

سارا صافی ① ۱۹۲۵ آفرین خوب نوشتی

$$\text{الف) } \frac{x+3}{2x^3+3x^2-1x+3} \rightarrow \text{بچه ضارب} = 0$$

$$\begin{array}{r} 2x^3+3x^2-1x+3 \quad | \quad x-1 \\ \underline{-(2x^3+2x^2)} \quad \quad \quad (2x-1)(x+3) \\ \quad \quad \quad 1x^2+0x-3 \rightarrow x^2+0x-4 = \uparrow \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad (x+3) \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad \underline{-(x^2+3x)} \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad -3x+3 \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \underline{-(-3x+3)} \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad 0 \end{array}$$

$(x-1)(x+3)(2x-1)$

$$D = R - \left\{ 1, -\frac{1}{2}, \frac{1}{3} \right\}$$

$$\text{ب) } \frac{x+3}{2x^3+9x^2+10x+3}$$

$(x+3)$

$$\begin{array}{r} 2x^3+9x^2+10x+3 \quad | \quad x+1 \\ \underline{-(2x^3+2x^2)} \quad \quad \quad 7x^2+10x+3 \\ \quad \quad \quad \underline{-(7x^2+7x)} \quad \quad \quad 3x+3 \\ \quad \quad \quad \quad \quad \quad \underline{-(3x+3)} \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad 0 \end{array}$$

$(x+1)(2x+1)(x+3)$

$$(x+3)(2x+1)(x+1)$$

$$D = R - \left\{ -\frac{3}{2}, -1, -\frac{1}{3} \right\}$$

$x^2+7x+4 = 0 \rightarrow (x+1)(x+4)$

$(2x+1)(x+3)$

$$x^3-1 = (x-1)(x^2+x+1)$$

$$\text{الف) } \frac{x+3}{x^3-1-2x(x-1)} = \frac{(x+3)}{(x-1)(x^2+x+1-2x)}$$

$$= \frac{(x+3)}{(x-1)(x^2-x+1)} = D = R - \{+1\}$$

SALEH

ریشه ندارد $\Delta < 0$

$$\text{ب} - \frac{x+\mu}{x^\mu - \mu x^{\mu-1} + \mu x - 1} \geq 0 \quad \frac{(x+\mu)}{x^\mu - 1 - \mu x(x-1)} \quad (\mu)$$

$$\frac{(x+\mu)}{(x-1)(x^\mu + x - \mu x + 1)} = \frac{(x+\mu)}{(x-1)(x^\mu - x + 1)} \geq 0 \quad \frac{x}{\mu} \left| \begin{array}{c} -\mu \\ + \phi - \phi + \end{array} \right.$$

$\Delta < 0$
+0, -8

$$D = (-\infty, -\mu] \cup (1, +\infty)$$

(μ)

$$x^\mu - \omega |x-1| - \mu x + \omega \neq 0$$

$$x > 1 \quad x^\mu - \omega x + \omega - \mu x + \omega \neq 0 \quad x^\mu - \mu x + 1 = 0$$

$$(x-\mu)(x-\omega) = 0$$

$$x \leq 1 \quad x^\mu + \omega x - \omega - \mu x + \omega \neq 0 \quad x^\mu + \mu x = 0 \quad x(x+\mu) = 0$$

$$D = \mathbb{R} - \{-\mu, \omega\}$$

(κ)

$$\text{الف} \quad [-x] - \mu \geq 0 \quad [-x] \geq \mu \quad (-\infty, -\mu]$$

$$\text{ب} \quad [x]^\mu - \mu [x] - \mu \neq 0$$

$$([x] - \mu)([x] + 1) = 0$$

$$[x] = -1 \rightarrow [-1, 0)$$

$$[x] = \mu \rightarrow [\mu, \kappa)$$

$$\mathbb{R} - \{ [-1, 0) \cup [\mu, \kappa) \}$$

SALEH

$$\text{الف} - \left[x - \frac{1}{p} \right] + \left[x + \frac{p}{p} \right] \geq 0$$

