

King Fahd University of Petroleum and Minerals
Department of Math & Stat
Math 201, Sections 1, 5, 8, 20 (081)
Quiz 4(a)

Time: 20 minutes

Marks: _____/9

Name: _____ Section #: _____

ID #: _____ Serial #: _____

1. The volume of the solid that lies in first octant and is bounded by the three coordinate planes and the cylinders $x^2 + y^2 = 4$ and $y^2 + z^2 = 4$ is

- (a) $\frac{3}{14}$
- (b) 2
- (c) $\frac{1}{2}$
- (d) .9
- (e) $\frac{16}{3}$

2. The maximum and minimum values of $f(x, y) = x - 3y - 1$ subject to the constraint $x^2 + 3y^2 = 16$ are
- (a) $0, -1$
 - (b) $7, -9$
 - (c) $1, -2$
 - (d) $2, 0$
 - (e) $11, 3$

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1. The value of $\int_0^8 \int_{\sqrt[3]{y}}^2 e^{x^4} dx dy$ is

(a) 2

(b) $\frac{1}{3}$

(c) 7

(d) none of these

(e) $\frac{1}{4} [e^{16} - 1]$

2. Suppose that $R = \left\{ (x, y) \mid 0 \leq x \leq \pi \text{ and } 0 \leq y \leq \frac{\pi}{2} \right\}$.

The value of $\iint_R \cos(x + 2y) \, dA$ is

(a) -2

(b) 0

(c) 1

(d) $\frac{1}{2}$

(e) 12

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1. The value of $\int_0^2 \int_{y/2}^1 \cos(x^2) dx dy$ is

- (a) 0
- (b) none of these
- (c) $\sqrt{2}$
- (d) $\sin(1)$
- (e) $\frac{2}{3}$

2. Using Lagrange multipliers method, the maximum values of $f(x, y) = x^2 - y^2$ subject to the constraint $x^2 + y^2 = 25$ are
- (a) $-9, -11$
 - (b) $0, \frac{1}{2}$
 - (c) $25, -25$
 - (d) $\frac{1}{3}, 1$
 - (e) none of these.