Assignment

Value of Function

Basic Level

If $f(x)=\frac{1-x}{1+x}$, then $f[f(\cos 2\theta)]$ equal to **[MP PET 1994, 2001]**

(a) $\tan 2\theta$ (b) $\sec 2\theta$ (c) $\cos 2\theta$ (d) $\cot 2\theta$

If $f(x)=\frac{\cos^2 x+\sin^4 x}{\sin^2 x+\cos^4 x}$ for $x\in R$, then $f(2002)=$ **[EAMCET 2002]**

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

If $\phi(x)=a^x$, then $\{\phi(p)\}^3$ is equal to **[MP PET 1999]**

(a) $\phi(3p)$ (b) $3\phi(p)$ (c) $6\phi(p)$ (d) $2\phi(p)$

If $f(x)=\cos(\log x)$, then $f(x)\,f(y)-\frac{1}{2}[f\left(\frac{x}{y}\right)+f(xy)]=$ **[IIT 1983; Rajasthan PET 1995; MP PET 1995; KCET 1999; UPSEAT 2001]**

(a) $\frac{1}{2}$ (b) 2 (c) 0 (d) 1

If $f(\theta)=\tan\theta$, then $\frac{f(\theta)-f(\phi)}{1+f(\theta)f(\phi)}$ is equal to **[Rajasthan PET 1996]**

(a) $f(\theta-\phi)$ (b) $f(\phi-\theta)$ (c) $f(\theta+\phi)$ (d) None of these

If $f(x)=2x\sqrt{1-x^2}$, then $f\left(\sin\frac{x}{2}\right)$ equals **[Rajasthan PET 1989]**

(a) $\sin 2x$ (b) $\sin x$ (c) $2\sin x$ (d) $2\sin\frac{x}{2}$

If $f(x)=\frac{x}{x-1}$, then $\frac{f(a)}{f(a+1)}$ is equal to **[MP PET 1996]**

(a) $f(-a)$ (b) $f\left(\frac{1}{a}\right)$ (c) $f(a^2)$ (d) $f\left(\frac{-a}{a-1}\right)$

If $f(x)=\begin{cases}2x-3 & , \quad x\geq 2\\ x & , \quad x<2\end{cases}$, then $f(1)$ is equal to **[Karnataka CET 1989]**

(a) $2f(2)$ (b) $f(2)$ (c) $-f(2)$ (d) $\frac{1}{2}f(2)$

If $f(x)=x^2-x^{-2}$, then $f\left(\frac{1}{x}\right)$ is equal to **[SCRA 1999]**

(a) $f(x)$ (b) $-f(x)$ (c) $\frac{1}{f(x)}$ (d) $[f(x)]^2$

If $f(x)=4x^3+3x^2+3x+4$, then $x^3 f\left(\frac{1}{x}\right)$ is **[SCRA 1996]**

(a) $f(-x)$ (b) $\frac{1}{f(x)}$ (c) $\left[f\left(\frac{1}{x}\right)\right]^2$ (d) $f(x)$

The equivalent function of $\log x^2$ is **[MP PET 1997]**

(a) $2\log x$ (b) $2\log|x|$ (c) $|\log x^2|$ (d) $(\log x)^2$

Advance

If $f(x)=\cos[\pi]x+\cos[\pi x]$, where $[y]$ is the greatest integer function of y then $f\left(\frac{\pi}{2}\right)$ is equal to

(a) cos 3 (b) 0 (c) cos 4 (d) None of these

Let $f(x)=\begin{cases}1+|x| & , \quad x<-1\\ [x] & , \quad x\geq -1\end{cases}$, where [.] denotes the greatest integer function. Then $f\{f(-2.3)\}$ is equal to

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

If $f(x_1)+f(x_2)=f\left(\frac{x_1+x_2}{1+x_1x_2}\right), x_1x_2\in(-1,1)$, then $f(x)$ is equal to **[Roorkee 1998]**

