

Question # 8 of 10 (Start time: 08:57:21 PM, 17 June 2022)

Total Marks: 1

The value $f(x_0, y_0)$ is an absolute maximum of $f(x, y)$ on domain D , if —————

Select the correct option

[Insert Math Equations](#)

☐	$f(x_0, y_0) < f(x, y) \quad \text{for all } (x, y) \in D$
☐	$f(x_0, y_0) \leq f(x, y) \quad \text{for all } (x, y) \in D$
☐	$f(x_0, y_0) = f(x, y) \quad \text{for all } (x, y) \in D$
☐	$f(x_0, y_0) \geq f(x, y) \quad \text{for all } (x, y) \in D$

1/10 (100%) Correct & Verified Question

Quiz Start Time: 0

(Start time: 08:43:46 PM, 17 June 2022)

For the function $y = f(x)$, the differential dy is equal to - - - - -

ption

$$f'(x)dx$$



$$f'(x) x$$

$$f'(x)dy$$

$$f'(x)$$

Click to Check Answer & Move

8:41:21 PM, 17 June 2022)

$x = 3 \cos \theta$, $y = 3 \sin \theta$; $0 \leq \theta \leq \pi$, is a _____ form of a curve in the plane.

parametric vector

explicit

implicit

parametric



Click to Save Answer

10 (Start time: 08:40:27 PM, 17 June 2022)

Let m be the slope and $P_0(x_0, y_0)$ be the point of required line, then point - slope form is _____.

Select option

$$y + y_0 = m(x + x_0)$$



$$y - y_0 = m(x - x_0)$$

$$y = m x + c$$

$$y = m x + c$$



Question 4 of 10 (Start time: 08:39:41 PM, 17 June 2022)

Total Marks: 1

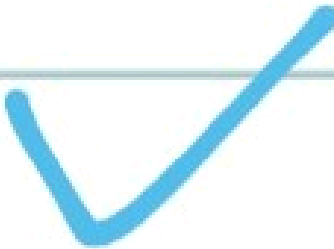
A differentiable function of a single variable might have a _____ point.

Select the correct option

- | | |
|----------------------------------|------------|
| ☐ | initial |
| ☐ | final |
| ☒ | inflection |
| ☐ | saddle |

The surface: $z=f(x,y)$ falls (decreases) most rapidly at any point in the ----- of Gradient(z).

Select the correct option

- | | |
|-----------------------|----------------------------|
| ☐ | Direction perpendicular to |
| ☐ | Arbitrary direction |
| ☐ | Direction |
| ☐ | Opposite to the direction |
- 

Question # 7 of 10 (Start time: 08:20:07 PM, 17 June 2022)

Total Marks: 1

If $f(x, y, z) = x^2 + 2y - 3z^2$ then f_x, f_y and f_z are

Select the correct option

 Reload Math Equations

☐	$f_x = 2x, f_y = 2y$ and $f_z = -6z$
☐	$f_x = 2x, f_y = 2y$ and $f_z = 6z$
☐	$f_x = 2x, f_y = 2$ and $f_z = 6z$
☐	$f_x = 2x, f_y = 2$ and $f_z = -6z$



Question # 6 of 10 (Start time: 08:18:04 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables at a critical point $(0, 2)$, $f_{xx}(0, 2) = -2$, $f_{yy}(0, 2) = -1$ and $f_{xy}(0, 2) = 0$
so $D = f_{xx}(0, 2)f_{yy}(0, 2) - f_{xy}^2(0, 2) = 2$

Select the correct option

[Reveal Math Equations](#)

☐	then f has a saddlepoint at $(0, 2)$.
☐	then no conclusion can be drawn.
☒	then f has a relative maximum at $(0, 2)$.
☐	then f has a relative minimum at $(0, 2)$.

[Click to View Answer & Move to Next Question](#)

Question # 4 of 10 (Start time: 08:16:15 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables with continuous 2nd ordered partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - f_{xy}^2(x_0, y_0)$.

Select the correct option

 Reload Math Equations

☐	if $D \neq 0$, then no conclusion can be drawn.
☐	if $D < 0$ then f has a saddlepoint at (x_0, y_0) .
☐	if $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .
☐	if $D > 0$ and $f_{xx}(x_0, y_0) < 0$, then f has a relative minimum at (x_0, y_0) .



Question # 5 of 10 (Start time: 08:18:02 PM, 17 June 2022)

Total Marks: 1

$x = 3 \cos \theta$, $y = 3 \sin \theta$; $0 \leq \theta \leq \pi$, is a _____ form of a curve in the plane.

Select the correct option

[Reload Math Equations](#)

☐	explicit
☐	parametric
☐	implicit
☐	parametric vector

Question # 10 of 10 (Start time: 08:15:39 PM, 17 June 2022)

Total Marks: 1

If $f(x, y, z) = \frac{1}{2}x^3y^{-2}z$ then f_x , f_y and f_z are

Select the correct option

Reveal My Answers

- | | |
|-----------------------|--|
| ☐ | $f_x = 4x^2y^{-2}, f_y = -2x^3y^{-3}$ and $f_z = -1$ |
| ☐ | $f_x = 4x^3y^{-2}, f_y = -x^3y^{-3}$ and $f_z = -1$ |
| ☐ | $f_x = 2x^3y^{-2}, f_y = x^3y^{-3}$ and $f_z = -1$ |
| ☐ | $f_x = 2x^3y^{-2}, f_y = -x^3y^{-3}$ and $f_z = -1$ |

The value $f(x_0, y_0)$ is a relative maximum of $f(x, y)$ on domain D , if there exists an open disc $K \subset D$ with center (x_0, y_0) and radius r such that: - - - - -

Select the correct option

Review Mark Questions

- | | |
|-----------------------|--|
| ☐ | $f(x_0, y_0) < f(x, y)$ for all $(x, y) \in K$ |
| ☐ | $f(x_0, y_0) = f(x, y)$ for all $(x, y) \in K$ |
| ☐ | $f(x_0, y_0) < f(x, y)$ for all $(x, y) \in K$ |
| ☐ | $f(x_0, y_0) > f(x, y)$ for all $(x, y) \in K$ |

Question # 8 of 10 (Start time: 08:12:34 PM, 17 June 2022)

Total Marks: 1

A continuous function on a set that is not closed and bounded need not have any _____.

