

Subject:

Date:

تاریخ

19, 5

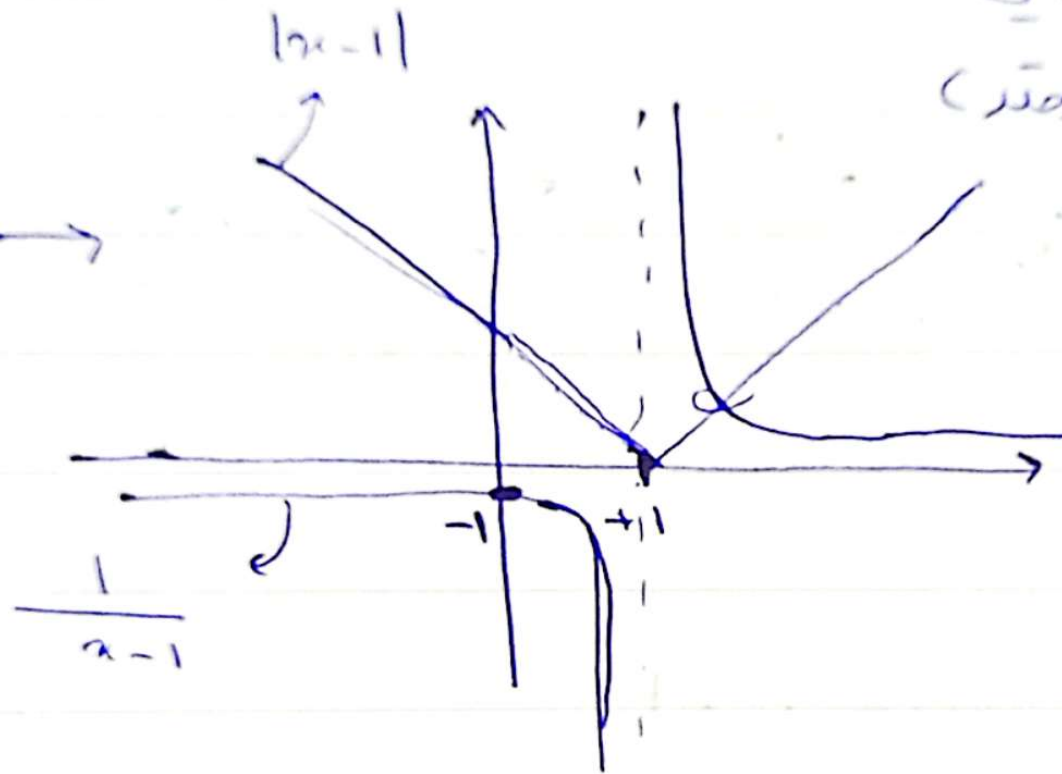
Sa Su Mo Tu We Th Fr

تسبیق قمار ۲.۵

آرئین امین

یازدهم رجب

$$\frac{1}{x-1} = |x-1| \rightarrow$$



★ بارہم نمودار دو تابع چون در یک نقطه برخورد دارند $\Rightarrow$ یک ریشه

$$\text{الف) } \left| \frac{r_n - 1}{n} \right| < \epsilon$$

Ⓟ

$$\rightarrow -\epsilon < \frac{r_n - 1}{n} < \epsilon \rightarrow \textcircled{1} \quad \frac{r_n - 1}{n} - \epsilon < 0$$

1, Ⓟ

$$\rightarrow \frac{r_n - 1 - r_n}{n} < 0 \Rightarrow n > \frac{1}{\epsilon}$$

$$\textcircled{2} \quad -\epsilon < \frac{r_n - 1}{n} \Rightarrow 0 < \frac{r_n - 1 + r_n}{n} \Rightarrow 0 < \frac{\epsilon n - 1}{n}$$

$$\rightarrow \begin{array}{c} 0 \\ + \quad | \quad - \quad | \quad + \\ \hline \end{array} \Rightarrow n \in (-\infty, 0) \cup \left(\frac{1}{\epsilon}, +\infty \right)$$

$$\textcircled{1} \cup \textcircled{2} \rightarrow n \in \mathbb{R} - \left\{ \frac{1}{\epsilon} \right\}$$

$$-\epsilon < \frac{r_n - 1}{n} < \epsilon \Rightarrow \left\{ \begin{array}{l} \frac{1}{n} > -\epsilon \rightarrow n > \frac{1}{\epsilon} \\ \frac{1}{n} < \epsilon \rightarrow n < \frac{1}{\epsilon} \end{array} \right.$$

