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If $f(x)\begin{cases} x+\lambda & x<3 \\ 4 & x=3 \\ 3x-5 & x>3 \end{cases}$ is

continuous at x=3 then $\lambda =$

a) 4
b) 3
c) 2
d) 1
Ans: d)

If $f(x) = \begin{cases} \frac{\sqrt{1+Kx} - \sqrt{1-Kx}}{x}, & -1 \leq x < 0 \\ 2x^2+3x-2, & 0 \leq x \leq 1 \end{cases}$ is continuous at x=0 then K=

a) -4
b) -3
c) -2
d) -1

Ans: c)

The value of a, b, c, which make f(x) continuous at x=0 are

a) $a = \frac{-3}{2}$, $b = 0$, $c = \frac{1}{2}$

b) $a = \frac{3}{2}$, $b \neq 0$, $c = \frac{1}{2}$

c) $a = \frac{-3}{2}$, $b \neq 0$, $c = \frac{1}{2}$

d) $a = \frac{3}{2}$, $b = 0$, $c = \frac{1}{2}$

Ans: c)

If $f(x)=\begin{cases} x-1 & x<0 \\ 0.25 & x=0 \\ x^2 & x>0 \end{cases}$ then

a) $\lim_{x\to 0^+} f(x) = 1$

b) $\lim_{x\to 0^-} f(x) = 1$

c) f(x) is not continuous at x=0

d) $f(0^-) = f(0^+)$

Ans: c)

If $f(x) = \begin{cases} -x2 & , x \leq 0 \\ 5x-4 & , 0 < x \leq 1 \\ 4x^2-3x, & 1 < x < 2 \\ 3x+4 & , x \geq 2 \end{cases}$ then f(x) is.

a) Continuous at x = 0
b) Continuous at x = 2
c) Discontinuous at x = 1
d) All of these
Ans: b)

If $f(x) = \begin{cases} e^x & , x \leq 0 \\ |11-x| & , x > 0 \end{cases}$ then

a) f(x) is continuous at x = 0
b) f(x) is differentiable at x = 0
c) Both (a) & (b)
d) None of above

Ans: a)

f(x) = min { x+1, |x|+1} then . .

a) f(x) is continuous and differentiable $\forall$ x ε R

b) f(x) $\geq$ 1 $\forall$ x

c) f(x) is Non-Differentable function

d) f(x) = 1 , $\forall$ x ε R

Ans: a)

$$\lim_{x \to \infty} \left[\frac{x+5}{x-1} \right]^{x} \text{ is.}$$

a) e^{6}

b) e^{4}

c) e^{-5}

d) e^{5}

Ans:

$$\lim_{n\to\infty}\left[\frac{1+2^4+3^4+\ldots+n^4}{n^5}\right]=A$$

$$\lim_{n\to\infty}\left[\frac{1+2^3+3^3+\ldots+n^3}{n^5}\right]=B, \text{ then}$$

a) $A\ \frac{1}{5}$, $B = 0$

b) $A = 0$, $B = \frac{1}{5}$

c) $A = \frac{1}{5}$, $B = \frac{1}{5}$

d) $A = 0$, $B = 0$

Ans: a)

[x + y] = [x] + [y] holds good for x∈

a) N
b) I
c) Q
d) R

Ans : b)

Domain of $2^x + 2^y = 2$ is

a) (0 , 1)

b) (-∞ , 0)

c) (-∞ , 1)

d) (-∞ , ∞)

Ans : c)

If $f(x) = |x|$, $g(x) = [\,x\,]$ then

$f(g(-\frac{1}{4})) + g \circ f(-\frac{1}{4})$ is

a) 0
b) 1
c) -1
d) 0.25

Ans: b)

$f(x) = x^2 + 1$, $f^{-1}(17)$ & $f^{-1}(-3)$ will be respectively

a) $\{ \phi \}$, $[-4 , 4]$

b) $\{ -3 , 3 \}$, $\{ \phi \}$

c) $\{ \phi \}$, $\{ -3 , 3 \}$

d) $\{ -4 , 4 \}$, $\{ \phi \}$

Ans : d)

$f(x) = \sin x + \cos x$, $g(x) = x^2 - 1$ $g(f(x))$ is invertible in the domain

a) $[\ 0\ ,\ \frac{\pi}{2}\ ]$

b) $[\ \frac{-\pi}{4}\ ,\ \frac{\pi}{4}\ ]$

c) $[\ \frac{-\pi}{2}\ ,\ \frac{\pi}{2}\ ]$

d) $[\ 0\ ,\ \pi\ ]$

Ans: b)

Sin x - sin |x| = 0 iff

a) $x = \text{odd } \frac{\pi}{2}$

b) $x > 0$

c) $x < 0$

d) $x = 0$ only

Ans : b)

$f(x) = \frac{1 - x}{1 + x}$ the domain of $f^{-1}(x)$ is ....

a) R
b) R - { -1 }
c) ($-\infty$, -1)
d) (-1 , ∞)

Ans : b)

Range of (3cosx + 4sinx)+3 is

a) [-2 , 8]
b) [-1 , 10]
c) [-8 , 2]
d) [-8 , -2]

Ans: a)

Period of the function

$$3\sin\frac{\pi x}{3} + 4\cos\frac{\pi x}{4} \text{ is}$$

a) 6

b) 8

c) 24

d) 2π

Ans : c)

$f(x) = \log (x + \sqrt{x^2+1})$ is

a) Odd Function
b) Perirdic Function
c) Even Function
d) Neither Even nor odd Function

Ans : a)