CENGAGE | WEBASSIGN

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← MATH 2415, section 48F, Summer 1 2022

11.6 Homework - Surfaces in Space (Homework)

INSTRUCTOR
Jose Vega Guzman
Lamar University, TX

Current Score

QUESTION	1	2	3	4	5	6	7	8	9
POINTS	0.55/0.55 ✓	0.55/0.55 ✓	0.55/0.55 ✓	0.55/0.55 ✓	0.55/0.55 ✓	0.55/0.55 ✓	0.55/0.55 ✓	0.55/0.55 ✓	0.6/0.6 ✓

TOTAL SCORE

5/5	100.0%

Due Date

SAT, JUN 11, 2022
11:59 PM CDT

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

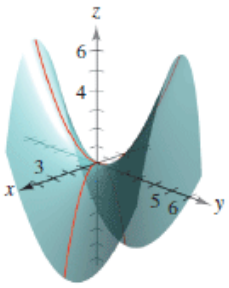
Your last submission is used for your score.

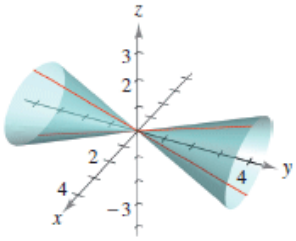
1. **[0.55/0.55 Points]** DETAILS PREVIOUS ANSWERS **LARCALCET7 11.6.005.**

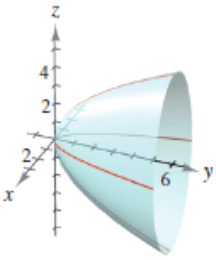
MY NOTES ASK YOUR TEACHER

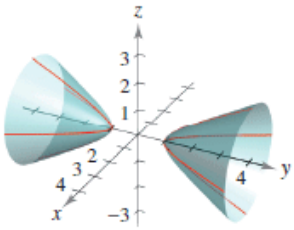
Match the equation with its graph.

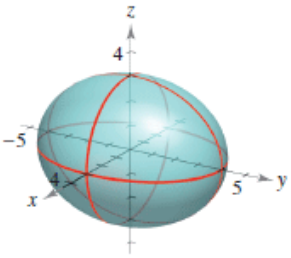
$$\frac{x^2}{9} + \frac{y^2}{16} + \frac{z^2}{9} = 1$$

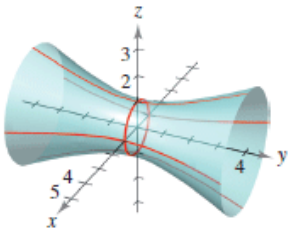












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2. **[0.55/0.55 Points]** DETAILS PREVIOUS ANSWERS **LARCALCET7 11.6.012.**

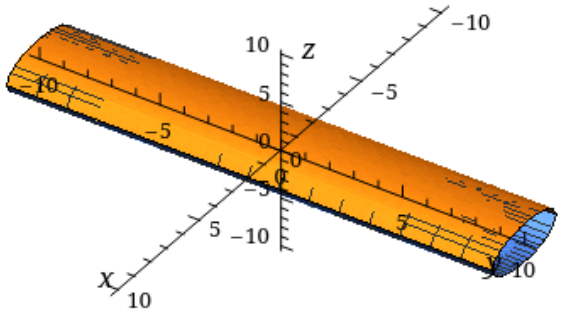
MY NOTES ASK YOUR TEACHER PRACTICE ANOTHER

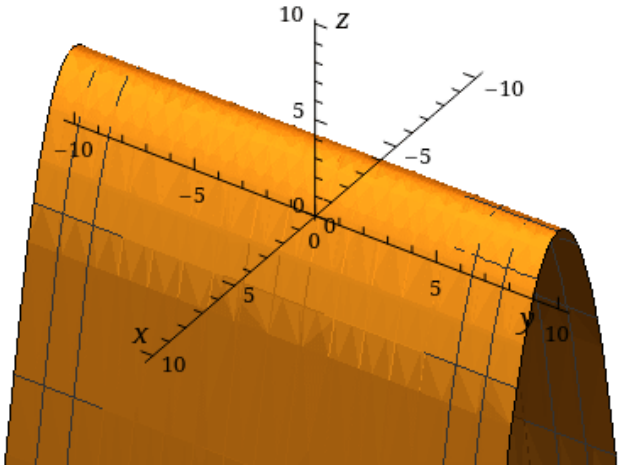
Describe the surface.

