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reviewer4@nptel.iitm.ac.in ▼

Courses » Engineering Mathematics - I

Announcements

Course

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Unit 9 - Week 7 :

Register for Certification exam

Course outline

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● Lecture 31 :
Integral Calculus
–Double Integrals
in Polar Form

● Lecture 32 :
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–Double Integrals:
Change of
Variables

● Lecture 33 :
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Surface Area

● Lecture 34 :
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–Triple Integrals

● Lecture 35 :
Integral Calculus –
Triple Integrals
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○ Quiz : Assignment
7

Assignment 7

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-03-20, 23:59 IST

1) If A be the region inside the cardioid $r = 3(1 + \cos \theta)$, then

0 points

$$\iint_A r^2 \sin \theta \, d\theta \, dr = \underline{\hspace{2cm}}$$

- a. 16
- b. 72
- c. 0
- d. 30

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

2) $\int_0^2 \int_0^{\sqrt{2x-x^2}} (x^2 + y^2) \, dy \, dx = \underline{\hspace{2cm}}$

1 point

- a. π
- b. 2π
- c. $\frac{3\pi}{4}$
- d. $\frac{\pi}{2}$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

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Week 10 :
Week 11 :
Week 12 :
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Assignment Solution

Using transformation $x + y = u$ and $y = uv$, the value of the integral $\int_0^1 \int_0^{1-x} e^{\frac{y}{x+y}} dy dx$

- a. $\frac{e-1}{2}$
- b. $\frac{e-1}{3}$
- c. 0
- d. $\frac{1}{2}$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

4) If $R = \{0 \leq x^2 + y^2 \leq 1, x \geq 0, y \geq 0\}$, then

1 point

$$\iint_R \sqrt{\frac{1-x^2-y^2}{1+x^2+y^2}} dx dy = \underline{\hspace{2cm}}$$

- a. 2π
- b. $\frac{\pi}{2} - 1$
- c. $\frac{\pi}{4} \left(\frac{\pi}{2} - 1\right)$
- d. $\frac{\pi}{4}$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

5) If R is the region bounded by $x + y = 0, x + y = 2, 3x - 2y = 0$ and $3x - 2y = 3$, then

1 point

$$\iint_R (x + y)^2 dx dy = \underline{\hspace{2cm}}$$

- a. $\frac{6}{5}$
- b. $\frac{8}{5}$
- c. 1
- d. $\frac{20}{31}$

- a.
- b.
- c.

d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

6) The surface area of the cylinder $x^2 + z^2 = 4$ lying inside the cylinder $x^2 + y^2 = 4$ is 1 point

- a. 32
- b. 2π
- c. $6\pi - 13$
- d. 23

a.

b.

c.

d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

7) If R is the region bounded by $x = 0, y = 0, z = 0$ and $x + y + z = 1$, then 1 point

$$\iiint_R (x^2 + y^2 + z^2) dx dy dz = \underline{\hspace{2cm}}$$

- a. $\frac{1}{20}$
- b. 1
- c. $\frac{\pi}{3}$
- d. $\frac{1}{2}$

a.

b.

c.

d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

8) 1 point

$$\int_0^{2\pi} \int_0^{\frac{\pi}{4}} \int_0^a r^2 \sin \theta dr d\theta d\phi = \underline{\hspace{2cm}}$$

- a. $\frac{\pi a^3}{\sqrt{2}}(\sqrt{2} - 1)$
- b. $\frac{2\pi a^3}{3\sqrt{2}}(\sqrt{2} - 1)$
- c. $\frac{2\pi a^3}{3}(\sqrt{2} - 2)$
- d. $\frac{2a^3}{3\sqrt{2}}(\sqrt{2} - 2)$

a.

- b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

9)

1 point

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

- a. 4π
b. 16π
c. π
d. 0

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

10)

1 point

The volume of the region bounded above by the sphere $x^2 + y^2 + z^2 = a^2$ and below by the cone $x^2 + y^2 = z^2$ is

- a. $\frac{\pi a^2}{5} (5 - \sqrt{2})$
b. $\frac{\pi a^2}{4} (4 - \sqrt{2})$
c. $\frac{\pi a^2}{2} (3 - \sqrt{2})$
d. $\frac{\pi a^2}{3} (2 - \sqrt{2})$

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

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