

King Fahd University of Petroleum and Minerals
Department of Math & Stat
Math 201 (081)
Test (A)

Time: 45 Minutes

Marks _____/45

Name: _____ Section #: _____

ID #: _____ Serial #: _____

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

- (a) $\frac{2}{\pi}$
- (b) $\frac{\pi}{4} \sin(1)$
- (c) $\frac{\pi}{4}(1 - \cos(1))$
- (d) 3
- (e) $1 - \frac{\pi}{4}$

2. The volume of the solid bounded by the paraboloid $z = 9 - x^2 - y^2$ and the plane $z = 5$ is

- (a) 4
- (b) 2π
- (c) 1
- (d) 8π
- (e) $\frac{\pi}{2}$

3. The value of $\int_1^2 \int_z^2 \int_0^{\sqrt{3}y} \frac{y}{x^2 + y^2} dx dy dz$ is

- (a) 2π
- (b) 3
- (c) $2\pi - 1$
- (d) $\frac{\pi}{4}$
- (e) $\frac{\pi}{6}$

4. Using iterated integrals, volume of the sphere $x^2 + y^2 + z^2 = a^2$ ($a > 0$) is

- (a) πa^3
- (b) $2\pi a^2$
- (c) $\frac{4\pi}{3} a^3$
- (d) $\frac{2\pi}{a}$
- (e) $\frac{3}{4} \pi a^3$

5. The value of $\int_{-2}^2 \int_{-\sqrt{4-x^2}}^{\sqrt{4-x^2}} \int_0^{\sqrt{4-x^2-y^2}} z^2 \sqrt{x^2 + y^2 + z^2} dz dy dx$ is

(a) $\frac{64\pi}{9}$

(b) $2\pi + \sqrt{3}$

(c) $2\pi + 1$

(d) $\frac{\pi}{3}$

(e) 9π

King Fahd University of Petroleum and Minerals
Department of Math & Stat
Math 201 (081)
Test (B)

Time: 45 Minutes

Marks _____/45

Name: _____ Section #: _____

ID #: _____ Serial #: _____

1. The value of $\int_0^9 \int_{\sqrt{y}}^3 \sin x^3 dx dy$ is

- (a) $\cos 1 + 3$
- (b) $\sin 2 - 1$
- (c) $2 - \cos 3$
- (d) $-\frac{1}{3}[\cos 27 - 1]$
- (e) -2

2. The iterated integral to find area of one loop of the curve $r^2 = b^2 \sin 2\theta$ ($b > 0$) is

- (a) $\int_0^{\pi/2} \int_0^b r dr d\theta$
- (b) $\int_0^{2b} \int_0^1 r dr d\theta$
- (c) $\int_0^{\pi} \int_0^{\sqrt{b}} r dr d\theta$
- (d) $\int_0^{\pi/2} \int_0^{b\sqrt{\sin 2\theta}} r dr d\theta$
- (e) $2 \int_0^{\pi/2} \int_0^b r dr d\theta$

3. The volume of the solid bounded by the cylinder $x^2 + y^2 = 4$ and the planes $y + z = 4$ and $z = 0$ is

- (a) 16π
- (b) 3π
- (c) $-1 + 2\pi$
- (d) $\frac{\pi}{2}$
- (e) 8

4. The volume of the tetrahedron enclosed by the coordinate planes and the plane $2x + y + z = 4$ is

- (a) 2
- (b) $\frac{16}{3}$
- (c) 2π
- (d) $\frac{1}{3}$
- (e) $\frac{3}{4}$

5. The value of $\int_{-1}^1 \int_0^{\sqrt{1-x^2}} \int_0^{\sqrt{1-x^2-y^2}} e^{-(x^2+y^2+z^2)^{3/2}} dz dy dx$ is

(a) $\frac{\pi}{3} (1 + e)$

(b) $\frac{3}{\pi} \left(2 - \frac{1}{e}\right)$

(c) $2\pi - e$

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

(e) $\frac{\pi}{3} \left(1 - \frac{1}{e}\right)$