CENGAGE | WEBASSIGN

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(sign out)

INSTRUCTOR
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15.8 - 15.9 Coordenadas Cilindricas y Esfericas (Homework)

Current Score

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	1
POINTS	0/1	–/1	1/1	–/2	2/2	2/0	2/2	2/2	2/0	–/2	–/1	–/2	1/1	1/1	1.5/1.5	1/1	2/2	2

TOTAL SCORE

23.5/24.5 95.9%

Due Date Past Due

FRI, MAY 1, 2020
11:59 PM CST

Request Extension

Assignment Submission & Scoring

Assignment Submission

For this assignment, you submit answers by question parts. The number of submissions remaining for each question part only changes if you submit or change the answer.

Assignment Scoring

Your last submission is used for your score.

The due date for this assignment has passed.

Your work can be viewed below, but no changes can be made.

Important! Before you view the answer key, decide whether or not you plan to request an extension. Your Instructor may not grant you an extension if you have viewed the answer key. Automatic extensions are not granted if you have viewed the answer key.

Request Extension

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1. 0/1 POINTS | PREVIOUS ANSWERS | **SCALCET8 15.7.009.** | MY NOTES | ASK YOUR TEACHER

Write the equations in cylindrical coordinates.

(a) $7x^2 - 4x + 7y^2 + z^2 = 1$

(No Response)

(b) $z = 5x^2 - 5y^2$

$$5r2cos(2\theta)$$

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2. –/1 POINTS | **SCALCET8 15.7.505.XP.** | MY NOTES | ASK YOUR TEACHER

Write the equations in cylindrical coordinates.

(a) $8x + 6y + z = 6$

(No Response)

(b) $-6x^2 - 6y^2 + z^2 = 4$

(No Response)

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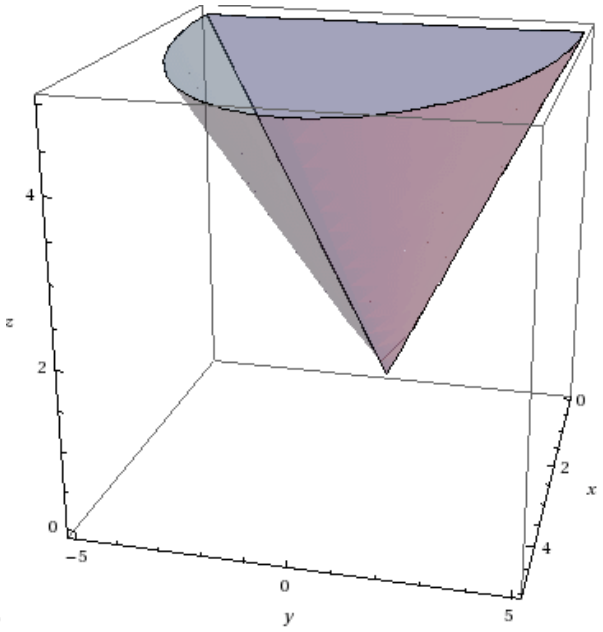
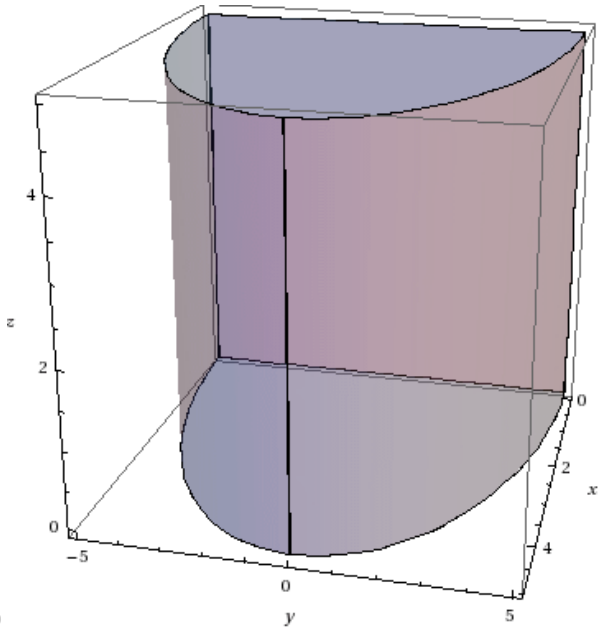
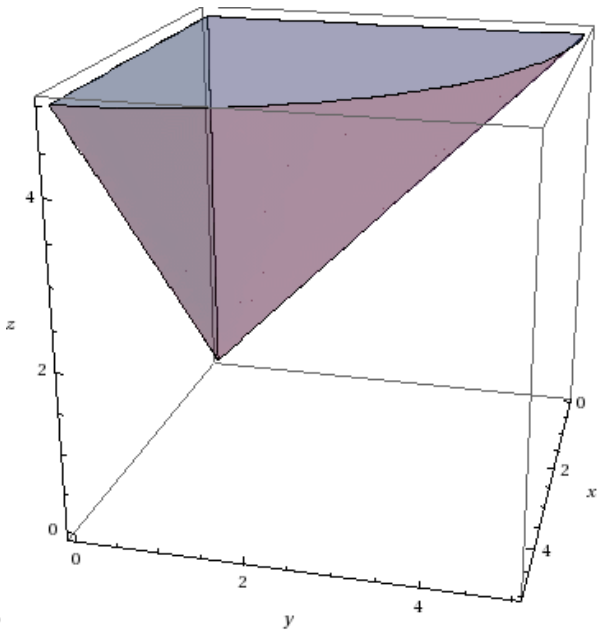
3. 1/1 POINTS | PREVIOUS ANSWERS | SCALCET8 15.7.012. | MY NOTES | ASK YOUR TEACHER

