نام و نام خانوادگی ......آوا نیک‌سالمی...... پاسخنامه تشریحی تکلیف شماره ...۲۰... کلاس ....

۱۵/۵

۱ (۱/۷۵)

$x \geq 1 \Rightarrow \frac{1}{x-1} = x-1 \Rightarrow x^2-2x+1=1 \quad x^2-2x=0 \quad x=2 \quad x=0$

عفو $x>1$ نیست!

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

دو ریشه ۰، ۲

۲ (۲)

الف) $\frac{2x-1}{x}=0$ $\quad$ (جدول علامت: 0، $\frac{1}{2}$: $+ \mid - \; \phi \; +$)

$\xrightarrow{+} \frac{2x-1}{x}<2 \Rightarrow \frac{2x-1-2x}{x}<0 \quad \frac{-1}{x}$ ($- \; 0 \; +$)

اشتراک $\Rightarrow x \geq \frac{1}{2}$ $\quad x>0$

$x<0 \Rightarrow \frac{2x-1}{x}>-2 \Rightarrow \frac{4x-1}{x}>0$ $\quad$ (0، $\frac{1}{4}$: $+ \mid - \mid +$)

اشتراک $0<x<\frac{1}{2} \Rightarrow \frac{1}{4}<x<\frac{1}{2} \Rightarrow \boxed{x>\frac{1}{4}}$

ب) $\frac{x-2}{2x+1}=0$ $\quad$ ($-\frac{1}{2}$، 2: $+ \mid - \; \phi \; +$)

$\xrightarrow{+} \frac{x-2}{2x+1}>1$ $\quad$ (-3، $-\frac{1}{2}$: $- \mid + \mid -$)

اشتراک $x \geq 2$، $x<-\frac{1}{2}$

$\frac{x-2-2x-1}{2x+1}>0 \quad \frac{-x-3}{2x+1}>0 \Rightarrow -3<x<-\frac{1}{2}$

$\Rightarrow \frac{x-2}{2x+1}<-1$

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

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

$\Rightarrow \boxed{(-3, \frac{1}{3}) - \{-\frac{1}{2}\}}$

۳ (۲)

$x \geq -6 \Rightarrow x^2<x+6 \Rightarrow x^2-x-6<0 \quad (x-3)(x+2) \quad -2<x<3 \Rightarrow -2/5<x-0/5<2/5$

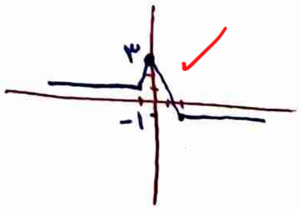
$x<-6 \Rightarrow -x^2>x+6 \quad x^2+x+6<0 \quad \Delta<0$

$\Rightarrow |x-0/5|<2/5$

$a=0/5$

۴ (۲)

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



$c_{max}+c_{min} = 3+(-1) = 2$

۵ (۱)

$y_1 = |\frac{1}{2}x|-2$ $\quad$ تغییرات فقط روی خود x اجرا میشه

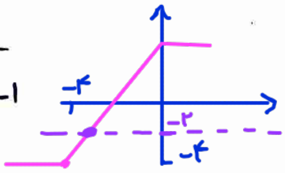
$y_2 = |\frac{1}{2}(x+4)|-1$

$\Rightarrow |\frac{1}{2}x|-2 = |\frac{1}{2}x+4|-1$

$|\frac{1}{2}(x+4)| - |\frac{1}{2}x| = -1 \xrightarrow{\times 2}$ تابع آبشاری $|x+4|-|x| = -2$