(a) $\log\left(\frac{1-x}{1+x}\right)$ (b) $\tan^{-1}\left(\frac{1-x}{1+x}\right)$ (c) $\log\left(\frac{2x}{1-x^2}\right)$ (d) $\tan^{-1}\left(\frac{1+x}{1-x}\right)$

If $f(x)=\frac{|x|}{x}, x\neq 0$, then the value of function **[BIT Mesra 1999]**

(a) 1 (b) 0 (c) -1 (d) Does not exists

If a function $g(x)$ is defined in $[-1,1]$ and two vertices of an equilateral triangle are (0,0) and $(x, g(x))$ and its area is $\frac{\sqrt{3}}{4}$, then $g(x)$ equals **[IIT 1989]**

(a) $\sqrt{1+x^2}$ (b) $-\sqrt{1+x^2}$ (c) $\sqrt{1-x^2}$ (d) None of these

If $f(x)=\frac{2^x+2^{-x}}{2}$, then $f(x+y).\ f(x-y)$ is equal to **[Rajasthan PET 1998]**

(a) $\frac{1}{2}[f(x+y)+f(x-y)]$ (b) $\frac{1}{2}[f(2x)+f(2y)]$ (c) $\frac{1}{2}[f(x+y).\ f(x-y)]$ (d) None of these

$f(1)=1$ and $f(n+1)=2f(n)+1$ if $n\geq 1$, then $f(n)$ is **[Karnataka CET 1994; IIT 1995]**

(a) 2^{n+1} (b) 2^n (c) 2^n-1 (d) $2^{n-1}-1$

If $2f(x)-3f(1/x)=x^2,\ x\neq 0$, then $f(2)$ is equal to **[IIT 1991]**

(a) 5/2 (b) -7/4 (c) -1 (d) None of these

If $f(x)\neq|x-1|$, then correct statement is **[IIT 1983]**

(a) $f(x^2)=[f(x)]^2$ (b) $f(|x|)\neq f(x)|$ (c) $f(x+y)=f(x)+f(y)$ (d) None of these

Domain of Function

Basic Level

The domain of the function $f(x)=\sqrt{\log_{0.5}x}$ is **[Roorkee 1990]**

(a) (0, 1] (b) (0, ∞) (c) (0.5, ∞) (d) [1, ∞)

The domain of definition of the real function $f(x)=\sqrt{\log_{12}x^2}$ of the real variable x is

(a) $x>0$ (b) $|x|\geq 1$ (c) $|x|\geq 4$ (d) $x\geq 4$

The natural domain of the real valued function defined by $f(x)=\sqrt{x^2-1}+\sqrt{x^2+1}$ **[SCRA 1996]**

(a) $1<x<\infty$ (b) $-\infty<x<\infty$ (c) $-\infty<x<-1$ (d) $(-\infty,\infty)-(-1,1)$

The domain of the function $y=\sqrt{\frac{1}{x}-1}$ is, **[AMU 2000]**

(a) $x\le 1$ (b) $0\le x\le 1$ (c) $0\le x<1$ (d) $0<x\le 1$

Domain of $f(x)=\log|\log x|$ is **[Pb. CET 1998; DCE 2002]**

(a) $(0,\infty)$ (b) $(1,\infty)$ (c) $(0,1)\cup(1,\infty)$ (d) $(-\infty,1)$

Domain of function $f(x)=\left[\log_{10}\left(\frac{5x-x^2}{4}\right)\right]^{1/2}$ is **[UPSEAT 2001]**

(a) $-\infty<x<\infty$ (b) $1\le x\le 4$ (c) $4\le x\le 16$ (d) $-1\le x\le 1$

Domain of the function $\sin^{-1}\left[\log_2\left(\frac{x^2}{2}\right)\right]$ is **[MP PET 1998]**

(a) $[1,2]$ (b) $[-1,2]$ (c) $[-2,2]-(-1,1)$ (d) $[-2,2]-\{\}$

The domain of the function $f(x)=\frac{\sqrt{4-x^2}}{\sin^{-1}(2-x)}$ is

(a) [0, 2] (b) [0, 2) (c) [1, 2) (d) [1, 2]

