ملیکا بنازی

مقطع: یازدهم دختر A

(1)

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

$(x-1)^2 = 1 \rightarrow x-1 = 1 \rightarrow x = 2 \checkmark$

$\rightarrow x-1 = -1 \rightarrow x = 0 \times$

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(2)

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

$\mathrm{I}: -2 < \frac{2x-1}{x} \rightarrow 0 < \frac{2x-1+2x}{x} \rightarrow 0 < \frac{4x-1}{x}$

$\mathrm{II}: \frac{2x-1}{x} < 2 \rightarrow \frac{2x-1-2x}{x} < 0 \rightarrow x > 0$

$\boxed{(\frac{1}{4}, +\infty)}$

ب) $\left|\frac{x-2}{2x+1}\right| > 1 \rightarrow \frac{x-2}{2x+1} > 1 \rightarrow \frac{x-2-2x-1}{2x+1} > 0 \rightarrow \frac{-x-3}{2x+1} > 0$

$\frac{x-2}{2x+1} < -1 \rightarrow \frac{x-2+2x+1}{2x} < 0 \rightarrow \frac{3x-1}{2x+1} < 0$

$(-3, \frac{1}{3})$

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(3)

$x^2 < |x+6| \longrightarrow x+6 > x^2 \rightarrow x^2 - x - 6 < 0 \rightarrow (x-3)(x+2)$

$x+6 < -x^2 \rightarrow x^2 + x + 6 < 0 \rightarrow \Delta < 0$

$-2 < x < 3$

$-2 < x < 3 \xrightarrow{-0/5} -2/5 < x - 0/5 < 2/5 \rightarrow \left|x - \underset{\alpha}{0/5}\right| < \underset{\beta}{\frac{5}{2}}$

میانگین: $0/5$

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(4)

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

$x = -1 \rightarrow 0 - 2 + 3 = 1$

$x = 0 \rightarrow 1 - 0 + 2 = 3 \rightarrow \mathrm{Max}$

$x = 2 \rightarrow 3 - 4 = -1 \rightarrow \mathrm{Min}$

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(5)

$y = \left|\frac{1}{2}x\right| - 2 \xrightarrow{\text{پس از انتقال}} \left|\frac{x}{2} + 4\right| - 1$

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

$\cancel{\frac{x^2}{4}} + 16 + 4x = \cancel{\frac{x^2}{4}} + 1 - x$

$5x = -15 \rightarrow \boxed{x = -3}$

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الف) $f(x) = [|1-x| - |x+4|] \quad x = \{ -5 < x < 5 ,\ x \in \mathbb{Z} \}$

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

$\underbrace{\frac{1}{x} - [\frac{1}{x}]}_{0 \leq \quad < 1} - 1$

$[-1, 0)$

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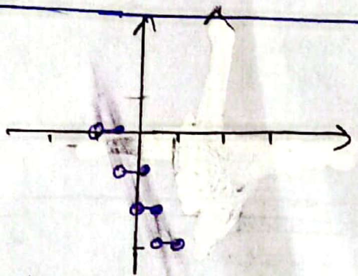
۷) طول هر پاره خط: ۰/۵

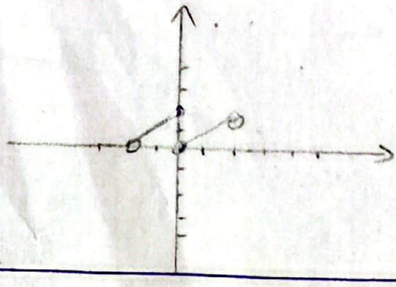
الف) $y = [-2x] - 1 \quad x \in (-1, 1)$

$[-2x - 1]$



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

$\begin{cases} -2 < x \leq -1 : x+2 \\ -1 < x \leq 0 : x+2 \\ 0 < x \leq 1 : x \\ 1 < x \leq 2 : x \end{cases}$



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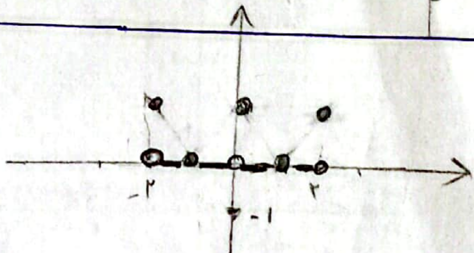
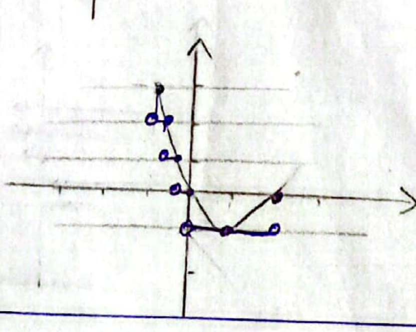
الف) $y = [||x| - 1|] \quad x \in [-2, 2]$



ب) $[x^2 - 2x] \quad x \in [0, 2]$



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$a + [b] = 5/2$

$b - [a] = 2/4$

$\rightarrow [b] + [a] = 4$

$[b] - [a] = 2 \rightarrow [b] = 3 \quad [a] = 1 \quad a + b = 5/6$

$a = 1/2 \quad b = 3/4$

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

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

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

$0/4$

-1