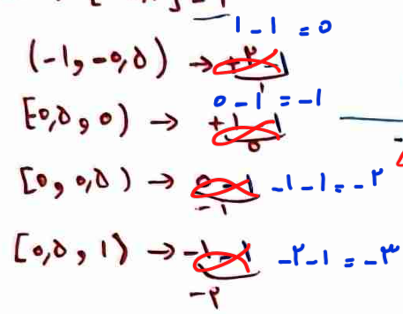
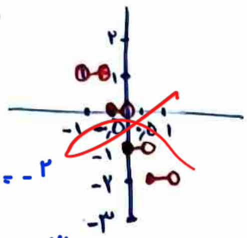
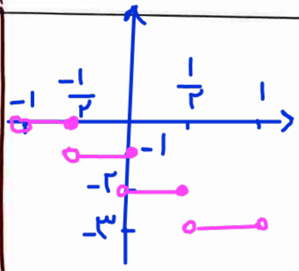
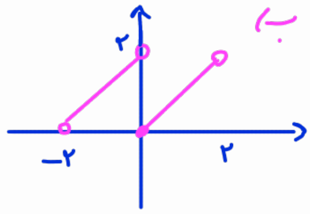
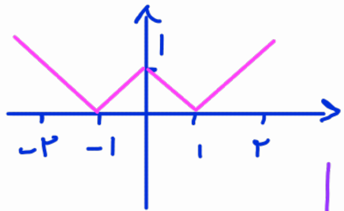
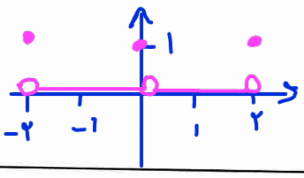
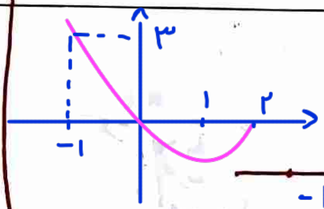
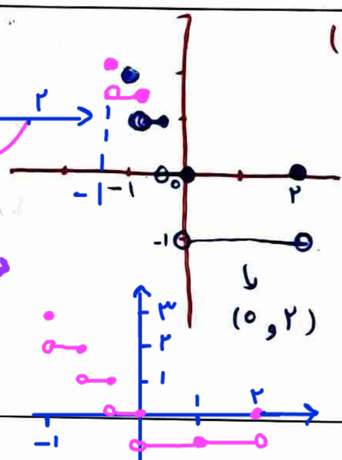
	-8	0	
$-4 \neq -1$	$x+4=-1$	$4 \neq -1$	

$\boxed{x=-5}$



$-4<x<0$

$x+4+x=-2 \rightarrow \boxed{x=-3}$

		شماره
الف) $\begin{array}{c} -4 \quad\quad 1 \\ \hline 5 \;\big|\; -2x-3 \;\big|\; -5 \end{array}$  $[\;] \Rightarrow \{x \mid -5 \le x \le 5 ,\ x \in \mathbb{Z}\}$ $\mathbb{R} = \{-5,-4,\dots,4,5\}$ ✓ ب) $f(x) = \frac{1}{x} - [\frac{x+1}{x}]$ $\frac{1}{x} - [1+\frac{1}{x}] = \frac{1}{x} - [\frac{1}{x}] - 1$ (زیر $\frac{1}{x} - [\frac{1}{x}]$: m) $0 \le m < 1$ $-1+m \rightsquigarrow [-1,0)$ ✓ $R_f = ?$	۲	۶
الف) $[-2x]-1$   ب) 	۵	۷
ب)  برآیند   برآیند  یا $(0,2)$ 	۰/۷۵	۸
$b-[a] = 2{,}4 \rightsquigarrow [a] \in \mathbb{Z} \xrightarrow{\text{اعشار}} 0{,}4 \Rightarrow [b]-[a] = 2$ $a+[b] = 4{,}2 \rightsquigarrow [b] \in \mathbb{Z} \xrightarrow{\text{اعشار}} 0{,}2 \Rightarrow [a]+[b] = 4$ $\Rightarrow [b] = 3 \quad [a] = 1$ $a = 1{,}2$ ✓ $b = 3{,}4$ ✓ $\}\ a+b = 4{,}6$ ✓	۲	۹
$(1+\sqrt{2})^6 + (1-\sqrt{2})^6 = 198$ $(1+\sqrt{2})^6 + \left(\frac{-1}{1+\sqrt{2}}\right)^6 = 198$ $t^6 + \frac{1}{t^6} = 198$ $\dots [(1+\sqrt{2})^6] = 197$ ✓ ...؟ time ...	۲	۱۰