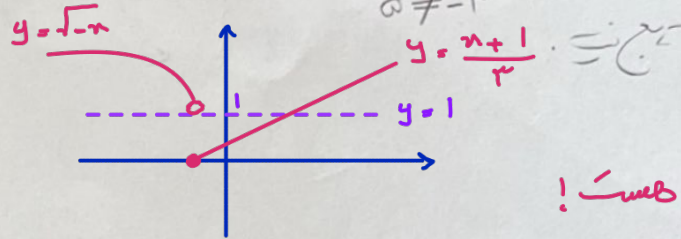


$$1) \quad x = \begin{cases} y-1 & y \geq 0 \rightarrow x \geq -1 \\ -y^2 & y > 1 \rightarrow x > -1 \end{cases} \rightarrow x=1 \rightarrow y-1=-y^2$$

۱۳

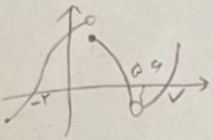
۰

$$y = \begin{cases} \frac{x+1}{x} & y \geq 0 \\ \sqrt{-x} & y > 1 \end{cases}$$



تابع هست!

۲)



$$\frac{f(x)}{x} \geq 0 \rightarrow \frac{f(x)}{x} \geq 0 \rightarrow \frac{f(x)}{x} \geq 0 \rightarrow \frac{f(x)}{x} \geq 0$$

(۱)

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

۳)

$$\frac{x^2 - x + 1}{x(x-1)} \geq 0$$

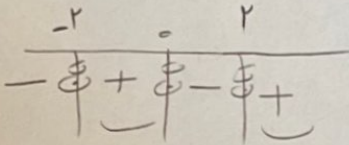
$$1) \rightarrow D_f = \mathbb{R} - \{0, 1\}$$

(۲)

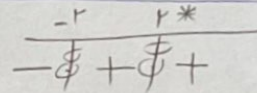
! جدول علامت

$$\rightarrow \frac{x^2 - x + 1}{x(x-1)} \geq 0$$

$$D_f = (-1, 0) \cup (1, +\infty)$$



$$4) \quad 1) \quad x = t \rightarrow t^2 - 2t - 1 \rightarrow (t-1)(t+1) = 0$$



(۳)

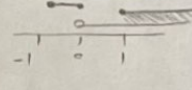
$$D_f = (-1, 2) \cup (2, +\infty)$$

$$2) \quad x = 1 \rightarrow x = 1$$

$$[1, 2] \rightarrow x = [1, 2] \rightarrow D_f = \mathbb{R} - [1, 2]$$

۵) الف)

$$\frac{x(x^2-1)}{x(x+1)} \geq 0 \rightarrow \frac{x(x-1)(x+1)}{x(x+1)} \geq 0$$



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

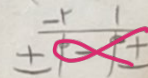
ب)

$$|x-1| - x^2 \geq 0 \rightarrow -x^2 + x - 1 \geq 0 \rightarrow x^2 - x + 1 \leq 0 \rightarrow \Delta < 0$$

(۴)

$$|x| \neq 1 \rightarrow x \neq \pm 1$$

$$-x^2 - x + 1 \leq 0 \rightarrow x^2 + x - 1 \geq 0 \rightarrow (x+1)(x-1) \geq 0$$



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

4) الف) $(n-2)[n-3] \geq 0$
 $\downarrow \quad \downarrow$
 $2 \quad 3$
 $\hookrightarrow [2, 3]$

$\star \mu \quad \mu$
 $\frac{-1}{-} \quad \frac{0}{0} \quad \frac{1}{+}$
 $\rightarrow D_f = [2, 3]$

نکته: عبارت و براکتش همواره هم علامتند پس دامنه تابع $\mathbb{R}$ میباشد!