Select the correct option



relative extrema



absolute extrema



Question # 2 of 10 (Start time: 08:03:28 PM, 17 June 2022)

Total Marks: 1

A _____ need not be the highest point on the entire graph.

Select the correct option



absolute maximum



absolute minimum



relative minimum



relative maximum

[Go back to Question 1 & Mark as Read Question](#)

Question # 1 of 10 (Start time: 08:52:17 PM, 17 June 2022)

Total 1

The critical point which is neither minimum nor maximum is called -----

Select the correct option

- | | | |
|-----------------------|-------------------|---|
| ☐ | saddle point. |  |
| ☐ | extreme point. | |
| ☐ | initial point. | |
| ☐ | stationary point. | |

Gradient of a scalar function always results in a.....function.

Select the correct option



vector



scalar



discontinuous



continuous

The function $f(x,y)$ grow most rapidly in the direction of

Select the correct option



y-axis



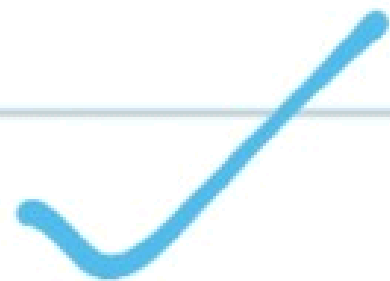
x-axis



gradient vector



unit vector



Question # 8 of 10 (Start time: 07:56:56 PM, 17 June 2022)

Total Marks: 1

If $f(x, y)$ has a relative extrema at (x_0, y_0) , then

Select the correct option

[Reveal Math Equations](#)

☐	$f_x(x_0, y_0) = 0, f_y(x_0, y_0) = 0$
☐	$f_x(x_0, y_0) < 0, f_y(x_0, y_0) > 0$
☐	Options $f_x(x_0, y_0) > 0, f_y(x_0, y_0) > 0$
☐	$f_x(x_0, y_0) < 0, f_y(x_0, y_0) < 0$

[Click on Correct Answer & Move to Next Question](#)

The function decreases most rapidly when $\cos \theta = 1$ in the direction of

Select the correct option

 Refresh Math Equations

☐	$D_u f = \nabla f \cos \frac{-\pi}{2}$
☐	$D_u f = \nabla f \cos \frac{\pi}{2}$
☐	$D_u f = \nabla f \cos \pi$
☐	$D_u f = \nabla f \cos \theta$



[Click to View Answer & Move to Next Question](#)

Question # 4 of 10 (Start time: 07:51:50 PM, 17 June 2022)

Total Marks: 1

The gradient of a scalar function ϕ is defined as

Select the correct option

[Reload Math Equations](#)

☐	$\text{grad} \phi = \nabla f(x, y) \phi$
☒	$\text{grad} \phi = \nabla \phi$
☐	$\text{grad} \phi = -\nabla f(x, y) \phi$
☐	$\text{grad} \phi = -\nabla f(x, y) \phi$

[Click to See Answer & Move to Next Question](#)

Question # 3 of 10 (Start time: 07:51:12 PM, 17 June 2022)

Total Marks: 1

A differentiable function of a single variable might have a _____ point.

Select the correct option

☐	inflection
☐	initial
☐	saddle
☐	final

Click to View Answer & Move to Next Question

Question # 10 of 10 (Start time: 07:49:05 PM, 17 June 2022)

Total Marks: 1

 $x = 3 \cos \theta, y = 3 \sin \theta; 0 \leq \theta \leq \pi$, is a _____ form of a curve in the plane.

Select the correct option

[Reload Math Equations](#)

☐	implicit
☐	parametric
☐	parametric vector
☐	explicit

[Click to Save Answer & Move to Next Question](#)



quiz.vu.edu.pk/QuizQuestion



BC200416023: ARSHAD NAWAZ

Time Left 87 sec(s)

MTH201:Quiz#1

Quiz Start Time: 07:38 PM, 17 June 2022

Question # 9 of 10 (Start time: 07:48:05 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables with continuous 2nd ordered partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - f_{xy}^2(x_0, y_0)$.

Select the correct option

Submit 1 Equations



if $D < 0$ then f has a saddlepoint at (x_0, y_0) .



if $D \neq 0$, then no conclusion can be drawn.



if $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .



if $D > 0$ and $f_{xx}(x_0, y_0) < 0$, then f has a relative minimum at (x_0, y_0) .

...

H+ 2G 62% 7:44 PM



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2



BC200416023: ARSHAD NAWAZ

Time Left 88 sec (s)

MTH201-Quiz#1

Quiz Start Time: 07:38 PM, 17 June 2022

Question # 7 of 10 (Start time: 07:44:39 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables at a critical point $(0, 2)$, $f_{xx}(0, 2) = -2$, $f_{yy}(0, 2) = -1$ and $f_{xy}(0, 2) = 0$
so $D = f_{xx}(0, 2)f_{yy}(0, 2) - f_{xy}^2(0, 2) = 2$

Select the correct option

Reload Math Equations

☐	then f has a saddlepoint at $(0, 2)$.
☐	then f has a relative minimum at $(0, 2)$.
☐	then no conclusion can be drawn.
☐	then f has a relative maximum at $(0, 2)$.

