

① مارکس $|x-1| = \frac{1}{x-1}$ صدق داره؟ بکړئ $x=2$

$\frac{1}{x-1} = \frac{1}{x-1}$
 $\Rightarrow (x-1)^2 = 1$
 $\Rightarrow |x-1| = 1 \Rightarrow x-1 = 1 \Rightarrow x = 2$
 $-1 \Rightarrow x-1 = -1 \Rightarrow x = 0$
 ښايي $x > 1$

② $\left| \frac{x-1}{x} \right| < 2 \Rightarrow -2 < \frac{x-1}{x} < 2 \Rightarrow \frac{x-1}{x} - 2 < 0$
 $\frac{x-1-2x}{x} < 0 \Rightarrow \frac{-x-1}{x} < 0$
 $\frac{-x-1}{x} < 0 \Rightarrow \frac{1}{x} > 0$
 $x > 0$

$\frac{x-1}{x} > 2$
 $\frac{x-1-2x}{x} > 0$
 $\frac{-x-1}{x} > 0$
 $\frac{1}{x} < 0$
 $x < 0$

③ $-2 < \frac{x-1}{x} \Rightarrow x < \frac{x-1}{-2} \Rightarrow x < \frac{x-1}{-2}$
 $x < \frac{x-1}{-2} \Rightarrow x < -\frac{x-1}{2}$
 $x < -\frac{x-1}{2} \Rightarrow 2x < -x+1 \Rightarrow 3x < 1 \Rightarrow x < \frac{1}{3}$
 $x < \frac{1}{3}$

$\left| \frac{x-2}{x+1} \right| < 1$
 $\frac{x-2}{x+1} < 1$
 $\frac{x-2-x-1}{x+1} < 0$
 $\frac{-2x-3}{x+1} < 0$
 $\frac{-2x-3}{x+1} < 0$
 $\frac{-2x-3}{x+1} < 0$
 $\frac{-2x-3}{x+1} < 0$

$[-3, \frac{1}{2}) \cup (-\frac{1}{2}, 1]$

$(-\frac{1}{2}, \frac{1}{2})$

$$\alpha = \frac{1}{2}$$

$$|x - \alpha| < \beta \quad \leftarrow \quad x^2 < 1 + 4 \quad (1)$$

$$-\beta < x - \alpha < \beta$$

$$\alpha - \beta < x < \alpha + \beta$$

$$\alpha - \beta = -1$$

$$\alpha + \beta = 3$$

$$2\alpha = 1 \Rightarrow \alpha = \frac{1}{2}$$

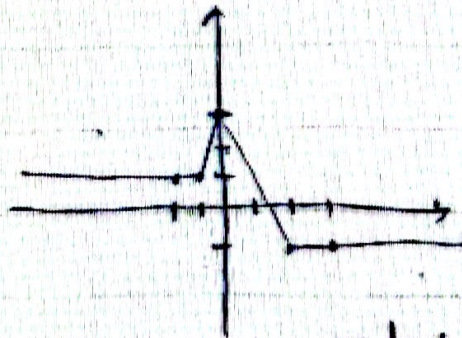
$$\beta = \frac{5}{2}$$

$$\begin{aligned} x^2 &< x - 1 & x^2 &< x + 3 \\ x^2 + 1 &< x & \Rightarrow x^2 - x - 3 &< 0 \\ \Delta &= 1 - 4 \times 1 \times 3 & (x - 2)(x + 2) &< 0 \\ \Delta &< 0 & & \\ \text{مقدار مثبت} & & & \\ \text{مربع صواب} & & & \\ \alpha & & & \end{aligned}$$

$$|x - \frac{1}{2}| < \frac{5}{2}$$

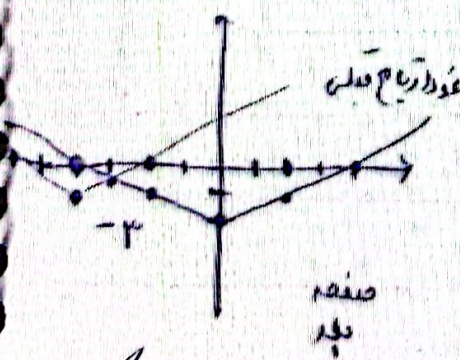
$$(2) \quad \text{مجموع بیشترین و کمترین مقادیر تابع} \quad y = |x+1| - |2x| + |x-2|$$