The domain of the function $f(x)=\log(\sqrt{x-4}+\sqrt{6-x})$ is **[Rajasthan PET 2001]**

(a) $[4,\infty)$ (b) $(-\infty,6]$ (c) $[4,6]$ (d) None of these

Advance Level

The largest set of real values of x for which $f(x)=\sqrt{(x+2)(5-x)}-\frac{1}{\sqrt{x^2-4}}$ is a real function

(a) [1, 2] $\cup(2,5]$ (b) $(2,5]$ (c) $[3,4]$ (d) None of these

The domain of the function $f(x)=\frac{1}{\log_{10}(1-x)}+\sqrt{x+2}$ is **[DCE 2000]**

(a) $]-3,-2.5[\cup]-2.5,-2[$ (b) $[-2,0[\cup]0,1[$

(c) $]0,1[$ (d) None of these

The domain of the function $f(x)=\log_e(x-[x])$, where [.] denotes the greatest integer function, is

(a) R (b) $R-Z$ (c) $(0,+\infty)$ (d) None of these

The domain of the function $f(x)=\frac{\sin^{-1}(3-x)}{\ln(|x|-2)}$ is **[Orissa JEE 2002]**

(a) $[2,4]$ (b) $(2,3)\cup(3,4]$ (c) $[2,\infty)$ (d) $(-\infty,-3)\cup[2,\infty)$

Domain of the function $f(x)=\sin^{-1}(1+3x+2x^2)$ is **[Roorkee 2000]**

(a) $(-\infty,\infty)$ (b) $(-1,1)$ (c) $\left[\frac{-3}{2},0\right]$ (d) $\left(-\infty,\frac{-1}{2}\right)\cup(2,\infty)$

Domain of the function $\sin\ln\left(\frac{\sqrt{4-x^2}}{1-x}\right)$ **[IIT 1985; Rajasthan PET 2003]**

(a) $[-2,1]$ (b) $(-2,1)$ (c) $[-2,1)$ (d) $(-2,1]$

Domain of the function $f(x)=\sqrt{\log_{0.5}(3x-8)-\log_{0.5}(x^2+4)}$ is **[AMU 1999]**

(a) $\left(\frac{8}{3},\infty\right)$ (b) $\left(-\infty,\frac{8}{3}\right)$ (c) $(-\infty,\infty)$ (d) $(0,\infty)$

The domain of $f(x)=\frac{1}{\sqrt{\cos x|+\cos x}}$ is

(a) $[-2n\pi, 2n\pi]$ (b) $(2n\pi, \overline{2n+1}\,\pi)$ (c) $\left(\frac{(4n+1)\pi}{2},\frac{(4n+3)\pi}{2}\right)$ (d) $\left(\frac{(4n-1)\pi}{2},\frac{(4n+1)\pi}{2}\right)$

The domain of $f(x)=\sin^{-1}\left(\frac{1+x^2}{2x}\right)+\sqrt{1-x^2}$ is

(a) $\{1\}$ (b) $(-1,1)$ (c) $\{1,-1\}$ (d) None of these

The domain of the function $f(x)=\sqrt{\log\left(\frac{1}{|\sin x|}\right)}$ is **[Rajasthan PET 2001]**

(a) $R-\{-\pi,\pi\}$ (b) $R-\{n\pi|\ n\in Z\}$ (c) $R-\{2n\pi|\ n\in Z\}$ (d) $(-\infty,\infty)$

The domain of the function $f(x)={}^{16-x}C_{2x-1}+{}^{20-3x}P_{4x-5}$, where the symbols have their usual meanings, is the set **[AMU 2002]**

(a) {2, 3} (b) {2, 3, 4} (c) {1, 2, 3, 4} (d) {1, 2, 3, 4, 5}

Domain of the function $f(x)=\sin^{-1}\{1+e^x)^{-1}$ is **[AMU 1999]**

(a) (– ∞, ∞) (b) [–1, 0] (c) [0, 1] (d) [–1, 1]