Question # 6 of 10 (Start time: 07:43:51 PM, 17 June 2022)

Total Marks: 1

Two surfaces are said to be orthogonal at the point of their intersection if their normals at that point are -----

Select the correct option

- | | |
|-----------------------|-----------------------|
| ☐ | in opposite direction |
| ☐ | Parallel |
| ☐ | Overlapping |
| ☐ | Perpendicular |
- 

[Click to Save Answer & Move to Next Question](#)

A differentiable function of a single variable might have a _____ point.

Select the correct option

- | | |
|-----------------------|------------|
| ☐ | final |
| ☐ | saddle |
| ☐ | initial |
| ☐ | inflection |
- 

If the velocity components of a bicycle are 3m/s towards east and 4m/s towards north then the speed(magnitude of velocity) is ----- m/s .

Select the correct option

☐	1
☐	5
☐	7
☐	12



Gradient of a scalar function always results in a.....function.

Select the correct option

- | | |
|-----------------------|---------------|
| ☐ | vector |
| ☐ | scalar |
| ☐ | discontinuous |
| ☐ | continuous |

Question # 5 of 10 (Start time: 07:35:26 PM, 17 June 2022)

Total Marks: 1

In order to find the critical points, we need to put f_x and f_y equal to

Select the correct option

Reveal Math Equations

- ☐ -1
- ☐ 1
- ☐ 2
- ☒ 0

Click to Reveal Answer & Mark as Hard Question

Question # 4 of 10 (Start time: 07:34:51 PM, 17 June 2022)

Total Marks: 1

$\vec{r}(t) = 3 \cos t \hat{i} + 3 \sin t \hat{j}$, $0 \leq t \leq \pi$, is a _____ form of a curve in the plane.

Select the correct option

Related Math Equations

☐	implicit
☐	explicit
☐	parametric vector
☐	parametric

Click to see Answer & Time Used/Answer

Question # 3 of 10 (Start time: 07:33:37 PM, 17 June 2022)

Total Marks: 1

For the function $z = f(x, y)$, the total differential dz is equal to - - - -

Select the correct option

Related Math Equations

- | | |
|----------------------------------|-----------------------|
| ☐ | $f_x(x)dx - f_y(x)dy$ |
| ☐ | $f_x(x)dy + f_y(x)dx$ |
| ☒ | $f_x(x)dx + f_y(x)dy$ |
| ☐ | $f_x(x)dy - f_y(x)dx$ |

[Click to view Answer & Review Next Question](#)



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1:Quiz#1

Quiz Start Time: 07:15 PM, 17 June 2022

n # 6 of 10 (Start time: 07:29:55 PM, 17 June 2022)

Total Marks: 1

 $x = 3 \cos \theta$, $y = 3 \sin \theta$; $0 \leq \theta \leq \pi$, is a _____ form of a curve in the plane.

he correct option

Reload Math Equations

parametric vector

explicit

parametric

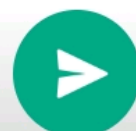
implicit

Click to Save Answer & Move to Next Question



Filters

Add a caption...



> Math 201



$x = 3 \cos \theta$, $y = 3 \sin \theta$; $0 \leq \theta \leq \pi$, is a _____ form of a curve in the plane.

The correct option

[Reveal Math Equations](#)

parametric vector

explicit

parametric

implicit

[Click to take Answer & Question Report](#)

Question # 4 of 10 (Start time: 07:20:34 PM, 17 June 2022)

Total Marks: 1

The function increases most rapidly when $\cos \theta = 1$ in the direction of

Select the correct option:

Insert Math Equations

- | | |
|-----------------------|---|
| ☐ | $D_{\theta}f = \nabla f \cos \frac{\pi}{2}$ |
| ☐ | $D_{\theta}f = \nabla f \cos 1$ |
| ☐ | $D_{\theta}f = \nabla f \cos 0$ |
| ☐ | $D_{\theta}f = \nabla f \cos \pi$ |

Two vectors of magnitudes $[4,5]$ making an angle of 30° then the area of parallelogram associated with these two vectors is ----- square units.

Select the correct option:

- | | |
|-----------------------|--------------|
| ☐ | 10 |
| ☐ | $10\sqrt{2}$ |
| ☐ | $20\sqrt{2}$ |
| ☐ | $10\sqrt{3}$ |



A discontinuous function on a closed and bounded set need not have any _____.

Select the correct option



absolute extrema



relative extrema

A _____ need not be the highest point on the entire graph.

Select the correct option

- ☐ absolute minimum
- ☐ relative minimum
- ☐ relative maximum
- ☐ absolute maximum





The volume of the papallelepiped with sides $\vec{a}$, $\vec{b}$ and $\vec{c}$ is determined as

rect option

[Reveal Math Equations](#)

$$\left| \vec{a} \times \vec{b} \right| \cdot \left| \vec{c} \right| \cos \theta$$



$$\left| \vec{a}, \vec{b} \right| \times \left| \vec{c} \right| \sin \theta$$

$$\left| \vec{a} \times \vec{b} \right| \times \left| \vec{c} \right| \cos \theta$$

$$\left| \vec{a}, \vec{b} \right| \cdot \left| \vec{c} \right| \cos \theta$$

[Click to view Answer & Move to Next Question](#)

Question # 1 of 10 (Start time: 07:15:47 PM, 17 June 2022)

Total Ma

$\vec{r}(t) = 3 \cos t \vec{i} + 3 \sin t \vec{j}$, $0 \leq t \leq \pi$, is a _____ form of a curve in the plane.

