نام و نام خانوادگی [illegible] پاسخنامه تشریحی تکلیف شماره ۲۰ کلاس یازدهم (A)

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$\frac{1}{x-1} = |x-1|$ $1 = (x-1)^2$ $\frac{1}{0-1} = |0-1|$ ✗

$1 = (x-1)\cdot|x-1|$ $(x-1)^2 - 1 = 0$ $\frac{1}{2-1} = |2-1|$ ✓

$+ \Rightarrow + \Leftarrow$ همواره مثبت $x^2 - 2x + \cancel{1-1} = 0$

$x-1>0 \Rightarrow |x-1| = x-1$ $x^2-2x=0$

$x(x-2)=0 \quad \begin{cases} x=0 & ✗ \\ x=2 & ✓ \end{cases}$ [illegible]

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$\left|\frac{2x-1}{x}\right| < 2$ $\begin{cases} \frac{2x-1}{x} < 2 & (1) \\ \frac{2x-1}{x} > -2 & (2) \end{cases}$ $x > \frac{1}{4}$

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

$\frac{-1}{x} < 0 \rightarrow \boxed{x>0}$ (1)

$\frac{2x-1}{x} + 2 < 0$ $\frac{4x-1}{x} > 0$ (2) $\boxed{0 > x,\ x > \frac{1}{4}}$

x		0		$\frac{1}{4}$	
$4x-1$	$-$		$-$		$+$
x	$-$		$+$		$+$
	$+$		$-$		$+$

$\left|\frac{x-3}{2x+1}\right| > 1$

A: $\frac{x-3}{2x+1} > 1 \rightarrow \frac{-x-4}{2x+1} > 0 \rightarrow -\frac{1}{2} < x < 3$ (1)

B: $\frac{x-3}{2x+1} < -1 \rightarrow \frac{3x-1}{2x+1} < 0 \rightarrow x < -\frac{1}{2},\ x > \frac{1}{3}$ (2)

x		$-\frac{1}{2}$		3	
A	$-$		$+$		$-$

x		$-\frac{1}{2}$		$\frac{1}{3}$	
B	$-$		$+$		$-$

$(1)\,و\,(2) \Rightarrow \frac{1}{3} < x < 3$

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$x^2 < |x+6|$

$|x+6| > x^2$

A) $x+6 > x^2 \rightarrow x^2 - x - 6 < 0$

x		-2		3	
A	$+$		$-$		$+$

$\Rightarrow -2 < x < 3$

B) $x+6 < -x^2 \rightarrow x^2 + x + 6 < 0$

$+$ همواره B $\Leftarrow \Delta < 0$ و $a > 0$ [illegible]

$-2 < x < 3$

$|x-\alpha| < \beta$

$x - \alpha < \beta \rightarrow x < \beta + \alpha$

$x - \alpha > -\beta \rightarrow x > \alpha - \beta$

$\Rightarrow \begin{cases} \beta + \alpha = 3 \\ \alpha - \beta = -2 \end{cases}$ $2\alpha = 1$ $\alpha = \frac{1}{2}$

$\beta = \frac{5}{2}$

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$y = |x+1| - |2x| + |x-2|$

-1 0 2

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

$-1 \rightarrow 2(-1)+3 \sim 1$

$0 \rightarrow 2(0)+3 \sim 3 \Rightarrow$ بیشترین

$0 \rightarrow -2(0)+3 \sim 3$

$2 \rightarrow -2(2)+3 \sim -1 \Rightarrow$ کمترین

$|x-2|^2 > |2x+1|^2 \longrightarrow 3x^2+8x-3<0 \longrightarrow -3<x<\frac{1}{3},\ x \neq -\frac{1}{2}$ ب-۲)

$3 + (-1) = 2$

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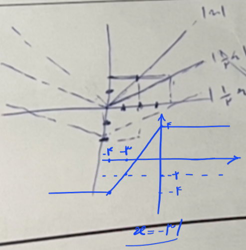
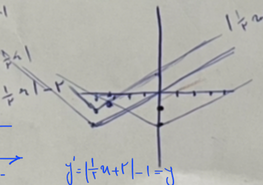




$y' = |\frac{1}{2}x+2| - 1 = y$

$|x+4| - |x| = -2$

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

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

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

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

قابل قبول $\boxed{x=3}$

$[|1-x|-|x-4|]$

$|1-x|-|x-4|=0$

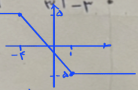
$x\geq 1 \quad x\leq -4$

	-4	1	
$2x+4$	-5	$-2x+3$	

x	y
-5	-7
-4	-9

x	y
2	-7
3	-3

$R:\ \varnothing-(-\infty,+\infty)$ (غلط)



$\frac{x+1}{x}\begin{cases}1.. & + \\ -1 & -\end{cases}$

$\frac{1}{x}-1 \quad x>0 \to R:[0,+\infty)$

$\frac{1}{x}+1 \quad x<0 \to R:(-\infty,0) \to R$

$f(x)=\frac{1}{x}-[\frac{1}{x}]-1 \to R_f=[-1,0)$

$0\leq \quad <1$

0,5

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

$(-1,0]\to y=-1$

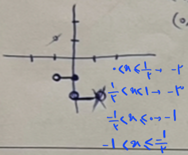
$(0,1)\to y=-3$

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

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

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

$-1<x\leq-\frac{1}{2}$



$R_f=\{-5,-4,\dots,4,5\}$

$y=x-2[\frac{x}{2}] \quad x\in(-2,2)$

$(-2,-1]\to y=0$

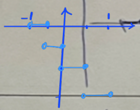
$[-1,0)\to =1$

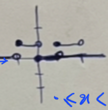
$[0,1)\to =0$

$[1,2)\to =1$

$0<x<2\to x$

$-2<x<0\to x+2$





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$(1+\sqrt{2})^4+(1-\sqrt{2})^4=198$

$[(1+\sqrt{2})^4]=?$

$t^4+(\frac{-1}{t})^4=198$

$(t^2)^2+((\frac{-1}{t})^2)^2=198$

$A^2+\frac{1}{A^2}=198$

$(A+\frac{1}{A})(A^2+\frac{1}{A^2})=198$

$198+[-(1-\sqrt{2})^4]=197$

سوال ۱۰

1,5

$a+[b]=4,2 \to a=x+0,2$

$b-[a]=2,4 \to b=y+0,4$

$\underbrace{x+0,2}_{a}+\underbrace{y}_{[b]}=4,2 \to x+y=4$

$a+b=x+0,2+y+0,4$

$=x+y+0,2+0,4$

$=4+0,6=4,6$

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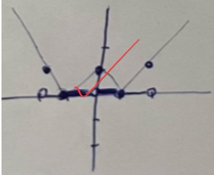
$x^2-2x=0$

$x(x-2)=0\ \begin{cases}0\\2\end{cases}$



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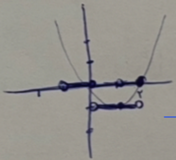

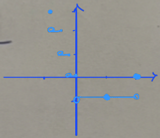

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