⑤

$$\left[x + \frac{p}{p} - 1 \right] + \left[x + \frac{p}{p} \right] \geq 0 \quad \vee \quad \left[x + \frac{p}{p} \right] - 1 \geq 0 \quad \left[x + \frac{p}{p} \right] \geq \frac{1}{p}$$

$$x + \frac{p}{p} \geq 1 \quad x \geq \frac{1}{p} \quad \left[\frac{1}{p}, +\infty \right)$$

$$\text{ب} - \left[x - \frac{1}{p} \right] + \left[\frac{1}{p} - x \right] \geq 0 \quad [a] + [-a] \geq 0$$

$$\left\{ \begin{array}{l} a \in \mathbb{Z} \\ a \notin \mathbb{Z} \end{array} \right. \quad [a] + [-a] = 0 \quad \checkmark$$

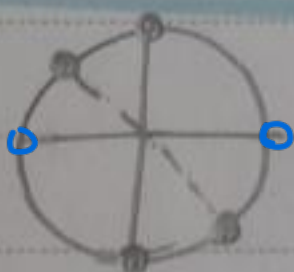
$$[a] + [-a] = -1 \quad \text{غیر صحیح}$$

$$x - \frac{1}{p} \in \mathbb{Z} \quad x \in \mathbb{Z} + \frac{1}{p}$$

$$\{ x \mid x \in \mathbb{Z} + \frac{1}{p}, k \in \mathbb{Z} \}$$

$$\text{الف} \quad \tan x \neq -1$$

$$\cos x \neq 0$$



$$R - \left\{ k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4} \right\}$$

$$x \neq k\pi \leftarrow \sin x \neq 0 \leftarrow \text{Cot x باید تعریف شود}$$

$$k\pi$$

۱/۵

$$\text{ب} \quad 1 - p \sin^p x \geq 0 \quad p \sin^p x \leq 1 \quad \sin^p x \leq \frac{1}{p}$$

$$-\frac{1}{p} \leq \sin x \leq \frac{1}{p}$$



$$\left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right]$$

⑥

$$p \sin x - 1 \geq 0$$

$$\sin x \geq \frac{1}{p}$$

$$\frac{1}{p} \leq \sin x \leq 1$$



$$\left[p k\pi + \frac{\pi}{4}, p k\pi + \frac{5\pi}{4} \right]$$

SALEH

ب) $1 - \rho \cos x \geq 0 \quad \rho \cos x < 1 \quad \cos x \leq \frac{1}{\rho}$ (✓)

$-1 \leq \cos x \leq \frac{1}{\rho}$

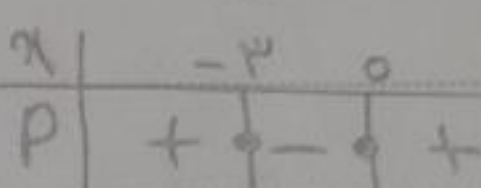


$D = \left[\rho k \pi + \frac{\pi}{\rho}, \rho k \pi + \frac{5\pi}{2} \right]$ (✓)

الف $-1 \leq x^p + \rho x + 1 \leq 1 \quad -\rho \leq x^p + \rho x \leq 0$ (1)

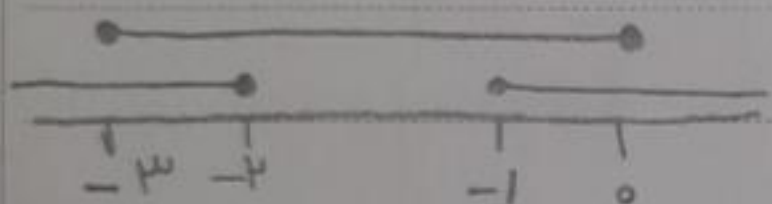
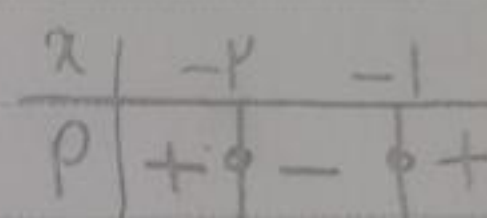
$x^p + \rho x \leq 0$

$x(x + \rho) \leq 0$



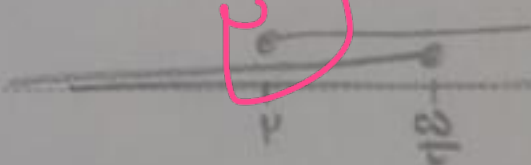
$x^p + \rho x + 1 \geq 0$

$(x+1)(x+\rho) \geq 0$



$[-\rho, -1] \cup [-1, 0]$ (✓)