Select the correct option

[Related Math Equa](#)



parametric



explicit



parametric vector



implicit



[Click to View Answer & Move to Next Question](#)

Question # 8 of 10 (Start time: 05:43:55 PM, 17 June 2022)

In order to find the critical points, we need to put f_x and f_y equal to - - - - -

Select the correct option

- | | |
|----------------------------------|----|
| ☐ | 1 |
| ☒ | 0 |
| ☐ | 2 |
| ☐ | -1 |

[Click to Save Answer &](#)

Question # 10 of 10 (Start time: 05:43:35 PM, 17 June 2022)

Total Marks: 1

$\vec{r}(t) = 3 \cos t \hat{i} + 3 \sin t \hat{j}$, $0 \leq t \leq \pi$, is a _____ form of a curve in the plane.

Select the correct option

[Reload Math Equations](#)

☐	implicit
☐	parametric vector
☐	parametric
☐	explicit

[Click to See Answer & Move to Next Question](#)

Let f be a function of two variables at a critical point $(0, 2)$, $f_{xx}(0, 2) = -2$, $f_{yy}(0, 2) = -2$ and $f_{xy}(0, 2) = -2$
 so $D = f_{xx}(0, 2)f_{yy}(0, 2) - f_{xy}^2(0, 2) = 0$

Incorrect option

[Reload Math Equations](#)

then f has a relative maximum at $(0, 2)$.

then f has a saddlepoint at $(0, 2)$.

then no conclusion can be drawn.

then f has a relative minimum at $(0, 2)$.

[Click to Save Answer & Move to Next Question](#)

If $f(x, y)$ is continuous on a closed and bounded set R , then f has _____ on R .

Select the correct option



(b) absolute minimum



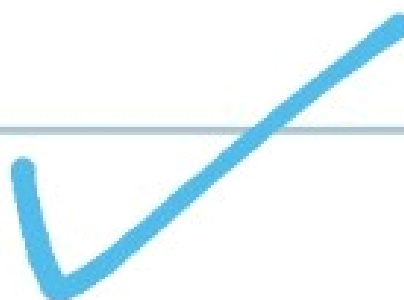
(c) relative minimum



(a) absolute maximum



(d) both (a) and (b).



The function $f(x,y)$ grow most rapidly in the direction of

Select the correct option

- ☐ y-axis
- ☒ gradient vector
- ☐ x-axis
- ☐ unit vector

Click to Save Answer & Move to Next Question

Question # 10 of 10 (Start time: 05:32:06 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables at a critical point $(0, 2)$, $f_{xx}(0, 2) = 4$, $f_{yy}(0, 2) = 0$ and $f_{xy}(0, 2) = 4$.
so $D = f_{xx}(0, 2)f_{yy}(0, 2) - f_{xy}^2(0, 2) = -16$

Select the correct option

 Reload Math Equations

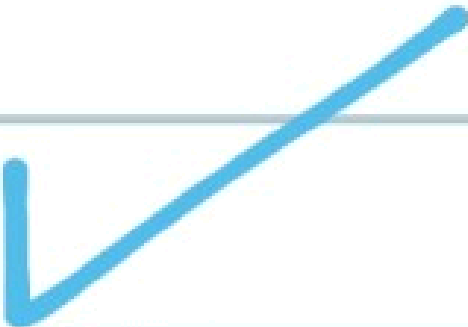
- | | |
|----------------------------------|---|
| ☐ | then no conclusion can be drawn. |
| ☐ | then f has a relative maximum at $(0, 2)$. |
| ☒ | then f has a saddlepoint at $(0, 2)$. |
| ☐ | then f has a relative minimum at $(0, 2)$. |

Click to Save Answer & Move to Next Question

A differentiable function of a single variable might have a _____ point.

Select the correct option

☐	final
☐	saddle
☐	initial
☐	inflection



Click or Save Answer / & Move to Next Question

Let $f(x, y)$ be a function with continuous second order partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - [f_{xy}(x_0, y_0)]^2$. If $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then -----

Select the correct option

Feedback: Mark Required

- | | |
|-----------------------|--|
| ☐ | $f(x, y)$ has a relative minimum at (x_0, y_0) |
| ☐ | No conclusion can be drawn. |
| ☐ | $f(x, y)$ has a saddle point at (x_0, y_0) . |
| ☐ | $f(x, y)$ has a relative maximum at (x_0, y_0) . |

The del operator is defined as

Select the correct option

[Reload Math Equations](#)

☐

$$\nabla = \frac{\partial}{\partial x} i + \frac{\partial}{\partial y} j + \frac{\partial}{\partial z} k$$

☐

$$\nabla = \frac{\partial}{\partial x} + \frac{\partial}{\partial y} + \frac{\partial}{\partial z}$$

☐

$$\nabla = \frac{\partial}{\partial x} k + \frac{\partial}{\partial y} j + \frac{\partial}{\partial z} i$$

☐

$$\nabla = -\frac{\partial}{\partial x} i - \frac{\partial}{\partial y} j - \frac{\partial}{\partial z} k$$

[Click to Save Answer & Move to Next Question](#)

Question # 6 of 10 (Start time: 05:27:57 PM, 17 June 2022)

Let $f(x, y)$ be a function with continuous second order partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - [f_{xy}(x_0, y_0)]^2$. If $D < 0$, then ———.

Select the correct option

Save

☐	$f(x, y)$ has a relative minimum at (x_0, y_0) .
☐	No conclusion can be drawn.
☐	$f(x, y)$ has a saddle point at (x_0, y_0) .
☐	$f(x, y)$ has a relative maximum at (x_0, y_0) .

