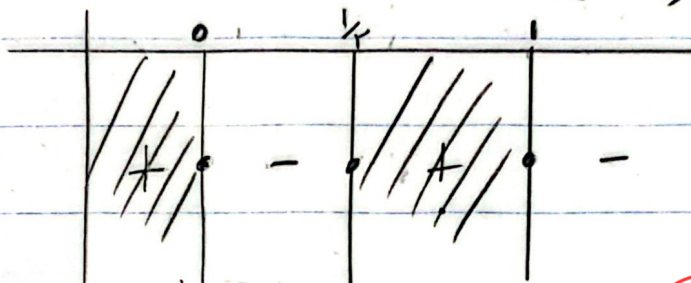


(a) $f(x) = \sqrt{\frac{x-1}{x} - \frac{x}{x-1}} \rightarrow \frac{x-1}{x} - \frac{x}{x-1} \rightarrow$

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



$D_f = (-\infty, 0) \cup [1/4, 1)$

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(b) $\frac{1}{x+1} = \frac{y}{x}$

$\frac{y}{x-1} + \frac{1}{x+1} \rightarrow \frac{y(x+1)}{(x+1)(x-1)} + \frac{1(x-1)}{(x+1)(x-1)}$

$\frac{yx + y + x - 1}{(x+1)(x-1)} \rightarrow yx + y + x - 1 = 0 \quad x \neq -\frac{y}{y}$

$IR = \{0, -1, 1, -2, -3/4\}$

$$a+b = \frac{p}{r} - \frac{1}{r} = \frac{p}{r} \geq 1 \quad \leftarrow$$

$$f(n) = \begin{cases} pn-r & ; n \geq 1 \\ rn+p & ; n < 1 \end{cases} \quad g(n) = \sqrt{f(n)-n} \quad \textcircled{5}$$

$$f(n)-n \geq 1 \rightarrow f(n) \geq n$$

$$pn-r-n \geq rn-r \geq 0 \rightarrow rn \geq r \rightarrow n \geq 1$$

$$rn+p-n \geq n+p \geq 1 \rightarrow n \geq -p$$

$$n \rightarrow D = [-p, +\infty)$$

$$f(n) = \begin{cases} (a+1)(n+r) & ; n \geq 1 \\ ra + rn & ; n < 1 \end{cases} \quad \textcircled{9}$$

بنا بر این که $r f(a) = f(-r) + a$

$$f(a) = (a+1)(a+r) = r(a+1) = ra + r$$

$$f(-r) = ra + r(-r) = ra - r$$

$$r(va+r) = ra - r + a \rightarrow 1fa + 1r = ra - r + a$$

$$1 \cdot a = -1r \rightarrow a = \frac{-1r}{1}$$

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

دائری تابع باضابطی $f(n) = \log_f(n^2 - n - 2)$ رادیت آفید ۳

$$\sqrt{n^2 - 1} \geq 0 \quad \sqrt{n^2 - 1} + 1 \rightarrow n^2 - 1 \geq 0$$

$$\sqrt{n^2 - 1} \geq 1 \quad n^2 - n - 2 > 0 \quad n^2 \geq 1$$

$$n^2 - \begin{cases} \frac{2}{n} \geq 1 \\ n \leq -1 \end{cases} \quad (n-2)(n+1) > 0 \quad \downarrow$$

$$\quad \quad \quad n-2 > 0 \quad + \text{یهر ۲}$$

$$\quad \quad \quad \rightarrow n > 2 \quad \text{یهر ۲ مشق}$$

$$\quad \quad \quad \rightarrow n \leq -1$$

$$\sqrt{n^2 - 1} + 1 \neq 0$$

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

خرج $n \geq 1$ و $n \leq -1$

ناتمام $n > 2$ و $n \leq -1$

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

$\sqrt{r + an - n^2}$ $[-r, b]$ $a+b = ?$ ۴

$$n = \frac{a \pm \sqrt{a^2 + 4r}}{2} \rightarrow n_{\min} = \frac{a - \sqrt{a^2 + 4r}}{2}$$

$$a - \sqrt{a^2 + 4r} = -r \rightarrow \sqrt{a^2 + 4r} = a + r$$

$a+b = \frac{1}{r} + \frac{r}{r} = 1$ $a^2 + 4r = (a+r)^2 \rightarrow a^2 + 4r = a^2 + 2ar + r^2$