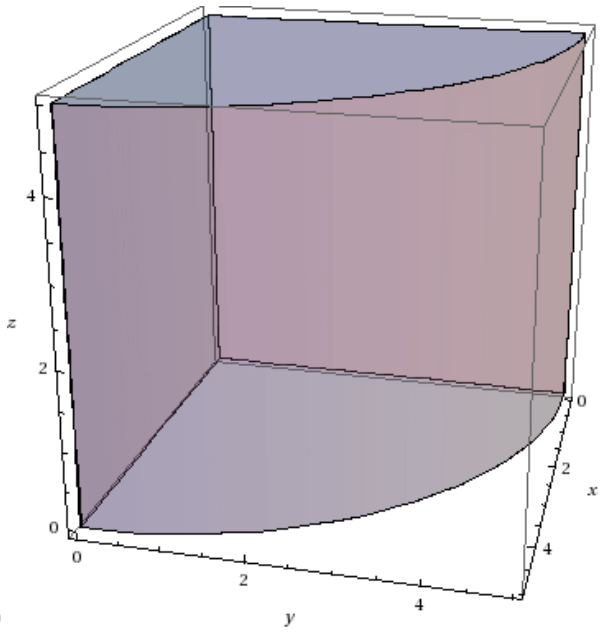
Sketch the solid described by the given inequalities.

$0 \le \theta \le \pi/2,\ r \le z \le 5$









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4. –/2 POINTS **SCALCET8 15.7.017.** MY NOTES ASK YOUR TEACHER

Use cylindrical coordinates.

Evaluate $\iiint_E \sqrt{x^2 + y^2}\, dV$, where E is the region that lies inside the cylinder $x^2 + y^2 = 16$ and between the planes $z = -1$ and $z = 3$.

(No Response)

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5. 2/2 POINTS PREVIOUS ANSWERS **SCALCET8 15.7.020.** MY NOTES ASK YOUR TEACHER

Use cylindrical coordinates.

Evaluate $\iiint_E (x - y)\, dV$, where E is the solid that lies between the cylinders $x^2 + y^2 = 1$ and $x^2 + y^2 = 25$, above the xy-plane, and below the plane $z = y + 5$.

$$−156π

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6. 2/0 POINTS PREVIOUS ANSWERS **SCALCET8 15.7.022.** MY NOTES ASK YOUR TEACHER

Use cylindrical coordinates.

