MTH631:quiz 2

Quiz Start Time: 01:02 PM, 16 July 2021

Question # 4 of 5 (Start time: 01:05:21 PM, 16 July 2021)

Total Marks: 1

$f(x, y)$

as

$(x, y) \to (0, 0)$

along the line

$y = -x$

is

Select the correct option

Reload Math Equations

- 1
- $-\frac{1}{2}$
- 0
- $\frac{1}{2}$

this question is of two type
1; in which y= x then
answer is 1/2
2; in which y=-x then
answer is -1/2

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MC200201616: SIRDA RANI

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 01:19 PM, 16 July 2021

Question # 3 of 5 (Start time: 01:21:31 PM, 16 July 2021)

Total Marks: 1

In $\mathbb{R}^n$, the function $f(X)$ is continuous at X_0, if $\lim_{X \to X_0} f(X) = f(X_0)$, then - - - - - - .

Select the correct option

Reload Math Equations

- X_0 is in the domian D_f but not a limit point of D_f
- X_0 is in the domian D_f and limit point of D_f ✓
- neither X_0 is in the domian D_f nor the limit point of D_f
- X_0 is not in the domian D_f but a limit point of D_f

Click to Save Answer & Move to Next Question

ENGLISH URDU

A sequence $\{\mathbf{X}_r\}$ of points in $\mathbb{R}^n$ converges to a limit $\overline{\mathbf{X}}$ if and only if for every $\epsilon > 0$ there is an integer K such that

$$|\mathbf{X}_r - \overline{\mathbf{X}}| < \epsilon \quad \text{if} \quad r \geq K.$$

The $\mathbb{R}^n$ definitions of divergence, boundedness, subsequence, and sums, differences, and constant multiples of sequences are analogous to those we discussed in Analysis I.

Since $\mathbb{R}^n$ is not ordered for $n > 1$, monotonicity, limits inferior and superior of sequences in $\mathbb{R}^n$, and divergence to $\pm\infty$ are undefined for $n > 1$.

Products and quotients of members of $\mathbb{R}^n$ are also undefined if $n > 1$.

Several theorems from Analysis I remain valid for sequences in $\mathbb{R}^n$, with proofs unchanged, provided that $|\quad|$ is interpreted as distance in $\mathbb{R}^n$.

1. uniqueness of the limit.

2. Boundedness of a convergent sequence.

there is an integer

$$|\mathbf{X}_r - \overline{\mathbf{X}}| < \varepsilon \quad \text{if} \quad r \geq K.$$

The $\mathbb{R}^n$ definitions of divergence, boundedness, subsequence, and s
and constant multiples of sequences are analogous to those we discu

Since $\mathbb{R}^n$ is not ordered for $n > 1$, monotonicity, limits inferior
sequences in $\mathbb{R}^n$, and divergence to $\pm\infty$ are undefined for $n > 1$.

Products and quotients of members of $\mathbb{R}^n$ are also undefined if n

Several theorems from Analysis I remain valid for sequences
unchanged, provided that $|\ \ |$ is interpreted as distance in $\mathbb{R}^n$.

uniqueness of the limit.

Example: The function

$$h(x,y) = \frac{\sin\sqrt{1-x^2-2y^2}}{\sqrt{1-x^2-2y^2}}$$

s defined only on the interior of the region bounded by the ellipse

$$x^2 + 2y^2 = 1.$$

is not defined at any point of the ellipse itself or on any deleted neig



there is an integer

$$|\mathbf{X}_r - \overline{\mathbf{X}}| < \varepsilon \quad \text{if} \quad r \geq K.$$

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Several theorems from Analysis I remain valid for sequences
unchanged, provided that $|\ \ |$ is interpreted as distance in $\mathbb{R}^n$.

1. uniqueness of the limit.

2.13 Continuity

If $\mathbf{X}_0$ is in D_f and is a limit point of D_f, then we say that f is *continuous at* $\mathbf{X}_0$ if

$$\lim_{\mathbf{X}\to\mathbf{X}_0} f(\mathbf{X}) = f(\mathbf{X}_0).$$

Theorem: Suppose that $\mathbf{X}_0$ is in D_f and is a limit point of D_f. Then f is continuous at $\mathbf{X}_0$ if and only if for each $\varepsilon > 0$ there is a $\delta > 0$ such that

$$|f(\mathbf{X}) - f(\mathbf{X}_0)| < \varepsilon$$

whenever

Example: If

$$f(s) = \sqrt{s}$$

and

$$g(x, y) = 1 - x^2 - 2y^2,$$

then $D_f = [0, \infty]$, $D_g = \mathbb{R}^2$, and

$$T = \{(x, y) : x^2 + 2y^2 \leq 1\}.$$

We have proved that g is continuous on $\mathbb{R}^2$.