IRISL
GROUP

الف

$$2) \left| \frac{x - p}{p_{n+1}} \right| > 1 \Rightarrow \textcircled{1} \frac{x - p}{p_{n+1}} > 1$$

$$\frac{x - p - p_{n+1}}{p_{n+1}} > 0 \rightarrow \frac{x - p}{p_{n+1}} > 0 \rightarrow \begin{matrix} x = -p \\ x \leq -\frac{1}{p} \end{matrix}$$

$$- \frac{p}{p} + \frac{1}{p} \rightarrow x \in (-p, -\frac{1}{p}) \textcircled{1}$$

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(2)

$$\frac{x - r}{r_{n+1}} \cdot r - 1 \rightarrow \frac{x - r + r_{n+1}}{r_{n+1}} \cdot r_0$$

$$\frac{r_n - 1}{r_{n+1}} \cdot r_0 \rightarrow x = \underbrace{\frac{1}{r} > -\frac{1}{r}}_{\text{or } \sim}, \quad \frac{-\frac{1}{r} \quad \frac{1}{r}}{+ \quad | \quad - \quad | \quad +}$$

$$\Rightarrow x \in \left(-\frac{1}{r} > \frac{1}{r}\right) \xrightarrow{\text{or } \textcircled{2}} x \in \left(-\frac{1}{r} > -\frac{1}{r}\right) \cup \left(-\frac{1}{r} > \frac{1}{r}\right)$$

$$x^2 < |x+4| \rightarrow x^2 < x+4 \quad (10)$$

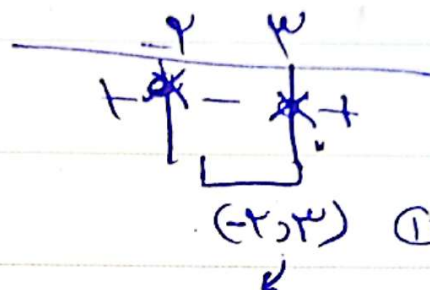
$$x^2 - x - 4 < 0 \rightarrow (x-2)(x+2)$$

$$x+4 < -x^2$$

$$x^2 + x + 4 < 0$$

این معادله را حل نمی‌کنیم

Δ < 0



$$-2 < x < 2$$

$$\frac{1}{x} = \frac{x - (-2)}{x} = \frac{x+2}{x}$$

$$\frac{2}{x} = \frac{x-2}{x} + \frac{1}{x}$$

$$\Rightarrow \left| x - \frac{1}{x} \right| < \frac{2}{x}$$

$$\Rightarrow \left| x - \frac{1}{x} \right| < \frac{2}{x}$$

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$$y = \overbrace{(x+1)}^{(+)} - \overbrace{(\mu x)}^{(+)} + \overbrace{(x-\mu)}^{(+)}$$

10

(+) → (+)

(+)(+) → (-)

(-) → (-)

(+) → (-)

$$\begin{array}{|c|c|c|c|} \hline \overbrace{-x-1+\mu x-x}^{(-)} + \mu = \underline{1} & \overbrace{x+1+\mu x-x+\mu}^{(+)} = \underline{\mu+1} & \overbrace{x+1-\mu x-x+\mu}^{(+)} = \underline{-\mu+1} & \overbrace{x+1-\mu x+x-\mu}^{(+)} = \underline{-1} \\ \hline \end{array}$$

(+)(+) → (+)

(+) → (-)

$$\Rightarrow x \geq \mu \rightarrow -1$$

$$\Rightarrow 0 < x < \mu \rightarrow -\mu x + \mu \begin{array}{l} \text{min} \\ \mu \end{array} \rightarrow -\mu + \mu = -1$$

$$\Rightarrow -1 < x < 0 \rightarrow \mu x + \mu \begin{array}{l} \text{max} \\ \mu \end{array} \rightarrow \mu > 1$$

5

$$\Rightarrow x < -1 \rightarrow 1$$

$$\mu - 1 = \underline{\mu} \leftarrow -1 = \text{min} \text{ و } \mu = \text{max} \leftarrow$$

$$y = \left| \frac{1}{p}x \right| - 2$$

8

$$\textcircled{P} \quad y = \left| \frac{1}{p}(x + \epsilon) \right| - 2 + 1 = \left| \frac{1}{p}x + 2 \right| - 1$$

⊖ ϵ $\leftarrow$ ϵ $\leftarrow$ ϵ
 یاب داحده
 مت y
 های مثبت

$$\rightarrow \left| \frac{1}{p}x + 2 \right| - 1 = \left| \frac{1}{p}x \right| - 2$$