Find the volume of the solid that lies within both the cylinder $x^2 + y^2 = 4$ and the sphere $x^2 + y^2 + z^2 = 36$.

$$32π3(27−16√2)

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7. 2/2 POINTS | PREVIOUS ANSWERS | SCALCET8 15.7.023. | MY NOTES | ASK YOUR TEACHER

Use cylindrical coordinates.

Find the volume of the solid that is enclosed by the cone $z = \sqrt{x^2 + y^2}$ and the sphere $x^2 + y^2 + z^2 = 128$.

$$2048π3(√2−1)

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8. 2/2 POINTS | PREVIOUS ANSWERS | SCALCET8 15.7.029. | MY NOTES | ASK YOUR TEACHER

Evaluate the integral by changing to cylindrical coordinates.

$$\int_{-4}^{4} \int_{-\sqrt{16 - y^2}}^{\sqrt{16 - y^2}} \int_{\sqrt{x^2 + y^2}}^{6} xz \, dz \, dx \, dy$$

$$0

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9. 2/0 POINTS | PREVIOUS ANSWERS | SCALCET8 15.7.030. | MY NOTES | ASK YOUR TEACHER

Evaluate the integral by changing to cylindrical coordinates.

$$\int_{-4}^{4} \int_{0}^{\sqrt{16 - x^2}} \int_{0}^{16 - x^2 - y^2} \sqrt{x^2 + y^2} \, dz \, dy \, dx$$

$$2048π15

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10. –/2 POINTS **SCALCET8 15.8.009.** MY NOTES ASK YOUR TEACHER

Write the equation in spherical coordinates.

(a) $x^2 + y^2 + z^2 = 16$

(No Response)

(b) $x^2 - y^2 - z^2 = 1$

(No Response)

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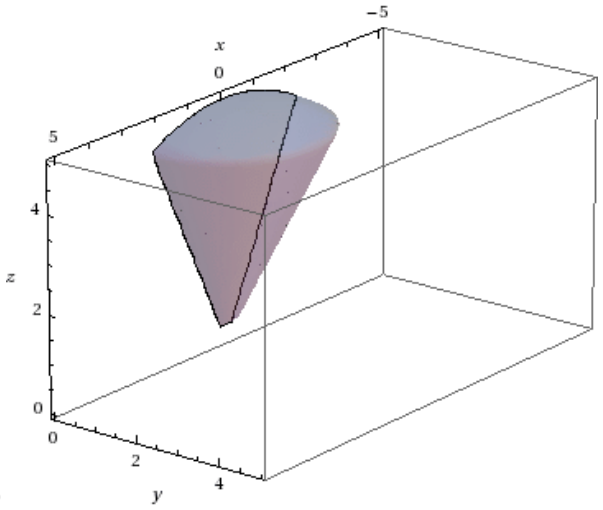
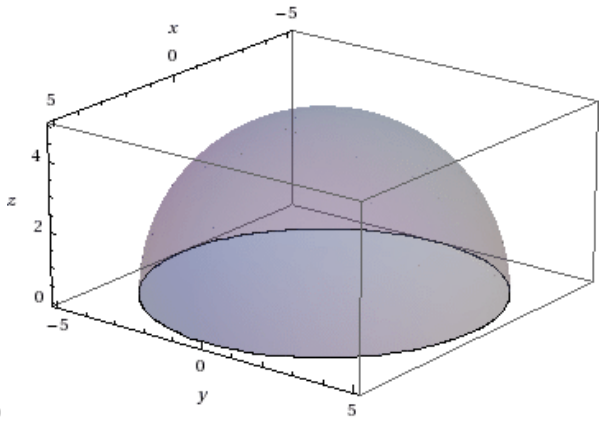
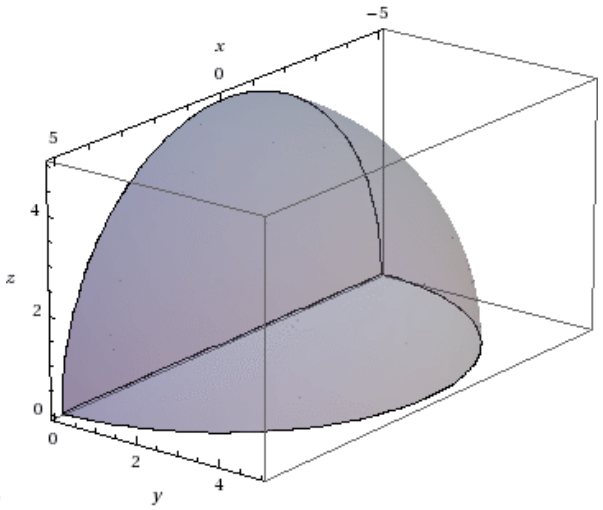
11. –/1 POINTS **SCALCET8 15.8.011.** MY NOTES ASK YOUR TEACHER

