

Subject:

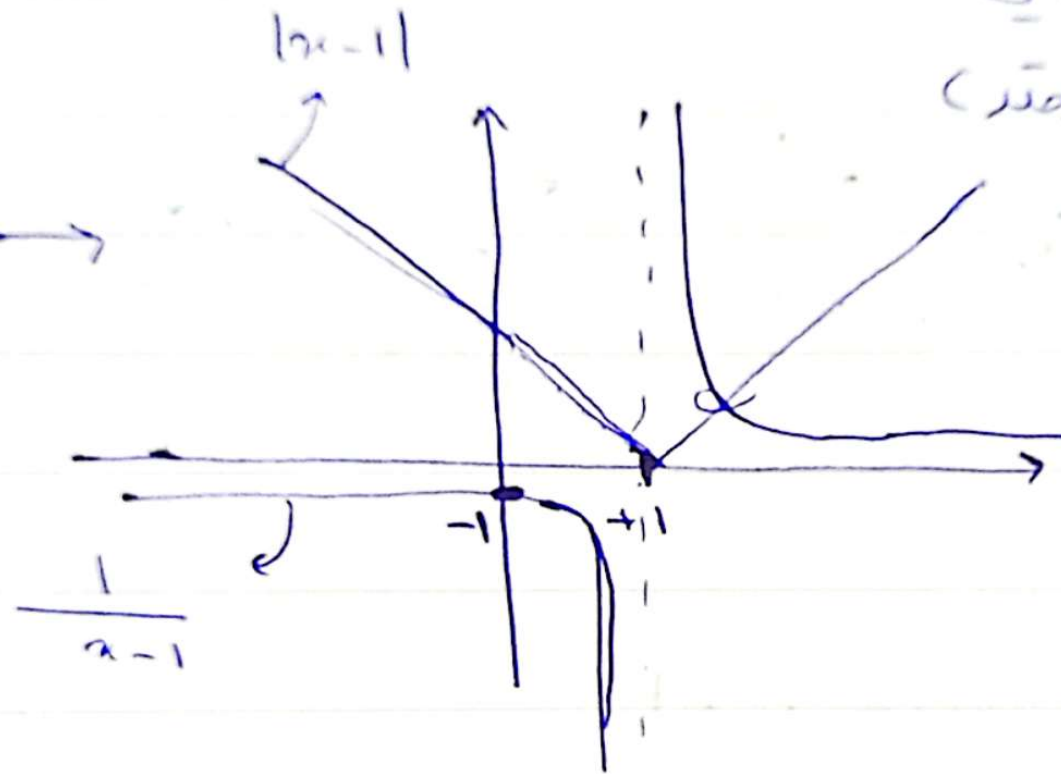
Date:

نام

Sa Su Mo Tu We Th Fr

تسبیق قمار ۲.۵

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



آرٹھن امین
یاد رہے رشتہ

①

★ بارہم نمودار دو تابع میں درجہ نقطہ پر ضرور دار اند کے یک ریختہ

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

Ⓟ

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

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

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

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

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

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

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

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

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(2)

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

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

$$\Rightarrow x \in \left(-\frac{1}{r} > \frac{1}{r}\right) \xrightarrow{\text{OU} \oplus} x \in \left(-\frac{1}{r} > -\frac{1}{r}\right) \cup \left(-\frac{1}{r} > \frac{1}{r}\right)$$

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

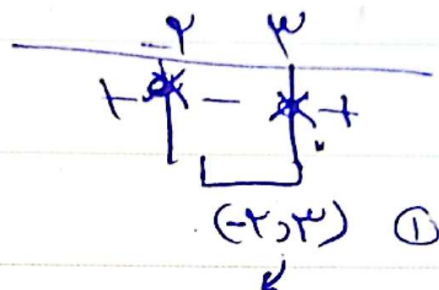
$$x^2 - x - 4 < 0 \rightarrow (x-2)(x+2)$$

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

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

(no solution)

