نام و نام خانوادگی ..آرمین مهین فر.. پاسخنامه تشریحی تکلیف شماره ..۲۰.. کلاس ..یازدهم ریاضی..

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

$\frac{1}{x-1} = x-1 \to x^2-2x=0$ ، $\boxed{x=2 \ ✓}$ ، $x=0 \ ✗$ ، $x \geq 1$ → یک ریشه

$x<1$

$\frac{1}{x-1} = -(x-1)$

$-1 = x^2-2x+1 \to x^2-2x+2=0$

$\Delta = -4 \to$ ریشه حقیقی ندارد

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الف) $\left|\frac{2x-1}{x}\right| < 2 \to |2x-1| < |2x|$

$4x^2-4x+1 < 4x^2$

$\frac{1}{4} < x$

ب) $\left|\frac{x-2}{2x+1}\right| > 1 \to |x-2| > |2x+1|$

$x^2-4x+4 > 4x^2+4x+1$

$3x^2+8x-3<0 \to x^2+8x-9<0$

$(x+3)(x-1)<0$

$x=-3$ ، $x=\frac{1}{3}$

-3		$\frac{1}{3}$	
+	0	− 0	+

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

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$x^2 < |x+6|$

$x \geq -6$: $x^2-x-6<0$

$(x-3)(x+2)<0$

-2		3	
+	0	− 0	+

$-2<x<3$ ①

$x<-6$: $x^2+x+6<0$

$a>0$

$\Delta<0$

همواره مثبت

$\to \varnothing$ ②

①∪②

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

$\left|x-\frac{1}{2}\right| < \frac{5}{2} \to \alpha = \frac{1}{2}$

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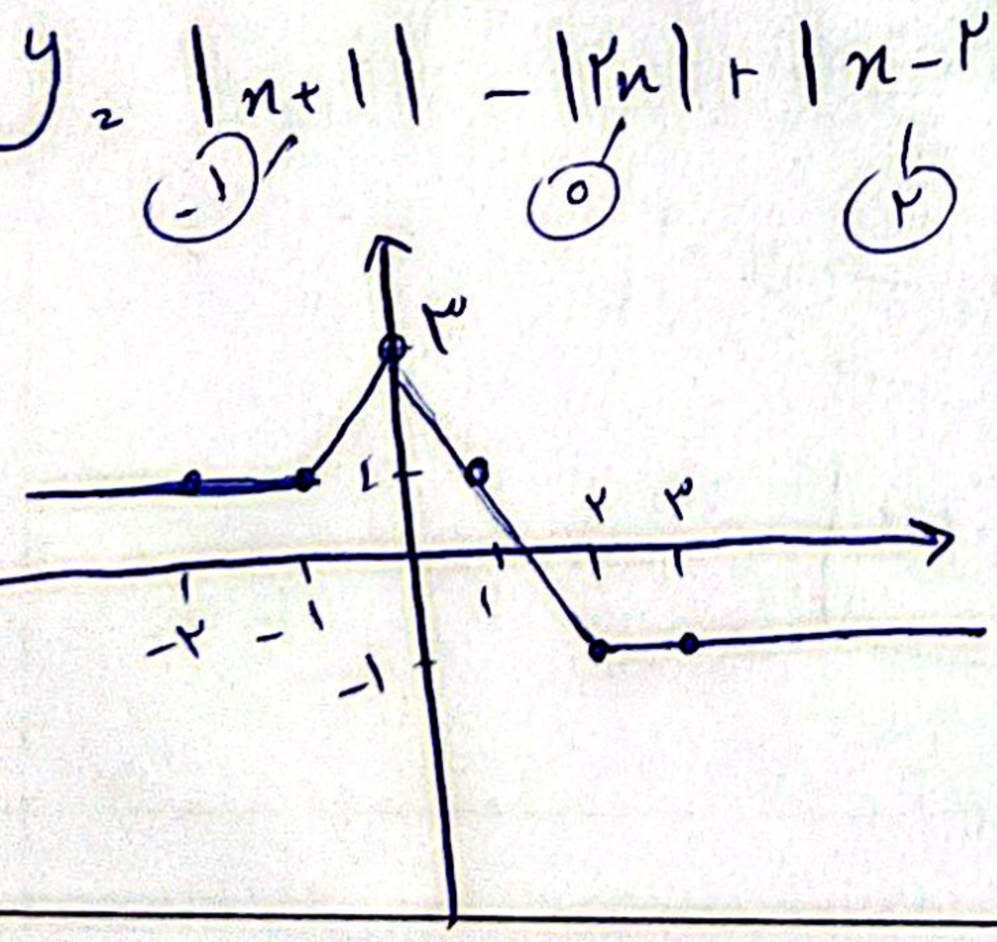
$y = |x+1| - |2x| + |x-2|$

