

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

Time: 45 Minutes

quiz 4 (6)

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)  $16\pi$

(b)  $3\pi$

(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)  $2\pi$

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