If n is an integer then domain of the function $\sqrt{\sin 2x}$ is **[MP PET 2003]**

(a) $[n\pi-\frac{\pi}{2},n\pi]$ (b) $\left[n\pi,n\pi+\frac{\pi}{2}\right]$ (c) $[(2n-1)\pi,2n\pi]$ (d) $[2n\pi,(2n+1)\pi]$

Range of Function

Basic Level

If $A\{-2,-1,0,1,2\}$ and $f:A\to Z, f(x)=x^2+1$, then the range of f is **[Rajasthan PET 1995]**

(a) {0, 1, 2, 5} (b) {1, 2, 5} (c) {–5, –2, 1, 2, 3} (d) A

The range of the function $f:[0,1]\to R, f(x)=x^3-x^2+4x+2\sin^{-1}x$ is

(a) $[-\pi-2,0]$ (b) [2, 3] (c) [0, 4+ π] (d) $[0,2+\pi]$

The range of $f(x)=\cos(x/3)$ is **[Rajasthan PET 2002]**

(a) $[-1/3,1/3]$ (b) $[-3,3]$ (c) $[1/3,-1/3]$ (d) [– 1, 1]

Range of $f(x)=\frac{x^2+34x-71}{x^2+2x-7}$ is **[Roorkee 1983]**

(a) $[5,9]$ (b) $(-\infty,5]\cup[9,\infty)$ (c) $(5,9)$ (d) None of these

Range of the function $f(x)=\frac{x^2-x+1}{x^2+x+1}$ **[Karnataka CET 1993]**

(a) R (b) [3, ∞) (c) $\left[\frac{1}{3},3\right]$ (d) None of these

Advance

The range of the function $f(x)=\cos[x]$, where $\frac{-\pi}{2}<x<\frac{\pi}{2}$ is **[Karnataka CET 1994]**

(a) {– 1, 1, 0} (b) $\{\cos 1,1,\cos 2\}$ (c) $\{\cos 1,-\cos 1,1\}$ (d) None of these

The range of the function $f(x) = |x-1| + |x-2|,\ -1 \le x \le 3$ is

(a) [1, 3] (b) [1, 5] (c) [3, 5] (d) None of these

Let $f(x) = (1+b^2)x^2 + 2bx + 1$ and $m(b)$ the minimum value of $f(x)$ for a given b. As b varies, the range of $m(b)$ is

[IIT Screening 2001]

(a) $[0,1]$ (b) $\left(0, \frac{1}{2}\right]$ (c) $\left[\frac{1}{2}, 1\right]$ (d) $(0,1]$

Kind of Functions

Basic Level

Which of the following functions defined from R to R is onto **[Rajasthan PET 1985, 86]**

(a) $f(x) = |x|$ (b) $f(x) = e^{-x}$ (c) $f(x) = x^3$ (d) $f(x) = \sin x$

The number of bijective function from set A to itself when A contains 106 elements is **[EAMCET 1994]**

(a) 106 (b) $(106)^2$ (c) 106 ! (d) 2^{106}

If A contains 3 elements and B contains 4 elements, then the number of all one – one functions defined from A to B is

[EAMCET 1992; UPSEAT 2001]

(a) 144 (b) 12 (c) 24 (d) 64

If $A = \{a, b\}$, then total number of functions which can be defined from A to A is

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

Function $f : R \to R, f(x) = x^3 + 7$ is **[Rajasthan PET 1984]**

(a) One – one onto (b) One – one into (c) Many – one onto (d) Many – one into

Which of the following functions from R to R is into **[Rajasthan PET 1984]**

(a) x^5 (b) $3x - 7$ (c) x^3 (d) $\sin x$

Function $f : R \to R, f(x) = x^2$ is **[IIT 1970; MP PET 1997]**

(a) One – one but not onto (b) Onto but not one- one (c) Neither one-one nor onto (d) One- one onto