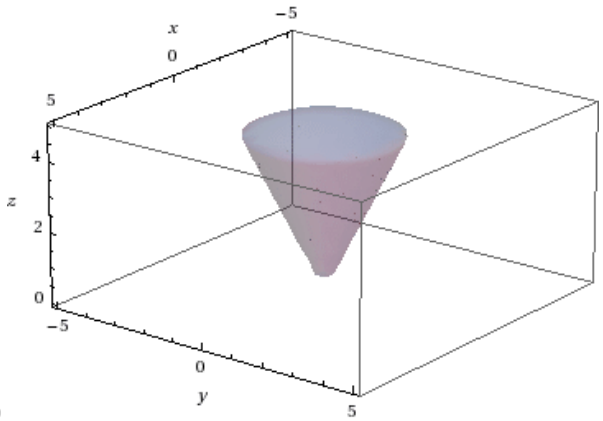
Sketch the solid described by the given inequalities.

$\rho \le 5, \quad 0 \le \phi \le \pi/6, \quad 0 \le \theta \le \pi$









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12. –/2 POINTS **SCALCET8 15.8.504.XP.** MY NOTES ASK YOUR TEACHER

Write the equation in spherical coordinates.

(a) $2z^2 = 5x^2 + 5y^2$

(No Response)

(b) $x^2 + 5z^2 = 7$

(No Response)

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13. 1/1 POINTS PREVIOUS ANSWERS **SCALCET8 15.8.015.** MY NOTES ASK YOUR TEACHER

A solid lies above the cone $z = \sqrt{x^2 + y^2}$ and below the sphere $x^2 + y^2 + z^2 = z$. Write a description of the solid in terms of inequalities involving spherical coordinates.

- $0 \le \phi \le \frac{\pi}{6}$, $\rho \ge \cos(\phi)$
- $0 \le \phi \le \frac{3\pi}{4}$, $0 \le \rho \le \cos(\phi)$
- $0 \le \phi \le \frac{\pi}{2}$, $0 \le \rho \le \cos(\phi)$
- $0 \le \phi \le \frac{\pi}{3}$, $0 \le \rho \le \cos(\phi)$
- $0 \le \phi \le \frac{\pi}{4}$, $0 \le \rho \le \cos(\phi)$ ✓

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14. 1/1 POINTS | PREVIOUS ANSWERS | SCALCET8 15.8.016. | MY NOTES | ASK YOUR TEACHER

(a) Find inequalities that describe a hollow ball with diameter 70 cm and thickness 0.7 cm. (Assume the ball is centered at the origin of the coordinate system.)

- $69.3 \le \rho \le 70,\ \pi \le \theta \le 2\pi,\ 0 \le \phi \le \pi/2$
- $0.7 \le \rho \le 35,\ 0 \le \theta \le \pi,\ 0 \le \phi \le \pi/2$
- $69.3 \le \rho \le 70,\ 0 \le \theta \le 2\pi,\ 0 \le \phi \le \pi$
- (●) $34.3 \le \rho \le 35,\ 0 \le \theta \le 2\pi,\ 0 \le \phi \le \pi$
- $34.3 \le \rho \le 35,\ \pi \le \theta \le 2\pi,\ 0 \le \phi \le \pi/2$

(b) Suppose the ball is cut in half. Write inequalities that describe one of the halves. (Select all that apply.)