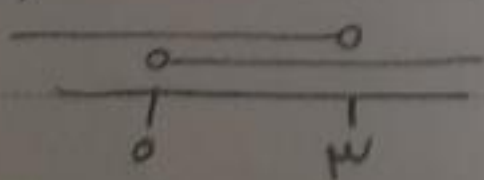
ب) $\omega - \rho x \geq 0 \quad \rho x \leq \omega \quad x \leq \frac{\omega}{\rho}$



$-1 \leq \sqrt{\omega - \rho x} < 1 \quad \omega - \rho x < 1 \quad \rho \leq \rho x \quad \rho \leq 2 \quad \left[\frac{\rho}{2}, \frac{\omega}{\rho} \right]$ (✓)

الف

$x > 0 \quad 1 - \log_{\rho} x > 0 \quad \log_{\rho} x < 1 \quad x < \rho$ (9)

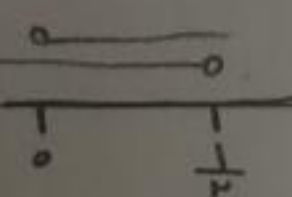


$0 < x < \rho \quad (\log_{\rho})$ (✓)

ب) *چون متباينی هدا است ميت نامعاده بعضي برشود!*

$x > 0 \quad 1 - \log_{\frac{1}{\rho}} x > 0 \quad \log_{\frac{1}{\rho}} x < 1 \quad x < \frac{1}{\rho}$ (10)

SALEH



$(0, \frac{1}{\rho})$

$\log_{\frac{1}{\rho}} x < 1 \rightarrow x > \frac{1}{\rho} \rightarrow D \neq \emptyset \quad (\frac{1}{\rho}, +\infty)$

Subject

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$$\text{iel } \mu^k x - x^k - \mu \geq 0 \quad \mu^k x - x^k \geq \mu^k$$

(10)

$$\mu^k x - x^k \geq \mu \quad x^k - \mu^k x + \mu < 0 \quad (x - \mu)(x - 1) < 0$$

x	1	μ
ρ	$+$	$-$

 $\rightarrow [1, \mu]$

$$\mu^k x + \omega \in \omega \quad x \in \frac{\mu^k \omega - \omega}{\mu^k \omega - \mu^k}$$

D

$$D = \left\{ x \mid x \in \frac{-\mu^k x + \omega}{\mu^k x - \mu^k} \mid x \in \omega \right\}$$

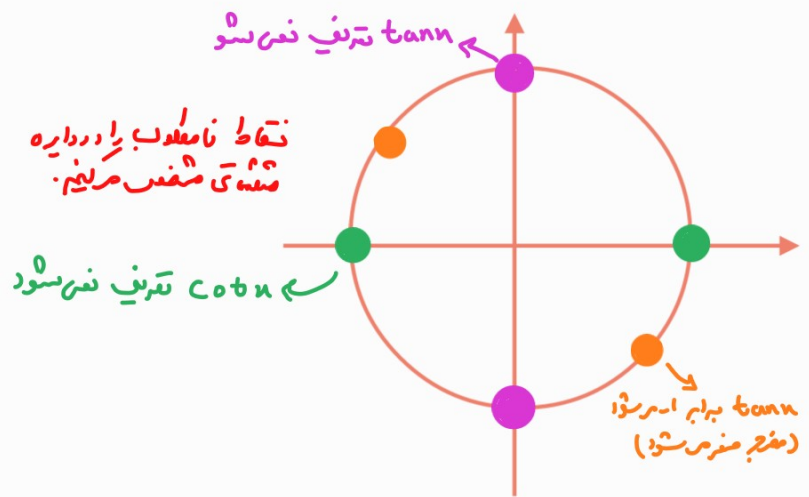
الف - ۹ $y = \frac{\cot x + 1}{\tan x + 1}$

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

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

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

$$\rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{4}, k\pi + \frac{\pi}{2} \right\}$$



ب - ۹ $y = \log_2 \left(1 - \log_2 \frac{1}{x} \right)$ $\rightarrow \log_2 \frac{1}{x} \rightarrow x > 0$

$$\rightarrow 1 - \log_2 \frac{1}{x} > 0 \rightarrow \log_2 \frac{1}{x} < 1 \xrightarrow{\text{مناسب } \left(\frac{1}{2}, 1 \right)} x > \frac{1}{2}$$

$$D_f = \left(\frac{1}{2}, +\infty \right)$$