نام و نام خانوادگی ....[illegible].......... پاسخنامه تشریحی تکلیف شماره ..۲.... کلاس ...(۱)B... ریاضی ....

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$D = R - \{1\}$

$x > 1 \quad \frac{1}{x-1} = x-1 \quad 1 = x^2 - 2x + 1 \quad x^2 - 2x = 0 \begin{cases} x = 0 & \times \\ \boxed{x = 2} & \checkmark \end{cases}$

$x < 1 \quad \frac{1}{x-1} = 1-x \quad 1 = x - x^2 - 1 + x \quad x^2 - 2x + 2 = 0 \quad \Delta < 0$

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الف) $D = R - \{0\}$

$-2 < \frac{2x-1}{x} < 2 \quad -2 < \frac{2x-1}{x} \longrightarrow 0 < \frac{4x-1}{x} \begin{cases} x = \frac{1}{4} \\ x = 0 \end{cases}$

$(-\infty, 0) \cup (\frac{1}{4}, +\infty)$ ①

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

$① \cap ② = (\frac{1}{4}, +\infty)$

ب) $\frac{x-2}{2x+1} > 1 \rightarrow \frac{-x-3}{2x+1} > 0 \quad (-3, -\frac{1}{2})$

$\frac{x-2}{2x+1} < -1 \quad \frac{3x-1}{2x+1} < 0 \quad (-\frac{1}{2}, \frac{1}{3})$

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

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$x^2 < x+6 \quad x^2 - x - 6 < 0 \begin{cases} x = 3 \\ x = -2 \end{cases} \quad (-2, 3)$ ①

$x + 6 < -x^2 \quad x^2 + x + 6 < 0 \begin{cases} x = 2 \\ x = -3 \end{cases} \quad (-3, 2)$ ②

$① \cup ② = (-3, 3) \quad -3 < x < 3 \quad |x| < 3 \quad \alpha = 0, \ \beta = 3$

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-1	0	2	
$-x-1+2x+2-x$	$x+1+2x+2-x$	$x+1-2x+2-x$	$x+1-2x+x-2$
1	$2x+3$	$-2x+3$	-1
	صعودی	نزولی	

$x = 0 \longrightarrow y = 3$

$x = 2 \longrightarrow y = -1$

$x = -1 \longrightarrow y = 1$

$3 \quad -1 \quad \boxed{3 - 1 = 2}$

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$y = |\frac{1}{2}x| - 2 \longrightarrow y = |\frac{1}{2}x + 4| - 1 \qquad |\frac{1}{2}x| - 2 = |\frac{1}{2}x + 4| - 1$

$\cancel{\frac{1}{2}x} - 2 = \cancel{\frac{1}{2}x} + 4 - 1 \quad 3 \neq -2 \ \times$

$-\frac{1}{2}x - 2 = \frac{1}{2}x + 4 - 1 \quad \boxed{x = -5}$

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الف)

	-2		1	
$1-x+x+4$		$1-x-x-4$		$x-1-x-4$
5		$-2x-3$		-5

$[[-5,5]] = \{-5,-4,-3,-2,-1,0,1,2,3,4,5\}$

ب)

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

$0 \leq \frac{1}{x} - \left[\frac{1}{x}\right] < 1 \qquad -1 \leq \frac{1}{x} - \left[\frac{1}{x}\right] - 1 < 0$

برد $= \boxed{[-1,0)}$

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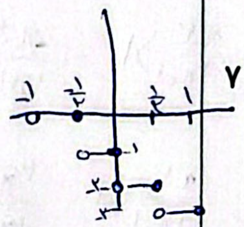
الف)

$-1 < x < -\frac{1}{2} \to y = 0$

$-\frac{1}{2} \leq x \leq 0 \to y = -1$

$0 < x \leq \frac{1}{2} \to y = -2$

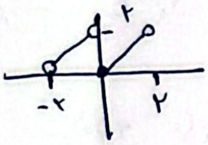
$\frac{1}{2} < x < 1 \to y = -3$



ب)

$-2 < x < 0 \qquad x - 2\left[\frac{x}{2}\right] = x + 2$

$0 \leq x < 2 \qquad x - 2\left[\frac{x}{2}\right] = x$



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الف)

$|-x-1| = -x-1$

$(-2,-1) \to |x| = -x \to [-x-1] = [-x] - 1 = 0$

$(-1,0) \to |x| = -x \to |-x-1| = x+1 \to [x+1] = [x] + 1 = -1+1 = 0$

$(0,1) \to |x-1| = 1-x \to [1-x] = [-x] + 1 = -1+1 = 0$

$(1,2) \to [x-1] = [x] - 1 = 1-1 = 0$

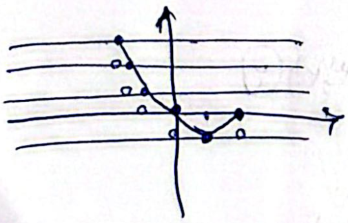
$x = -2 \to y = 1 \qquad x = 1 \to y = 0$

$x = -1 \to y = 0 \qquad x = 2 \to y = 1$

$x = 0 \to y = 1$

ب)

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



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a اعشاری $= 0.2$

b اعشاری $= 0.4$

$$\begin{cases} [b] - [a] = 2 \\ [a] + [b] = 4 \end{cases}$$

$2[b] = 6 \quad [b] = 3 \qquad b = 3.4$

$[a] = 1 \qquad a = 1.2$

$\boxed{a + b = 4.6}$

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$-1 < 1 - \sqrt{2} < 0 \qquad 0 < (1-\sqrt{2})^6 < 1 \qquad (1+\sqrt{2})^6 + \underbrace{(1-\sqrt{2})^6}_{0.--} = 198$

$197.-- \qquad 0.--$

$(1+\sqrt{2})^6 = 197.-- \qquad [(1+\sqrt{2})^6] = 197$