Close Window Answer & Markers (1 of 10)

Question # 4 of 10 (Start time: 05:26:35 PM, 17 June 2022)

Let m be the slope and $P_1(x_0, y_0)$ be the point of required line, then point - slope form is _____

Select the correct option



$$y = mx + c$$



$$y - y_0 = m(x - x_0)$$



$$y = mx + c$$



$$y + y_0 = m(x + x_0)$$

[Click to Save Answer & Move to](#)

Question # 3 of 10 (Start time: 05:25:43 PM, 17 June 2022)

Total Marks: 1

$y = \sqrt{9 - x^2}$, $-3 \leq x \leq 3$, is a _____ form of a curve in the plane.

Select the correct option

[Reload Math Equations](#)

☒	explicit
☐	parametric vector
☐	implicit
☐	parametric

[Click to Save Answer & Move to Next Question](#)

Question # 2 of 10 (Start time: 05:24:39 PM, 17 June 2022)

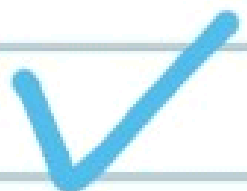
Total Marks: 1

The value $f(x_0, y_0)$ is an absolute maximum of $f(x, y)$ on domain D , if - - - - -

Select the correct option

[Reload Math Equations](#)

- | | |
|-----------------------|---|
| ☐ | $f(x_0, y_0) < f(x, y)$ for all $(x, y) \in D$ |
| ☐ | $f(x_0, y_0) \leq f(x, y)$ for all $(x, y) \in D$ |
| ☐ | $f(x_0, y_0) \geq f(x, y)$ for all $(x, y) \in D$ |
| ☐ | $f(x_0, y_0) = f(x, y)$ for all $(x, y) \in D$ |

[Click to Save Answer & Move to Next Question](#)

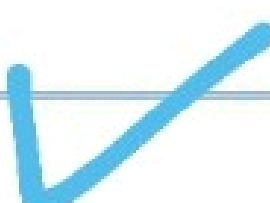
Question # 1 of 10 (Start time: 05:23:18 PM, 17 June 2022)

Total Marks: 1

The volume of the pagallelepiped with sides a , b and c is determined as

Select the correct option

[Reload Math Equations](#)

- | | |
|-----------------------|---------------------------------------|
| ☐ | $ a, b \cdot c \cos \theta$ |
| ☐ | $ a, b \times c \sin \theta$ |
| ☐ | $ a \times b \times c \cos \theta$ |
| ☐ | $ a \times b \cdot c \cos \theta$ |
- 

[Click to Save Answer & Move to Next Question](#)

Question # 9 of 10 (Start time: 65:12:36 PM, 17 June 2022)

The function decreases most rapidly when $\cos \theta = 1$ in the direction of

Select the correct option



$$D_u f = |\nabla f| \cos \frac{-\pi}{2}$$



$$D_u f = |\nabla f| \cos \pi$$



$$D_u f = |\nabla f| \cos 0$$



$$D_u f = |\nabla f| \cos \frac{\pi}{2}$$

Click to Save Answer & Move to Next Question

The critical point which is neither minimum nor maximum called -----

Select the correct option



initial point.



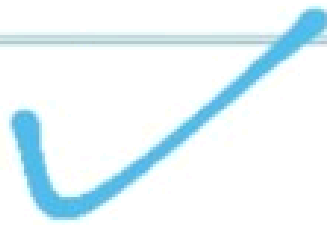
saddle point.



extreme point.



stationary point.



Time: 05:09:02 PM, 17 June 2022)

$x = 3 \cos \theta$, $y = 3 \sin \theta$; $0 \leq \theta \leq \pi$, is a _____ form of a curve in the plane.

parametric vector

implicit

parametric



explicit

[Click to Save Answer](#)

The surface: $z=f(x,y)$ falls (decreases) most rapidly at any point in the ----- of Gradient(z).

Select the correct option



Direction



Opposite to the direction



Direction perpendicular to



Arbitrary direction

If $f(x, y)$ is continuous on a closed and bounded set R , then f has _____ on R .

Select the correct option



(d) both (a) and (b).



(a) absolute maximum



(b) absolute minimum



(c) relative minimum

KEY 1



QUESTION 18 OF 19 10:24 PM



2 of 10 (Start time: 04:55:29 PM, 17 June 2022)

The gradient of a scalar function ϕ is defined as

Correct option

Reload

$$\text{grad} \phi = -\nabla f(x, y) \phi$$

$$\text{grad} \phi = \nabla \phi$$



$$\text{grad} \phi = -\nabla f(x, y) \phi$$

$$\text{grad} \phi = \nabla f(x, y) \phi$$

Click to Save Answer & Move to Next Question



quiz.vu.edu.pk/QuizQue:



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Time Left

07

sec(s)

MTM201: Quiz#1

Quiz Start Time: 04:51 PM, 17 June 2022

Question # 6 of 10 (Start time: 04:55:12 PM, 17 June 2022)

Total Marks: 1

The gradient of a scalar function ϕ is defined as

Select the correct option

Select Math Equations



$$\text{grad} \phi = \nabla f(x, y) \phi$$



$$\text{grad} \phi = -\nabla f(x, y) \phi$$



$$\text{grad} \phi = \nabla \phi$$



$$\text{grad} \phi = -\nabla f(x, y) \phi$$

[Click to View Previous & Marked Questions](#)

04:54:35 PM, 17 June 2022)

$y = \sqrt{9 - x^2}$, $-3 \leq x \leq 3$, is a _____ form of a curve in the plane.

parametric

explicit



parametric vector

implicit

Click to Save Answer & Move to Next Question

Question 10 of 10 (100% Correct) (10/10, 17 June 2021)

Let $f(x, y)$ be a function with continuous second-order partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - [f_{xy}(x_0, y_0)]^2$. If $D < 0$, then ...

