Sections 15.1 and 15.2 (1497081)

Due: Tue Nov 2 2010 11:59 PM PDT

1. Question Details

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Estimate the volume of the solid that lies below the surface \( z = xy \) and above the following rectangle.

\[ R = \{(x, y) | 3 \leq x \leq 9, 7 \leq y \leq 11\} \]

Exercise (a)

Use a Riemann sum with \( m = 3, n = 2 \), and take the sample point to be the upper right corner of each square.

Exercise (b)

Use the Midpoint Rule to estimate the volume of the solid.

2. Question Details

(a) Estimate the volume of the solid that lies below the surface \( z = xy \) and above the following rectangle.

\[ R = \{(x, y) | 8 \leq x \leq 14, 8 \leq y \leq 12\} \]

Use a Riemann sum with \( m = 3, n = 2 \), and take the sample point to be the upper right corner of each square.

\[ V = \text{Tutorial} \]

(b) Use the Midpoint Rule to estimate the volume of the solid in part (a).

\[ V = \text{Tutorial} \]

3. Question Details

Calculate the iterated integral.

\[ \int_{1}^{3} \int_{0}^{1} (1 + 4xy) \, dx \, dy = \]

\[ \text{Tutorial} \]

4. Question Details

Calculate the iterated integral.

\[ \int_{0}^{1} \int_{0}^{2} (10x^2 - 3x^2y^3) \, dy \, dx = \]

5. Question Details

Calculate the iterated integral.

\[ \int_{0}^{1} \int_{1}^{9} \frac{5xe^x}{y} \, dy \, dx = \]

6. Question Details

Calculate the iterated integral.

\[ \int_{0}^{1} \int_{0}^{4} 4xy \sqrt{x^2 + y^2} \, dy \, dx = \]

7. Question Details

Calculate the iterated integral.

\[ \int_{0}^{1} \int_{0}^{3} 3r^2 \sin^2(\theta) \, dr \, d\theta = \]

8. Question Details

Calculate the double integral.

\[ \int_{R} (18x^2y^3 - 15y^4) \, dA, \quad R = \{(x, y) | 0 \leq x \leq 1, 0 \leq y \leq 1\} \]

The value of integral is \( \text{Tutorial} \)

9. Question Details

Calculate the double integral.

\[ \int_{R} (x \cos(x + 2y)) \, dA, \quad R = \{(x, y) | 0 \leq x \leq 3\pi, 0 \leq y \leq \frac{\pi}{2}\} \]

The value of integral is
10. Question Details SCalcET6 15.2.017.MI. [1386480]  
Calculate the double integral.
\[
\iint_{R} \frac{y^3}{x^2 + 1} \, dA, \quad R = \{(x, y) \mid 0 \leq x \leq 1, -2 \leq y \leq 2\}
\]
The value of integral is.

11. Question Details SCalcET6 15.2.018. [1288198]  
Calculate the double integral.
\[
\iint_{R} \frac{3(1 + x^2)}{1 + y^2} \, dA, \quad R = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}
\]
The value of integral is.

12. Question Details SCalcET6 15.2.022. [1289760]  
Calculate the double integral.
\[
\iint_{R} \frac{3}{x^2 + y^2} \, dA, \quad R = [1, 5] \times [0, 1]
\]
The value of integral is.

13. Question Details SCalcET6 15.2.027. [1289775]  
Find the volume of the solid that lies under the elliptic paraboloid \(x^2/4 + y^2/9 + z = 1\) and above the rectangle.
\[
R = [-2, 2] \times [-2, 2]
\]
\[V = \]

14. Question Details SCalcET6 15.2.030. [1288512]  
Find the volume of the solid in the first octant bounded by the parabolic cylinder \(z = 16 - x^2\) and the plane \(y = 3\).
\[V = \]

15. Question Details SCalcET6 15.2.036. [1289545]  
Find the average value of \(f\) over the given rectangle.
\[
\int_{R} (x, y) = 2e^y \sqrt{x + ey}, \quad R = [0, 2] \times [0, 1]
\]
\[f_{ave} = \]

Assignment Details  
Name (AID): Sections 15.1 and 15.2 (1497081)  
Submissions Allowed: 5  
Category: Homework  
Code:  
Locked: No  
Author: Simic, Slobodan (simic@math.sjsu.edu)  
Last Saved: Oct 26, 2010 10:29 AM PDT  
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