

1. (1 point) set11/sc6_1_12.pg

Sketch the region enclosed by the given curves. Decide whether to integrate with respect to x or y . Then find the area of the region.

$$x + y^2 = 12, x + y = 0$$

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 57.1666666666667

2. (1 point) set11/sc6_1_14.pg

Sketch the region enclosed by the given curves. Decide whether to integrate with respect to x or y . Then find the area of the region.

$$y = 5 \cos x, y = (5 \sec(x))^2, x = -\pi/4, x = \pi/4$$

Answer(s) submitted:

•

(incorrect)

Correct Answers:

- 42.9289321881345

3. (1 point) set11/golden-math1210fall2001-ps11-q3.pg

An object moves along a line so that its velocity at time t is $v(t) = \frac{1}{2} + \sin 2t$ feet per second. Find the displacement and the total distance traveled by the object for $0 \leq t \leq 3\pi/2$.

Displacement: ____ feet.

Total distance traveled: ____ feet.

Answer(s) submitted:

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•

(incorrect)

Correct Answers:

- 3.3561944905
- 4.04104774673554

4. (1 point) set11/sc6_2_9.pg

Find the volume of the solid obtained by rotating the region bounded by the given curves about the specified axis.

$$y = x^6, y = 1; \text{ about } y = 8$$

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 80.3695351379894

5. (1 point) set11/ns6_2_21.pg

You wake up one morning, and find yourself wearing a toga and scarab ring. Always a logical person, you conclude that you must have become an Egyptian pharaoh. You decide to honor yourself with a pyramid of your own design. You decide it should have height $h = 4280$ and a square base with side $s = 1670$

To impress your Egyptian subjects, find the volume of the pyramid.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 3978830666.66667

6. (1 point) set11/pril_new_3.pg

A ball of radius 17 has a round hole of radius 5 drilled through its center. Find the volume of the resulting solid.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 17967.7832361179

7. (1 point) set11/pril_new_13.pg

Find the volume of the solid formed by rotating the region inside the first quadrant enclosed by

$$y = x^4$$

$$y = 27x$$

about the x -axis.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 13741.3262668018

8. (1 point) set11/golden-math1210fall12001-ps11-q8.pg

Find the volume of the solid generated by revolving about the x -axis the region bounded by the upper half of the ellipse

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

and the x -axis, and thus find the volume of a prolate spheroid. Here a and b are positive constants, with $a > b$.

Volume of the solid of revolution: _____.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- $(4/3) * 3.141592654 * a * (b**2)$

9. (1 point) set11/golden-math1210fall12001-ps11-q9.pg

The region bounded by $y = 2 + \sin x$, $y = 0$, $x = 0$ and 2π is revolved about the y -axis. Find the volume that results.

Hint:

$$\int x \sin x \, dx = \sin x - x \cos x + C.$$

Volume of the solid of revolution: _____.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 208.571795924897

10. (1 point) set11/benny11.pg

Find the length of the curve defined by

$$y = 6x^{3/2} - 1$$

from $x = 1$ to $x = 6$.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 82.3424828777811

11. (1 point) set11/ns6_3_4a.pg

Consider the parametric curve given by the equations

$$x(t) = t^2 + 19t + 36$$

$$y(t) = t^2 + 19t + 1$$

How many units of distance are covered by the point $P(t) = (x(t), y(t))$ between $t=0$, and $t=8$?

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 305.470129472589

12. (1 point) set11/golden-math1210fall12001-ps11-q12.pg

Find the length of the following curve:

$$y = \int_{\pi/6}^x \sqrt{64 \sin^2 u \cos^4 u - 1} \, du, \quad \frac{\pi}{6} \leq x \leq \frac{\pi}{3}.$$

Length of the curve: _____.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- 1.39871747423554

13. (1 point) set11/golden-math1210fall12001-ps11-q13.pg

Find the area of the surface generated by revolving the following curve about the axis:

$$x = r \cos t, y = r \sin t, 0 \leq t \leq \pi.$$

Area of the surface: _____.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- $4 * 3.141592654 * (r**2)$

14. (1 point) set11/golden-math1210fall12001-ps11-q14.pg

The circle $x = a \cos t, y = a \sin t, 0 \leq t \leq 2\pi$ is revolved about the line $x = b, 0 < a < b$, thus generating a torus (doughnut). Find its surface area.

Area of the torus: _____.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- $4 * (3.141592654 ** 2) * a * b$

15. (1 point) set11/eva5_2.pg

A force of 2 pounds is required to hold a spring stretched 0.5 feet beyond its natural length. How much work (in foot-pounds) is done in stretching the spring from its natural length to 0.7 feet beyond its natural length? _____

Answer(s) submitted:

-

(incorrect)

Correct Answers:

- 0.98

16. (1 point) set11/golden-math1210fall12001-ps11-q16.pg

For a certain type of nonlinear spring, the force required to keep the spring stretched a distance s is given by the formula

$$F = ks^{4/3}.$$

If the force required to keep it stretched 8 inches is 2 pounds, how much work is done in stretching this spring 27 inches?

Amount of work done: _____ inch-pound(s).

Answer(s) submitted:

-

(incorrect)

Correct Answers:

- 117.160714285714

17. (1 point) set11/golden-math1210fall12001-ps11-q17.pg

The masses and coordinates of a system of particles are given by the following:

$5, (-3, 2); 6, (-2, -2); 2, (3, 5); 7, (4, 3); 1, (7, -1).$

Find the moments of this system with respect to the coordinate axes, and find the coordinates of the center of mass.

Moment with respect to the x -axis: _____.

Moment with respect to the y -axis: _____.

Center of mass: (_____, _____).

Answer(s) submitted:

-
-
-
-

(incorrect)

Correct Answers:

- 28
- 14
- 0.6666666666666667
- 1.3333333333333333

18. (1 point) set11/golden-math1210fall12001-ps11-q18.pg

Find the centroid of the region bounded by the following curves:

$$y = x^2, y = x + 3.$$

Hint: Make a sketch and use symmetry where possible.

Centroid: (_____, _____).

Answer(s) submitted:

-
-

(incorrect)

Correct Answers:

- 0.5
- 2.2

19. (1 point) set11/golden-math1210fall12001-ps11-q19.pg

Use Pappus's Theorem to find the volume of the torus obtained when the region inside the circle $x^2 + y^2 = a^2$ is revolved about the line $x = 2a$.

Volume of torus: _____.

Answer(s) submitted:

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(incorrect)

Correct Answers:

- $4 * (3.141592654 ** 2) * (a ** 3)$