MTH621 - Real Analysis I (Quiz-2)

Quiz Start Time: 11:35 AM, 23 August 2022

Question # 9 of 10 (Start time: 11:42:34 AM, 23 August 2022)

Total Marks: 1

The derivative of the function x^n is

Select the correct option

Reload Math Equations

- nx^n.
- x^{n-1}.
- nx^{n-1}. correct
- $\frac{n}{x^{n-1}}$.

Click to Save Answer & Move to Next Question

$Investigate\ the\ \lim it\ of\ \lim_{x \to 0} \frac{\sin x}{x} = - - - -.$

Select the correct option

○	1 correct
○	x
○	0
○	$none\ of\ these$

sec(s)

MTH621 - Real Analysis I (Quiz-2)

Quiz Start Time: 11:35 AM, 23 August 2022

Question # 10 of 10 (Start time: 11:43:18 AM, 23 August 2022)

Total Marks: 1

$Investigate\ the\ \lim it\ of\ \lim_{x\to 0} 2x \sin\sqrt{x} = - - - - -.$

Select the correct option

Reload Math Equations

○	$none\ of\ these$
○	1
○	0
○	x

correct

Click to Save Answer & Move to Next Question

Question # 7 of 10 (Start time: 11:40:47 AM, 23 August 2022) Total Marks:

The function $f(x) = \begin{cases} x, & 0 \leq x < 1, \\ 2, & 1 \leq x \leq 2, \end{cases}$ is

Select the correct option

Reload Math Equations

- is undefined on $I = [0, 2]$.
- is having negative values on $I = [0, 2]$.
- is nondecreasing on $I = [0, 2]$. correct
- is nonincreasing on $I = [0, 2]$.

Click to Save Answer & Move to Next Question

Question # 6 of 10 (Start time: 11:39:59 AM, 23 August 2022) Total Marks: 1

Which function has $0/0$ form

Select the correct option

Reload Math Equations

- $f(x) = 2\ln x$ at $x = 2$
- $f(x) = \cos x + x$ at $x = 0$
- $f(x) = \frac{\sin \pi x}{x - 1}$ at $x = 1$.
- $f(x) = \frac{e^x}{x}$ at $x = 2$

correct

Click to Save Answer & Move to Next Question

Question # 8 of 10 (Start time: 11:41:38 AM, 23 August 2022) **Total Marks:** 1

Rolle's Theorem says, suppose that f is continuous on the closed interval $[a, b]$ and differentiable on the open interval (a, b) and $f(a) = f(b)$.

Select the correct option

Reload Math Equations

○	Then $f'(c) = 0$ for some c in the open interval (a, ∞).
○	Then $f'(c) = 0$ for some c in the open interval (a, b).
○	Then $f'(c)$ exists for some c in the open interval (a, b).
○	Then $f'(c) \neq 0$ for some c in the open interval (a, b).

correct

Click to Save Answer & Move to Next Question

uestion # 4 of 10 (Start time: 11:26:22 AM, 23 August 2022)

$Investigate\ the\ \lim it\ of\ \lim_{x\to 0^+}\left(\frac{|x|}{x}+x\right)=----.$

elect the correct option

○	$none\ of\ these$
○	1
○	0
○	-1

correct

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:35 AM, 23 August 2022

Question # 5 of 10 (Start time: 11:39:16 AM, 23 August 2022) Total Marks: 1

If f is differentiable at a local extreme point $x_0 \in D_f^0$, then

Select the correct option

Reload Math Equations

- $f'(x_0) < 0$.
- $f'(x_0) \neq 0$.
- $f'(x_0) = 0$.

correct

- $x_0 = 0$.

Click to Save Answer & Move to Next Question

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:35 AM, 23 August 2022

Question # 2 of 10 (Start time: 11:36:58 AM, 23 August 2022) Total Marks: 1

$Investigate\ the\ limit\ of\ \lim_{x \to 0} \left(\frac{x}{x} + x\right) = - - - - -.$

Select the correct option

Reload Math Equations

○	0
○	-1
○	1
○	$none\ of\ these$

correct

Click to Save Answer & Move to Next Question

sec(s)

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:35 AM, 23 August 2022

Question # 4 of 10 (Start time: 11:38:40 AM, 23 August 2022) Total Marks: 1

Investigate the limit of $\lim_{x \to 0} \frac{\sin x}{x} = - - - - -$.

