

WebAssign**Hw 32 (16.6): Parametric Surfaces and Areas (Homework)**

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MA 261 Fall 2012, section 121, Fall 2012

Instructor: David Daniels

Current Score : 20 / 20**Due** : Thursday, November 15 2012 11:00 PM EST1. 2.22/2.22 points | [Previous Answers](#)

SCalcET7 16.6.003.

Identify the surface with the given vector equation.

$$\mathbf{r}(u, v) = (u + v) \mathbf{i} + (3 - v) \mathbf{j} + (2 + 3u + 6v) \mathbf{k}$$

- ☐ circular paraboloid
- ☐ elliptic cylinder
- ☒ plane
- ☐ hyperbolic paraboloid
- ☐ circular cylinder

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SCalcET7 16.6.004.

Identify the surface with the given vector equation.

$$\mathbf{r}(u, v) = 4 \sin u \mathbf{i} + 5 \cos u \mathbf{j} + v \mathbf{k}, \quad 0 \leq v \leq 5$$

- ☐ plane
- ☒ elliptic cylinder
- ☐ circular paraboloid
- ☐ hyperbolic paraboloid
- ☐ circular cylinder

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SCalcET7 16.6.005.

Identify the surface with the given vector equation.

$$\mathbf{r}(s, t) = \langle s, t, t^2 - s^2 \rangle$$

- ☐ circular paraboloid
- ☐ plane
- ☒ hyperbolic paraboloid
- ☐ circular cylinder
- ☐ elliptic cylinder



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SCalcET7 16.6.006.

Identify the surface with the given vector equation.

$$\mathbf{r}(s, t) = \langle s \sin 3t, s^2, s \cos 3t \rangle$$

- ☒ circular paraboloid
- ☐ elliptic cylinder
- ☐ plane
- ☐ hyperbolic paraboloid
- ☐ circular cylinder



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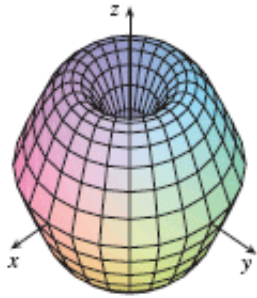
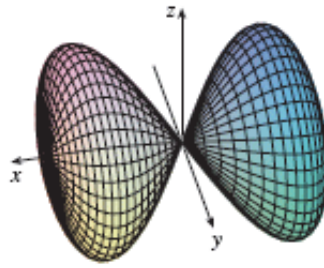
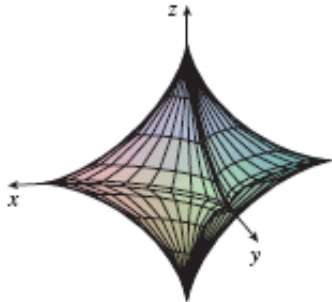
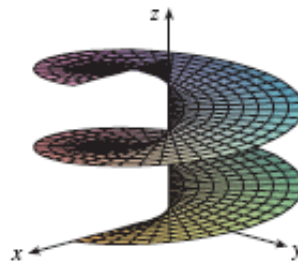
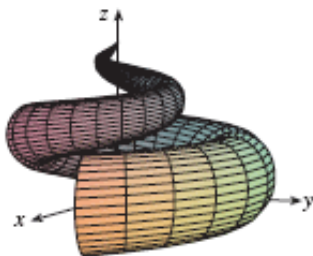
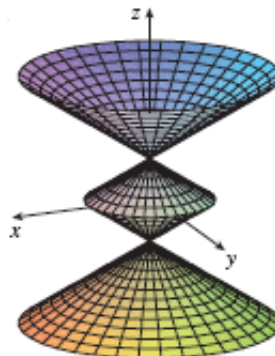
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SCalcET7 16.6.013.

Match the equation with its graph.

$$\mathbf{r}(u, v) = u \cos v \mathbf{i} + u \sin v \mathbf{j} + v \mathbf{k}$$


☐ I

☐ II

☐ III

☒ IV

☐ V

☐ VI


Determine which families of grid curves have u constant and which have v constant.
 u constant

- ☐ each grid curve is a circle of radius $|u|$ in the horizontal plane $z = \sin u$
- ☐ each grid curve is a vertically oriented circle
- ☐ the grid curves lies in the vertical plane $y = (\tan^3 u)x$
- ☐ each grid curve lies in a plane $z = ky$ that includes the x -axis
- ☒ each grid curve is a helix
- ☐ each grid curve is a circle of radius $(1 - |u|)$ in the horizontal plane $z = u$



v constant

- ☐ the grid curves run vertically along the surface in the planes $y = kx$
- ☒ a straight line in the plane $z = v$ which intersects the z -axis
- ☐ the vertical planes $y = kx$ through the z -axis
- ☐ the grid curves are the spiral curves
- ☐ the grid curves lies in a horizontal plane
- ☐ each grid curve is a circle contained in the vertical plane $x = \sin v$ parallel to the yz -plane



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6. 2.22/2.22 points | [Previous Answers](#)

SCalcET7 16.6.019.

Find a parametric representation for the surface. (Enter your answer as a comma-separated list of equations. Let x , y , and z be in terms of u and/or v .)

The plane through the origin that contains the vectors $\mathbf{i} - \mathbf{j}$ and $\mathbf{j} - \mathbf{k}$.



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SCalcET7 16.6.021.

Find a parametric representation for the surface.

The part of the hyperboloid $9x^2 - 9y^2 - z^2 = 9$ that lies in front of the yz -plane. (Enter your answer as a comma-separated list of equations. Let x , y , and z be in terms of u and/or v .)



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8. 2.22/2.22 points | [Previous Answers](#)

SCalcET7 16.6.023.MI.

Find a parametric representation for the surface.

The part of the sphere $x^2 + y^2 + z^2 = 64$ that lies above the cone $z = \sqrt{x^2 + y^2}$. (Enter your answer as a comma-separated list of equations. Let x , y , and z be in terms of u and/or v .)



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✓ (where $z > \sqrt{x^2 + y^2}$)

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SCalcET7 16.6.025.

Find a parametric representation for the surface.

The part of the cylinder $y^2 + z^2 = 64$ that lies between the planes $x = 0$ and $x = 3$. (Enter your answer as a comma-separated list of equations. Let x , y , and z be in terms of u and/or v .)



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✓ (where $0 < x < 3$)

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