$\Rightarrow |n-1| [n-3] \geq 0$
 $\hookrightarrow [1, 3]$

$\star \mu \quad \mu \quad \mu$
 $\frac{-}{-} \quad \frac{0}{0} \quad \frac{+}{+}$

$D_f = [3, +\infty) \cup \{1\}$ ✓

(1)

5) $||n-2|-1| = k$

$|n-2|-1 = k \rightarrow |n-2| = k+1$
 $|n-2|-1 = -k \rightarrow |n-2| = 1-k$
 $n-2 = k+1 \rightarrow k = n-3$
 $n-2 = k-1 \rightarrow k = n-1$
 $-n+2 = k+1 \rightarrow k = -n+1$
 $-n+2 = k-1 \rightarrow k = -n+3$

6) $n^2 + 3n + 2 = (n+2)(n+1) \rightarrow n = -1, -2$
 $n \neq \pm 1$

$n = 3$ ✓

$n^2 - 9n + 9 = 0$

$(n-3)^2 = 0 \rightarrow n = 3 \rightarrow$ یک ریشه دارد ✓

(2)

7) $n+1 > 0 \rightarrow n > -1$
 $n > 0$
 $n \neq 1$

$\rightarrow D_f = (0, +\infty) - \{1\}$

(3)

8) $\sqrt{n^2-1} \leq 3 \rightarrow n^2 \leq 10 \rightarrow n^2 \leq \frac{10}{\mu} \rightarrow \frac{-\sqrt{10}}{\sqrt{\mu}} \leq n \leq \frac{\sqrt{10}}{\sqrt{\mu}}$

$\sqrt{n^2-1} = -\infty \rightarrow n^2 = -1 \times$

$D_f = \left[\frac{-\sqrt{10}}{\sqrt{\mu}}, \frac{\sqrt{10}}{\sqrt{\mu}} \right]$ ✓

(4)

-۲

$$\frac{n f(n-2)}{f(n)} \geq 0 \rightarrow$$

-۴	-۲	۰	۳	۵	۷
-	+	-	+	-	-
-	+	-	+	-	+

$\underbrace{\hspace{1.5cm}}_{\text{من}} \quad \underbrace{\hspace{1.5cm}}_{\text{من}} \quad \underbrace{\hspace{1.5cm}}_{\text{من}}$

$\underbrace{\hspace{1.5cm}}_{\text{من}} \quad \underbrace{\hspace{1.5cm}}_{\text{من}}$

$\underbrace{\hspace{1.5cm}}_{\text{من}} \quad \underbrace{\hspace{1.5cm}}_{\text{من}}$

$$Dg = (-4, -2] \cup [0, 3) \cup [7, +\infty)$$

فقط خواست باشد نه $n=4$ در دایره $f(n)$ و $n=7$ در دایره $f(n-2)$ است که به بزرگ است آفره نیست

-۵

$$1) |n| - 1 \neq 0 \rightarrow |n| \neq 1 \rightarrow n \neq \pm 1$$

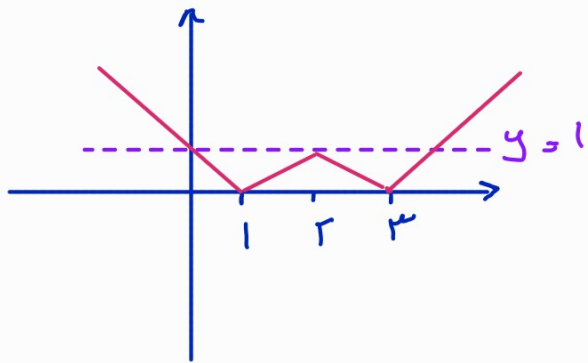
$$2) |n-2| - n^2 \geq 0 \rightarrow$$

$-n^2 - n + 2 \geq 0$ $\frac{-2}{-1} \quad \frac{1}{-}$ $- \quad \quad + \quad \quad -$	2	$-n^2 + n - 2 \geq 0$ $\Delta < 0 \quad \times$
---	-----	--

$$Df = [-2, 1) - \{-1\}$$

-۷

$$||n-2| - 1| = k \rightarrow \text{۳ ریشه دارد}$$



شکل تابع را با خط قطع مردهیم :

چون ۳ نقطه برخورد دارند پس $k=1$ بوره!

-۹

$$1) n+1 > 0 \rightarrow n > -1, \quad n+1 \neq 1 \rightarrow n \neq 0$$

$$2) n > 0, \quad n \neq 1$$

$$3) \lg \frac{1}{n} > 0 \rightarrow 0 < n < 1$$

$$\xrightarrow{n} D_f = (0, 1)$$