Math 2013 Practice Quiz 3 Fall 2011

Name: Last _____, First _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. You must show your work to get credit.

Evaluate the integral.

1) $\int_{-6}^{-4} \int_{-3}^{9} dy\, dx$ 1) _____

A) 1 B) –54 C) 24 D) –18

2) $\int_{0}^{7} \int_{0}^{4} (2x^2y - 6xy)\, dy\, dx$ 2) _____

A) $\frac{280}{3}$ B) $\frac{490}{3}$ C) $\frac{1960}{3}$ D) $\frac{70}{3}$

Integrate the function f over the given region.

3) f(x, y) = xy over the rectangle $2 \le x \le 7, 1 \le y \le 6$ 3) _____

A) $\frac{1575}{4}$ B) $\frac{525}{2}$ C) $\frac{1575}{2}$ D) 525

4) f(x, y) = 4x sin xy over the rectangle $0 \le x \le \pi, 0 \le y \le 1$ 4) _____

A) 4π B) $4\pi - 4$ C) π D) $\frac{\pi}{4}$

Find the volume under the surface z = f(x,y) and above the rectangle with the given boundaries.

5) $z = 8x + 4y + 7;\ 0 \le x \le 1, 1 \le y \le 3$ 5) _____

A) 28 B) 26 C) 38 D) 36

6) $z = \frac{x}{y};\ 0 \le x \le 1, 1 \le y \le e$ 6) _____

A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) $\frac{1}{6}$ D) $\frac{1}{2}$

Evaluate the integral.

7) $\int_{1}^{3} \int_{0}^{y} x^2y^2\, dx\, dy$ 7) _____

A) $\frac{350}{3}$ B) $\frac{364}{9}$ C) $\frac{364}{3}$ D) $\frac{350}{9}$

8) $\int_0^{\pi/6} \int_0^{\cos 3x} \sin 3x \, dy \, dx$ 8) _____

A) $\frac{\pi}{6}$ B) $\frac{1}{12}$ C) $\frac{1}{6}$ D) $\frac{\pi}{12}$

Integrate the function f over the given region.

9) $f(x, y) = y^2 e^{x^4}$ over the triangular region in the first quadrant bounded by the lines $x = y/6$, $x = 1$, $y = 0$ 9) _____

A) 18(e – 1) B) 18e C) 216(e + 1) D) 72(e – 1)

Write an equivalent double integral with the order of integration reversed.

10) $\int_0^9 \int_0^x dy \, dx$ 10) _____

A) $\int_0^9 \int_{-9}^y dx \, dy$ B) $\int_0^x \int_0^9 dx \, dy$

C) $\int_0^9 \int_9^y dx \, dy$ D) $\int_0^9 \int_y^9 dx \, dy$

11) $\int_0^1 \int_0^{\tan^{-1} x} dy \, dx$ 11) _____

A) $\int_0^{\pi/4} \int_{\tan y}^{\pi/2} dx \, dy$ B) $\int_0^{\pi/4} \int_{\tan y}^1 dx \, dy$

C) $\int_0^{\pi/4} \int_{\tan^{-1} y}^1 dx \, dy$ D) $\int_0^{\pi/4} \int_{\tan^{-1} y}^{\pi/2} dx \, dy$

12) $\int_0^2 \int_{y^2}^4 6y \, dx \, dy$ 12) _____

A) $\int_0^2 \int_0^{\sqrt{x}} 6y \, dy \, dx$ B) $\int_0^4 \int_2^{\sqrt{x}} 6y \, dy \, dx$

C) $\int_0^2 \int_2^{\sqrt{x}} 6y \, dy \, dx$ D) $\int_0^4 \int_0^{\sqrt{x}} 6y \, dy \, dx$

Reverse the order of integration and then evaluate the integral.

13) $\int_0^4 \int_x^4 \frac{\sin y}{y} \, dy \, dx$ 13) _____

A) cos 4 B) 1 + cos 4 C) 1 – cos 4 D) – cos 4

14) $\int_0^{5\sqrt{\ln 8}} \int_{y/5}^{\sqrt{\ln 8}} e^{x^2}\,dx\,dy$ 14) _____

A) $\frac{45}{2}$ B) 16 C) 24 D) $\frac{35}{2}$

15) $\int_0^3 \int_{x/3}^1 3y^2 \cos xy\,dy\,dx$ 15) _____

A) $\cos 3 - 1$ B) $3(1 - \cos 3)$ C) $5(1 - \cos 3)$ D) $\frac{1}{2}(1 - \cos 3)$

16) $\int_0^1 \int_{5y}^5 x^4 e^{x^2 y}\,dx\,dy$ 16) _____

A) $e^{25} - 1$ B) $e^{25} - \frac{130}{3}$ C) $\frac{5e^{25} - 130}{3}$ D) $5e^{25} - 130$

Find the volume of the indicated region.

17) the region under the surface $z = x^2 + y^4$, and bounded by the planes $x = 0$ and $y = 25$ and the cylinder $y = x^2$ 17) _____

A) $\frac{2{,}357{,}500}{33}$ B) $\frac{58{,}607{,}500}{33}$ C) $\frac{11{,}732{,}500}{33}$ D) $\frac{292{,}982{,}500}{33}$

18) the region bounded by the paraboloid $z = 100 - x^2 - y^2$ and the xy–plane 18) _____

A) 2500π B) 5000π C) $\frac{10000}{3}\pi$ D) $\frac{5000}{3}\pi$

19) the region that lies under the plane $z = 10x + 8y$ and over the triangle bounded by the lines $y = x$, $y = 2x$, and $x + y = 6$ 19) _____

A) 106 B) 126 C) 90 D) 110

Answer Key
Testname: MATH 2013 PRACTICE QUIZ 3 FALL 2011

1) C
2) C
3) A
4) A
5) C
6) D
7) B
8) C
9) A
10) D
11) B
12) D
13) C
14) D
15) D
16) C
17) D
18) B
19) A