We can obtain the same conclusion by observing that the funct
and $p_2(x, y) = y$ are continuous on $\mathbb{R}^2$.

then $\lim_{X \to X_0} f(X) = \infty$

if $|X_0| = 1$, because $f(X) = \frac{1}{|X - X_0|}$

so $f(X) > M$ if $0 < |X - X_0| < \delta = \frac{1}{M}$

quiz

Example: If $f(x, y) = \frac{1}{x + 2y + 1}$

then $\lim_{(x,y)\to(1,-1)} f(x, y)$ does not exist (why not?).

But $\lim_{(x,y)\to(1,-1)} |f(x, y)| = \infty$.

then

$$\lim_{X \to X_0} f(X) = \infty$$

if $|X_0| = 1$, because

$$f(X) = \frac{1}{|X - X_0|},$$

quiz

so

$$f(X) > M \quad \text{if} \quad 0 < |X - X_0| < \delta = \frac{1}{M}$$

Example: If

$$f(x, y) = \frac{1}{x + 2y + 1},$$

then $\lim_{(x,y)\to(1,-1)} f(x, y)$ does not exist (why not?).

$|f(x, y)| = \infty$.

$|f(\mathbf{X}) - L| < \varepsilon$ whenever $|\mathbf{X}| \geq$

f

$$f(x, y, z) = \cos\left(\frac{1}{x^2 + 2y^2 + z^2}\right).$$

$$\lim_{|\mathbf{X}| \to \infty} f(\mathbf{X}) = 1.$$

we recall that the continuity of $\cos u$ at $u = 0$ implies that for e
is a $\delta > 0$ such that

$$|\cos u - 1| < \varepsilon \quad \text{if} \quad |u| < \delta.$$

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MC200200058: SHAH KHALID

Time Left 87 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:27 PM, 15 July 2021

Question # 5 of 5 (Start time: 07:30:58 PM, 15 July 2021) Total Marks: 1

In $\mathbb{R}^n$, $\lim_{X \to X_0} f(X) = -\infty$, if

Select the correct option

Reload Math Equations

- $\lim_{-X \to X_0} f(X) = \infty$
- $\lim_{X \to -X_0} f(X) = \infty$
- $\lim_{X \to X_0} (-f)(X) = \infty$ ✓
- $\lim_{X \to X_0} f(-X) = \infty$

Click to Save Answer & Move to Next Question

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MC200203833: FAIZAN HASSAN

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:17 PM, 15 July 2021

Question # 1 of 5 (Start time: 07:17:51 PM, 15 July 2021)

Total Marks: 1

If $f(t) = \sqrt{t}$, $g(x,y) = 1 - x^2 - 2y^2$, then the domain of $f \circ g =$ ------.

Select the correct option

Reload Math Equations

- $\mathbb{R}^2$
- $\{(x,y) : x^2 - 2y^2 \leq 1\}$
- $\{(x,y) : x^2 - 2y^2 \geq 1\}$
- $\mathbb{R}$

Click to Save Answer & Move to Next Question

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MC200203833: FAIZAN HASSAN

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:17 PM, 15 July 2021

Question # 2 of 5 (Start time: 07:18:31 PM, 15 July 2021)

Total Marks: 1

The domain of the real valued function $f : \mathbb{R}^n \to \mathbb{R}$ defined and given by;
$f(X) = (1 - x_1^2 - x_2^2 - \cdots - x_2^n)^{-1}$ is------.

Select the correct option

Reload Math Equations

- $\{X \mid |X| \neq 1\}$
- $\{X \mid |X| = 1\}$



Click to Save Answer & Move to Next Question

7:24

Quiz
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:43 PM, 15 July 2021)

If $g(x,y)=\sqrt{1-x^2-2y^2}$, $f(t)=\begin{cases}\frac{\sin t}{t}, & t\neq 0\\ 1, & t=0\end{cases}$,

then domain of $f\circ g=------$.

Reload

$\mathbb{R}$

$\{(x,y):x^2-2y^2\leqslant 1\}$

$\{(x,y):x^2-2y^2\geqslant 1\}$

$\mathbb{R}^2$



Click to Save Answer & Move to Next Q



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D

REPLY MARK AS READ

If $f(t) = \sqrt{t}, g(x, y) = 1 - x^2 - 2y^2$, then the domain of $f \circ g =$ ------.

