

1) $f(x) = \sqrt{\frac{x-1}{x}} - \frac{x}{x-1}$ (الف) Df کی تلاش کریں۔

$$\sqrt{\frac{(x-1)^2 - x^2}{x(x-1)}} = \sqrt{\frac{1-2x}{x(x-1)}}$$

+ ϕ - ϕ + ϕ -

$D = (-\infty, 0) \cup \left[\frac{1}{2}, 1\right)$

II) $\frac{1}{x+1} - \frac{x}{x-1} = \frac{x}{x-1} + \frac{1}{x+1} = \frac{x^2 + x + 1}{(x-1)(x+1)}$ $\neq 0$ (II)

$\frac{x^2 + x + 1}{(x-1)(x+1)} \neq 0$ $x \neq \frac{-1 \pm \sqrt{5}}{2}$ $D = \mathbb{R} - \left\{ \frac{-1 + \sqrt{5}}{2}, \frac{-1 - \sqrt{5}}{2} \right\}$

2) $\sqrt{\left(\frac{1}{x}\right)^n - 9} (3x - x^n)$ (الف) Df کی تلاش کریں۔

$\left(\left(\frac{1}{x}\right)^n - 9\right) (3x - x^n) \geq 0$ $(-\infty, -2] \cup [5, +\infty)$

+ ϕ - ϕ +

3) $\sqrt{x-1} + \sqrt{y+1} = 3$ $x-1 \geq 0$ $x \geq 1$

$D = [1, +\infty)$

$\log_e \frac{(x^2 - x - 2)}{\sqrt{x^2 - 1} + 1}$ Df 3

I) $x^2 - x - 2 > 0$ $(x-2)(x+1) > 0$

$Df = (-\infty, -1) \cup (2, +\infty)$

II) $x^2 - 1 \geq 0$ $x \geq 1$ $x \leq -1$

خارج کر کے گھنٹا گھنٹا صفر کی نشاندہی کریں۔

$$D = [-r, b] \quad a+b=? \quad f(n) = \sqrt{r+an-n^2}$$

$$\frac{-r}{-1} + \frac{b}{-1} = -1$$

$$r-2a-\varepsilon=0 \quad -\frac{1}{2} \text{ صفرش یکنه}$$

$$1 = -2a \quad a = -\frac{1}{2}$$

$$\frac{c}{a} = \frac{r}{-1} = -r = -2 \times b \quad b = \frac{r}{2}$$

$$\frac{r}{2} + (-\frac{1}{2}) = 1$$

$$Dg? \quad g(n) = f(n) - n$$

$$f(n) = \begin{cases} 2n-2 & n \geq 1 \\ 2n+3 & n < 1 \end{cases}$$

$$g(n) = \begin{cases} 2n-2-n & n \geq 1 \\ 2n+3-n & n < 1 \end{cases}$$

نیز باید یکنه از صفر باشه

$$g(n) = \begin{cases} 2n-2-n & n \geq 1 \\ 2n+3-n & n < 1 \end{cases}$$

$$\begin{cases} 2n-2 & n \geq 1 \\ n+3 & n < 1 \end{cases}$$

$$2n-2 \geq 0$$

$$n \geq 1 \rightarrow \text{برای همه } n \text{ برقرار است}$$

$$n+3 \geq 0 \rightarrow n \geq -3$$

$$-3 \leq n < 1$$

$$D = -3 \leq n < 1 \cup n \geq 1 \quad D = [-3, +\infty)$$

$$f(n) = 2n^2 - \varepsilon n$$

$$\frac{\sin \frac{\pi}{3} + \cos \frac{\pi}{3}}{\frac{\sqrt{3}}{2} + 1} = n \quad n = \frac{\sqrt{3} + 2}{2}$$

$$f(n) = 2n(-n-2) = \frac{3-\varepsilon}{2} = -\frac{1}{2}$$



$$f(f(a)) = a \quad \text{معمولی}$$

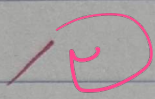
$$f(n) = \frac{n+1}{n-1} \quad -v$$

$$\frac{a+1}{a-1}$$

$$\frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1}$$

$$= \frac{\frac{2a}{a-1}}{\frac{2}{a-1}} = a$$

$$D = R_1 - \{1\}$$



$$\frac{a+1}{a-1} - 1$$

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

ممکنه برقرار است چرا $a=1$ زیرا مخرج صفر می شه.

$$f(g(a)) = -\Sigma$$

$$g(n) = \sqrt{n^2 - 1}$$

$$f(n) = n^2 - \Sigma n$$

$$n^2 - \Sigma n = -\Sigma$$

$$P=9$$

$$f(f) = -\Sigma$$

$$n^2 - \Sigma n + \Sigma = (n-2)^2 = 0$$

$$g(a)$$

$$t=2$$

$$g(a) = 2$$

$$2 = \sqrt{n^2 - 1}$$

و برابر +

$$\Sigma = n^2 - 1$$

$$n^2 = 8$$

$$n = \pm \sqrt{8}$$

می تازیم.

$$f(\Sigma) \wedge f(-r) = ?$$

$$f(n+r) = n^2 - \Sigma n + 9$$

4

$$n+r = \Sigma \quad n=1$$

$$f(\Sigma) = 1 - 8 + 9 = 2$$

$$n+r = -r \quad n=9$$

$$f(-r) = 81 + 9 + 9 = 99$$

$$99 \times 2 = 198$$

$$f(\Sigma \cos \theta + \cos \theta) = \tan \theta$$

$$f(r, \theta) ? \quad 10$$

$$C.S = t \quad \Sigma + r + \theta t = \frac{v}{r}$$

$$\Sigma + r + \theta t = \frac{v}{r}$$

$$t+r+\theta t - 1\Sigma = 0$$

$$t = \frac{1}{r}, \quad -\frac{v}{\Sigma}$$

$$-1 \leq C.S \leq 1$$

$$(\Sigma + v \chi + \frac{-r}{\Sigma}) = 0$$

$$\chi = \frac{v}{\Sigma}$$

$$\cos \theta = \frac{1}{r}$$

$$\tan \theta = \left(\frac{\frac{v}{\Sigma}}{\frac{1}{r}} \right) \quad r = 3$$



۲-ب) $\sqrt[4]{x-1} + \sqrt{y+1} = 3$ و $\underbrace{\sqrt{y+1}}_{\text{همواره مثبت}} = \underbrace{3 - \sqrt[4]{x-1}}_{\text{همواره مثبت!}} \rightarrow 3 - \sqrt[4]{x-1} \geq 0 \rightarrow \sqrt[4]{x-1} \leq 3 \rightarrow x \leq 82 \text{ II}$
 $\downarrow$
 $x-1 \geq 0 \rightarrow x \geq 1 \text{ I}$

$\text{I, II} \rightarrow 1 \leq x \leq 82 \rightarrow Df = [1, 82]$