Question No : 1 of 34

The graph of an odd function is symmetrical about _____

Answer (Please select your correct option)

- x-axis
- y-axis
- origin
- None of these

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Question Summary : (Attempted Question)

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MTH633 Group Theory

Question No : 26 of 41

If H has 6 elements, then all cosets of H must have _____ elements.

Answer (Please select your correct option)

- 3
- 9
- 12
- 6

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 3 of 34

_____ is the only region in R

Answer (Please select your correct option)

- Set of finite points of R
- Interval
- Any finite sequence of R
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 10 of 34

The rate of change of $f(x,y)$ in the direction of a unit vector is called the ---------- of $f(x,y)$.

Answer (Please select your correct option)

- differential
- directional derivative ✓
- mixed derivative
- None of these

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Question Summary : (Attempted Question)

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Question No : 11 of 34 Marks:

A function of several variables may have first order partial derivatives at a point X_0 but ---------- continuous at X_0.

Answer (Please select your correct option)

- fail to be
- must be
- always not
- None of these

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Question Summary : (Attempted Question)

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HP LT720

Question No : 12 of 34

A function of the form $L(X) = f_{x_1}(X_0)x_1 + f_{x_2}(X_0)x_2 + \ldots + f_{x_n}(X_0)x_n$ is called ———

Answer (Please select your correct option)

- quadractic function
- differential of f at X_0
- constant function
- None of these

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Question Summary : (Attempted Question)

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If $h = f(x,y), x = f(r,\theta)$ and $y = f(r,\theta)$, then using the chain rule, $\frac{\partial h}{\partial \theta}$ = ...

Answer (Please select your correct option)

- $\frac{\partial f}{\partial r}\frac{\partial r}{\partial \theta} + \frac{\partial f}{\partial r}\frac{\partial r}{\partial \theta}$
- $\frac{\partial f}{\partial x}\frac{\partial x}{\partial \theta} + \frac{\partial f}{\partial y}\frac{\partial y}{\partial \theta}$ ✓
- $\frac{\partial f}{\partial x} + \frac{\partial x}{\partial \theta} + \frac{\partial f}{\partial y} + \frac{\partial y}{\partial \theta}$
- None of these

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Question Summary : (Attempted Question)

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HP LI750

Question No : 14 of 34

If $h = f(x,y), x = r\cos\theta$ and $y = r\sin\theta$, where then using the chain rule, $\frac{\partial h}{\partial r}$ = ...

Answer (Please select your correct option)

- $\cos\theta\frac{\partial f}{\partial \theta} + \sin\theta\frac{\partial f}{\partial r}$
- $\cos\theta\frac{\partial f}{\partial x} + \sin\theta\frac{\partial f}{\partial y}$ ✓
- $\cos\theta\frac{\partial f}{\partial x} - \sin\theta\frac{\partial f}{\partial y}$
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 9 of 34

A point on the graph of a function at which the tangent line is parallel to x-axis is called the .....

Answer (Please select your correct option)

- critical point
- point of inflection
- point of relative extrema
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 5 of 34 **Mark**

If f and g are continuous functions at the point X_0 in R^n, then $\frac{f}{g}$ is continuous at X_0 provided that _____

Answer (Please select your correct option)

- $g(X_0) = 0$
- $g(X_0) \neq 0$
- $f(X_0) = g(X_0) = 0$
- None of these

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Question Summary : (Attempted Question)

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Question No :

_____ is the only region in R.

Answer (Please select your correct option)

- Set of finite points of R
- Interval
- Any finite sequence of R
- None of these

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Question Summary : (Attempted Question)

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Question No : 4 of 34

For the function $f(x,y)=\frac{xy}{x^2+y^2}$, the limit of $f(x,y)$ as $(x,y)\to(0,0)$ along the line $y=x$ is ----

Answer (Please select your correct option)

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

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 2 of 34

If H is an open covering of a compact subset S then, S can be covered by ----------

Answer (Please select your correct option)

- infinitely many sets from H
- finitely many sets from H ✓
- atleast one set from H
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 15 of 34

If $p(X)$ is a homogeneous polynomial of degree r in $X - X_0$. If $p(X) \leq 0$ for all $X \neq X_0$. Then p is called _____

Answer (Please select your correct option)

