{1+t}{2+t} \, dt.$$

Answer: .

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- 0.6666666666666667

9. (1 point) set10/golden-math1210fall2001-ps10-q10.pg

Use the Second Fundamental Theorem of Calculus combined with the Generalized Power Rule to evaluate the following integrals:

(a) $\int_0^{\pi/2} \sin^2 3x \cos 3x \, dx = \underline{\hspace{2cm}}.$

(b) $\int_{-1}^x (t + |t|) \, dt = \underline{\hspace{2cm}}$ for $x < 0$, and $\int_{-1}^x (t + |t|) \, dt = \underline{\hspace{2cm}}$ for $x \geq 0$.

Answer(s) submitted:

•

•

•

(incorrect)

Correct Answers:

- -0.1111111111111111
- 0
- x^{**2}

10. (1 point) set10/golden-math1210fall2001-ps10-q11.pg

Find the average value of the following function on the given interval:

$$f(x) = \frac{x}{\sqrt{x^2 + 16}}, \text{ on } [0, 3].$$

The average value of f on $[0, 3]$ is .

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- 0.3333333333333333

11. (1 point) set10/golden-math1210fall2001-ps10-q12.pg

View the following limit as a definite integral and then evaluate that integral by the Second Fundamental Theorem of Calculus.

$$\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{2}{n} \left[1 + \frac{2i}{n} + \left(\frac{2i}{n} \right)^2 \right].$$

The above limit is equal to .

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- 6.666666666666667

12. (1 point) set10/golden-math1210fall2001-ps10-q13.pg

Use the method of substitution to find the following indefinite integral:

$$\int \frac{z \cos(\sqrt[3]{z^2 + 3})}{(\sqrt[3]{z^2 + 3})^2} \, dz.$$

Answer: + C.

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- $(3/2) * \sin((z^{**2} + 3)^{(1/3)})$

13. (1 point) set10/golden-math1210fall2001-ps10-q14.pg

Use the method of substitution to find the following definite integral:

$$\int_{-\pi/2}^{\pi/2} \cos \theta \cos(\pi \sin \theta) \, d\theta.$$

Answer: .

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- 0