5

$$\left| \frac{1}{p}x + 2 \right| - \left| \frac{1}{p}x \right| = -1$$

$-\epsilon$	0	
$\frac{1}{p}x + 2 + \frac{1}{p}\epsilon$	$\frac{1}{p}x + 2$	$\frac{1}{p}x + 2 - \frac{1}{p}\epsilon$
$\frac{1}{p}\epsilon$	$\frac{1}{p}x + 2$	$-\frac{1}{p}\epsilon$
ϵ	$x + 2\epsilon - 1$	$-\epsilon$
	ϵ	
	$\downarrow$	
	$x + 2 = -1 \rightarrow x = -3$	

$$\text{Date: } |n-1|$$

$$\text{الف) } f(n) = \left[|n-1| - |n+\varepsilon| \right]$$

④

$$1 - \frac{1}{n+\varepsilon} - \left[\frac{n+1}{n} \right] = \frac{n - 1 - n - \varepsilon}{n} = -\frac{\varepsilon}{n} \Rightarrow Rf = [-\delta, \delta]$$

$$\text{①} \rightarrow \ominus$$

$$\text{②} \rightarrow \oplus$$

$$-f(1) - \varepsilon = -\delta \quad (-2)(-\varepsilon) - \varepsilon = \delta$$

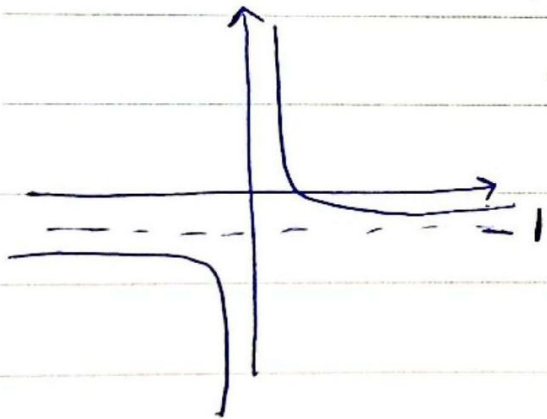
$$\left\{ \pm \delta, \pm \varepsilon, \pm \varepsilon, \pm \varepsilon, \pm 1, \dots \right\}$$

$$\text{ب) } f(n) = \frac{1}{n} - \left[\frac{n+1}{n} \right]$$

$$\hookrightarrow \frac{1}{n} - 1 = f(n)$$

$$1 < \frac{n+1}{n} < 2 \Rightarrow \left[\frac{n+1}{n} \right] = 1$$

د/ع



$$\rightarrow Rf = \mathbb{R} - \{-1\}$$

$$f(n) = \frac{1}{n} - \left[\frac{1}{n} \right] - 1 \rightarrow Rf = [-1, 1)$$

$$\text{الف) } y = [-2x] - 1 \quad x \in (-1, 1)$$

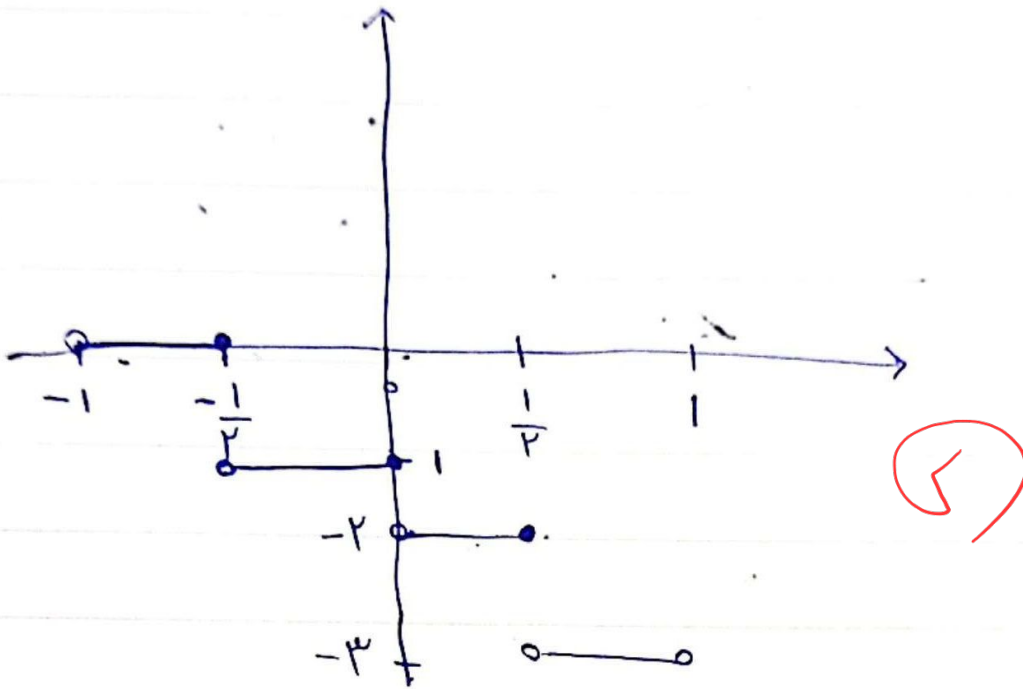
①

$$\text{① } -1 < x \leq -\frac{1}{2} \rightarrow 2 > -2x \geq 1 \rightarrow [-2x] = 1 - 1 = 0$$