1, \sqrt{0} $1a + r \Rightarrow 1a = -r \rightarrow a = -\frac{1}{r}$

$$\frac{a + \sqrt{a^2 + 4r}}{2} = -\frac{1}{r} + \sqrt{\left(-\frac{1}{r}\right)^2 + 4r}$$

$\frac{1}{r} = -\frac{1}{a} + \sqrt{\frac{1}{a^2} + 4r}$ $\frac{r}{r} = \frac{1}{a^2 + 4r}$

$$f(x) = \sqrt{\left(\frac{1}{x}\right) - 9} (x^2 - x^3)$$

$$\downarrow$$

$$(x^{-1} - 9)(x^2 - x^3) \geq 0$$

$$x^{-1} - 9 \geq 0 \rightarrow x^{-1} \geq 9 \rightarrow -x \leq -9 \rightarrow \underline{x \leq -9}$$

$$x^2 - x^3 \geq 0 \rightarrow x^2 \leq x^3 \rightarrow x^2 \leq x^2$$

$$x \geq 0 \rightarrow x \geq 0$$

$$D = (-\infty, -9] \cup [0, +\infty)$$

$$\sqrt{x-1} + \sqrt{y+1} = 1$$

$$y+1 \geq 0 \rightarrow y \geq -1$$

$$\sqrt{y+1} = 1 \rightarrow y = 0$$

$$\sqrt{x-1} = 1 \rightarrow x = 2$$

$$0 \leq \sqrt{x-1} \leq 1 \rightarrow 1 \leq x \leq 2$$

$$D = [1, 2]$$

$$s = \sqrt{a}, t = \sqrt{b}$$

date:

$$t = \frac{1}{s}$$

$$\leftarrow f(r - \sqrt{r}) + f(r + \sqrt{r}) \text{ ? } \text{برای } \text{Sub.}$$

$$f(x) = \sqrt{x} + \frac{1}{\sqrt{x}} + r \quad a^r + b^r = r \quad (7)$$

$$ab = (r - \sqrt{r})(r + \sqrt{r}) = r - r = 0$$

$$f(a) + f(b) = (s + \frac{1}{s} + r) + (t + \frac{1}{t} + r) =$$

$$(s + t) + (\frac{1}{s} + \frac{1}{t}) + r$$

$$f(a) + f(b) = r(s + \frac{1}{s}) + r \quad s^r = a, t^r = b$$

$$(s + t)^r = s^r + r s^{r-1} + t^r = a + r + b$$

$$(r - \sqrt{r}) + r + (r + \sqrt{r}) = 9$$

$$s + \frac{1}{s} = \frac{1}{q}$$

$$f(r - \sqrt{r}) + f(r + \sqrt{r}) =$$

$$r + \sqrt{9}$$

$$r f(x) - r f(-x) = r x^{r-1} - x \quad (8)$$

$$\rightarrow \begin{cases} r f(-x) - r f(x) = r x^{r-1} + x \\ r f(x) - r f(-x) = r x^{r-1} - x \end{cases}$$

$$f(x) = -r x^{r-1} - \frac{x}{r}$$

$$f(-x) = -r x^{r-1} + \frac{x}{r}$$

$f(0)?$

$$(n+r)f(n) - rnf(n+r) = rn^2 - mn + r_{m-1} \quad (9)$$

$$(0+r)f(0) - rnf(0+r) = f(0)^2 -$$

$$n(0) + r_{m-1}$$



$$rf(0) = 0 = r_{m-1} \rightarrow f(0) = \frac{r_{m-1}}{r}$$

$$x=-r \Rightarrow f(0) = \frac{18+84}{9}$$

$$\frac{r_{m-1}}{r} = \frac{18+84}{9} \Rightarrow r_{m-1} = 10$$

$$f(0) = \frac{18}{9}$$

$$f(n) + f\left(\frac{1}{n}\right) = \frac{rn^2 - 1rn + r}{n}$$

$$f(-1) = ?$$

$$(an+b) + \left(a\frac{1}{n} + b\right) = an + \frac{a}{n} + r$$

$$f(n) + f\left(\frac{1}{n}\right) = rn - 1r + \frac{r}{n} \rightarrow$$

$$a=r \quad r b = -1r \rightarrow b = -1$$

$$\sigma \rightarrow f(n) = rn - 1 \rightarrow f(-1) = r(-1) - 1 =$$

$$-r - 1 = -9$$