Select the correct option

Submit

- | | |
|-----------------------|--|
| ☐ | $f(x, y)$ has a relative maximum at (x_0, y_0) . |
| ☐ | No conclusion can be drawn. |
| ☐ | $f(x, y)$ has a relative minimum at (x_0, y_0) . |
| ☐ | $f(x, y)$ has a saddle point at (x_0, y_0) . |



Question # 3 of 10 (Start time: 04:52:33 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables at a critical point $(0, 2)$, $f_{xx}(0, 2) = 4$, $f_{xy}(0, 2) = 0$ and $f_{yy}(0, 2) = 4$
so $D = f_{xx}(0, 2)f_{yy}(0, 2) - f_{xy}^2(0, 2) = -16$

Select the correct option

[Reload Math Equations](#)

☐	then f has a relative minimum at $(0, 2)$.
☐	then f has a relative maximum at $(0, 2)$.
☒	then f has a saddlepoint at $(0, 2)$.
☐	then no conclusion can be drawn.

[Click to View Answer & Move to Next Question](#)

Question # 1 of 10 (Start time: 04:51:15 PM, 17 June 2022)

Total Marks: 1

The value $f(x_0, y_0)$ is a relative minimum of $f(x, y)$ on domain D , if there exists an open disc $K \subset D$ with center (x_0, y_0) and radius r such that

Select the correct option

Unlabeled Math Questions

☐	$f(x_0, y_0) \geq f(x, y)$ for all $(x, y) \in K$
☒	$f(x_0, y_0) \leq f(x, y)$ for all $(x, y) \in K$
☐	$f(x_0, y_0) = f(x, y)$ for all $(x, y) \in K$
☐	$f(x_0, y_0) > f(x, y)$ for all $(x, y) \in K$

BC200410673: SHAMSA

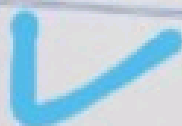
MT1001: Quiz#1

Question # 9 of 10 (~~Start time: 03:20:46 PM, 17 June 2022~~)

If $f(x, y)$ is continuous on a closed and bounded set R , then f has _____ on R .

Select the correct option

- ☐ (c) relative minimum
- ☐ (a) absolute maximum
- ☐ (d) both (a) and (b)
- ☐ (b) absolute minimum



Type here to search

BC200410673: SHAMSA

MT1201 Quiz#1

Question # 8 of 10 (Start time: 03:19:45 PM, 17 June 2022)

A differentiable function of two variables might have a _____ point.

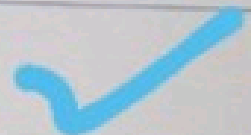
Select the correct option

- | | |
|----------------------------------|------------|
| ☐ | inflection |
| ☒ | saddle |
| ☐ | initial |
| ☐ | final |

92)

The value $f(x_0, y_0)$ is an absolute maximum of $f(x, y)$ on domain D , if - - - - -

$$f(x_0, y_0) > f(x, y) \quad \text{for all } (x, y) \in D$$



$$f(x_0, y_0) = f(x, y) \quad \text{for all } (x, y) \in D$$

$$f(x_0, y_0) < f(x, y) \quad \text{for all } (x, y) \in D$$

$$f(x_0, y_0) < f(x, y) \quad \text{for all } (x, y) \in D$$

x +

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The volume of a rectangular parallelepiped is given by the formula $V = xyz$ then $dV =$

$$dV = yzdx + xzdy + xydz$$

$$dV = yzdx + xzdy + xzdz$$

$$dV = xzdx + xzdy + xydz$$

$$dV = xyzdx + xzdy + xydz$$



BC200410673: SHAMSA

MT1001 Quiz#1

Question # 5 of 10 (Start time: 03:16:46 PM, 17 June 2022)

Cross product of equal and opposite non-zero vectors (parallel or anti-parallel) is a—.

Select the correct option

- | | |
|----------------------------------|-------------|
| ☒ | Zero vector |
| ☐ | Zero scalar |



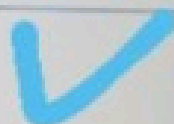
Type here to search



72)

Let f be a function of two variables with continuous 2nd ordered partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - f_{xy}^2(x_0, y_0)$.

if $D < 0$ then f has a saddlepoint at (x_0, y_0) .



if $D > 0$ and $f_{xx}(x_0, y_0) < 0$, then f has a relative minimum at (x_0, y_0) .

if $D \neq 0$, then no conclusion can be drawn.

if $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .

10 (Short Answer: 03:13:24 PM, 11 June 2022)

Clear All

The value $f(x_0, y_0)$ is a relative maximum of $f(x, y)$ on domain D , if there exists an open disc $K \subset D$ with center (x_0, y_0) and radius r such that

Select options

$$f(x_0, y_0) \geq f(x, y) \quad \text{for all } (x, y) \in K$$

$$f(x_0, y_0) < f(x, y) \quad \text{for all } (x, y) \in K$$

$$f(x_0, y_0) = f(x, y) \quad \text{for all } (x, y) \in K$$

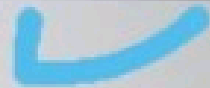
$$f(x_0, y_0) < f(x, y) \quad \text{for all } (x, y) \in K$$



June 2022)

Let f be a function of two variables with continuous 2nd ordered partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - f_{xy}^2(x_0, y_0)$.

if $D = 0$, then no conclusion can be drawn.



if $D > 0$ and $f_{xx}(x_0, y_0) < 0$, then f has a relative minimum at (x_0, y_0) .

if $D < 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .

if $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .

