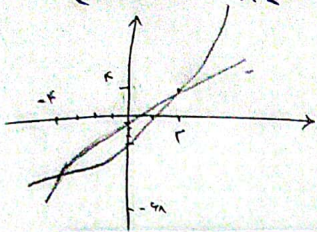


Y.

$$f_{k(n)} = \begin{cases} n^k - k, & n > a \\ kn - k, & n \leq a \end{cases}$$


$$a_{r-k} \geq 1/a_{-k}$$

$$a^2 - 12a + 14 \geq 0 \Rightarrow (a^2 + 12a - 4a^2 - 1) - 18a + 18 + 4a^2 = 0$$

$$(a-r)^r + 4(a^r - \varepsilon a + \varepsilon) = (a-r)^r + 4(a-r)^r$$

$$(a-r)^r(a-r+\epsilon) \Rightarrow (a-r)^r(a+\epsilon)^r \underset{-\epsilon}{=} r$$

ع- ۱۱ ~ حسن بن علی بن ابی طالب - ع- ۱۲

(v) الف

$$r(v) - 1 = 11$$

$$f(x) = x \leftarrow f^{-1}(x) = x, \quad f(x) = x^2 + k$$

$$\rightarrow f(f(x))$$

$$x^2 + k + k = x$$

$$k = -1, 1$$

$$r(rn-1) - 1 \Rightarrow rn - r - 1 \Rightarrow |rn - r - 1|$$

Ex 1.1.1 $f_n(x) = \frac{a^n}{n-1}$ $(a, 1)$

$$r_a = \frac{a^r}{a-1} \Rightarrow r_a^r - r_a = a^r$$

$$a^T - \tau a = 0$$

$$a(a-5) = 0$$

$$a = 0 \quad y$$

$$a = r \quad \wedge \quad y$$

$g = f(r, r), (1, 4) (9, 5) ?$
 $g^{-1} = f(1, 4) (9, 5) (5, 9) ?$
 (الف) f^{-1}

$$\{(s, s)(v, v)(r, r)(q, q)\}$$

$$L = \{ (r, a), (r, v), (v, r), (r, q) \}$$

$$L^{-1} = \{ (a, r), (v, r), (r, v), (q, r) \}$$

$$\Rightarrow L^{-1} \circ L$$

$$\{ (r, r) (\varepsilon, \kappa) (v, v) (q, q) \}$$

2) $\log^{-1}$

$$\{ (r, a) (a, y) \}$$

$$\Rightarrow f^{-1} \circ h$$

$$\{(r, q)(v, r)(q, \wedge)\}$$

$$h^f((1, r), (r, \varepsilon), (\varepsilon, 1), (0, 1)) \} \quad \underline{g} = \{ (r, 1), (1, \varepsilon), (\varepsilon, 0) \} \quad \underline{g}^{-1} = \{ (1, r), (r, \varepsilon), (0, 1) \}$$

$$g^{-1} = \{ (1, 2), (2, 1), (3, 4) \}$$

$$\frac{h}{\log^{-1}} = \{ (1, \frac{1}{2}) (2, \frac{1}{4}) (\cancel{4, \frac{1}{2}}) \} \Rightarrow \{ (1, \frac{1}{4}) (2, \frac{1}{2}) \}$$

$$\log^{-1}: \{ (1, \varepsilon)(\tau, \lambda)(\Delta, 0) \}$$

معدول دیکر نام کے تحت دیکھیں، جس سے تابع معلوم داریت اور دیکھیں کہ آیا یہ تابع

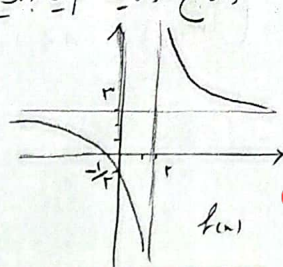
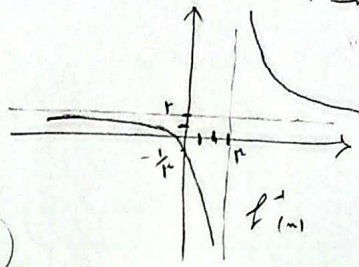
$$y = \frac{2n+1}{n-2}$$

$$\frac{an+b}{cn+d} \Rightarrow ad \neq bc \Rightarrow 2(-2) \neq 1 \Rightarrow -4 \neq 1$$

$$f^{-1} \Rightarrow y = \frac{2n+1}{n-2}$$

$$ad-bc = -4-1 = -5$$

نہیں



$$\frac{a}{c} = 2$$

$$\begin{cases} x=0 \\ y=-1/2 \end{cases}$$

تابع $f: [a, b] \rightarrow [c, d]$ دیکھیں کہ آیا یہ تابع

$$\begin{array}{ccc} 1 & 2 & 3 \\ -n+1+n-2 & n-1+n-2 & n-1+n-2 \\ -2 & n-2 & 2 \end{array}$$

$$\begin{cases} 2 & n > 3 \\ 2n-2 & 1 \leq n \leq 3 \\ -2 & n < 1 \end{cases}$$

$$y = 2n-2$$

$$2n = y+2$$

$$n = \frac{y+2}{2} \Rightarrow y = \frac{1}{2}n+2$$

$$\begin{cases} a=1 \\ b=2 \end{cases} \Rightarrow y = 2n-2$$

$$f_{n+1} = \begin{cases} a^{n+2}, & n \geq 1 \\ f_n - 1, & n \leq 0 \end{cases} \Rightarrow R = [0, +\infty)$$

دارک دیکر نام کے تحت دیکھیں، جس سے تابع معلوم داریت اور دیکھیں کہ آیا یہ تابع

$$y = 2n^2+2$$

$$y = 2n-1$$

$$n^2 = y-2$$

$$2n = y+1$$

$$n = \sqrt{y-2}$$

$$n = \frac{y+1}{2}$$

$$y = \sqrt{n-2}$$

$$y = \frac{n+1}{2}$$

$$\begin{cases} \sqrt{n-2} & n \geq 2 \\ \frac{n+1}{2} & n \leq -1 \end{cases}$$

تابع $f: [a, b] \rightarrow [c, d]$ دیکھیں کہ آیا یہ تابع

$$f_{(n)} = \frac{-2n-1}{n-2}$$

$$f_{(n)}^{-1} = \frac{-2y-1}{y+2}$$

$$y = \frac{-2n-1}{n-2} \Rightarrow y = \frac{-2n-2}{n+2}$$

$$f_{(-2)}^{-1} = \frac{-2(-2)-1}{-2+2} = \frac{3}{0} = \infty$$

$$n^2 - (n^2 + 2n^2 + 2n + 1)$$

$$\frac{n^2 + 2n^2 - n^2 - 2n^2 - 2n - 1}{n+2}$$

$$\begin{cases} a=-2 \\ b=-2 \\ d=2 \end{cases}$$

$$f_{(n)} = \frac{x}{n^2+1}$$

$$\Rightarrow n = \frac{y}{y^2+1}$$

$$\Rightarrow n y^2 + n = y$$

$$y^2 n - y + n = 0 \Rightarrow \Delta = 1 - 4n^2$$

$$y = \frac{1 \pm \sqrt{1-4n^2}}{2n}$$

$$\begin{array}{ccc} -1/2 & 1/2 \\ - & + & - \end{array}$$

$$f_{(n)}^{-1} = \frac{1 \pm \sqrt{1-4n^2}}{2n}$$

$$D_{f_{(n)}} = [-1/2, 1/2] - \{0\}$$