

$$u = \begin{cases} yg^{-1} & y \geq 0 \rightarrow yg \geq 0 \rightarrow yg - 1 \geq -1 \rightarrow u \geq -1 \\ -y^r & y > 1 \rightarrow y^r > 1 \rightarrow -y^r < -1 \rightarrow u < -1 \end{cases}$$

۲. کار نوشتن

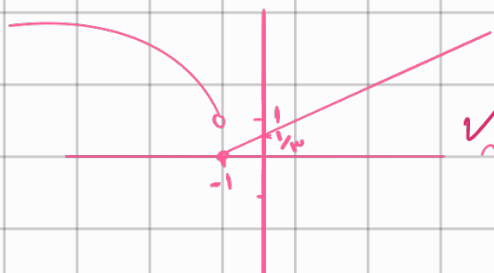
مجموعه مقادیر y که u را

$$u \geq -1 \rightarrow u = yg - 1 \rightarrow y = \frac{u+1}{g}$$

$$u \leq -1 \rightarrow u = -y^r \rightarrow y = \sqrt{-u} \rightarrow \text{مجموعه مقادیر } y \text{ که } u \text{ را}$$

$$\Rightarrow y = \begin{cases} \frac{u+1}{g} & u \geq -1 \\ \sqrt{-u} & u < -1 \end{cases}$$

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مجموعه مقادیر y که u را

$$g(u) = \sqrt{\frac{u f(u-1)}{f(u)}} \rightarrow u = 0, -1, \infty, 1, -1, 1, \infty$$

$$\rightarrow \begin{matrix} -1 & -1 & 0 & 1 & \infty & 1 \\ -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} \end{matrix}$$

(۲)

$$D_g = (-1, -1] \cup [0, 1) \cup [1, +\infty)$$

$$f(u) = \frac{u^2 - 2u + 1}{u^2 - 1} = \frac{u^2 - 2u + 1}{u(u-1)(u+1)} \rightarrow u = -1, 0, 1$$

$$D_f = \mathbb{R} - \{0, -1, 1\}$$

$$\begin{matrix} -1 & 0 & 1 \\ -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} \end{matrix}$$

$$D_{\sqrt{f}} = (-1, 0) \cup (1, +\infty)$$

$$g = \sqrt{\frac{u-1}{u^2 - 2u - 1}} \rightarrow u = 1, -1 \rightarrow \begin{matrix} -1 & 1 \\ -\frac{1}{g} + \frac{1}{g} & -\frac{1}{g} + \frac{1}{g} \end{matrix}$$

$$\rightarrow D = (-1, +\infty) - \{1\}$$

(۲)

$$g = \frac{u^2 + 1}{u - 1} \rightarrow u - 1 \neq 0 \rightarrow u \neq 1 \rightarrow [1, +\infty) \rightarrow D = \mathbb{R} - \{1\}$$

مجموعه مقادیر y که u را

$$f(x) = \frac{\sqrt{x(x^2-1)}}{\sqrt{|x|+x}} \quad \leadsto x=0, \pm 1$$

(۲) داسه افه سه

$$\leadsto x > 0 \rightarrow x$$

$$x \leq 0 \rightarrow 0 \leadsto \begin{cases} x < 0 \\ x = 0 \end{cases}$$

چون که خنق نه منقح یا منفر یا برای نه
نکته: ۱، اسی سه نه نه

$$\frac{1}{-} \mid \frac{+}{+} \leadsto D = [1, +\infty)$$

داسه

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

$$\mid x \mid - 1 \leadsto x \neq \pm 1 \quad \textcircled{1}$$

$$\Delta < 0 \leadsto \text{شبهه} \leadsto -$$

$$|x-1|-x^2 \geq 0 \leadsto x \leq 1 \leadsto -x^2+x-1 \geq 0 \rightarrow \text{نیه}$$

$$x \leq 1 \leadsto -x^2-x+2 \geq 0 \rightarrow x^2+x-2 \leq 0 \leadsto [-2, 1] \quad \textcircled{2}$$

$$(x-1)(x+2)$$

$$\begin{array}{c} -2 \quad 1 \\ + \quad - \quad + \end{array}$$

$$\textcircled{1} \cap \textcircled{2} \cap \textcircled{3} \leadsto D = [-2, 1) - \{-1\}$$

$$g_1 = \sqrt{(x-2)[x-3]} \leadsto \begin{array}{c} 2 \quad 3 \\ + \quad 0 \quad + \end{array} \leadsto D = [2, 3]$$

(۲) داسه افه سه

$$g_2 = \sqrt{|x-1|[x-3]} \leadsto \begin{array}{c} 1 \quad 3 \\ - \quad 0 \quad + \end{array} \leadsto D = [3, +\infty) \cup \{1\}$$

داسه

$$||x-2|-1|-k \neq 0 \leadsto ||x-2|-1| \neq k$$

(۲) داسه



$$y = |x-2|$$



$$y = |x-2|-1$$



$\rightarrow g_k = ||n-2|-1|$

 $\rightarrow$
 عتبار $n=1$ به
 همواره $1/3$ و
 $n=3$ $k=1$

$f(n) = \frac{(n+2)(n+1)}{(n+2)(n+1)} \leadsto n \neq -2, -1$
 $\frac{n+1}{n-1} \leadsto n \neq \pm 1$

$\leadsto$ جواب ± 1 و -2 $\leadsto n=3$ (r)

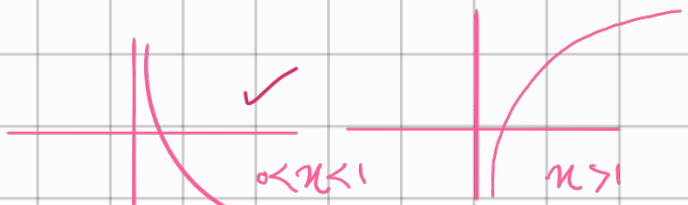
$\leadsto$ $f(n)$

$n^2 - 4n + 4 = 0 \leadsto (n-2)^2 = 0 \leadsto n=2$

$n=2 \leadsto$ $\frac{1}{3}$

$g_k = \log_{g_{k+1}} \frac{1}{g_k} \leadsto n > 0, n \neq 1$ (r)

$\hookrightarrow n+1 > 0 \rightarrow n > -1$
 $n+1 \neq 1 \rightarrow n \neq 0$

$\log_{g_k} \frac{1}{g_n} > 0 \leadsto$

 $\rightarrow$

(r)

$(1) \cap (2) \cap (3) \leadsto 0 < n < 1$

$D_{f(n)} = [-\omega, \omega]$

$-\omega \leq \omega n^2 - 1 \leq \omega \leadsto -\kappa \leq \omega n^2 \leq \kappa \leadsto -\frac{\kappa}{\omega} \leq n^2 \leq \frac{\kappa}{\omega} \leadsto -\frac{\sqrt{\kappa}}{\sqrt{\omega}} \leq n \leq \frac{\sqrt{\kappa}}{\sqrt{\omega}}$

$D_f = \left[-\frac{\sqrt{\kappa}}{\sqrt{\omega}}, \frac{\sqrt{\kappa}}{\sqrt{\omega}}\right]$