-1 ، 0 ، 2



$y_{max} = 3$

$y_{min} = -1$

$y_{max} + y_{min} = 2$

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

انتقال

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

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

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

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

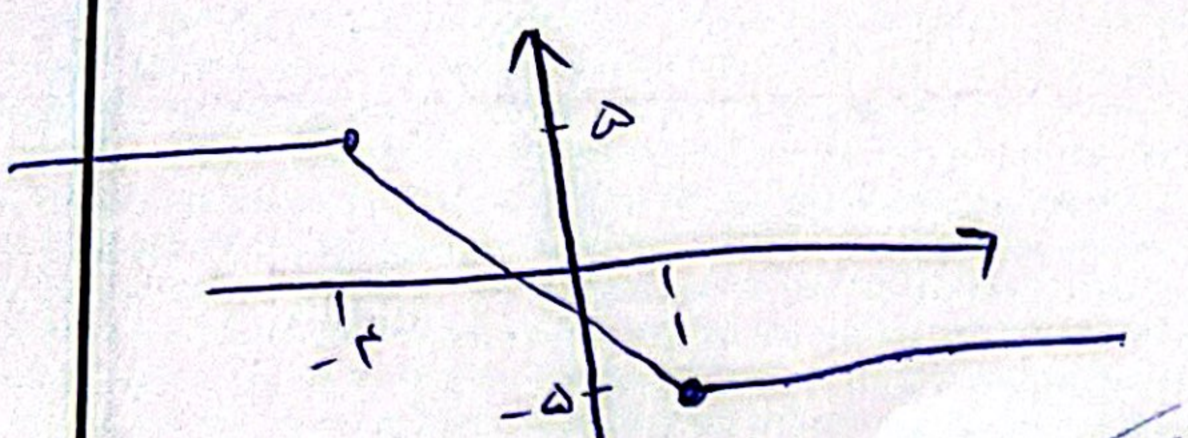
$x = x+6 \to 0 = 6$ ✗ ، $x \geq 0$

$-x = x+6 \to x = -3$ ✓ ، $-4<x<0$

$-x = -x-2 \to 0 = -2$ ✗ ، $x \leq -4$

$\to x = -3$

الف) $f(x) = [|\overset{|x-1|}{\cancel{1-x}}| - |x+4|] \xrightarrow{R_f} [-5 \le y < 5] \xrightarrow{R_f} \{-5, -4, \dots, 4, 5\}$ ۶



ب) $f(x) = \frac{1}{x} - \cancel{\left[\frac{x+1}{x}\right]} = -1 + \underbrace{\frac{1}{x} - \left[\frac{1}{x}\right]}_{0 \le y < 1} \longrightarrow R_f = [-1, 0)$