If $A = R - \{3\}, B = R - \{1\}$ and $f : A \to B,\ f(x) = \frac{x-2}{x-3}$, then f is

(a) One-one (b) Onto (c) One-one onto (d) Many-one into

Advance Level

Let $f(x) = \frac{x^2 - 4}{x^2 + 4}$ for $|x| > 2$, then the function $f : (-\infty, -2] \cup [2, \infty) \to (-1, 1)$ is **[Orissa JEE 2002]**

(a) One-one into (b) One-one onto (c) Many one into (d) Many one onto

Let the function $f : R \to R$ be defined by $f(x) = 2x + \sin x, x \in R$. Then f is **[IIT Screening 2002]**

(a) One-to-one and onto (b) One-to-one but not onto

(c) Onto but not one-to-one (d) Neither one-to-one nor onto

function $f : R \to R$, $f(x) = x|x|$ is **[Rajasthan PET 1991, 98]**

(a) One – one but not onto (b) Onto but not one – one

(c) One – one onto (d) Neither one – one nor onto

If for two function f and g; gof is a bijection, then correct statement is **[Haryana CEE 1998]**

(a) Both g and f must be bijections (b) g must be a bijection

(c) f must be a bijection (d) Neither of them may be a bijection

If $f:[0,\infty)\to[0,\infty)$ and $f(x)=\frac{x}{1+x}$, then f is **[IIT Screening 2003]**

(a) One – one and onto (b) One – one but not onto (c) Onto but not one – one (d) Neither one – one nor onto

The number of all onto functions which can be defined from $A=\{1,\ 2,\ 3,\ .....,\ n\},\ n\geq 2$ to $B=\{a,b\}$ is **[EAMCET 1992]**

(a) ${}^{n}P_{2}$ (b) $2^{n}-2$ (c) $2^{n}-1$ (d) None of these

If $1+2x$ is a function having $\left(\frac{-\pi}{2},\frac{\pi}{2}\right)$ as domain and $(-\infty,\infty)$ as co- domain, then it is **[IIT 1992]**

(a) Onto but not one- one (b) One – one but not onto (c) One – one and onto (d) Neither one – one nor onto

If $A=\{x|\ -1\leq x\leq 1\}=B$ and $f:A\to B,\ \ f(x)=\sin\pi x,$ then f is

(a) One – one (b) Onto (c) One – one onto (d) Many one into

If the real-valued function $f(x)=px+\sin x$ is a bijective function then the set of possible valued of $p\in R$ is

(a) $R-\{0\}$ (b) R (c) $(0,\ +\infty)$ (d) None of these

Even/Odd Functions

Basic Level

The function $f(x)=x\cos x$ is

(a) Even function (b) Odd function (c) Neither even nor odd (d) Periodic function

A function whose graph is symmetrical about the y-axis is given by

(a) $f(x)=\log_{e}(x+\sqrt{x^{2}+1})$ (b) $f(x+y)=f(x)+f(y)$ for all $x,y\in R$

(c) $f(x)=\cos x+\sin x$ (d) None of these

Let $f(x+y)=f(x)+f(y)$ for all $x,y\in R$. Then

(a) $f(x)$ is an even function (b) $f(x)$ is an odd function (c) $f(0)=0$ (d) $f(n)=nf(1),n\in N$

If $f(x)$ is an odd function then

(a) $\frac{f(-x)+f(x)}{2}$ is an even function (b) $[|\ f(x)|+1]$ is even, where $[x]$ = the greatest integer $\leq x$

(c) $\frac{f(x)-f(-x)}{2}$ is neither even nor odd (d) None of these

Advance

If $f(x)$ and $g(x)$ are two functions of x such that $f(x)+g(x)=e^{x}$ and $f(x)-g(x)=e^{-x}$ then

(a) $f(x)$ is an odd function (b) $g(x)$ is an odd function (c) $f(x)$ is an even function (d) $g(x)$ is an even function

If $f(x)=\begin{cases}x^{2}\sin\frac{\pi x}{2}, & |x|<1\\ x|x|\ , & |x|\geq 1\end{cases}$ then $f(x)$ is

