نام و نام خانوادگی: زهرا سادات حسینی   پاسخنامه تشریحی کلینیک شماره ۲۵۰   کلاس یازدهم B دختر

۱)

$x-1\geq 0 \to x\geq 1 \to \frac{1}{x-1}=x-1 \to x^2-2x+1=1 \to x=0,2$ ق ق / غ ق ق $x=2$

$x\neq 1$

$x-1<0 \to x<1 \to \frac{1}{x-1}=1-x \to -x^2+2x-2=0 \to \Delta=4-8<0$ یک ریشه دارد

۲)

الف) $-2<\frac{2x-1}{x}<2$

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

$\frac{2x-1+2x}{x}>0 \to \frac{4x-1}{x}>0$ ($\frac{1}{4}$, 0) $\to$ + 0 − $\frac{1}{4}$ + $\to (-\infty,0)\cup(\frac{1}{4},+\infty)$

ج) $x>\frac{1}{4}$

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

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

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

۳)

$x+6>x^2 \to x^2-x-6<0 \to (x-3)(x+2)<0$ (3, -2) $\to$ + -2 − 3 + $\to (-2,3)$

$x+6<-x^2 \to x^2+x+6<0 \to \Delta=1-24<0 \to \mathbb{R}$

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

$|x-\alpha|<\beta \to \alpha=\frac{1}{2}$

۴)

$y=|x+1|-|2x|+|x-2|$ (-1, 0, 2)

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

$x=0 \to 1+2=3 \to max$ مجموع بیشترین و کمترین 2

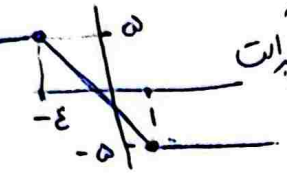
$x=-1 \to -2+4 \to 2$

۵)

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

$y'=|\frac{1}{2}(x+4)|-1 \to -\frac{1}{2}x-2=\frac{1}{2}x+2-1 \to x=-3$

الف) $|x-1|-|x+4|$ → (+1) (-4)



اعمال برائت ← $R=[5,4,3,2,1,0,-1,-2,-3,-4,-5]$

ب) $\underbrace{\frac{1}{x}-\left[\frac{1}{x}\right]}_{[0,1)}-1 \rightarrow R=[-1,0)$

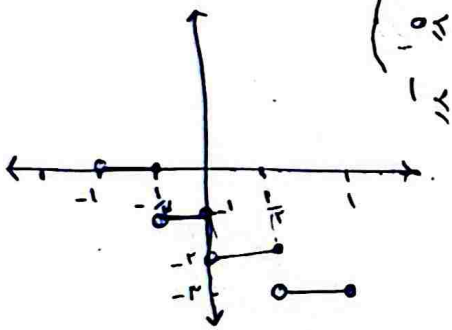
الف) $-2<-2x<2 \rightarrow$

$-2x-2x<-1 \rightarrow [-2x]=-2 \rightarrow y=-3 \rightarrow +\frac{1}{2}<x<1$

$-1\leq -2x<0 \rightarrow [-2x]=-1 \rightarrow y=-2 \rightarrow 0<x\leq \frac{1}{2}$

$0\leq -2x<1 \rightarrow [-2x]=0 \rightarrow y=-1 \rightarrow -\frac{1}{2}<x<0$

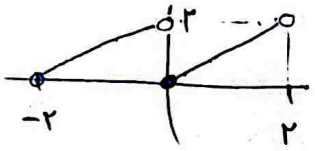
$1\leq -2x<2 \rightarrow [-2x]=1 \rightarrow y=0 \rightarrow -1<x\leq -\frac{1}{2}$



ب) $-1<\frac{x}{2}<1 \rightarrow$

$-1<\frac{x}{2}<0 \rightarrow [\frac{x}{2}]=-1 \rightarrow y=x+2 \rightarrow -2<x<0$

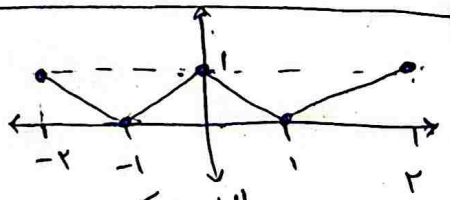
$0\leq \frac{x}{2}<1 \rightarrow [\frac{x}{2}]=0 \rightarrow y=0 \rightarrow 0\leq x<2$



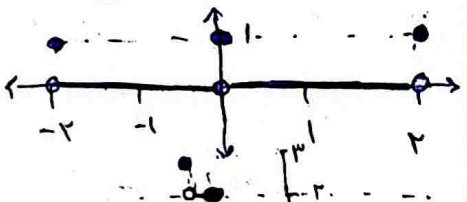
الف)

$[-2,0) \rightarrow \ominus \rightarrow [1-x-1]$ ← $[-2,-1] \rightarrow \oplus \rightarrow [-x-1]$; $(-1,0) \rightarrow \ominus \rightarrow [x+1]$

$[0,2] \rightarrow \oplus \rightarrow [|x-1|]$ ← $[0,1) \rightarrow \ominus \rightarrow [1-x]$; $[1,2] \rightarrow \oplus \rightarrow [x-1]$



اعمال برائت



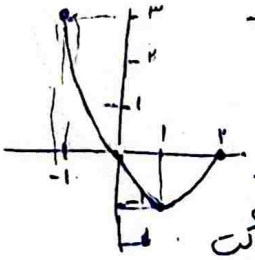
ب) $y=[x^2-2x] \rightsquigarrow x^2-2x \rightarrow$

$x=0 \rightarrow y=0$

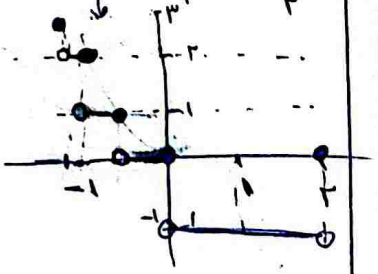
$x=2 \rightarrow y=0$

$x_s=1 \rightarrow y_s=-1 \Rightarrow$

$x=-1, y=3$



اعمال برائت



$a=1,2 \quad , \quad b=3,4 \rightarrow a+b=4,6$

$[(1+\sqrt{2})^6]=[198-\underbrace{(1-\sqrt{2})^6}_{\simeq 0,17}]=[198-\underbrace{(-0,7)^6}_{(-0,7)^6<1}]=[197,\ldots]=197$