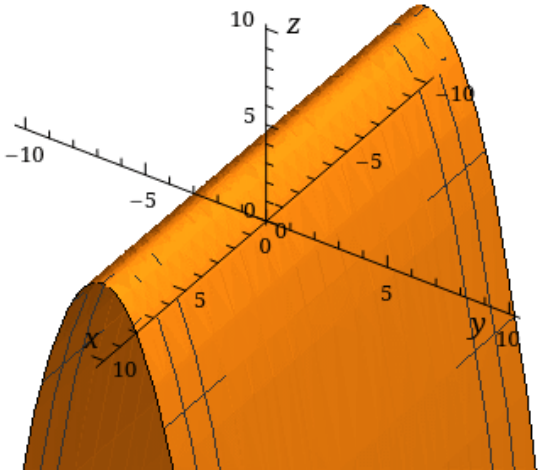
$y^2 + z = 4$

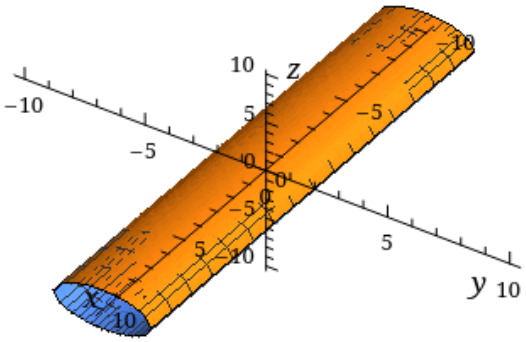
The x -coordinate is missing so it is a parabolic cylinder with the rulings parallel to the x -axis. The generating curve is a parabola .

Sketch the surface.









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3. **[0.55/0.55 Points]** DETAILS PREVIOUS ANSWERS **LARCALCET7 11.6.017.**

MY NOTES ASK YOUR TEACHER

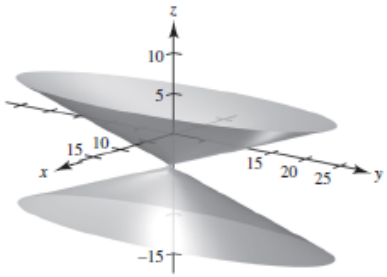
Classify the quadric surface.

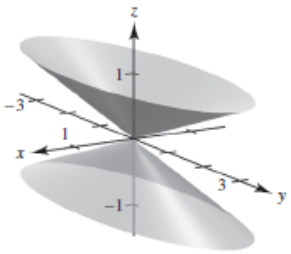
$16x^2 - y^2 + 16z^2 = 4$

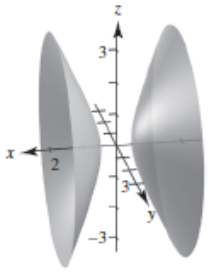
- ○ hyperboloid of two sheets
- ○ hyperbolic paraboloid
- ○ ellipsoid
- ◉ hyperboloid of one sheet
- ○ elliptic cone

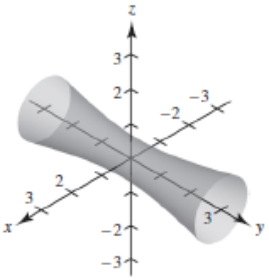
✔

Sketch the quadric surface. Use a computer algebra system to confirm your sketch.

○ 

○ 

○ 

◉ 

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4. **[0.55/0.55 Points]** DETAILS PREVIOUS ANSWERS **LARCALCET7 11.6.019.**

MY NOTES ASK YOUR TEACHER

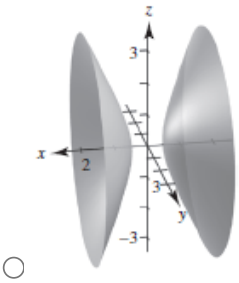
Classify the quadric surface.

$$x^2 + \frac{y^2}{4} + z^2 = 1$$

- ○ hyperbolic paraboloid
- ◉ ellipsoid
- ○ elliptic cone
- ○ hyperboloid of one sheet
- ○ hyperboloid of two sheets

✔

Sketch the quadric surface. Use a computer algebra system to confirm your sketch.