$\Delta < 0$



$$-2 < x < 2$$

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

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

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

$$\Rightarrow \boxed{x > \frac{1}{x}}$$

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$$y = \overbrace{|x+1|}^{(1)} - \overbrace{|x|}^{(2)} + \overbrace{|x-2|}^{(3)}$$

(1) → (+)

(2), (3) → (-)

(+), (-)

$$\begin{array}{|c|c|c|c|} \hline \overbrace{-x-1+x}^{(-) \leftarrow \text{neg}} & \overbrace{-x+2}^{(+) \leftarrow \text{neg}} & \overbrace{-x+2}^{(-) \leftarrow \text{neg}} & \overbrace{x+1-x+2}^{(+), (-) \leftarrow \text{neg}} \\ \hline +2 = 1 & = x+2 & = -x+2 & = -1 \\ \hline \end{array}$$

(1), (2) → (+)

(3) → (-)

$$\Rightarrow x \geq 2 \rightarrow -1$$

$$\Rightarrow 0 \leq x < 2 \rightarrow -x+2 \quad \begin{array}{l} \text{min} \\ \text{max} \end{array} \quad \begin{array}{l} -2+2 = -1 \\ 2 \end{array}$$

$$\Rightarrow -1 \leq x < 0 \rightarrow x+2 \quad \begin{array}{l} \text{max} \\ \text{min} \end{array} \quad \begin{array}{l} 2 \\ 1 \end{array}$$

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

$$x-1 = \underline{\underline{2}} \leftarrow -1 = \underline{\underline{0}} \text{ و } x = \underline{\underline{0}} \leftarrow$$

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

8

$$\textcircled{P} \quad y = \left| \frac{1}{r} (x + \varepsilon) \right| - r + 1 = \left| \frac{1}{r} x + r \right| - 1$$

⊖ $\leftarrow$ $\frac{1}{r} x + r$ $\leftarrow$ $\frac{1}{r} x + r$
 یی داحیه
 مت y
 های مثبت

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

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

$- \varepsilon$	0
$-\frac{1}{r}x + r + \frac{1}{r}x$	$\frac{1}{r}x + r + \frac{1}{r}x$
$\varepsilon \quad \varepsilon$	$\frac{1}{r}x + r - \frac{1}{r}x$
$= x + r\varepsilon - 1$	
$\downarrow$	
$x + r = -1 \rightarrow x = -r$	

$$\textcircled{1} \text{ Date: } |x-1|$$

$$\text{الف) } f(x) = \left[|x-1| - |x+\varepsilon| \right] \quad \textcircled{2}$$

 $\textcircled{3}$

$$1 - \cancel{x} + \cancel{x} + \varepsilon - \left[\cancel{x} + 1 - \cancel{x} - \varepsilon \right] = \varepsilon - (-\varepsilon) = 2\varepsilon \Rightarrow R_f = [-\delta, \delta]$$

$$\textcircled{1} \rightarrow \textcircled{3}$$

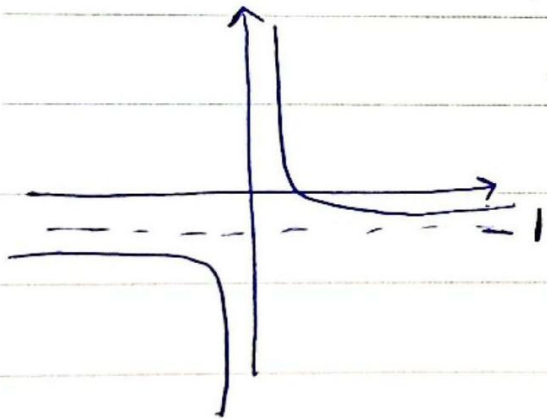
$$\textcircled{2} \rightarrow \textcircled{4}$$

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

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

$$\hookrightarrow \frac{1}{x} - 1 = f(x) \quad 1 < \frac{x+1}{x} < 2 \Rightarrow \left[\frac{x+1}{x} \right] = 1$$