$$\text{② } -\frac{1}{2} < x \leq 0 \rightarrow 1 > -2x \geq 0 \rightarrow [-2x] = 0 - 1 = -1$$

$$\text{③ } 0 < x \leq \frac{1}{2} \rightarrow 0 > -2x \geq -1 \rightarrow [-2x] = -1 - 1 = -2$$

$$⑥ \frac{1}{p} < x < 1 \rightarrow -1 < px < -p \Rightarrow [px] = -p-1, -p$$



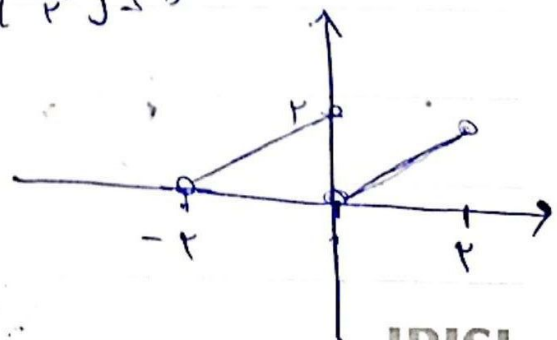
$$\Rightarrow y = x - p \left[\frac{x}{p} \right] \quad x \in (-p, p)$$

$$① -p < x < 0 \rightarrow -1 < \frac{x}{p} < 0 \Rightarrow \left[\frac{x}{p} \right] = -1$$

$$\rightarrow x - p(-1) = x + p$$

$$② 0 < x < p \rightarrow 0 < \frac{x}{p} < 1 \rightarrow \left[\frac{x}{p} \right] = 0$$