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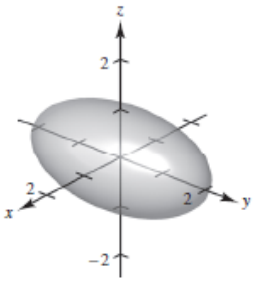

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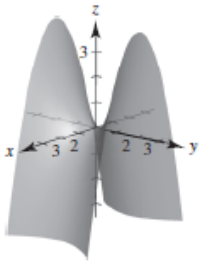

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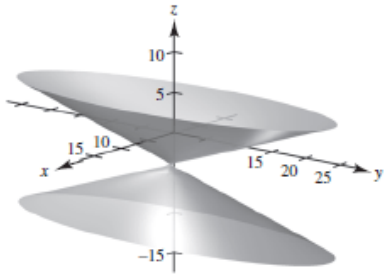

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5. **[0.55/0.55 Points]** DETAILS PREVIOUS ANSWERS **LARCALCET7 11.6.021.**

MY NOTES ASK YOUR TEACHER

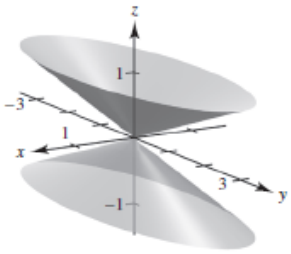
Classify the quadric surface.

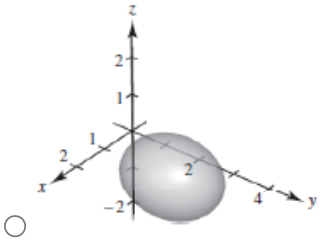
$$z^2 = x^2 + \frac{y^2}{9}$$

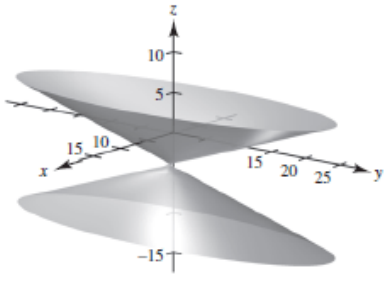
- ○ ellipsoid
- ◉ elliptic cone
- ○ elliptic paraboloid
- ○ hyperboloid of two sheets
- ○ hyperboloid of one sheet

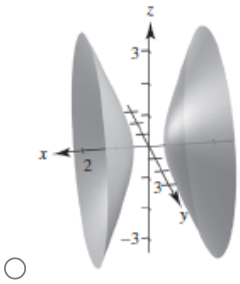
✔

Sketch the quadric surface. Use a computer algebra system to confirm your sketch.

◉ 

○ 

○ 

○ 

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6. [0.55/0.55 Points] DETAILS PREVIOUS ANSWERS LARCALCET7 11.6.032.MI.

MY NOTES ASK YOUR TEACHER PRACTICE ANOTHER

Find an equation for the surface of revolution formed by revolving the curve in the indicated coordinate plane about the given axis.

Equation of Curve	Coordinate Plane	Axis of Revolution
$z^2 = 36y$	yz-plane	y-axis

x2+z2=36y

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7. [0.55/0.55 Points] DETAILS PREVIOUS ANSWERS LARCALCET7 11.6.036.MI.

MY NOTES ASK YOUR TEACHER PRACTICE ANOTHER

Find an equation for the surface of revolution formed by revolving the curve in the indicated coordinate plane about the given axis.

Equation of Curve	Coordinate Plane	Axis of Revolution
$4z = \sqrt{16 - x^2}$	xz-plane	x-axis

x2+16y2+16z2=16

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8. [0.55/0.55 Points] DETAILS PREVIOUS ANSWERS LARCALCET7 11.6.037.

MY NOTES ASK YOUR TEACHER PRACTICE ANOTHER

Find an equation of a generating curve given the equation of its surface of revolution.

$x^2 + y^2 - 6z = 0$

$y=\sqrt{6z}$

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9. [0.6/0.6 Points] DETAILS PREVIOUS ANSWERS LARCALCET7 11.6.047.

MY NOTES ASK YOUR TEACHER

Because of the forces caused by its rotation, Earth is an oblate ellipsoid rather than a sphere. The equatorial radius is 3963 miles and the polar radius is 3950 miles. Find an equation of the ellipsoid. (Assume that the center of Earth is at the origin and that the trace formed by the plane $z = 0$ corresponds to the equator.)

$x239632+y239632+z239502=1$

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