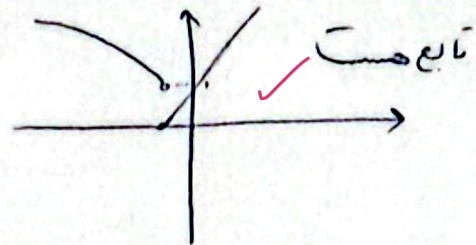
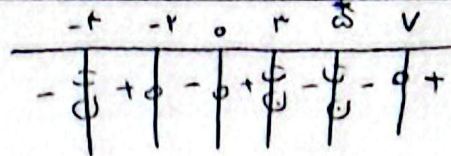


$$x = \begin{cases} 2y-1 & y \geq 0 \\ -y^2 & y < 0 \end{cases} \Rightarrow y = \begin{cases} \frac{x+1}{2} & y \geq 0 \\ \sqrt{-x} & y < 0 \end{cases}$$



تابع هست (۲)

نقطہ: $x \rightarrow 0$: $f(x) = -x^2$ $\Delta + \epsilon = \delta$
 $x \rightarrow 0$: $f(x) = \frac{x+1}{2}$ $\Delta + \epsilon = \delta$
 $g(x) = \sqrt{\frac{x f(x-1)}{f(x)}}$



(۲) (۲)

$D_g = (-1, -2] \cup [0, 1) \cup [3, +\infty)$ ✓ فقط حوضت باشد که $x=4$ در دامنه f و $x=4$ در دامنه g نیست که در بازه است آءده نیست

$$f(x) = \frac{x^2 - 3x + 2}{x^2 - 4x} = \frac{x^2 - 3x + 2}{x(x-4)(x+4)}$$

(۳) (۲)

الف) $D_f = \mathbb{R} - \{0, \pm 4\}$ ✓

ب) $f(x) \geq 0$ $\frac{-2}{-4} + \frac{1}{-4} + \frac{2}{-4}$ $D_f = (-2, 0) \cup (2, +\infty)$ ✓

الف) $y = \sqrt{\frac{x-2}{x^2-x-1}} = \sqrt{\frac{x-2}{(x-1)(x+1)}} = \sqrt{\frac{x-2}{(x-1)(x+1)(x^2+1)}}$
 $\frac{-2}{-4} + \frac{1}{-4} + \frac{2}{-4}$ $D_y = (-2, 2) \cup (2, +\infty)$ ✓

(۴) (۲)

ب) $y = \frac{x^2+1}{x-2[-x]}$

$x-2[-x] \neq 0 \Rightarrow x-2[-x] \neq 0 \Rightarrow [-x] \neq 2$
 $\frac{0}{2} \leq x \leq 2 \Rightarrow -2 \leq x \leq 2$

$D_y = \mathbb{R} - (-2, 2)$ ✓

الف) $f(x) = \frac{\sqrt{x(x-1)}}{\sqrt{|x+1|}}$

① $x(x-1)(x+1) \geq 0$ $\frac{-1}{-1} + \frac{0}{-1} + \frac{1}{-1} \rightarrow [-1, 0] \cup [1, +\infty)$ ⑤

② $|x+1| \geq 0$ $(0, +\infty)$

$\frac{0}{0} \rightarrow x \geq 0$

(۲)

① ② $D_f = [1, +\infty)$ ✓

$|x-1| \neq 0 \Rightarrow |x| \neq 1 \Rightarrow x \neq \pm 1$ ①

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

$|x-1|-x^2 \geq 0$

$\frac{-1}{-1} + \frac{0}{-1} + \frac{1}{-1} \rightarrow [-1, 0] \cup [1, +\infty)$ ⑤

$\frac{-1}{-1} + \frac{0}{-1} + \frac{1}{-1} \rightarrow [-1, 0] \cup [1, +\infty)$ ⑤

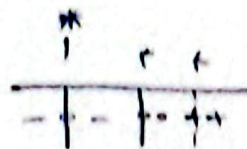
① ② $D_f = [-1, 1) - \{-1\}$ ✓

$$a) y = \sqrt{(u-2)(u-3)} = \sqrt{(u-2)([u]-2)}$$

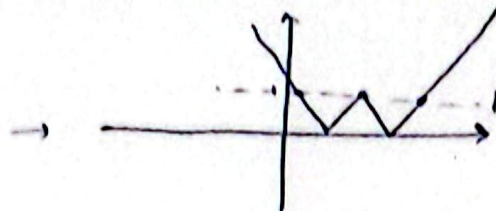
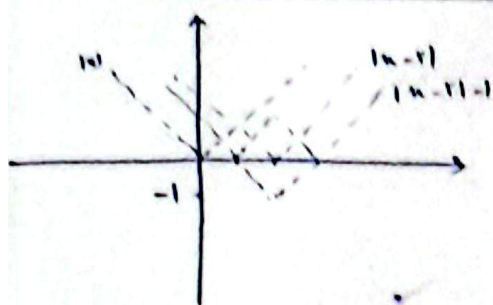
(r) (9)

$$\frac{1}{x} \Big|_{-1}^1 \quad D_y = \mathbb{R} \checkmark$$

$$b) y = \sqrt{|u-1|(u-2)} = \sqrt{|u-1|([u]-2)}$$



$$D_y = [2, +\infty) \cup \{1\} \checkmark$$



$$k=1 \checkmark$$

(r) (9)

$$y = \frac{1}{|u-1|-1-k} \Rightarrow ||u-1|-1|-k \neq 0 \Rightarrow |u-1|-1 \neq k$$

$$f(u) = \frac{\frac{u^2+2u+2}{u^2+2u+2}}{\frac{u+1}{u-1}} = \frac{(u+2)(u+1)}{(u+2)(u+1)} \cdot \frac{(u-1)}{(u-1)}$$

(r) (1)

$$u \neq \{-2, -1, 1\} \Rightarrow D_f = \mathbb{R} - \{-2, \pm 1\} \rightarrow n=3 \checkmark$$

$$u^2 - 4u + 9 = 0 \Rightarrow \Delta = 16 - 36 = -20 < 0 \Rightarrow \text{no real roots} \checkmark$$

$$y = \log \log \frac{1}{u}$$

$$u > 0 \quad u \neq 1$$

$$\log \frac{1}{u} > 0 \Rightarrow u < 1 \rightarrow 1 < \frac{1}{u} < \infty \Rightarrow \text{domain is } (0, 1) \rightarrow (0, 1)$$

(r) (9)

$$\Rightarrow D_y = (0, 1) \checkmark$$

$$-5 \leq u^2 - 1 \leq 3 \Rightarrow -4 \leq u^2 \leq 4 \Rightarrow u^2 \leq 4 \Rightarrow u \leq 2 \Rightarrow -\sqrt{4} \leq u \leq \sqrt{4}$$

(r) (10)

$$D_{f(u^2-1)} = \left[-\frac{\sqrt{4}}{2}, \frac{\sqrt{4}}{2}\right] \checkmark$$