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1. دf نامی است $f(x) = \sqrt{\frac{x-1}{x}} - \frac{x}{x-1}$ (الف)

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

+ 0 - 1 + 0 -

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

2. I) مخرج صفر نشود. -2 داد 0 داد -1

II) $\frac{1}{x+1} - \frac{x}{x} = \frac{x}{x-1} + \frac{1}{x+2} = \frac{3x+4+x-1}{(x-1)(x-2)} = \frac{4x+3}{(x-1)(x-2)} \neq 0$

III) $\frac{x+5}{(x-1)(x-2)} \neq 0$

$$x \neq \frac{5}{2} \quad D = \mathbb{R} - \left\{0, -1, -2, -\frac{5}{2}\right\}$$

2. دf نامی است و در $\sqrt{\left(\frac{1}{x}\right)^n - 9} (32 - x^n)$ (الف)

$$\left(\left(\frac{1}{x}\right)^n - 9\right) (32 - x^n) \geq 0 \quad (-\infty, -2] \cup \left[\frac{5}{2}, +\infty\right)$$

+ 0 - 0 +

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

$$D = [1, +\infty)$$

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

دf 3

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

-1 2
+ | - | +

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

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

مخرج لگاریتم صفر نمی شود پس بررسی نمی کنیم.

$$D = [-3, b] \quad a+b=? \quad f(n) = \sqrt{3+4n-n^2}$$

$$\frac{-2}{-1} \pm \frac{b}{-1}$$

$$3-2a-\varepsilon=0 \quad -\frac{1}{2} \text{ صفرش یکنه}$$

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

$$\frac{c}{a} = \frac{3}{-1} = -3 = -2 \times b \quad b = \left[\frac{3}{2} \right] \quad b = \text{ریشه دوم}$$

$$\frac{3}{2} + \left(-\frac{1}{2} \right) = 1$$

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

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

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

نیز باید یکنه از صفر باشد

$$2n+3-n > 0 \quad n < 1$$

$$\begin{cases} 2n-2 > 0 & n \geq 1 \\ n+3 > 0 & n < 1 \end{cases}$$

$$2n-2 \geq 0$$

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

$$\begin{aligned} n+3 \geq 0 & \rightarrow n \geq -3 \\ n < 1 & \rightarrow -3 \leq n < 1 \end{aligned}$$

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

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

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

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



$$f(f(a)) = a \quad \text{معمولی}$$

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

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

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

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

$$0 = R_1 - \sum 1$$

همواره برقرار است چرا $a=1$ زیرا مخرج را صفر می‌نماید.

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

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

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

$$n^2 - \sum n = -\sum$$

$$P=9$$

$$f(f) = -\sum$$

$$n^2 - \sum n + \sum = (n-1)^2 = 0$$

$$g(a)$$

$$t=2$$

$$g(a) = 2$$

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

$$+ \text{ برابر}$$

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

$$n^2 = 8$$

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

می‌توانیم.

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

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

$$.4$$

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

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

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

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

$$99 \times 2 = 198$$

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

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

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

$$\sum + r + \theta = \frac{v}{r}$$

$$\sum + r + \theta - 1\sum = 0$$

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

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

$$(\sum + v \times (-\frac{1}{\sum})) = 0$$

$$X - \frac{v}{\sum} = 0$$

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

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