x	-1	-1/2	0	2	3
y	1	1	3	-1	-1



$$\begin{aligned} & \begin{array}{c|c|c} -1 & 0 & 2 \\ \hline x+1 & x+1 & x+1 \\ +2x & -2x & -2x \\ -x+2 & -x+2 & -x+2 \\ \hline -x+1 & -x+1 & -x+1 \\ +2x+2 & -2x+2 & -2x+2 \\ \hline -x+1 & -x+1 & -x+1 \\ +2x+2 & -2x+2 & -2x+2 \\ \hline x+1 & -2x+2 & -x+1 \end{array} \\ & \begin{array}{c} -x+1 \\ -x+1 \\ -x+1 \end{array} \end{aligned}$$

$$= 1 + 3 = 4$$



$$(3) \quad |x - \frac{1}{2}| = 2 \quad \begin{array}{c} \text{4 واحد به طرف چپ و راست} \\ \text{یک واحد از صفر} \end{array}$$

$$| \frac{1}{2} (x+4) | = 2+1$$

$$| \frac{1}{2} x + 2 | = 3 \quad \begin{array}{c} \text{یک واحد} \\ \text{بازو} \end{array}$$

$$\frac{1}{2} x = -2 \quad x = -4$$

Arman

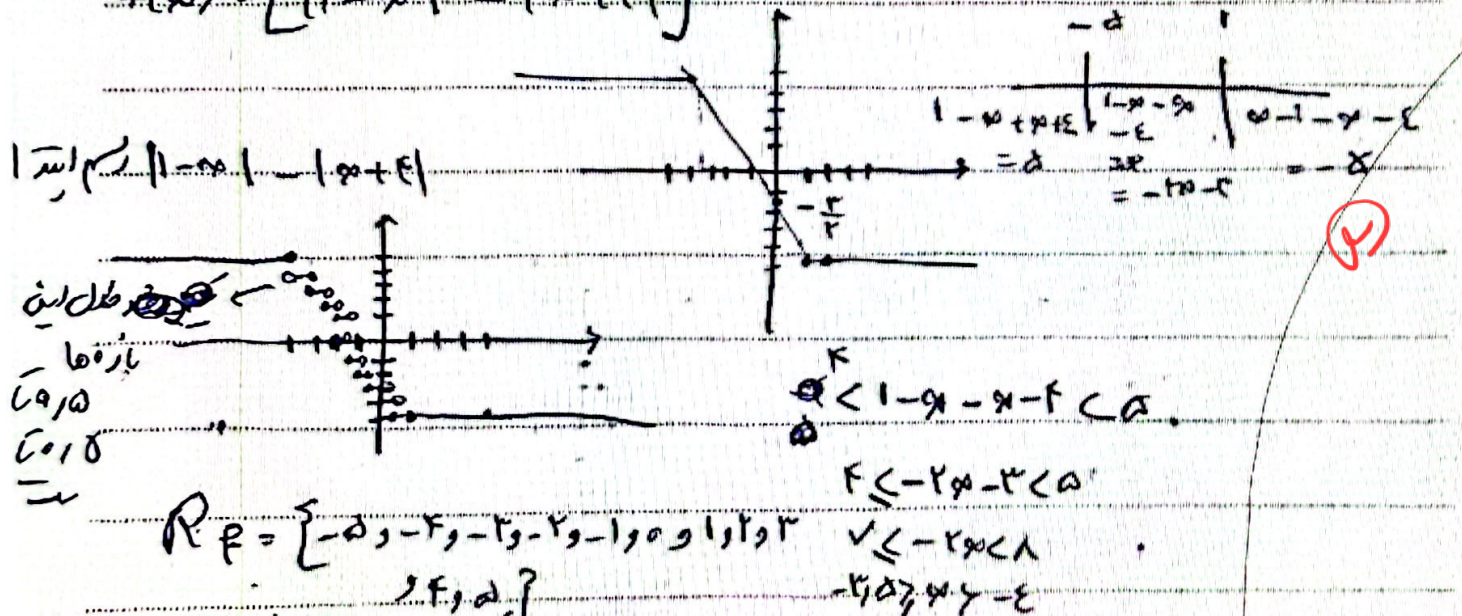
$$|\frac{1}{r}x| \geq r = |\frac{1}{r}x + r| - 1 = |\frac{1}{r}x| - 1 = |\frac{1}{r}x + r|$$

$$\frac{-1}{x-1} = \frac{-1}{x-1} + \frac{1}{x-1} = \frac{0}{x-1} = 0$$

$x = 5$ نقطة

⑥ بدوابع زید

$$f(x) = [|1-x| - |x+\epsilon|]$$



Subject: (

ماتریک

Date: _____

$$\therefore \frac{1}{x} - \left[\frac{x+1}{x} \right] = \frac{1}{x} - \left[1 + \frac{1}{x} \right] = \frac{1}{x} - \left[\frac{1}{x} \right] = 0$$