Select the correct option

Reload Math Equations

○	1 correct
○	*none of these*
○	0
○	x

Click to Save Answer & Move to Next Question

sec(s)

MTH621 - Real Analysis I (Quiz-2)

Quiz Start Time: 11:59 AM, 23 August 2022

Question # 7 of 10 (Start time: 12:04:38 PM, 23 August 2022)

Total Marks: 1

If a function f is continuous on the closed interval then f attains its

Select the correct option

Reload Math Equations

○	may or may not attain extreme values in the closed interval.
○	derivative in the closed interval.
○	extreme values at one point in the closed interval.
○	extreme values in the closed interval.

correct

Click to Save Answer & Move to Next Question

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:35 AM, 23 August 2022

Question # 3 of 10 (Start time: 11:37:43 AM, 23 August 2022) Total Marks: 1

The function $g(x) = -x^3$ is decreasing on _____.

Select the correct option

Reload Math Equations

- $[0, \infty)$
- none of these
- $(-\infty, 0)$
- $(-\infty, \infty)$ correct

Click to Save Answer & Move to Next Question

sec(s)

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:59 AM, 23 August 2022

Question # 4 of 10 (Start time: 12:01:13 PM, 23 August 2022) Total Marks: 1

Investigate the limit *of* $\lim_{x \to 0} x \sin \frac{1}{x} = - - - - -$.

Select the correct option

Reload Math Equations

○	*none of these*
○	0
○	x
○	1

correct

Click to Save Answer & Move to Next Question

sec(s)

MTH621 - Real Analysis I (Quiz-2)

Quiz Start Time: 11:59 AM, 23 August 2022

Question # 2 of 10 (Start time: 11:59:48 AM, 23 August 2022)

Total Marks: 1

$Investigate\ the\ \lim it\ of\ \lim_{x \to 0} \left(\frac{x}{x} + x\right) = - - - - -.$

Select the correct option

Reload Math Equations

○	$none\ of\ these$
○	1
○	0
○	-1

Click to Save Answer & Move to Next Question

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:59 AM, 23 August 2022

Question # 9 of 10 (Start time: 12:05:58 PM, 23 August 2022) Total Marks: 1

The function $g(x) = x^2$ is

Select the correct option

Reload Math Equations

○	decreasing on $[0, \infty)$.
○	having negative values on $[0, \infty)$.
○	undefined on $[0, \infty)$.
○	increasing on $[0, \infty)$. correct

Click to Save Answer & Move to Next Question

Question # 6 of 10 (Start time: 12:03:42 PM, 23 August 2022) **Total Marks:** 1

The Mean Value Theorem says, suppose that f is differentiable on $[a, b]$, $f'(a) \neq f'(b)$, and μ is between $f'(a)$ and $f'(b)$.

Select the correct option

Reload Math Equations

○	Then $f'(c) \neq \mu$ for some c in (a, b).
○	Then $f'(c) = 0$ for some c in (a, b).
○	Then $f'(c)$ may be 0 or μ for some c in (a, b).
○	Then $f'(c) = \mu$ for some c in (a, b). correct

Click to Save Answer & Move to Next Question

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:59 AM, 23 August 2022

Question # 8 of 10 (Start time: 12:05:18 PM, 23 August 2022) Total Marks: 1

If f is differentiable at a local extreme point $x_0 \in D_f^0$, then

Select the correct option

Reload Math Equations

- $f'(x_0) = 0$. correct
- $|f'(x_0)| < 0$.
- $f'(x_0) \neq 0$.
- $x_0 = 0$.

Click to Save Answer & Move to Next Question

Time Left sec(s)

MTH621 - Real Analysis I (Quiz-2)

Quiz Start Time: 11:59 AM, 23 August 2022

Question # 10 of 10 (Start time: 12:07:54 PM, 23 August 2022)

Total Marks: 1

Rolle's Theorem says, suppose that f is continuous on the closed interval $[a,b]$ and differentiable on the open interval (a,b) and $f(a) = f(b)$.