(a) An even function (b) An odd function (c) A periodic function (d) None of these

Which of the following is an even function? Here [.] denotes the greatest integer function and f is any function

(a) $[x]-x$ (b) $f(x)-f(-x)$ (c) $e^{3-2x}.\tan^{2}x$ (d) $f(x)+f(-x)$

Periodic Function

Basic Level

The period of $|\cos x|$ is **[Rajasthan PET 1998]**

(a) 2π (b) π (c) $\frac{\pi}{2}$ (d) $\frac{3\pi}{2}$

The period of the function $\sin\left(\frac{\pi x}{2}\right)+\cos\left(\frac{\pi x}{2}\right)$ is **[EAMCET 1990]**

(a) 4 (b) 6 (c) 12 (d) 24

If $f(x)$ is a periodic function of the period T, then $f(ax+b)$ where $a>0$, is a periodic function of the period **[AMU 2000]**

(a) T/b (b) aT (c) bT (d) T/a

The period of the function $f(x)=\sin\left(\frac{2x+3}{6\pi}\right)$ is

(a) 2π (b) 6π (c) $6\pi^2$ (d) None of these

The period of the function $f(x)=3\sin\frac{\pi x}{3}+4\cos\frac{\pi x}{4}$ is

(a) 6 (b) 24 (c) 8 (d) 2π

The period of the function $f(x)=|\sin x|+|\cos x|$ is

(a) π (b) $\pi/2$ (c) 2π (d) None of these

Advance Level

Let $f(x)=\cos 3x+\sin\sqrt{3}x$. Then $f(x)$ is

(a) A periodic function of period 2π (b) A periodic function of period $\sqrt{3}\pi$

(c) Not a periodic function (d) None of these

$f(x)=\cos\sqrt{x}$, correct statement is **[Haryana CEE 1998]**

(a) $f(x)$ is periodic & its period $=\sqrt{2}\pi$ (b) $f(x)$ is periodic & its period $=4\pi^2$

(c) $f(x)$ is periodic & its period $=\sqrt{\pi}$ (d) $f(x)$ is not periodic

Composite Functions

Basic Level

If $f:R\to R, f(x)=\sin x; g:R\to R, g(x)=x^2$, then $(fog)(x)$ equals to **[UPSEAT 1987, 2000]**

(a) $\sin x^2$ (b) $\sin^2 x$ (c) $\sin x+x^2$ (d) $\sin\frac{x}{x^2}$

If $f(x)=(a-x^n)^{1/n}$, where $a>0$ and n is a positive integer, then $f[f(x)]=$ **[IIT 1983; UPSET 2001]**

(a) x^3 (b) x^2 (c) x (d) None of these

If $f(x)=\frac{x}{\sqrt{1+x^2}}$, then $fofof(x)$ is equal to **[Rajasthan PET 2000]**

(a) $\frac{x}{\sqrt{1+3x^2}}$ (b) $\frac{x}{\sqrt{1+2x^2}}$ (c) $\frac{x}{\sqrt{1+x^2}}$ (d) None of these

Let f and g be functions defined by $f(x)=\frac{x}{x+1}, g(x)=\frac{x}{1-x}$, then $(fog)(x)$ is

(a) $\frac{1}{x}$ (b) $\frac{1}{x-1}$ (c) $x-1$ (d) x

If $f(x)=ax+b$ and $g(x)=cx+d$, then $f(g(x))=g(f(x))$ is equivalent to **[UPSEAT 2001]**

(a) $f(a)=g(c)$ (b) $f(b)=g(b)$ (c) $f(d)=g(b)$ (d) $f(c)=g(a)$

Advance

If $f(x)=\sqrt{|x-1|}$ and $g(x)=\sin x$, then $(fog)(x)$ is equal to **[Roorkee 1992]**

(a) $\sin\sqrt{|x-1|}$ (b) $|\sin x/2-\cos x/2|$ (c) $|\sin x-\cos x|$ (d) None of these