$-(1 + [\frac{1}{x}])$

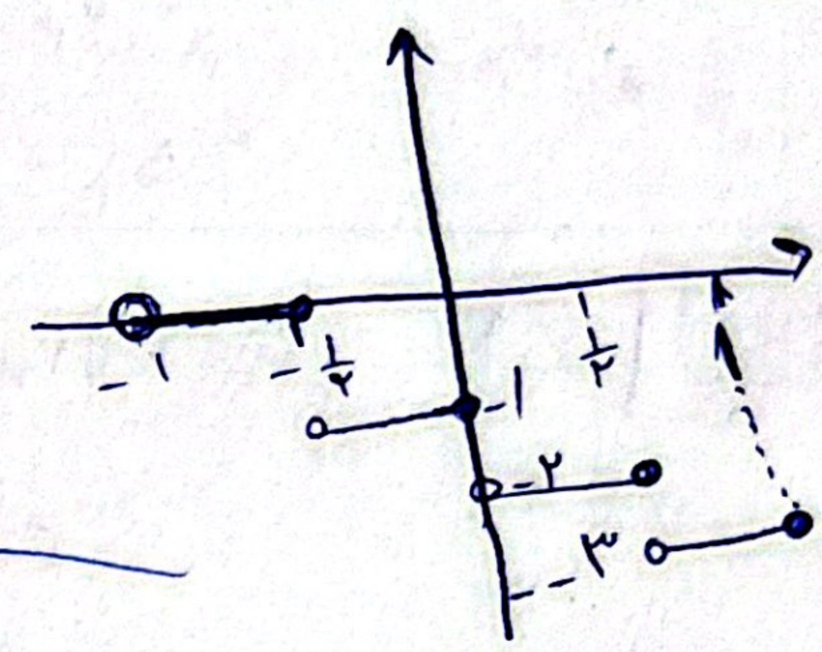
الف) $y = [-2x] - 1 \qquad x \in (-1, 1)$ ۷

$-1 < x \le -\frac{1}{2} \qquad 1 \le -2x < 2 \qquad [-2x] - 1 = 0$

$-\frac{1}{2} < x \le 0 \longrightarrow 0 \le -2x < 1 \longrightarrow [-2x] - 1 = -1$

$0 < x \le \frac{1}{2} \qquad -1 \le -2x < 0 \qquad [-2x] - 1 = -2$

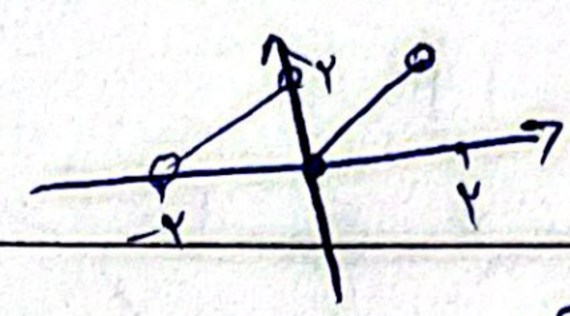
$\frac{1}{2} < x < 1 \qquad -2 < -2x < -1 \qquad [-2x] - 1 = -3$



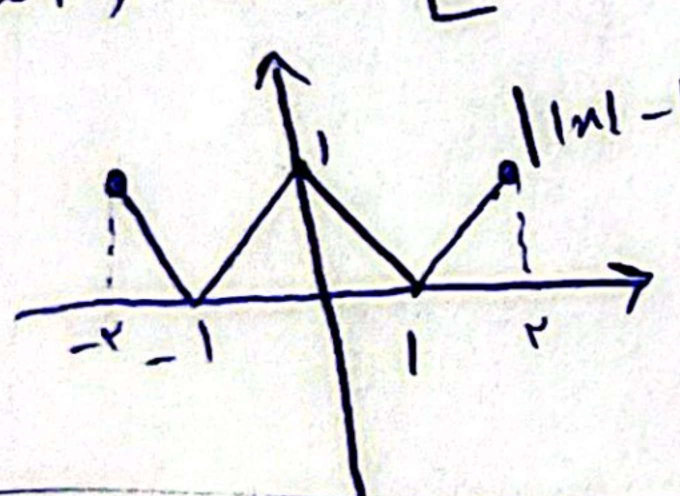
ب) $y = x - 2\left[\frac{x}{2}\right] \qquad x \in (-2, 2)$

