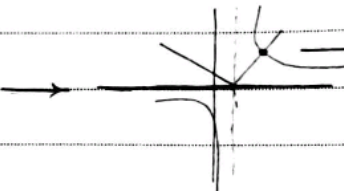


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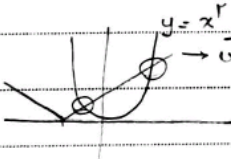
طرح اول (نشان) کار یا راه حل مسئله ۲. تکلیف

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

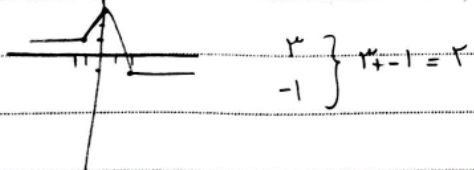
۲- $\left| \frac{x-1}{x} \right| < r \rightarrow \left| \frac{x}{x-1} - \frac{1}{x} \right| < r \rightarrow \left| r - \frac{1}{x} \right| < r \rightarrow -r < r - \frac{1}{x} < r$
 $0 < \frac{1}{x} < r$
 $x \rightarrow \left(\frac{1}{r}, +\infty \right)$

۱۰- $\left| \frac{x-r}{rx+1} \right| > 1 \rightarrow \frac{x-r}{rx+1} > 1 \rightarrow \frac{-x-r}{rx+1} > 0 \rightarrow \frac{x+r}{rx+1} < 0$
 $\frac{-r}{+} \mid \frac{-1}{-} \mid \frac{+}{+} \quad (-r, \frac{1}{r}) \text{ I}$
 $\frac{x-r}{rx+1} < -1 \rightarrow \frac{rx-1}{rx+1} < 0 \rightarrow \frac{-1}{+} \mid \frac{1}{-} \mid \frac{+}{+} \quad (\frac{-1}{r}, \frac{1}{r}) \text{ II}$

I $\cup$ II $\rightarrow (-r, \frac{1}{r}) \cup (\frac{-1}{r}, \frac{1}{r})$

۱۵- $x^r < |x+4|$

 $x^r < x+4 \Rightarrow x^r - x - 4 < 0 \Rightarrow (x-r)(x+r) < 0 \rightarrow \begin{matrix} -r & r \\ + & - & + \end{matrix} \rightarrow (-r, r)$
 $\frac{r-r}{r} = \frac{1}{r}, \quad \frac{|r+r|}{r} = \frac{6}{r}$

۲۰- $y = |x+1| - |rx| + |x-r| \Rightarrow y =$
 $x+1 - rx + x - r = -rx + r \quad 0 < x < r$
 $x+1 + rx - x + r = rx + r \quad -1 \leq x \leq 0$
 $-x-1 + rx - x + r = 1 \quad x < -1$



۲۵- $y_r = \left| \frac{1}{r}(x+1) \right| - \frac{r+1}{1} \mid y_r = y_1 \mid \frac{1}{r}x - r = \left| \frac{1}{r}x + r \right| - 1$
 $|x| - 1 = |x+1| - r$
 $|x| = |x+1| + r \rightarrow \begin{matrix} x+4 > \\ -r & \checkmark \\ -x-r > \end{matrix}$

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4 $f(x) = [1-x] - [x+\varepsilon] \rightarrow x > 1 \rightarrow -2$

$-\varepsilon < x < 1 \rightarrow [-rx-r]$

$-2 \leq x \leq 2 \rightarrow [-rx]-r$

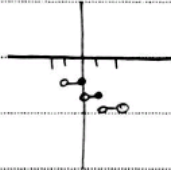
$x \leq -\varepsilon \rightarrow 2$

$Rf = \{x | x \in \mathbb{Z}, x \in [-2, 2]\}$

5

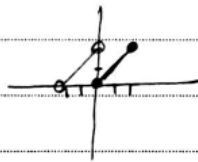
$f(x) = \frac{1}{x} - \left[\frac{x+1}{x} \right] = \frac{1}{x} - \left[\frac{1}{x} \right] - 1 \rightarrow Rf = \{-1, r\}$

$y = [-rx] - 1 \rightarrow$

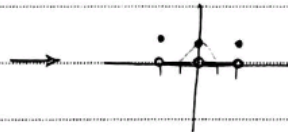


10

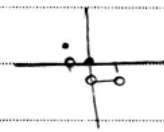
$y = x - r \left[\frac{x}{r} \right] \rightarrow$



15 $y = [1x] - 1 \rightarrow$



$y = [x] - rx \rightarrow$



$a + [b] = 2r \rightarrow [a] + [b] = 2 \quad \left. \begin{array}{l} [a] = 1 \\ [b] = 1 \end{array} \right\} \rightarrow a = 1r \quad a + [b] = 2r \quad \left. \begin{array}{l} [a] = 1 \\ [b] = 1 \end{array} \right\} \rightarrow a = 1r$

$b - [a] = r/c \rightarrow [b] - [a] = r \quad \left. \begin{array}{l} [a] = 1 \\ [b] = 1 \end{array} \right\} \rightarrow b = 1r/c \quad b - [a] = r/c \quad \left. \begin{array}{l} [a] = 1 \\ [b] = 1 \end{array} \right\} \rightarrow b = 1r/c$

20

$a + b = 2r/c$

21 $(1+\sqrt{r})^4 + (1-\sqrt{r})^4 = 19n \rightarrow (1+\sqrt{r})^4 = 19n - (1-\sqrt{r})^4$

$[(1-\sqrt{r})^4] = 19n + [-(1-\sqrt{r})^4] = 19n$

25

30