$$\rightarrow x - 0 = x$$

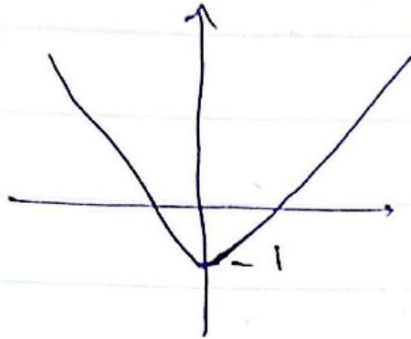


الف) $\left[|x-1| \right] \quad x \in (-1, 1)$

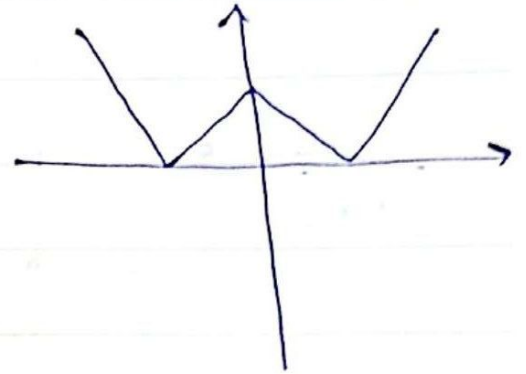
①

① $|x-1|$

①

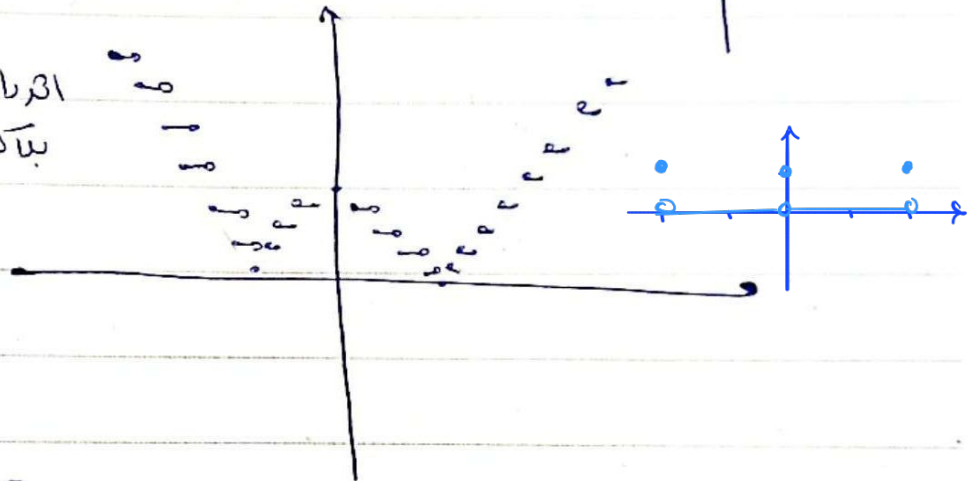


② $|x|-1$



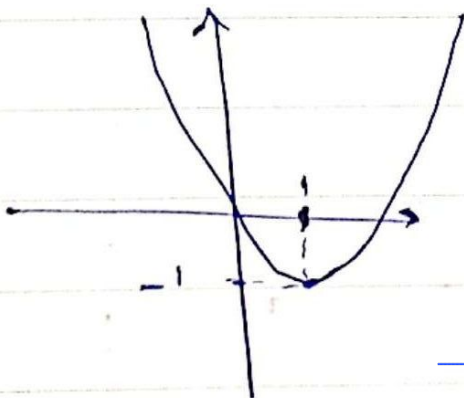
→ ③

اگر باران
بناست

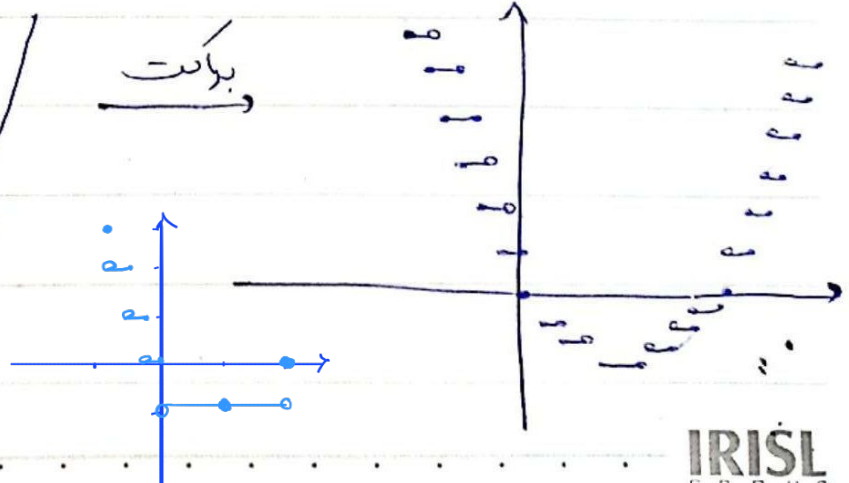


→ ب) $y = [x^2 - 2x] \quad x \in [-1, 2]$

$x_s = \frac{-b}{2a} = \frac{2}{2} = 1 \rightarrow y_s = 1 - 2 = -1$



بناست



$$b - [a] = 2, \varepsilon$$

$$a + [b] = \varepsilon, 2$$

④

$$a + b = ??$$

$$a + b = \varepsilon, 2$$

$$b + a = 2, \varepsilon$$

$$a + pa + [b] = \varepsilon, 2$$

$$b + pb - [a] = 2, \varepsilon$$

⑤

$$a + b = \varepsilon$$

$$b - a = 2$$

$$[b] = 2$$

$$\Rightarrow a = 1, 2$$

$$a + b = 2, \varepsilon + 1, 2 = \boxed{\varepsilon, 4}$$

$$[a] = 1$$

$$b = 2, \varepsilon$$

⑥

$$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 14\lambda$$

$$[(1 + \sqrt{2})^4] = ?$$

$$[(1 + \sqrt{2})^4] = [14\lambda - (1 - \sqrt{2})^4]$$

$$= [(1 + \sqrt{2})^4] = 14\lambda + \frac{-(1 - \sqrt{2})^4}{1} = 14\lambda - 1 = 13\lambda$$

$$1 - \sqrt{2} \times \frac{1 + \sqrt{2}}{1 + \sqrt{2}} = \frac{-1}{1 + \sqrt{2}} \Rightarrow (1 + \sqrt{2})^4 = a, (1 - \sqrt{2})^4 = \frac{-1}{a}$$

$$a - \frac{1}{a} = 13\lambda \rightarrow a = 13\lambda + \frac{1}{a}$$

$$0 < \frac{1}{a} < 1 \ll 1 \Rightarrow (1 + \sqrt{2})^4$$

$$\Rightarrow [13\lambda + \frac{1}{a}] = \boxed{13\lambda} \rightarrow \text{جواب}$$