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

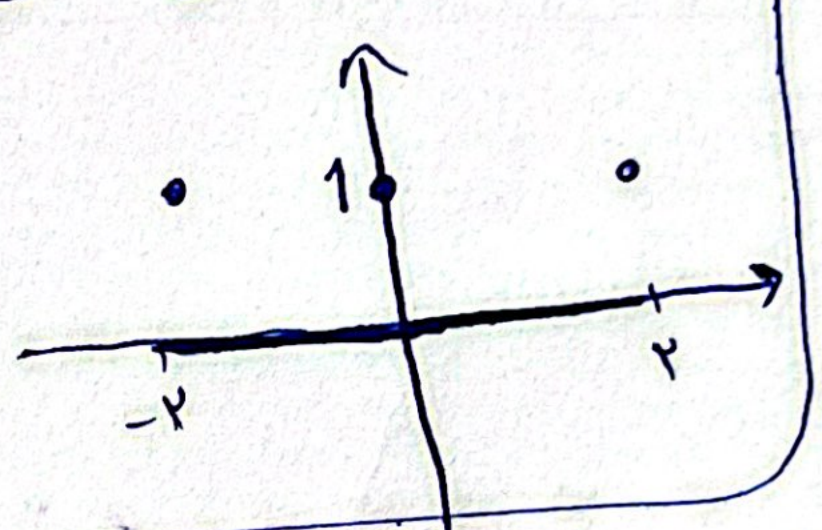
$0 \le x < 2 \to x$



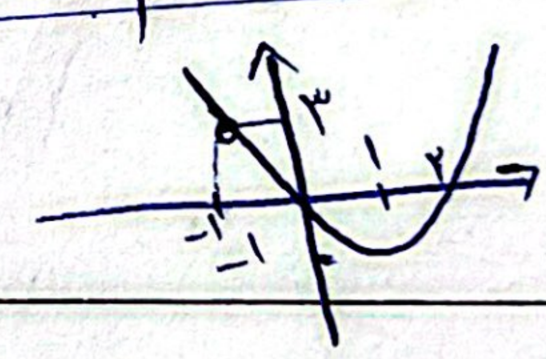
الف) $y = [||x| - 1|] \qquad x \in [-2, 2]$ ۸



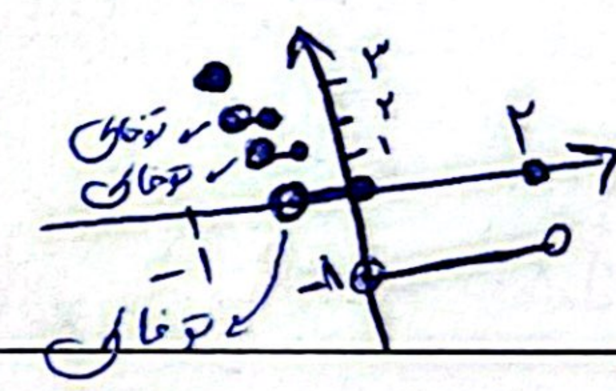
$\xrightarrow{[\ ]}$



ب) $y = [x^2 - 2x] \qquad x \in [-1, 2]$



$\xrightarrow{[\ ]}$



$a + [b] = 4/2 \longrightarrow a = x/2$ ۹

$b - [a] = 2/4 \qquad b = y/4$

$a + b - 0/4 = 4/2$

$b - (a - 0/2) = 2/4$

$\begin{cases} a + b = 4/6 \\ b - a = 2/2 \end{cases} \to 2b = 6/8$

$b = 3/4 \to y = 3$

$a = 1/2 \to x = 1$

$\boxed{a + b = 4/6}$

$0/16$

$(0/4)^2$

$(1 - 1/4)^2$

$(1 + \sqrt{2})^6 + \cancel{(1 - \sqrt{2})^6} = 198 \longrightarrow (1 + \sqrt{2})^6 = 197/\sim$ ۱۰

$\sqrt{2} \simeq 1/4$

$[(1 + \sqrt{2})^6] = ?$

$\underbrace{[(1 + \cancel{\sqrt{2}})^6]}_{197/\sim} = \underline{197}$