Question # 10 of 10 (Start time: 03:10:30 PM, 17 June 2022)

Total Marks: 1

$y = \sqrt{9 - x^2}$, $-3 \leq x \leq 3$, is a _____ form of a curve in the plane.

Select the correct option:

[Return Math Equations](#)

☐	explicit
☒	parametric vector
☐	implicit
☐	parametric

[Click to Save Answer & Move to Next Question](#)

Let $f(x, y)$ be a function with continuous second order partial derivatives in some circle centered at a critical point (x_0, y_0) and, let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - [f_{xy}(x_0, y_0)]^2$. If $D < 0$, 1

Select the correct option

☒	No conclusion can be drawn.
☐	$f(x, y)$ has a relative maximum at (x_0, y_0) .
☐	$f(x, y)$ has a relative minimum at (x_0, y_0) .
☐	$f(x, y)$ has a saddle point at (x_0, y_0) .



How many directional derivatives can be found at any point on the surface: $z = f(x,y)$?

Select the correct option:

- | | |
|----------------------------------|---------------------------------|
| ☒ | Infinitely many |
| ☐ | No such derivative can be found |
| ☐ | Finitely many |
| ☐ | Unique |

Let f be a function of two variables with continuous 2nd ordered partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - f_{xy}^2(x_0, y_0)$.

Select option



if $D > 0$ and $f_{xx}(x_0, y_0) < 0$, then f has a relative minimum at (x_0, y_0) .

if $D = 0$, then no conclusion can be drawn.



if $D < 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .

if $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .

Click to Save Answer & Move to Next Question

If $f(x, y)$ is continuous on a closed and bounded set R , then f has _____ on R .

Select the correct option:

- ☐ (c) relative minimum
- ☐ (a) absolute maximum
- ☐ (d) both (a) and (b).
- ☐ (b) absolute minimum



The volume of the papallelepipiped with sides $\vec{a}$, $\vec{b}$ and $\vec{c}$ is determined as

[Reload Mat](#)

$$|\vec{a} \times \vec{b}| \times |\vec{c}| \cos \theta$$

$$|\vec{a} \cdot \vec{b}| \cdot |\vec{c}| \cos \theta$$

$$|\vec{a} \times \vec{b}| \cdot |\vec{c}| \cos \theta$$



$$|\vec{a} \cdot \vec{b}| \times |\vec{c}| \sin \theta$$

[Click to Save Answer & Move to Next Question](#)

Start time: 02:54:41 PM, 17 June 2022)

The volume of a rectangular parallelepiped is given by the formula $V = xyz$ then $dV =$

tion



$$dV = xydx + xzdy + xyzdz$$

$$dV = yzdx + xydy + xzdz$$

$$dV = xzdx + xydy + xyzdz$$

$$dV = yzdx + xzdy + xyzdz$$



Click to Save Answer & Move to

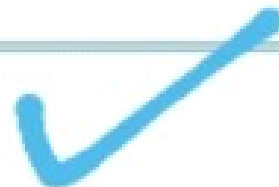
17 June 2022)

The gradient of a scalar function ϕ is defined as

Reload M

$$\text{grad} \phi = \nabla f(x, y) \phi$$

$$\text{grad} \phi = \nabla \phi$$



$$\text{grad} \phi = -\nabla f(x, y) \phi$$

$$\text{grad} \phi = -\nabla f(x, y) \phi$$

6 PM, 17 June 2022)

If $f(x, y, z) = x^2 + 2y - 3z^2$ then f_x , f_y and f_z are

Reload Ma

$$f_x = 2x, f_y = 2 \text{ and } f_z = 6z$$

$$f_x = 2x, f_y = 2 \text{ and } f_z = 6z$$

$$f_x = 2x, f_y = 2 \text{ and } f_z = -6z$$



$$f_x = 2x, f_y = 2 \text{ and } f_z = -6z$$

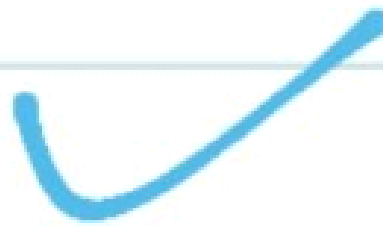
Click to Save Answer & Move to Next Que

How many directional derivatives can be found at any point on the surface: $z = f(x,y)$?

Select the correct option



Infinitely many



Unique



No such derivative can be found



Finitely many

If $f(x, y)$ has a relative extrema at (x_0, y_0) , then

Select the correct option

Select With Equations

☐	$f_x(x_0, y_0) = 0, f_y(x_0, y_0) = 0$	
☐	Options	
☐	$f_x(x_0, y_0) > 0, f_y(x_0, y_0) > 0$	
☐	$f_x(x_0, y_0) < 0, f_y(x_0, y_0) < 0$	
☐	$f_x(x_0, y_0) < 0, f_y(x_0, y_0) > 0$	

Click to Show Answer & Move to Next Question

Time: 02:50:50 PM, 17 June 2022)

Total

$\vec{r}(t) = 3 \cos t \hat{i} + 3 \sin t \hat{j}$, $0 \leq t \leq \pi$, is a _____ form of a curve in the plane.

Reload Math Ed

explicit

implicit

parametric

parametric vector



Click to Save Answer & Move to Next Question

Question 11 of 18 (Total Score: 10.00/10.00, 17 June 2022)

Total Marks: 1

Let $f(x, y)$ be a function with continuous second order partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - [f_{xy}(x_0, y_0)]^2$. If $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then -----

Select the correct option

Submit My Answer

☐

$f(x, y)$ has a relative maximum at (x_0, y_0) .

☐

No conclusion can be drawn.

☒

$f(x, y)$ has a relative minimum at (x_0, y_0) .