If f and g are two real valued function defined by $f(x)=e^x$ and $g(x)=3x-2$, then $(fog)^{-1}(x)$ is equal to **[Roorkee 1998]**

(a) $\log(3x-2)$ (b) $\frac{2+\log x}{3}$ (c) $\log\left(\frac{x+2}{3}\right)$ (d) None of these

If $f(x)=\frac{1}{1-x}, x\neq 0,1$, then the graph of the function $y=f\{f(f(x))\}, x>1$, is

(a) A circle (b) An ellipse (c) A straight line (d) A pair of straight lines

If $f(x)$ is defined on [0, 1] by the rule $f(x)=\begin{cases}x, \text{if } x \text{ is rational}\\ 1-x, \text{if } x \text{ is irrational}\end{cases}$. Then for all $x\in[0,1], f(f(x))$ is

(a) Constant (b) $1+x$ (c) x (d) None of these

Inverse Function

Basic Level

$f:R\to R$ is a function defined by $f(x)=10x-7$. If $g=f^{-1}$, then $g(x)=$ **[EAMCET 1993]**

(a) $\frac{1}{10x-7}$ (b) $\frac{1}{10x+7}$ (c) $\frac{x+7}{10}$ (d) $\frac{x-7}{10}$

If $y=f(x)=\frac{x+2}{x-1}$, then $x=$ **[IIT 1984]**

(a) $f(y)$ (b) $2f(y)$ (c) $\frac{1}{f(y)}$ (d) None of these

Inverse of the function $y=2x-3$ is **[UPSEAT 2002]**

(a) $\frac{x+3}{2}$ (b) $\frac{x-3}{2}$ (c) $\frac{1}{2x-3}$ (d) None of these

Advance

The value of α for which the function $f(x)=1+\alpha x, \alpha\neq 0$ is inverse of itself will be **[IIT 1992]**

(a) – 2 (b) – 1 (c) 1 (d) 2

If $f:[1,+\infty)\to[2,+\infty)$ is given by $f(x)=x+\frac{1}{x}$ then f^{-1} equals **[IIT Screening 2001]**

(a) $\frac{x+\sqrt{x^2-4}}{2}$ (b) $\frac{x}{1+x^2}$ (c) $\frac{x-\sqrt{x^2-4}}{2}$ (d) $1+\sqrt{x^2-4}$

The inverse of the function $f(x)=\frac{10^x-10^{-x}}{10^x+10^{-x}}$ is **[Rajasthan PET 2001]**

(a) $\log_{10}(2-x)$ (b) $\frac{1}{2}\log_{10}\left(\frac{1+x}{1-x}\right)$ (c) $\frac{1}{2}\log_{10}(2x-1)$ (d) $\frac{1}{4}\log\left(\frac{2x}{2-x}\right)$

The inverse of the function $f(x)=\frac{e^x-e^{-x}}{e^x+e^{-x}}+2$ is given by **[Haryana CEE 1996]**

(a) $\log_e\left(\frac{x-2}{x-1}\right)^{\frac{1}{2}}$ (b) $\log_e\left(\frac{x-1}{3-x}\right)^{\frac{1}{2}}$ (c) $\log_e\left(\frac{x}{2-x}\right)^{\frac{1}{2}}$ (d) $\log_e\left(\frac{x-1}{x+1}\right)^{-2}$

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Answer Sheet

Assignment (Basic & Advance Level)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
c	a	a	c	a	b	c	b	b	d	b	c	d	a	d	c	b	c	b	d
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
a	b	d	d	c	b	c	c	c	b	b	b	b	c	b	a	d	c	b	a
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
a	b	b	c	d	b	c	b	b	d	c	c	c	c	a	d	c	c	c	a
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
c	a	b	b	b	b	d	b	d	b,c,d	a,b	b,c	b	d	b	a	d	c	b	b
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98		
c	d	a	c	a	d	c	b	b	c	c	c	a	a	b	a	b	b		