Hw 36 (16.8): Stokes' Theorem 11/23/12 4:27 PM

Web**Assign**

Hw 36 (16.8): Stokes' Theorem (Homework)

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MA 261 Fall 2012, section 121, Fall 2012

Instructor: David Daniels

Current Score: 20 / 20 Due: Thursday, November 29 2012 11:00 PM EST

1. 4/4 points | Previous Answers

SCalcET7 16.8.002.MI.

Use Stokes' Theorem to evaluate \iint_{S} curl $\mathbf{F} \cdot d\mathbf{S}$.

$$\mathbf{F}(x, y, z) = \frac{6}{9} \cos z \, \mathbf{i} + e^{x} \sin z \, \mathbf{j} + x e^{y} \, \mathbf{k},$$

S is the hemisphere $x^2 + y^2 + z^2 = 9$, $z \ge 0$, oriented upward.



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2. 4/4 points | Previous Answers

SCalcET7 16.8.003.

Use Stokes' Theorem to evaluate $\iint_S \operatorname{curl} \mathbf{F} \cdot d\mathbf{S}$.

$$\mathbf{F}(x, y, z) = x^2 z^2 \mathbf{i} + y^2 z^2 \mathbf{j} + xyz \mathbf{k},$$

S is the part of the paraboloid $z = x^2 + y^2$ that lies inside the cylinder $x^2 + y^2 = 25$, oriented upward.



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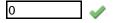
3. 4/4 points | Previous Answers

SCalcET7 16.8.005.

Use Stokes' Theorem to evaluate $\iint_S \operatorname{curl} \mathbf{F} \cdot d\mathbf{S}$.

$$\mathbf{F}(x, y, z) = xyz\mathbf{i} + xy\mathbf{j} + x^2yz\mathbf{k},$$

S consists of the top and four sides (but not the bottom) of the cube with vertices (± 10 , ± 10), oriented outward.









4. 4/4 points | Previous Answers

SCalcET7 16.8.007.MI.

Use Stokes' Theorem to evaluate $\int_C \mathbf{F} \cdot d\mathbf{r}$ where C is oriented counterclockwise as viewed from above.

$$\mathbf{F}(x, y, z) = (x + y^2)\mathbf{i} + (y + z^2)\mathbf{j} + (z + x^2)\mathbf{k},$$

C is the triangle with vertices (5, 0, 0), (0, 5, 0), and (0, 0, 5).











5. 4/4 points | Previous Answers

SCalcET7 16.8.009.

Use Stokes' Theorem to evaluate $\int_C \mathbf{F} \cdot d\mathbf{r}$ where C is oriented counterclockwise as viewed from above.

$$\mathbf{F}(x, y, z) = yz\mathbf{i} + 5xz\mathbf{j} + e^{xy}\mathbf{k},$$

C is the circle $x^2 + y^2 = 9, z = 2.$



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