هنا



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

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

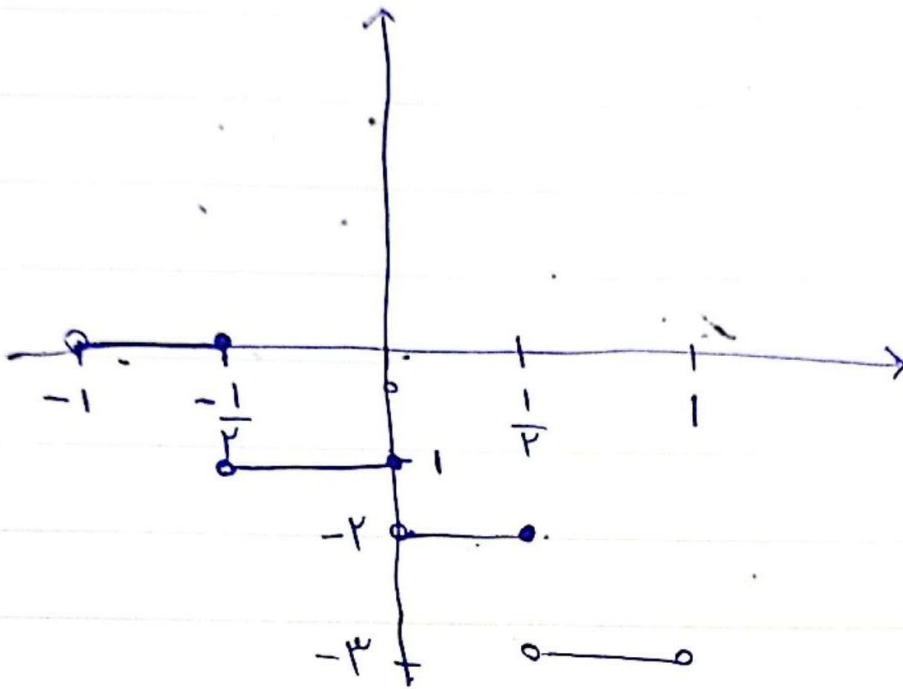
 $\textcircled{2}$

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

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

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

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



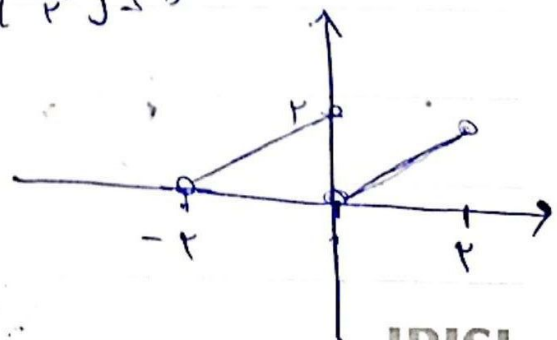
$$\Rightarrow y = x - p \left[\frac{x}{p} \right] \quad x \in (-p, p)$$

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

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

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

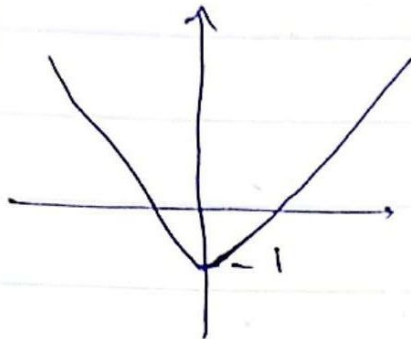
$$\rightarrow x - 0 = x$$



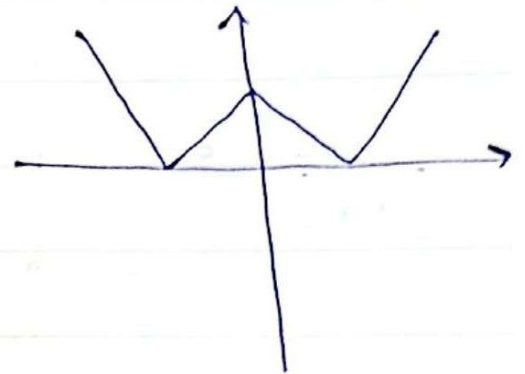
الف) $\left[|x-1| \right] \quad x \in (-1, 1)$

