Date: Sub: دهقی مولوی

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

$x=2$ یا 0
غیرقابل قبول

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

$-2x<2x-1$

$1<4x$

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

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

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

$x\in(-3,-\frac{1}{2})(-\frac{1}{2},\frac{1}{3})$ $\quad -3 \quad -\frac{1}{2}$ $\quad - \mid + \mid -$

۳) $|x-\alpha|<\beta \to -\beta<x-\alpha<\beta$

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

$-x^2>x+6 \to x^2+x+6<0 \quad x\in\varnothing$ $\quad + \mid - \mid +$

۴) $x=-1 \to -2+3=1$

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

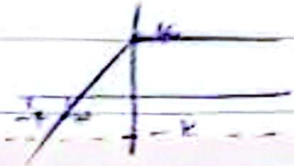
$x=2 \to 3-4=-1$ min

$\Big\}$ $\min+\max=2$

Date: Sub:

$y' = |\frac{1}{2}x+2| - 1 = y$ (۵

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



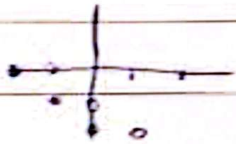
الف) $x \in [-5,0]$, $x \in \mathbb{Z} \Rightarrow -5, -4, -3, \dots, 0$ (۶

ب) $f(x) = \frac{1}{x} - [\underbrace{\frac{x+1}{x}}_{1+\frac{1}{x}}] = \frac{1}{x} - [\frac{1}{x}] - 1$, $0 \le \frac{1}{x} - [\frac{1}{x}] < 1$

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

$y = [-2x] - 1$ $\quad -\frac{1}{2} < x < 0 \xrightarrow{\times -2} 1 > -2x > 0 \xrightarrow{[\,]}$ (۷

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

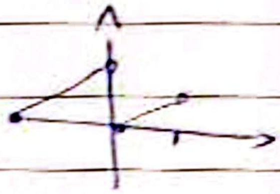


$[-2x] - 1 = -1$

$0 \le x < \frac{1}{2} \xrightarrow{\times -2} 0 \ge -2x > -1 \xrightarrow{[\,]}$ $\quad x \in (-2,2)$

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

$0 < x < 2 \Rightarrow 0 < \frac{x}{2} < 1 \Rightarrow x$



$$\begin{cases} a + [b] = 4.2 \\ b - [a] = 2.4 \end{cases} \Rightarrow [b] - [a] = 2$$ (۹

$a + b + \underbrace{[b] - [a]}_{2} = 6.6 \quad a + b = 4.6$