- [x] $34.3 \le \rho \le 35,\ 0 \le \theta \le 2\pi,\ 0 \le \phi \le \pi/2$
- [x] $34.3 \le \rho \le 35,\ 0 \le \theta \le \pi,\ 0 \le \phi \le \pi$
- [ ] $34.3 \le \rho \le 35,\ 0 \le \theta \le \pi,\ 0 \le \phi \le \pi/2$
- [ ] $34.3 \le \rho \le 35,\ 0 \le \theta \le 2\pi,\ 0 \le \phi \le \pi$
- [ ] $34.3 \le \rho \le 35,\ 0 \le \theta \le 3\pi/2,\ 0 \le \phi \le \pi$

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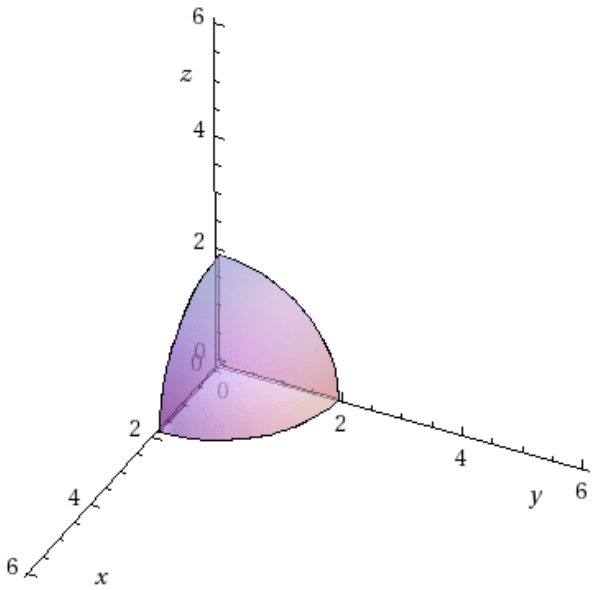
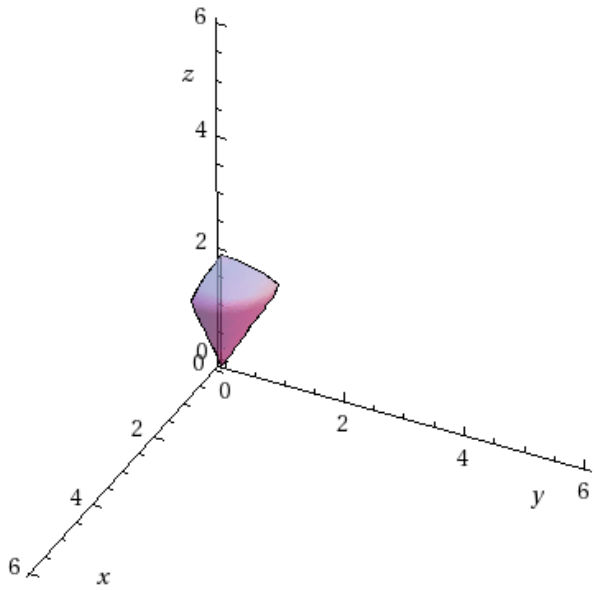
15. 1.5/1.5 POINTS | PREVIOUS ANSWERS | SCALCET8 15.8.017.MI. | MY NOTES | ASK YOUR TEACHER

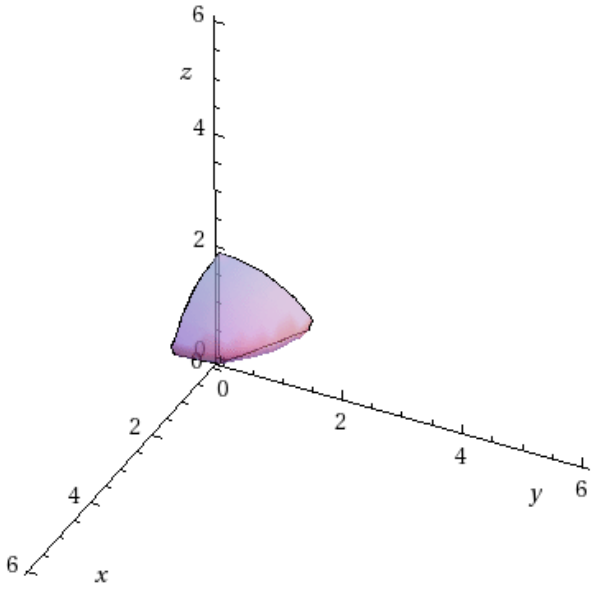
Evaluate the integral. Then sketch the solid whose volume is given by the integral.

