Calculus_Appl_CSE_G1_2020_Tutorial_1

Total points 17/20

The respondent's email address (**20z209@psgtech.ac.in**) was recorded on submission of this form.

✕ * 0/3

The volume of the solid cut from the first octant by the surface $z = 4 - x^2 - y$ is

A) $\frac{108}{15}$ B) $\frac{18}{15}$ C) $\frac{118}{15}$ D) $\frac{128}{15}$

- (selected) A ✕
- B
- C
- D

* 1/1

The point which does not belong to the domain of the function $f(x, y) = \frac{\sin(xy)}{x^2+y^2-25}$ is

A) $(0,\ 0)$ B) $(\sqrt{11},\ \sqrt{14})$ C) $(\sqrt{10},\ \sqrt{14})$ D) $(12,\ 13)$

- A
- B (selected)
- C
- D

* 1/1

The value of $\lim_{(x,\ y)\to(0,\ln 2)} \frac{e^{x-y}}{y}$ is

A) e^{-2} B) $\frac{2}{\ln 2}$ C) $2ln\,2$ D) $\frac{1}{2\ln 2}$

- A
- B
- C
- D (selected)

*

2/2

The possible value of C such that $\int_0^1 \int_0^C (2x + y)dx\, dy = 3$ is

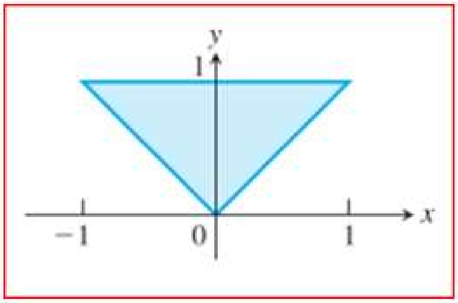
A) -2 B) 4 C) 2 D) 1

- A
- B
- C
- D

✓ *

2/2

The area of the following region in polar coordinate representation is



A) $\int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} \int_0^{\mathrm{cosec}\,\theta} r\,dr\,d\theta$ B) $\int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} \int_0^{\sec\theta} r\,dr\,d\theta$ C) $\int_{\frac{\pi}{3}}^{\frac{2\pi}{3}} \int_0^{\mathrm{cosec}\,\theta} r\,dr\,d\theta$

D) $\int_{\frac{\pi}{3}}^{\frac{2\pi}{3}} \int_0^{\sec\theta} r\,dr\,d\theta$

- (•) A ✓
- ( ) B
- ( ) C
- ( ) D

*

1/1

The area represented by the integral $\int_0^{\sqrt{2}} \int_{-\sqrt{2-x^2}}^{\sqrt{2-x^2}} dy\, dx$ is

A) 4π B) 2π C) π D) $\frac{\pi}{2}$

- A
- B
- C
- D

*

1/1

Let $f(x,y)$ be defined on a region R containing the point (a,b). If $f(a,b) \le f(x,y)$ for all domain points in an open disk centered at (a,b), then $f(a,b)$ is a

A) local maximum B) local minimum C) saddle point D) absolute maximum

- A
- B
- C
- D

* 2/2

The third order mixed derivative f_{xyy} of $f(x,y) = e^{x^2-y}$ at $(1,1)$ is

A) e B) 1 C) 2 D) $2e$

- A
- B
- C
- D

* 1/1

The level curves of the surface $f(x,y) = 9x^2 + 4y^2$ are the family of

A) circles B) ellipses C) hyperbolas D) rectangular hyperbolas

- A
- B
- C
- D

✓ *

2/2

The linearization $L(x, y)$ of the function $f(x, y) = x^3y^4$ at $P(1, 1)$ is

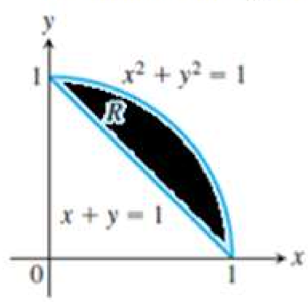
A) $4x + 3y - 6$ B) $3x + 4y + 1$ C) $3x + 4y - 6$ D) $1 + 4x + 3y$

- ○ A
- ○ B
- ◉ C ✓
- ○ D

✓ *

1/1

Which of the following integral gives the area of the region R represented below?



A) $\int_0^1 \int_{x-1}^{-\sqrt{1-x^2}} dydx$ B) $\int_0^1 \int_{1-x}^{\sqrt{1-x^2}} dydx$ C) $\int_0^1 \int_{1-y}^{1-y^2} dxdy$ D) $\int_0^1 \int_{1}^{1-y^2} dxdy$

- ○ A
- ◉ B ✓
- ○ C
- ○ D

* 2/2

The area of the region bounded by the curves $y = x^2$ and $y = x$ is

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

- A
- B
- C
- D

* 1/1

The double integral representation of the volume of the solid in the first octant bounded by the coordinate planes, the plane $x = 3$ and the parabolic cylinder $z = 4 - y^2$ is

A) $\int_0^3 \int_{-2}^2 (4 - y^2)\,dy\,dx$ B) $\int_0^3 \int_0^2 (4 - y^2)\,dy\,dx$ C) $\int_0^3 \int_0^4 (4 - y^2)\,dy\,dx$ D) $\int_0^3 \int_{-4}^4 (4 - y^2)\,dy\,dx$

- A
- B
- C
- D