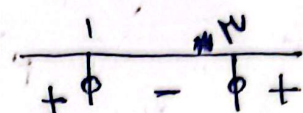
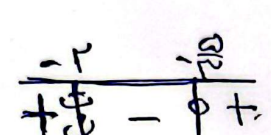


الف) $y = \sqrt{r^4 x - x^2} - 1 \Rightarrow r^4 x - x^2 - 1 \geq 0 \Rightarrow r^4 x - x^2 \geq 1 \Rightarrow$
 $0 \geq x^2 - r^4 x + 1 \Rightarrow 0 \geq (x-1)(x-r^4) \Rightarrow$  $\Rightarrow D_f = [1, r^4]$

ب) $y = \left(\frac{rx+5}{rx+4} \right)!$

$\frac{rx+5}{rx+4} \geq 0 \Rightarrow$  $\Rightarrow$ غیر ضروری

(1, 2)

$\frac{rx+5}{rx+4} = n \quad n \in \mathbb{N} \Rightarrow 3x+5 = n(rx+4) \Rightarrow 3x - 2nx = 4n - 5 \Rightarrow$

$x(3-2n) = 4n-5 \Rightarrow x = \frac{4n-5}{3-2n}, n \in \mathbb{N} \Rightarrow D_f: x = \frac{4n-5}{3-2n}, n \in \mathbb{N} - \left[-\frac{3}{2}, -\frac{5}{2} \right]$

~~Handwritten scribbles and crossed-out text.~~

نیم فاکتوریل باید عدد صحیح باشد!

ب- ۱. $\frac{rn+5}{rn+4} \in \mathbb{W} \rightarrow n \in -\frac{rw-5}{rw-4} \rightarrow n \in \frac{5-rw}{rw-4}$
 $D_f = \left\{ n \mid n = \frac{-rk+5}{rk-4}, k \in \mathbb{W} \right\}$

$$\Rightarrow Df = \mathbb{R} - \left\{ -1, -\frac{1}{2}, -\sqrt{2} \right\}$$

$$\text{الف) } y = \frac{x^2 + 2}{x^2 - 2x + 2}$$

$$\Delta \leftarrow (x^r - x + 1)(x - 1)$$

$$y = \frac{x^r - \omega(x-1) - rx + \omega}{x^r - \omega(x-1) - rx + \omega}$$

$$x \geq 1 \Rightarrow x^r - \omega(x-1) - rx + \omega \Rightarrow x^r - rx + \omega \neq 0 \Rightarrow (x-r)(x-\omega) \neq 0 \Rightarrow x \neq \{r, \omega\}$$

$$x < 1 \Rightarrow x^r - \omega + \omega x - rx + \omega \Rightarrow x^r + rx \neq 0 \Rightarrow x(x+r) \neq 0 \Rightarrow x \neq \{0, -r\}$$

$$Df = \mathbb{R} - \{0, r, \omega, -r, -\omega\}$$

$$f(x) = \sqrt{[-x] - r} \Rightarrow [-x] - r \geq 0 \Rightarrow [-x] \geq r \Rightarrow -x \geq r \Rightarrow x \leq -r$$

$$y = \frac{\omega x^r + \omega}{[x]^r - r[x] - \omega}$$

$$t^r - r t^r - r^2 \Rightarrow (t+1)(t-r) \neq 0 \Rightarrow t \neq -1, r \Rightarrow [x] \neq -1, r \Rightarrow Df = \mathbb{R} - \{-1, r, 0\}$$

۳- کمن عبارت مفرج را دستکاری میکنیم تا کی ساده تر شود...

$$(x^2 - x_{n+1}) - \omega/|x-1| + 4 \rightarrow (x-1)^2 - \omega/|x-1| + \varepsilon \xrightarrow{|x-1|=\varepsilon=t} t^2 - \omega t + 4$$

$$(t-1)(t-4) = 0 \rightarrow t=1, t=4$$

$$\rightarrow Df = \mathbb{R} - \{-3, 0, 2, \omega\}$$

$$|x-1|=1 \rightarrow x=2 \text{ و } 0 \quad |x-1|=\varepsilon \rightarrow x=\omega, -3$$

۹- الف) $y = \frac{\cot x + 1}{\tan x + 1}$

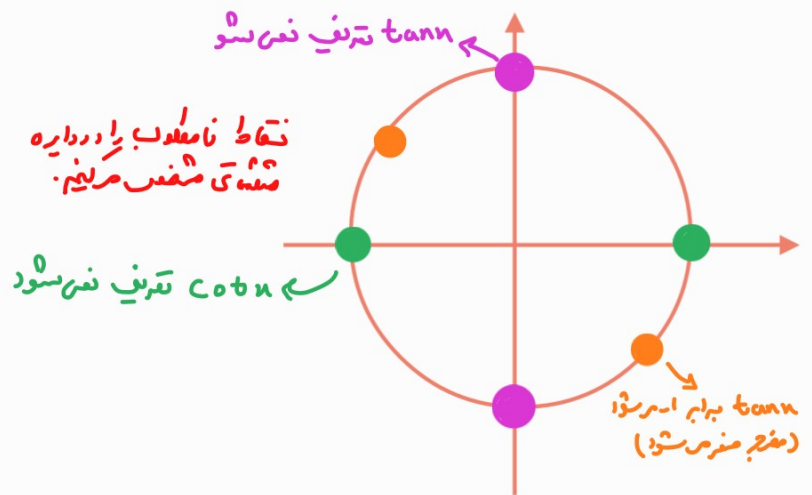
نقاط نامطلوب را در دایره
ممنوعی مشخص میکنیم.

$$x \neq k\pi + \frac{\pi}{2}$$

$$x \neq k\pi + \frac{\pi}{4} \cup x \neq k\pi$$

$$\rightarrow x \neq \frac{k\pi}{4}$$

$$\rightarrow Df = \mathbb{R} - \left\{ \frac{k\pi}{4}, k\pi + \frac{\pi}{4} \right\}$$



۸- الف) $-1 \leq x^2 + x_{n+1} + 1 \leq 1 \xrightarrow{\frac{9}{4} - \frac{\omega}{4}} -1 \leq x^2 + x_n + \frac{9}{4} - \frac{\omega}{4} \leq 1$

$$\frac{1}{4} \leq x^2 + x_n + \frac{9}{4} \leq \frac{9}{4} \rightarrow \frac{1}{4} \leq \left(x + \frac{3}{2}\right)^2 \leq \frac{9}{4}$$

$$\int \left(x + \frac{3}{2}\right)^2 \leq \frac{9}{4} \rightarrow -\frac{3}{2} \leq x + \frac{3}{2} \leq \frac{3}{2} \rightarrow -3 \leq x \leq 0 \quad I$$

$$\int \left(x + \frac{3}{2}\right)^2 \geq \frac{1}{4} \rightarrow x + \frac{3}{2} \geq \frac{1}{2} \rightarrow x \geq -1 \quad \cup \quad x + \frac{3}{2} \leq -\frac{1}{2} \rightarrow x \leq -2 \quad II$$

$$I \cap II \rightarrow Df = [-3, -2] \cup [-1, 0]$$