- positive semidefinite
- positive definite
- negative semidefinite ✓
- negative definite

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Question Summary : (Attempted Question)

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Question No : 12 of 34

A function of the form $L(X) = f_{x_1}(X_0)x_1 + f_{x_2}(X_0)x_2 + \ldots + f_{x_n}(X_0)x_n$ is called ———

Answer (Please select your correct option)

- quadractic function
- differential of f at X_0
- constant function
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 15 of 34

If $p(X)$ is a homogeneous polynomial of degree r in $X - X_0$. If $p(X) \leq 0$ for all $X \neq X_0$. Then p is called _____

Answer (Please select your correct option)

- positive semidefinite
- positive definite
- negative semidefinite
- negative definite

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Question Summary : (Attempted Question)

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If $h = f(x,y), x = f(r,\theta)$ and $y = f(r,\theta)$, then using the chain rule, $\frac{\partial h}{\partial \theta}$ = ...

Answer (Please select your correct option)

- $\frac{\partial f}{\partial r}\frac{\partial r}{\partial \theta} + \frac{\partial f}{\partial r}\frac{\partial r}{\partial \theta}$
- $\frac{\partial f}{\partial x}\frac{\partial x}{\partial \theta} + \frac{\partial f}{\partial y}\frac{\partial y}{\partial \theta}$ ✓
- $\frac{\partial f}{\partial x} + \frac{\partial x}{\partial \theta} + \frac{\partial f}{\partial y} + \frac{\partial y}{\partial \theta}$
- None of these

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Question Summary : (Attempted Question)

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Question No : 14 of 34

If $h = f(x,y), x = r\cos\theta$ and $y = r\sin\theta$, where then using the chain rule, $\frac{\partial h}{\partial r}$ = ...

Answer (Please select your correct option)

- $\cos\theta\frac{\partial f}{\partial \theta} + \sin\theta\frac{\partial f}{\partial r}$
- $\cos\theta\frac{\partial f}{\partial x} + \sin\theta\frac{\partial f}{\partial y}$ ✓
- $\cos\theta\frac{\partial f}{\partial x} - \sin\theta\frac{\partial f}{\partial y}$
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 18 of 34 **Marks: 1**

A function f is said to be absolutely integrable on $[a,b)$ if f is locally integrable on $[a,b)$ and ----------

Answer (Please select your correct option)

- $\int_a^b |f(x)|dx < \infty$
- $\int_a^b |f(x)|dx = \infty$
- $\int_a^b |f(x)|dx \geq \infty$
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 18 of 34 Marks: 1

A function f is said to be absolutely integrable on $[a,b)$ if f is locally integrable on $[a,b)$ and ----------

Answer (Please select your correct option)

- $\int_a^b |f(x)|dx < \infty$
- $\int_a^b |f(x)|dx = \infty$
- $\int_a^b |f(x)|dx \geq \infty$
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 19 of 34

An absolutely convergent integral is always ----------

Answer (Please select your correct option)

- divergent
- convergent ✓
- conditionally convergent
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 20 of 34

If f is locally integrable on $[a,b)$ and $\int_a^b |f(x)|dx < \infty$, then $\int_a^b f(x)dx$ is _____

Answer (Please select your correct option)

- divergent
- conditionally convergent
- convergent ✓
- None of these

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Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 34 of 34 **Marks: 10 (Budgeted Time Min)**

Suppose $U_0 \in T$ is a limit point of T, g is continuous at U_0 and f is continuous at $X_0 = G(U_0)$. Then, show that $f \circ g$ is continuous at U_0.

Answer (Please click here to Add Answer)

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MTH631 Real Analysis II

Question No : 33 of 34 Marks: 5 (Budgeted Time Mi

Show that $(0,0)$ is a critical point of the function $p(x,y) = x^2 - 2xy + y^2 - x^4 - y^4$ and it has positive semidefinite second differentials at $(0,0)$

Answer (Please click here to Add Answer)

100%

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33

Question Summary : (Attempted Question)

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MTH631 Real Analysis II

Question No : 32 of 34 **Marks:**

Define a locally integrable function. Also show that the function $f(x) = \log x$ is locally integrable on $[0, 1)$.

Answer (Please click here to Add Answer)

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Question Summary : (Attempted Question)

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