WebAssign
Hw 19 (15.1-2): Multiple and Iterated Integrals (Homework)

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MA 261 Fall 2012, section 121, Fall 2012
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Current Score : 20 / 20 **Due :** Thursday, October 11 2012 11:00 PM EDT

1. 1.53/1.53 points | Previous Answers SCalcET7 15.1.001.MI.

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

$$R = \{(x, y) \mid 0 \le x \le 6, 4 \le y \le 8\}$$

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

672 ✔

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

432 ✔

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2. 1.53/1.53 points | Previous Answers SCalcET7 15.1.006.

A 20-ft-by-30-ft swimming pool is filled with water. The depth is measured at 5-ft intervals, starting at one corner of the pool, and the values are recorded in the table. Estimate the volume of water using the Midpoint Rule with $m = 2$ and $n = 3$.

3500 ✔ ft^3

$x\backslash y$	0	5	10	15	20	25	30
0	2	3	4	6	7	8	8
5	2	3	4	7	8	9	8
10	2	4	6	8	10	12	10
15	2	3	4	5	6	8	7
20	2	2	2	2	3	4	4

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3. 1.53/1.53 points | Previous Answers SCalcET7 15.1.012.

Evaluate the double integral by first identifying it as the volume of a solid.

$$\iint_R (5 - x)\, dA,\ R = \{(x, y) \mid 0 \le x \le 5,\ 0 \le y \le 5\}$$

125/2 ✓

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4. 1.53/1.53 points | Previous Answers SCalcET7 15.2.001.

Consider the function.

$$f(x, y) = 18x^2y^3$$

(a) Find $\int_0^2 f(x, y)\, dx$.

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✓

(b) Find $\int_0^1 f(x, y)\, dy$.

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✓

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5. 1.53/1.53 points | Previous Answers SCalcET7 15.2.002.

Consider the function.

$f(x, y) = y + xe^y$

(a) Find $\int_0^2 f(x, y)\, dx$.

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(b) Find $\int_0^1 f(x, y)\, dy$.

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6. 1.53/1.53 points | Previous Answers SCalcET7 15.2.007.

Calculate the iterated integral.

$$\int_{-9}^{9}\int_{0}^{\pi/2} (y + y^2 \cos x)\, dx\, dy$$

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7. 1.53/1.53 points | Previous Answers SCalcET7 15.2.009.

Calculate the iterated integral.

$$\int_{1}^{36}\int_{1}^{6} \left(\frac{x}{y} + \frac{y}{x}\right) dy\, dx$$

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8. 1.53/1.53 points | Previous Answers SCalcET7 15.2.012.

Calculate the iterated integral.

$$\int_0^3 \int_0^1 7xy\sqrt{x^2 + y^2}\, dy\, dx$$

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9. 1.53/1.53 points | Previous Answers SCalcET7 15.2.013.

Calculate the iterated integral.

$$\int_0^2 \int_0^{\pi} 4r \sin^2\theta\, d\theta\, dr$$

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10. 1.53/1.53 points | Previous Answers SCalcET7 15.2.017.MI.

Calculate the double integral.

$$\iint_R \frac{3xy^2}{x^2 + 1}\, dA, \quad R = \{(x, y) \mid 0 \le x \le 3, -2 \le y \le 2\}$$

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11. 1.53/1.53 points | Previous Answers SCalcET7 15.2.025.

Find the volume of the solid that lies under the plane $4x + 8y - 2z + 17 = 0$ and above the rectangle $R = \{(x, y) \mid -1 \le x \le 4, -1 \le y \le 1\}$.

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12.1.53/1.53 points | Previous Answers SCalcET7 15.2.027.

Find the volume of the solid that lies under the elliptic paraboloid $x^2/9 + y^2/16 + z = 1$ and above the rectangle $R = [-1, 1] \times [-3, 3]$.

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13.1.64/1.64 points | Previous Answers SCalcET7 15.2.030.

Find the volume of the solid in the first octant bounded by the parabolic cylinder $z = 16 - x^2$ and the plane $y = 1$.

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