

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

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

$\Delta < 0$
+ 0, 1, 2

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

(μ)

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

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

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

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

$$D = \mathbb{R} - \{-\mu, 0, \mu, \omega\}$$

(κ)

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

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

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

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

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

SALEH

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

(3)

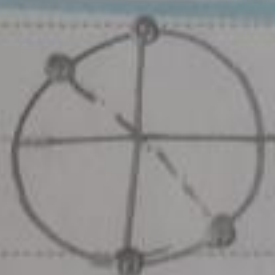
$$\left[x + \frac{p}{p} - 1\right] + \left[x + \frac{p}{p}\right] \geq 0 \quad \vee \quad \left[x + \frac{p}{p} - 1\right] \geq 0 \quad \left[x + \frac{p}{p}\right] \geq \frac{1}{p}$$

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

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

$$\begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \quad \checkmark \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \quad \text{مثلاً} \end{cases} \quad \begin{cases} x - \frac{1}{p} \in \mathbb{Z} & x \in \mathbb{Z} + \frac{1}{p} \\ x \notin \mathbb{Z} & x \in k + \frac{1}{p} \quad k \in \mathbb{Z} \end{cases}$$

الف $\tan x \neq -1$
 $\cos x \neq 0$



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

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

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



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

(5)
 $p \sin x - 1 \geq 0 \quad \sin x \geq \frac{1}{p} \quad \frac{1}{p} \leq \sin x \leq 1$

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



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

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

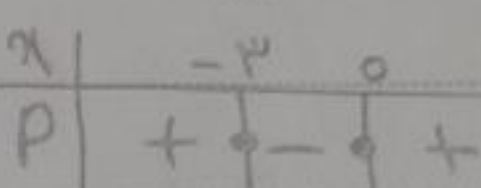


$D = \left[\rho k\pi + \frac{\pi}{\rho}, \rho k\pi + \frac{\omega\pi}{\rho} \right]$

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

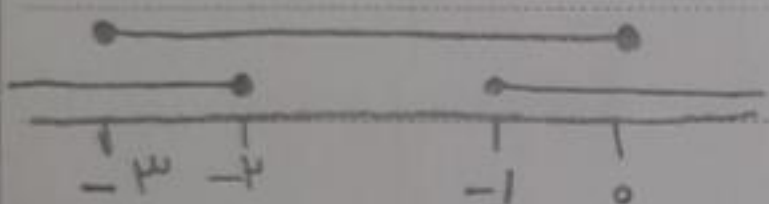
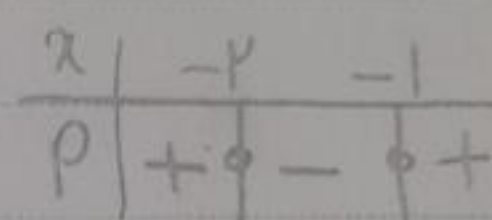
$x^p + \mu x \leq 0$

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



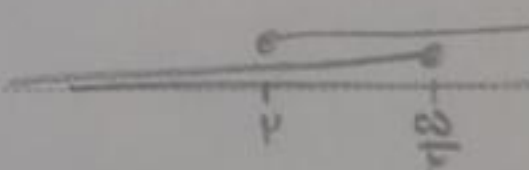
$x^p + \mu x + \rho \geq 0$

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



$[-\mu, 0] \cup [-1, \infty)$

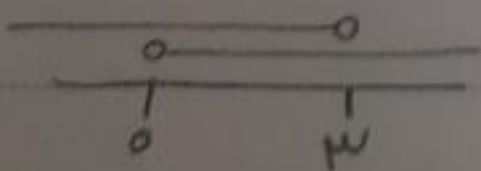
ب) $\omega - \rho x \geq 0 \quad \rho x \leq \omega \quad x \leq \frac{\omega}{\rho}$



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

الف

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

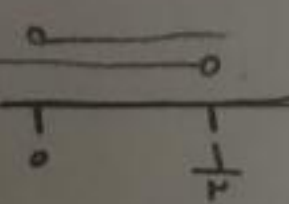


$0 < x < \mu \quad \sim \quad (\log_{\mu})$

ب

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

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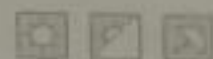
$(0, \frac{1}{\rho})$

Subject

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$$\text{iel } \mu^{\mu} f(x - x^{\mu}) - \wedge \geq 0 \quad \mu^{\mu} f(x - x^{\mu}) \geq \mu^{\mu}$$

(10)

$$f(x - x^{\mu}) \geq \mu \quad x^{\mu} - f(x) + \mu < 0 \quad (x - \mu)(x - 1) < 0$$

$$\begin{array}{c|c|c} x & 1 & \mu \\ \hline \rho & + & - \end{array} \quad \rightarrow [1, \mu]$$

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

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