☐

$f(x, y)$ has a saddle point at (x_0, y_0) .

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Quiz Start Time:

get time: 02:45:03 PM, 17 June 2022

function with continuous second order partial derivatives in some circle centered at a critical point (x_0, y_0) and, let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - [f_{xy}(x_0, y_0)]^2$. If $D < 0$, then

we

$f(x, y)$ has a relative minimum at (x_0, y_0) .

$f(x, y)$ has a saddle point at (x_0, y_0) .

$f(x, y)$ has a relative maximum at (x_0, y_0) .

No conclusion can be drawn.

17.6/17.6 (100%) Done & Submitted

Question # 7 of 10 (Start time: 02:49:56 PM, 17 June 2022)

Total Marks: 1

The absolute maximum is also called local maximum.

Select the correct option



False



True

Click to View Answer & Move to Next Question

The function $f(x,y)$ grow most rapidly in the direction of

Select the correct option



y-axis



gradient vector



x-axis



unit vector



MT101 Q10

Question # 5 of 10 (Start time: 02:48:41 PM, 17 June 2022)



Q10 Start Time: 02:48 PM, 17 June 2022



Total Marks: 1

The value $f(x_0, y_0)$ is a relative maximum of $f(x, y)$ on domain D , if there exists an open disc $K \subset D$ with center (x_0, y_0) and radius r such that

Select the correct option

Answered Multiple Questions

☐	$f(x_0, y_0) \geq f(x, y)$ for all $(x, y) \in K$
☐	$f(x_0, y_0) \leq f(x, y)$ for all $(x, y) \in K$
☐	$f(x_0, y_0) = f(x, y)$ for all $(x, y) \in K$
☐	$f(x_0, y_0) < f(x, y)$ for all $(x, y) \in K$



Click on the Start button to view all Questions and Answers

Gradient of a scalar function always results in a.....function

Select the correct option



scalar



continuous



vector



discontinuous

Question # 4 of 10 (Start time: 12:48:51 PM, 17 June 2022)

Total Marks: 1

The gradient of a scalar function ϕ is defined as

Select the correct option

 Insert Math Equations

☐	$\text{grad} \phi = \nabla \phi$	
☐	$\text{grad} \phi = -\nabla f(x, y) \phi$	
☐	$\text{grad} \phi = \nabla f(x, y) \phi$	
☐	$\text{grad} \phi = -\nabla f(x, y) \phi$	

[Click the icon to insert a formula or equation](#)

A continuous function on a set that is not closed and bounded need not have any _____.

Select the correct option



relative extrema



absolute extrema



[Go to Question](#) [Show Answer](#)

(time: 02:47:21 PM, 17 June 2022)

For the function $y = f(x)$, the differential dy is equal to - - - -

$$f'(x)$$

$$f'(x)dy$$

$$f'(x)dx$$



$$f'(x) x$$

Click to Save Answer & Mark

Question # 1 of 10 (Start time: 02:46:14 PM, 17 June 2022)

Total Marks: 1

The value $f(x_0, y_0)$ is a relative minimum of $f(x, y)$ on domain D , if there exists an open disc $K \subset D$ with center (x_0, y_0) and radius r such that - - - - -

Select the correct option

[Related Math Equations](#)

☐	$f(x_0, y_0) = f(x, y) \quad \text{for all } (x, y) \in K$
☐	$f(x_0, y_0) < f(x, y) \quad \text{for all } (x, y) \in K$
☐	$f(x_0, y_0) > f(x, y) \quad \text{for all } (x, y) \in K$
☒	$f(x_0, y_0) \leq f(x, y) \quad \text{for all } (x, y) \in K$

[Go to New Question](#) | [Previous Question](#)

Question #2 of 10 (Start time: 02:46:40 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables with continuous 2nd ordered partial derivatives in some circle centered at a critical point (x_0, y_0) and let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - f_{xy}^2(x_0, y_0)$.

Select the correct option

 Insert Math Equations



if $D > 0$ and $f_{xx}(x_0, y_0) < 0$, then f has a relative minimum at (x_0, y_0) .



if $D = 0$, then no conclusion can be drawn.



if $D > 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .



if $D < 0$ and $f_{xx}(x_0, y_0) > 0$, then f has a relative maximum at (x_0, y_0) .

[Click to view answers & move to next question](#)

Question # 5 of 10 (Start timer: 12:39:54 PM, 17 June 2022)

Total Marks: 1

Let f be a function of two variables at a critical point $(0, 2)$, $f_{xx}(0, 2) = 4$, $f_{yy}(0, 2) = 0$ and $f_{xy}(0, 2) = 4$
 $\Delta D = f_{xx}(0, 2)f_{yy}(0, 2) - f_{xy}^2(0, 2) = -16$

Select the correct option

[Reveal Math Equations](#)

☐	then f has a relative maximum at $(0, 2)$.
☐	then f has a saddlepoint at $(0, 2)$.
☐	then no conclusion can be drawn.
☐	then f has a relative minimum at $(0, 2)$.

[Click to Show Answer & Know to Next Question](#)

Question # 4 of 10 (Start time: 12:39:27 PM, 17 June 2022)

Total Marks: 1

A _____ need not be the highest point on the entire graph.

Select the correct option



absolute maximum



relative maximum



absolute minimum



relative minimum

Question # 3 of 10 (Start time: 12:38:55 PM, 17 June 2022)

Total Marks: 1

For the function $y = f(x)$, the differential dy is equal to - - - - -

Select the correct option

[Reveal Math Equations](#)

☐	$f'(x)dx$	
☐	$f'(x)$	
☐	$f'(x) \pi$	
☐	$f'(x)dy$	