Date: Sub: ۱۵٫۵

۱) $x-1=\frac{1}{x-1} \to (x-1)^2=1^2 \to (x-1)=1 \Rightarrow$

$x-2 \neq 0$ غیرقابل قبول

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۲) الف) $-2<\frac{2x-1}{x}<2 \xrightarrow{\times x} -2x<2x-1<2x \to$

$-2x<2x-1$

$1<4x$

$\frac{1}{4}<x$

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ب) $\frac{|x-2|}{2x+1}>1 \to \frac{x-2}{2x+1}>1 \to \frac{-x-3}{2x+1}>0$

$\to \frac{x-2}{2x+1}<-1 \to \frac{3x-1}{2x+1} \to$ + | − | +

$-3 \quad -\frac{1}{2}$

$x\in(-3,-\frac{1}{2})(-\frac{1}{2},\frac{1}{3})$ − | + | −

۳) $|x-\alpha|<\beta \to -\beta<x-\alpha<\beta$ ۱٫۵

$x^2<x+6 \to x^2-x-6<0 \to -2<x<3$ $-2 \quad 3$

$-x^2>x+6 \to x^2+x+6<0$ ندارد + | − | +

$\alpha=\frac{3-2}{2}=\frac{1}{2} \qquad \beta=\frac{3-(-2)}{2}=\frac{5}{2}$

۴) $x=-1 \to -2+3=1$

$x=0 \to 1+2=3$ max

$x=2 \to 3-4=-1$ min

$\min+\max=2$

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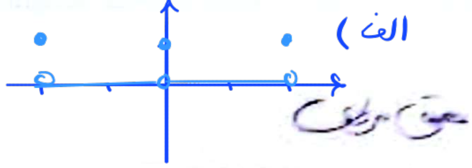
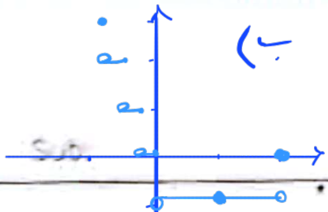
ate:

۸) ج

الف)



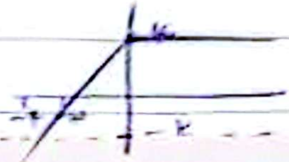
ب)



۵) ②

$y = |\frac{1}{2}x+2|$, $-1 = y$

$|x+4|-|x| = -4$



۶) ③

الف) $x \in [-5,5]$, $x \in Z \to -5, -4, -3, \dots, 5$

	-2	1	
5	$+$	-5	

ب) $f(x) = \frac{1}{x} - [\frac{x+1}{x}] = \frac{1}{x} - [\frac{1}{x}] = 1 , \quad 0 \leq \frac{1}{x} - [\frac{1}{x}] < 1$

$1+\frac{1}{x}$

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

۷) ②

$y = [-2x]-1 \qquad -\frac{1}{2} < x < 0 \xrightarrow{\times -2} 1 > -2x > 0 \xrightarrow{[\,]}$

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

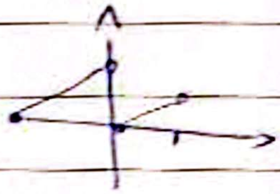
$[-2x]-1 = -1$

$0 < x < \frac{1}{2} \xrightarrow{\times -2} 0 > -2x > -1 \xrightarrow{[\,]}$

$x \in (-2,2)$

$-2 < x < 0 \to \frac{x}{2} < 0 \xrightarrow{[\,]} x+2$

$0 < x < 2 \to 0 < \frac{x}{2} < 0 \to x$



۹) ③

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

$a + b + \underbrace{[b]-[a]}_{2} = 6/6 \qquad a+b = 4/6$

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$0 < (1-\sqrt{2})^6 < 1$

$[(1+\sqrt{2})^6] = [198 - (1-\sqrt{2})^6]$

$= [(1+\sqrt{2})^6] = 198 + [\underbrace{-(1-\sqrt{2})^6}_{0^-}] = 198 - 1 = 197$

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