①

① $|x-1|$

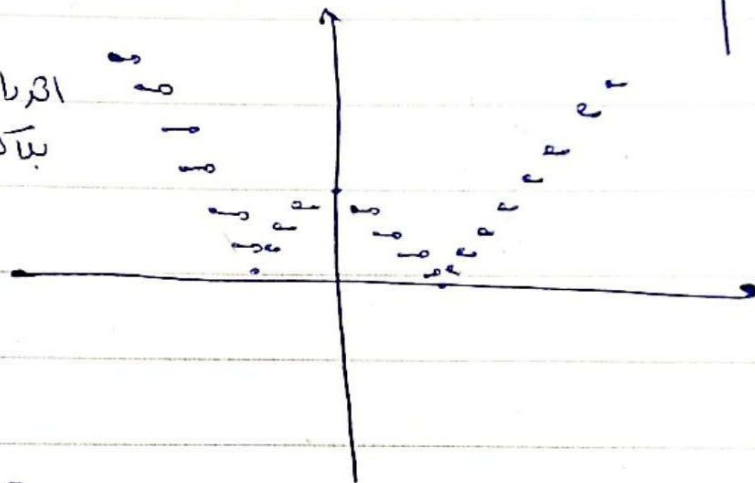


② $|x|-1$



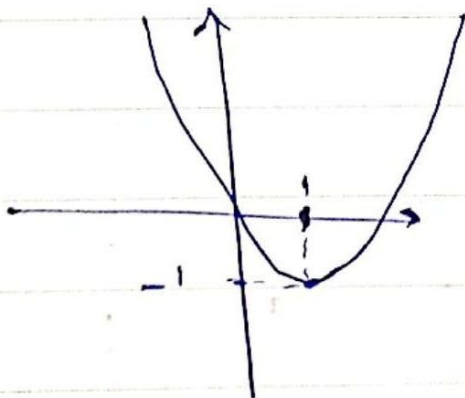
→ ③

اگر باران
بناکت

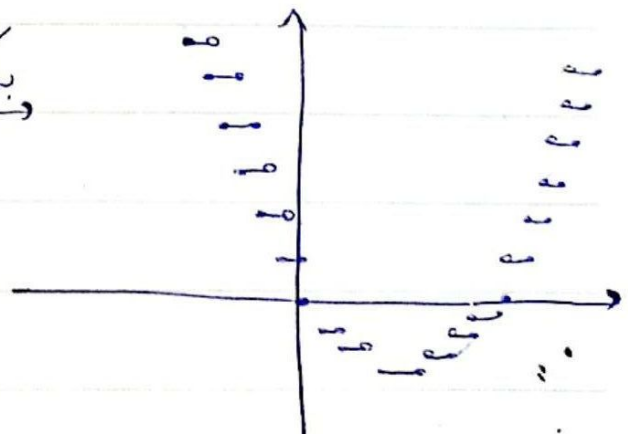


→ ب) $y = [x^2 - 2x] \quad x \in [-1, 2]$

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



بناکت



$$b - [a] = 4, \varepsilon$$

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

⑨

$$a + b = ??$$

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

$$b - a = 4, \varepsilon$$

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

$$b + pb - [a] = 4, \varepsilon$$

$$a + b = \varepsilon$$

$$b - a = 4$$

$$[b] = 2$$

$$\Rightarrow a = 1, 2$$

$$a + b = 4, \varepsilon + 1, 2 = \boxed{5, 4}$$

$$[a] = 1$$

$$b = 4, \varepsilon$$

⑩

$$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 141$$

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

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

$$a - \frac{1}{a} = 141 \rightarrow a = 141 + \frac{1}{a}$$

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

$$\Rightarrow [141 + \frac{1}{a}] = \boxed{141} \rightarrow \text{جواب}$$