$\{(x, y) : x^2 - 2y^2 \geq 1\}$

$\mathbb{R}$

$\{(x, y) : x^2 - 2y^2 \leq 1\}$

$\mathbb{R}^2$

Click to Save Answer & Move

here the correct answer is c if there is positive sign in between x and y.
but in mcqs there is negative sign and g is continuous on R^2 so right answer is d.

7:26

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Question # 3 of 5 (Start time: 07:26:45 PM, 15 July 2021)

$$\text{In } \mathbb{R}^2, f(x,y) = \begin{cases} \dfrac{\sin\sqrt{1-x^2-2y^2}}{\sqrt{1-x^2-2y^2}}, & x^2+2y^2<1 \\ 1, & x^2+2y^2=1 \end{cases}$$

is ---------- on $x^2+2y^2=1$.

Select the correct option

- discontinuous
- continuous



Click to Save

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MC200200058: SHAH KHALID

Time Left 89 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:27 PM, 15 July 2021

Question # 1 of 5 (Start time: 07:27:43 PM, 15 July 2021)

Total Marks: 1

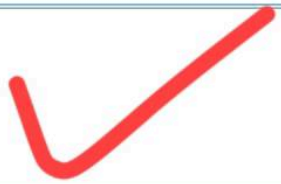
The domain of the real valued function $f: R^n \rightarrow R$ defined and given by;

$f(X) = \left(1 - x_1^2 - x_2^2 - \cdots - x_2^n\right)^{-1}$ is - - - - - .

Select the correct option

Reload Math Equations

- $\{X \mid |X| \neq 1\}$
- $\{X \mid |X| = 1\}$



Click to Save Answer & Move to Next Question

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MC200200058: SHAH KHALID

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:27 PM, 15 July 2021

Question # 2 of 5 (Start time: 07:28:18 PM, 15 July 2021)

Total Marks: 1

In $\mathbb{R}^n$, monotonicity, limits inferior and superior of sequences, and divergence to $\pm\infty$ are undefined for $n > 1$ because $\mathbb{R}^n$ is - - - - - - - - .

Select the correct option

Reload Math Equations

- complete
- a Field
- not compact for $n > 1$
- not ordered for $n > 1$

Click to Save Answer & Move to Next Question

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MC200200058: SHAH KHALID

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:27 PM, 15 July 2021

Question # 3 of 5 (Start time: 07:29:21 PM, 15 July 2021) Total Marks: 1

If $f(x,y,z) = \cos\left(\frac{1}{x^2+2y^2+z^2}\right)$ then $\lim_{|X|\to\infty} f(X) =$ _____.

Select the correct option

Reload Math Equations

- -1
- infinite
- 0
- 1

Click to Save Answer & Move to Next Question

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MC200200058: SHAH KHALID

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:27 PM, 15 July 2021

Question # 4 of 5 (Start time: 07:29:56 PM, 15 July 2021)

Total Marks: 1

$$\lim_{(x,y)\to(a,b)} \frac{\sin\sqrt{1-x^2-2y^2}}{\sqrt{1-x^2-2y^2}} = 1, \text{ if - - - - - - .}$$

Select the correct option

Reload Math Equations

- $(a^2+2b^2) > 1$
- $(a^2+2b^2) = 1$
- $(a^2+2b^2) \geq 1$
- $(a^2+2b^2) < 1$

Click to Save Answer & Move to Next Question

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MC200203833: FAIZAN HASSAN

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:17 PM, 15 July 2021

Question # 4 of 5 (Start time: 07:19:42 PM, 15 July 2021)

Total Marks: 1

In $\mathbb{R}^n$, $f(X) = \frac{1}{|X - X_0|}$, and $\lim_{X \to X_0} f(X) = \infty$, then $f(X) > M > 0 \Rightarrow 0 < |X - X_0| < \delta = - - - - -$.

Select the correct option

Reload Math Equations

- $\frac{1}{\sqrt{M}}$
- $\frac{1}{M}$
- $\sqrt{M}$
- M

Click to Save Answer & Move to Next Question

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MC200203833: FAIZAN HASSAN

Time Left 88 sec(s)

MTH631:quiz 2

Quiz Start Time: 07:17 PM, 15 July 2021

Question # 5 of 5 (Start time: 07:20:18 PM, 15 July 2021)

Total Marks: 1

The domain of the real valued function $f : \mathbb{R}^2 \to \mathbb{R}$ defined and given by;
$f(X) = \dfrac{\sin\sqrt{1-x^2-2y^2}}{\sqrt{1-x^2-2y^2}}$ is ----- of the region by the ellipse $x^2 + 2y^2 = 1$.

Select the correct option

Reload Math Equations

- exterior and boundary
- interior
- interior and boundary
- exterior

Click to Save Answer & Move to Next Question