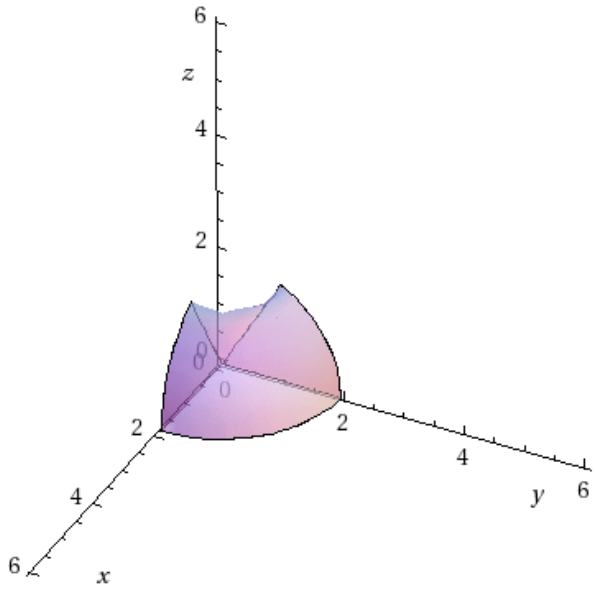
$$\int_0^{\pi/6} \int_0^{\pi/2} \int_0^{2} \rho^2 \sin(\phi)\, d\rho\, d\theta\, d\phi$$

$$2\pi(2-\sqrt{3})$$









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16. 1/1 POINTS PREVIOUS ANSWERS SCALCET8 15.8.021.MI. MY NOTES ASK YOUR TEACHER

Use spherical coordinates.

Evaluate $\iiint_B (x^2 + y^2 + z^2)^2 \, dV$, where B is the ball with center the origin and radius 1.

$$4π7

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17. 2/2 POINTS PREVIOUS ANSWERS SCALCET8 15.8.025. MY NOTES ASK YOUR TEACHER

Use spherical coordinates.

Evaluate $\iiint_E xe^{x^2 + y^2 + z^2} \, dV$, where E is the portion of the unit ball $x^2 + y^2 + z^2 \leq 1$ that lies in the first octant.

$$π8

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18. 2/0 POINTS PREVIOUS ANSWERS SCALCET8 15.8.030. MY NOTES ASK YOUR TEACHER

Use spherical coordinates.

Find the volume of the solid that lies within the sphere $x^2 + y^2 + z^2 = 49$, above the xy-plane, and below the cone $z = \sqrt{x^2 + y^2}$.

$$6863√2π

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19. 2/0 POINTS | PREVIOUS ANSWERS | SCALCET8 15.8.041. | MY NOTES | ASK YOUR TEACHER

Evaluate the integral by changing to spherical coordinates.

$$\int_0^6 \int_0^{\sqrt{36-x^2}} \int_{\sqrt{x^2+y^2}}^{\sqrt{72-x^2-y^2}} xy \, dz \, dy \, dx$$

$$2592(4\sqrt{2}-5)5

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20. 2/2 POINTS | PREVIOUS ANSWERS | SCALCET8 15.8.042. | MY NOTES | ASK YOUR TEACHER

Evaluate the integral below by changing to spherical coordinates.

$$\int_{-4}^{4} \int_{-\sqrt{16-y^2}}^{\sqrt{16-y^2}} \int_{-\sqrt{16-x^2-y^2}}^{\sqrt{16-x^2-y^2}} \left(x^2z + y^2z + z^3\right) dz \, dx \, dy$$

$$0

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