نام و نام خانوادگی ....علی جمالی............ پاسخنامه تشریحی تکلیف شماره ...۲۰... کلاس ......یازدهم ...A......

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$x > 1 \Rightarrow (x-1)^2 = 1 \Rightarrow x = 2 , 0$; $x = 2$ ق ق

$x < 1 \Rightarrow (x-1)^2 = -1$ غ ق ق

۱ ریشه

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الف) $-2 < \frac{2x-1}{x} < 2 \Rightarrow 0 < \frac{2x-1+2x}{x} = \frac{4x-1}{x}$; $x \,|\, 0 \quad \frac{1}{4}$: $+$ ت.ن $-$ 0 $+$ (I)

$0 > \frac{2x-1-2x}{x} = \frac{-1}{x}$; $x \,|\, 0$: $+$ ت.ن $-$ (II)

$I \cap II = [\frac{1}{4}, +\infty)$

ب) $\frac{x-2}{2x+1} > 1 \Rightarrow \frac{x-2-2x-1}{2x+1} = \frac{-x-3}{2x+1} > 0$; $x \,|\, -3 \quad -\frac{1}{2}$: $- \; 0 \; + \; 0 \; -$ $\Rightarrow x \in (-3, -\frac{1}{2})$ (I)

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$\frac{x-2}{2x+1} < -1 \Rightarrow \frac{x-2+2x+1}{2x+1} = \frac{3x-1}{2x+1} < 0$; $x \,|\, -\frac{1}{2} \quad \frac{1}{3}$: $+ \; 0 \; - \; 0 \; +$; $x \in (-\frac{1}{2}, \frac{1}{3})$ (II)

$I \cup II = (-3, \frac{1}{3}) - \{-\frac{1}{2}\}$

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اگر $x < -6 \Rightarrow x^2 < -x-6 \Rightarrow x^2+x+6 < 0 \Rightarrow$ جواب ندارد.

$\Delta < 0$

$\Rightarrow x^2 < x+6 \Rightarrow x^2-x-6 = (x-3)(x+2) < 0$; $x \,|\, -2 \quad 3$: $+ \; 0 \; - \; 0 \; +$; $x \in (-2, 3)$

$\frac{-2+3}{2} = \frac{1}{2} \Rightarrow a = \frac{1}{2}$

$|x - \frac{1}{2}| < 2.5$

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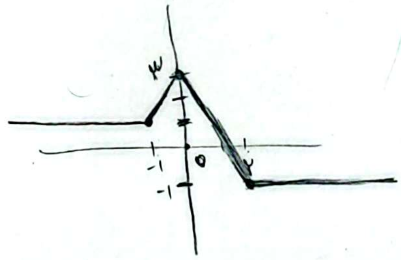
max $f = 3$

min $f = -1$

$3 + (-1) = 2$



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

$\left.\begin{array}{l} y = |\frac{1}{2}x + 2| - 1 \\ y = |\frac{1}{2}x| - 2 \end{array}\right\} \Rightarrow |\frac{1}{2}x + 2| + 1 = |\frac{1}{2}x|$

$x \geq 0 \Rightarrow \frac{1}{2}x + 3 = \frac{1}{2}x$ جواب ندارد

$0 > x \geq -4 \Rightarrow \frac{1}{2}x + 3 = -\frac{1}{2}x$; $x = -3$

$-4 \geq x \Rightarrow -\frac{1}{2}x - 2 + 1 = -\frac{1}{2}x$ جواب ندارد

$x = -3$

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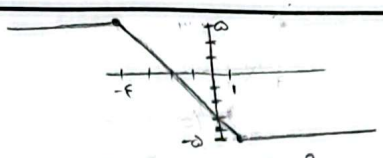
الف) $f(x) = |x-1| - |x+4|$



$-5 \le f(x) \le 5$

$[f(x)] = \{5, 4, \dots, -4, -5\} = R_f$

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

$0 \le \{\frac{1}{x}\} < 1 \Rightarrow -1 \le -1 + \{\frac{1}{x}\} < 0$

$R_f = [-1, 0)$

$x = [x] + \{x\}$ (جزء صحیح، جزء اعشاری)

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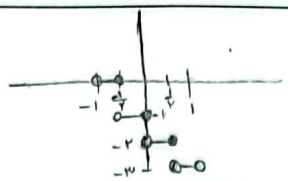
الف)

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

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

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

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

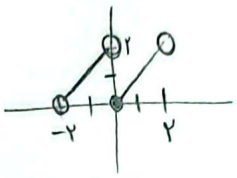


ب)

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

$0 \le x < 2 \Rightarrow [\frac{x}{2}] = 0$

$y = \begin{cases} x - 2(-1) = x + 2 & -2 < x < 0 \\ x & 0 \le x < 2 \end{cases}$



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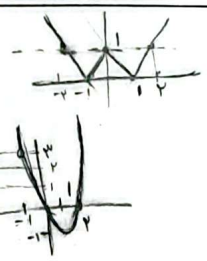
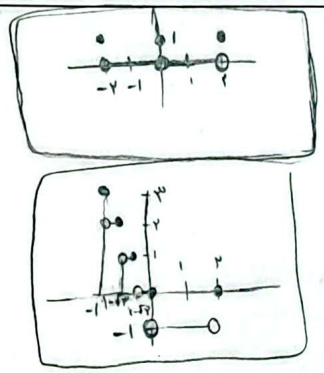
$||x| - 1|$



$x^2 - 2x$

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



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$[a] + \{a\} + [b] = 4.2 \Rightarrow \{a\} = 0.2, \quad [a] + [b] = 4$

$[b] + \{b\} - [a] = 4.4 \Rightarrow \{b\} = 0.4, \quad [b] - [a] = 2$

$\Rightarrow [b] = 3, \quad [a] = 1$

$a = [a] + \{a\} = 1.2$

$b = [b] + \{b\} = 3.4$

$a + b = 1.2 + 3.4 = 4.6$

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$0 < (\sqrt{2} - 1)^4 < 1 \Rightarrow (\sqrt{2} + 1)^4 = 198 - (\sqrt{2} - 1)^4 \Rightarrow 197 < (\sqrt{2} + 1)^4 < 198$

$\sqrt{2} \approx 1.4$

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