Select the correct option

Reload Math Equations

- Then $f'(c)$ exists for some c in the open interval (a,b).
- Then $f'(c) = 0$ for some c in the open interval (a,b) correct
- Then $f'(c) \neq 0$ for some c in the open interval (a,b).
- Then $f'(c) = 0$ for some c in the open interval (a,∞).

Click to Save Answer & Move to Next Question

sec(s)

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:59 AM, 23 August 2022

Question # 3 of 10 (Start time: 12:00:31 PM, 23 August 2022) Total Marks: 1

The function $f(x) = \begin{cases} x, & 0 \leq x < 1, \\ 2, & 1 \leq x \leq 2, \end{cases}$ is

Select the correct option

Reload Math Equations

- is nonincreasing on $I = [0, 2]$.
- is undefined on $I = [0, 2]$.
- is nondecreasing on $I = [0, 2]$. correct
- is having negative values on $I = [0, 2]$.

Click to Save Answer & Move to Next Question

sec(s)

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:59 AM, 23 August 2022

Question # 1 of 10 (Start time: 11:59:09 AM, 23 August 2022) Total Marks: 1

The derivative of the function x^n is

Select the correct option

Reload Math Equations

- x^{n-1}.
- nx^n.
- $\frac{n}{x^{n-1}}$.
- nx^{n-1}.

correct

Click to Save Answer & Move to Next Question

sec(s)

MTH621 - Real Analysis I (Quiz-2) Quiz Start Time: 11:59 AM, 23 August 2022

Question # 5 of 10 (Start time: 12:02:58 PM, 23 August 2022) Total Marks: 1

$Investigate\ the\ \lim it\ of\ \lim_{x \to 0} \frac{\sin x}{x} = - - - - -.$

Select the correct option

Reload Math Equations

○	1
○	x
○	0
○	$none\ of\ these$

Click to Save Answer & Move to Next Question

Question # 8 of 10 (Start time: 11:29:10 AM, 23 August 2022)

If f is differentiable at a local extreme point $x_0 \in D_f^0$, then

Select the correct option

○	$f'(x_0) = 0.$
○	$x_0 = 0.$
○	$\lvert f'(x_0)\rvert < 0.$
○	$f'(x_0) \neq 0.$

The function $h(x) = -x^3$ is

Select the correct option

○	is undefined on $(-\infty, \infty)$.
○	decreasing on $(-\infty, \infty)$. correct
○	positive on $(-\infty, \infty)$.
○	increasing on $(-\infty, \infty)$.

$Investigate\ the\ \lim it\ of\ \lim_{x \to 0}\ 2x \sin \sqrt{x} = - - - - -.$

Select the correct option

○	$none\ of\ these$
○	x
○	1
○	0

correct

If a function f is continuous on the closed interval then f attains its

elect the correct option

○	extreme values at one point in the closed interval.
○	derivative in the closed interval.
○	may or may not attain extreme values in the closed interval.
◉	extreme values in the closed interval.

The function $f(x) = \begin{cases} x, & 0 \leqslant x < 1, \\ 2, & 1 \leqslant x \leqslant 2, \end{cases}$ is

Select the correct option

◉	is nondecreasing on $I = [0, 2]$.
○	is nonincreasing on $I = [0, 2]$.
○	is undefined on $I = [0, 2]$.
○	is having negative values on

Question # 1 of 10 (Start time: 11:35:27 AM, 23 August 2022) Total Marks: 1

The inverse of the given function $f(x) = 2x + 4, \quad 0 \leq x \leq 2,$ is

Select the correct option

Reload Math Equations

- $f^{-1}(y) = \frac{x-2}{4}$.
- $f^{-1}(y) = \frac{y-4}{2}$.
- $f^{-1}(y) = \frac{y-2}{4}$.
- $f^{-1}(y) = \frac{y-4}{4}$

correct

Click to Save Answer & Move to Next Question