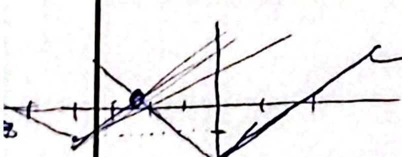
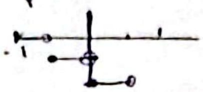
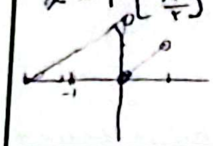
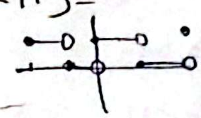
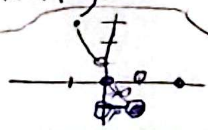
نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره ... کلاس ....

۱	$x-1=\frac{-1}{x-1} \to (x-1)^2=-1$ غق $x-1=\frac{1}{x-1} \to (x-1)^2=1 \to \lvert x-1\rvert=1 \to x=2$ یا 0 (غق) $\to$ ۱ ریشه دارد
۲	الف) $-2<\frac{2x-1}{x}<2 \xrightarrow{\times x} \underbrace{-2x<2x-1<2x}_{\text{همواره برقرار}} \to -2x<2x-1$, $1<4x$, $\boxed{\frac{1}{4}<x}$ ب) $\left\lvert\frac{x-2}{2x+1}\right\rvert>1 \to \frac{x-2}{2x+1}>1 \to \frac{-x-3}{2x+1}>0$ $\frac{x-2}{2x+1}<-1 \to \frac{3x-1}{2x+1}<0$ $\cap \to \emptyset$
۳	$\lvert x-\alpha\rvert<\beta \to -\beta<x-\alpha<\beta$ $x^2<x+6 \to x^2-x-6<0 \to \boxed{-2<x<3}$ $-x^2>x+6 \to x^2+x+6<0$ ریشه ندارد $3-\alpha=\beta$ $-2-\alpha=-\beta$ $1-2\alpha=0$ $\boxed{\alpha=\frac{1}{2}}$
۴	$x=-1 \to -2+3=1$ $x=0 \to 1+2=\boxed{3}$ max $x=2 \to 3-4=\boxed{-1}$ min $\min+\max=\boxed{2}$
۵	 $\lvert\frac{1}{2}x\rvert-2 \to$ -4, 4: $+ \mid - \mid +$ $\lvert\frac{1}{2}x+4\rvert-1 \to$ -10, -6: $+ \mid - \mid +$

الف) $[\,|1-x|-|x+2|\,] \sim$ $-3 \quad 1 \quad 1 \quad 5 \quad |x-2| \quad -5$ $\sim x\in[-5,5]$, $x\in\mathbb{Z} \to -5,-4,-3,-2,-1,0,1,2,3,4,5$ ب) $f(x)=\frac{1}{x}-[\underbrace{\frac{x+1}{x}}_{1+\frac{1}{x}}] = \frac{1}{x}-[\frac{1}{x}]-1$, $0\le \frac{1}{x}-[\frac{1}{x}]<1 \xrightarrow{-1}$ $-1\le \frac{1}{x}-[\frac{1}{x}]-1<0$	۶
الف) $y=[-2x]-1$ $x\in(-1,1)$ $-\frac{1}{2}<x<0 \xrightarrow{\times -2} 1>-2x\geq 0 \xrightarrow{[\,]} [-2x]=0$  $\sim [-2x]-1=-1$ $0\le x<\frac{1}{2} \xrightarrow{\times -2} 0\geq -2x>-1 \xrightarrow{[\,]} [-2x]=-1$ $\sim [-2x]-1=-2$ ب) $x-2[\frac{x}{2}]$ $x\in(-2,2)$  $-2<x<0 \longrightarrow -1<\frac{x}{2}<0 \xrightarrow{[\,]} x+2$ $0\le x<2 \to 0\le\frac{x}{2}<1 \to x$	۷
الف) $[\,|\,|x|-1|\,] \xrightarrow{-2\le x<0} [\,|-x-1|\,] \sim x\in[-2,-1) \to [-x-1]=1$ $x\in[-1,0) \to [x+1]=0$ $0\le x<2 \to [\,|x-1|\,] \longrightarrow 0\le x<1 \to [1-x]\sim 1$ $1\le x<2 \sim 0\ \ 1$  ب) $-1\le x<0$ $0\le x<1$ $1\le x<2$ 	۸
$\begin{cases} a+[b]=4.2 \\ b-[a]=2.4 \end{cases} \sim [b]-[a]=2$ $a+b+\underbrace{[b]-[a]}_{2}=6.6 \longrightarrow a+b=4.6$	۹
$(1+\sqrt{2})^6+(1-\sqrt{2})^6=198 \longrightarrow (1+\sqrt{2})^6=198-(1-\sqrt{2})^6$ -0.4 $\xrightarrow{[\,]} [(1+\sqrt{2})^6]=[\underbrace{198-(1-\sqrt{2})^6}_{197}]$	۱۰