روزانو صدرالسادات یازدهم دختر C تکلیف ۲۰ ۲۰

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$\frac{1}{x-1}=|x-1|$; $x>1 \rightarrow \frac{1}{x-1}=x-1 \rightarrow (x-1)^2=1 = x^2+1-2x=1 \quad x(x-2)=0$

۲ و ۰ جواب ها ← کی ریشه دارد.

$x<1 \rightarrow \frac{1}{x-1}=-(x-1) = -(x-1)^2=1 \Rightarrow -(x^2+1-2x)=1$

$x^2-2x+2=0$

$2\pm\sqrt{4-8}$ ✗

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الف) $\left|\frac{2x-1}{x}\right|<2 \longrightarrow \frac{2x-1}{x}-2<0 \quad \frac{-1}{x}<0$; $x>0$ ①

$-2<\frac{2x-1}{x}<2 \longrightarrow 0<\frac{2x-1}{x}+2 \quad 0<\frac{4x-1}{x}$; $(-\infty,0)\cup(\frac{1}{4},+\infty)$ ②

$① \cap ② \rightarrow (\frac{1}{4},+\infty)$

ب) $\left|\frac{x-2}{2x+1}\right|>1$

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

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

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

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$x^2<|x+6|$ $\quad |x-\alpha|<\beta \longrightarrow -\beta<x-\alpha<\beta \longrightarrow -\beta+\alpha<x<\beta+\alpha$

$-x-6<x^2<x+6$

$x^2-x-6<0 \quad (x-3)(x+2) \quad (-2,3)$

$0<x^2+x+6 \quad \Delta=1-24<0$ ✗

$\beta+\alpha=3$

$-\beta+\alpha=-2$

$2\alpha=1 \longrightarrow \alpha=\frac{1}{2} \quad \beta=\frac{5}{2}$

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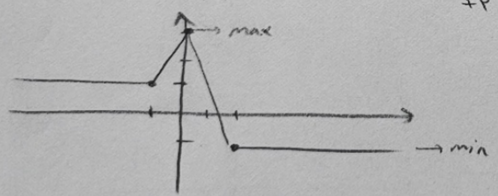
$y=|x+1|-|2x|+|x-2|$

-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



$3+(-1)=2$

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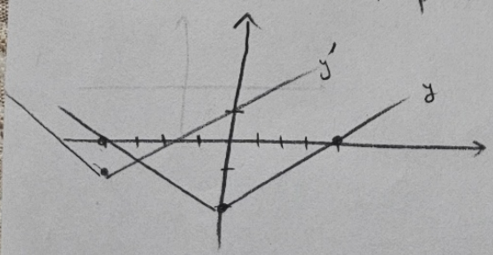
$y=\left|\frac{1}{2}x\right|-2 \longrightarrow \left|\frac{x+4}{2}\right|-2 \longrightarrow \left|\frac{x+4}{2}\right|-1=y'$



$\left|\frac{x}{2}\right|-2=\left|\frac{x}{2}+2\right|-1$; $t=\frac{x}{2}$

$|t|=|t+2|+1 \longrightarrow t^2=t^2+4+4t+1+2t+4$

$-8=4t \rightarrow t=-\frac{3}{2}$

$t=\frac{x}{2}=-\frac{3}{2} \rightarrow x=-3$

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$f(x) = [|1-x| - |x+3|]$

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

$\rightarrow -4 \leq |1-x| - |x+3| < 4$

$R_f = \{4, 3, 2, 1, 0, -1, -2, -3, -4\}$

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ب) $f(x) = \frac{1}{x} - \left[\frac{x+1}{x}\right] \rightarrow \frac{1}{x} - \left[\frac{1}{x}+1\right] \rightarrow \frac{1}{x} - \left[\frac{1}{x}\right] - 1$

t

$\rightarrow -1 < t - 1 < 0 \rightarrow R_f = [-1, 0)$

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

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

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

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

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

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

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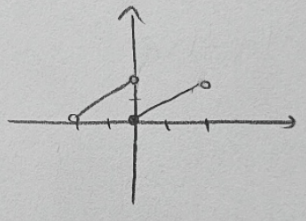
ب) $y = x - 2\left[\frac{x}{2}\right] \quad x \in (-2, 2) \rightarrow -1 < \frac{x}{2} < 1$

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

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



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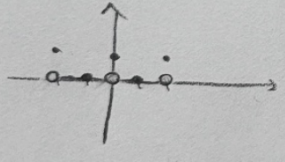
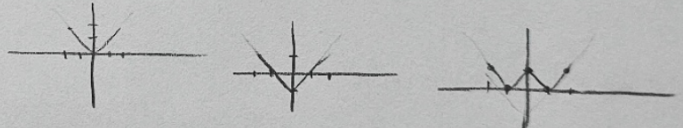
الف) $\left[|\,|x| - 1\,|\right] \quad x \in [-2, 2]$



$\left[|x| - 1\right]$



$y = |x|$ $\quad |x| - 1$ $\quad |\,|x| - 1\,|$

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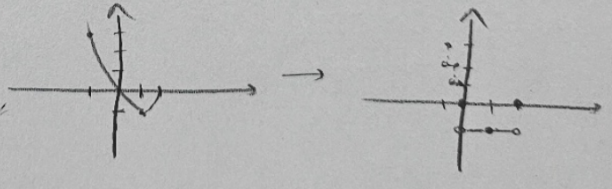
ب) $y = \left[x^2 - 2x\right] \quad x \in [-1, 2)$

$-\frac{b}{2a} = \frac{2}{2} = 1$

$1 - 2 = -1$



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$a + [b] = 2,4 \quad b - [a] = 2,4 \quad a + b = ?$

$[a] + [b] = 4$

$[b] - [a] = 2 \rightarrow 2[b] = 4 \rightarrow [b] = 3 \rightarrow b = 3,4$

$[a] = 1 \rightarrow a = 1,2$

$\rightarrow a + b = 4,6$

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$(1+\sqrt{2})^4 + (\underbrace{1-\sqrt{2}}_{-0,4})^4 = 198 \rightarrow (1+\sqrt{2})^4 = 197,\_\_\_ \rightarrow \left[(1+\sqrt{2})^4\right] = 197$

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$\left[(1+\sqrt{2})^4\right]$