$\frac{1}{x} < 1$

(4)

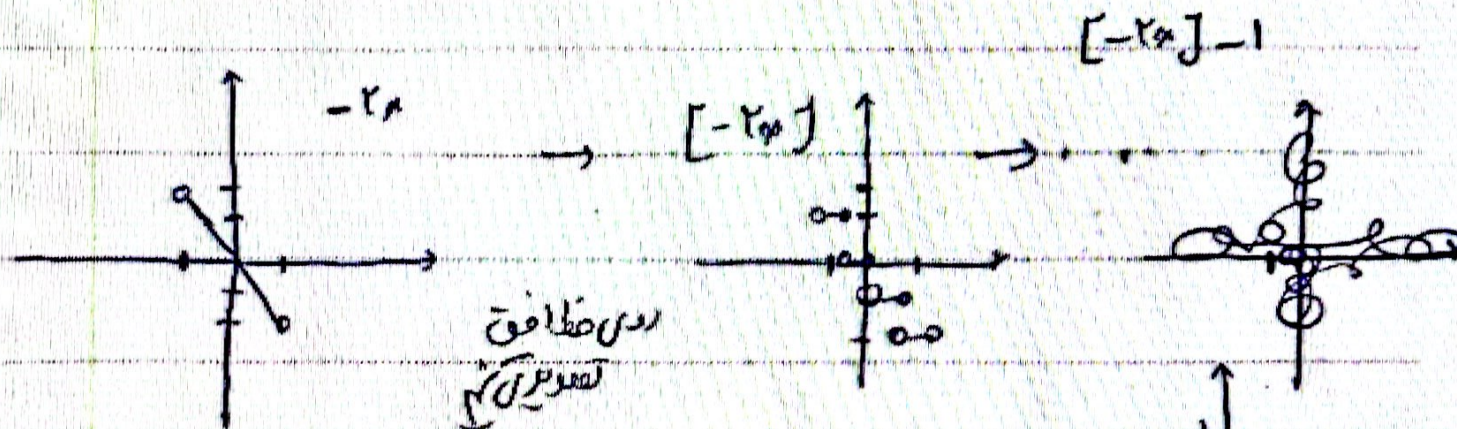
$$x \notin \mathbb{Z} \Rightarrow$$

$$\Rightarrow -1 < x < 0$$

$$R = [-1, 0)$$

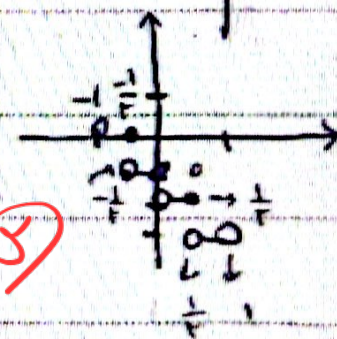
الف) $x \in (-1, 1)$ $[-2\infty] - 1$

✓



ب) $y = x - 2 \left\lfloor \frac{x}{2} \right\rfloor$ $x \in (-2, 2)$

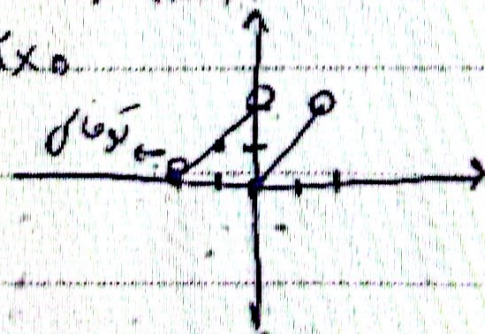
9



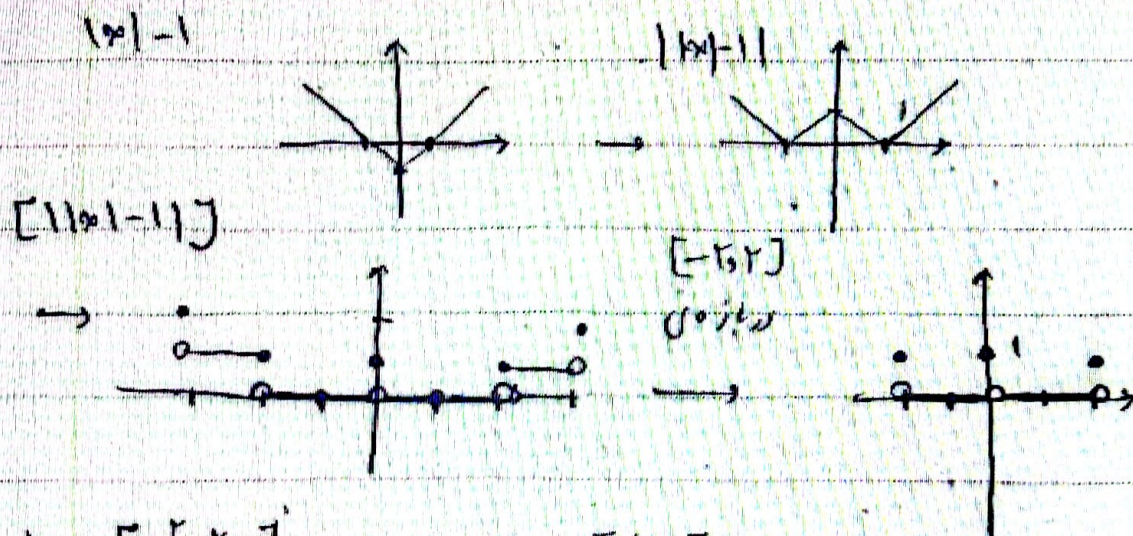
$(-2, 0) \rightarrow x + 2 \rightarrow x - 2x - 1$

$[0, 2) \rightarrow x - 2x - 0$

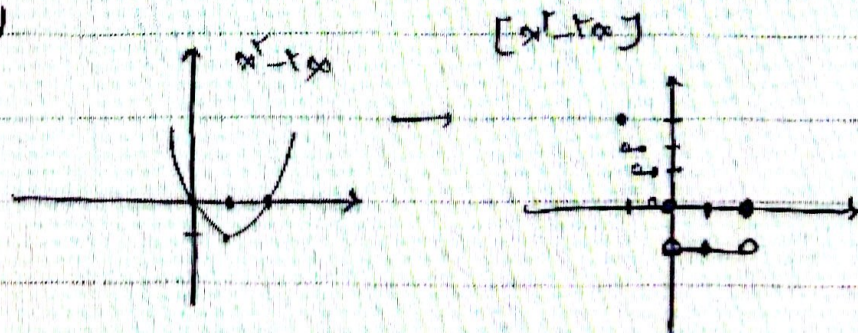
$\left\lfloor \frac{x}{2} \right\rfloor = 0$



$$y = [11x - 11] \quad x \in [-2, 2] \quad (1)$$



$$b) \quad [x^2 - 2x] \quad x \in [-1, 2]$$



$$a+b = 1/2 + 3/2 = 2 \quad b - [a] = 2, 4 \quad a + [b] = 2, 4 \quad (2)$$

$$b = 3/2$$

بہنہ خداداد
چون $[a]$ صحیح
چون صحیح ہے

$$a = 1/2$$

چون صحیح ہے

$$[b - [a]] = 2 \quad [b] - [a] = 2 \quad [a + [b]] = 4$$

چون صحیح ہے

$$[a] + [b] = 4$$

اگر اسے صحیح کر دے

$$2[b] = 4 \quad \text{اگر } a$$

$$[b] = 2 \Rightarrow [a] = 1$$

Arman

$$(1 + \sqrt{2})^9 \text{ مجموع } (1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 191 \quad (1)$$

RRR 191

$$[(1 + \sqrt{2})^4] = [191 - (1 - \sqrt{2})^4] = 191$$

$$1 < \sqrt{2} < 2 \Rightarrow 1 - \sqrt{2} < 0 \Rightarrow (1 - \sqrt{2})^4$$

$$((1 - \sqrt{2})^4)^2 = ((1 - 2\sqrt{2})^4)^2 = 99 - 16\sqrt{2}$$

5

$$((1 + \sqrt{2})^4)^2 = ((1 + 2\sqrt{2})^4)^2 = 99 + 16\sqrt{2}$$

$$\sqrt{2} = 1.414$$

$$[(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4] = [191 + 191] = 382$$

المسألة