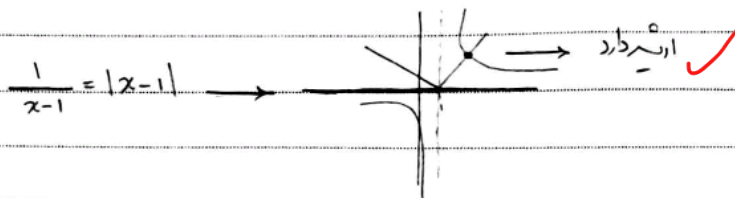


1/12/25

طراحی و تالیف: یازدهم بهمن ۱۳۹۵



۲

5

$$\left| \frac{2x-1}{x} \right| < r \rightarrow \left| \frac{2x}{x} - \frac{1}{x} \right| < r \rightarrow \left| 2 - \frac{1}{x} \right| < r \rightarrow -r < 2 - \frac{1}{x} < r$$

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

$$x \rightarrow \left(\frac{1}{r}, +\infty \right) \checkmark$$

۲

10

$$\left| \frac{x-r}{rx+1} \right| > 1 \rightarrow \frac{x-r}{rx+1} > 1 \rightarrow \frac{-x-r}{rx+1} > 0 \rightarrow \frac{x+r}{rx+1} < 0$$

$$+ \quad - \quad - \quad +$$

I

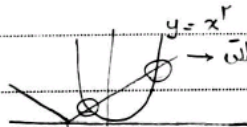
$$\frac{x-r}{rx+1} < -1 \rightarrow \frac{rx-1}{rx+1} < 0 \rightarrow \frac{-\frac{1}{r} - \frac{1}{r}}{+ \quad - \quad - \quad +} \quad \left(-\frac{1}{r}, \frac{1}{r} \right) \text{ II}$$

درست!

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

15

$$x^r < |x+4|$$



$$x^r < x+4 \Rightarrow x^r - x - 4 < 0 \Rightarrow (x-r)(x+r) < 0$$

$$+ \quad - \quad - \quad +$$

$$\rightarrow (-r, r)$$

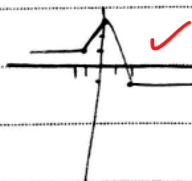
$$\frac{r-r}{r} = \frac{1}{r} \checkmark$$

$$\frac{|r+r|}{r} = \frac{0}{r}$$

۲

20

$$y = |x+1| - |2x| + |x-r| \Rightarrow y = \begin{cases} x+1-2x-x+r = -2x+r & 0 < x < r \\ x+1+2x-x+r = 2x+r & -1 \leq x \leq 0 \\ -x-1+2x-x+r = 1 & x < -1 \end{cases}$$



$$\left. \begin{matrix} r \\ -1 \end{matrix} \right\} r+1 = r \checkmark$$

۲

25

$$y_r = \left| \frac{1}{r}(x+1) \right| - \frac{r+1}{1} \quad y_r = y_1 \quad \left| \frac{1}{r}x \right| - r = \left| \frac{1}{r}x+r \right| - 1$$

$$y_1 = \left| \frac{1}{r}x \right| - r$$

$$|x| - r = |x+r| - r$$

$$|x| = |x+r| + r \rightarrow \begin{cases} x+r > 0 \\ -x-r > 0 \end{cases}$$

۲

30

Subject:

Year: Month: Day: ()

Page: ()

$f(x) = [1-x] - [x+\varepsilon] \rightarrow x > 1 \rightarrow -2$ (4.5) -4

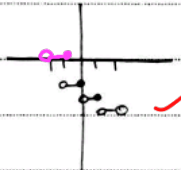
$-\varepsilon < x < 1 \rightarrow [-rx-r]$

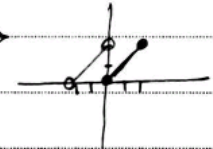
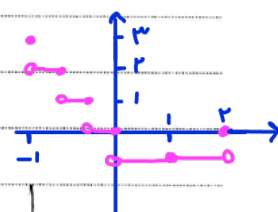
$-2 \leq x \leq 2 \rightarrow [-rx]-r$

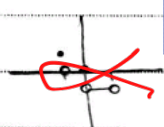
$x \leq -\varepsilon \rightarrow 2$

$Rf = \{x | x \in \mathbb{Z}, x \in [-2, 2]\}$ ✓ R = [-1, 0)

5. $f(x) = \frac{1}{x} - \left[\frac{x+1}{x} \right] = \frac{1}{x} - \left[\frac{1}{x} \right] - 1 \rightarrow Rf = \{ \cancel{0}, 1 \}$ 0 ≤ < 1 ✓

$y = [-rx] - 1 \rightarrow$  (4.5) ✓

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

15. $y = [1x] - 1] \rightarrow$  ✓ $y = [x] - rx \rightarrow$  (1)

$a + [b] = 2r \rightarrow [a] + [b] = 2 \} [a] = 1 \quad a + [b] = 2r \} [a] \rightarrow a = 1r \quad 9$
 $b - [a] = r/c \rightarrow [b] - [a] = r \} [b] = 2 \quad b - [a] = r/c \} [b] \rightarrow b = 2r/c \quad (5)$
 $a + b = 2r/c \quad \checkmark$

20. $(1+\sqrt{r})^9 + (1-\sqrt{r})^9 = 192 \rightarrow (1+\sqrt{r})^9 = 192 - (1-\sqrt{r})^9$ (15) 1.
 $[(1-\sqrt{r})^9] = 192 + [-(1-\sqrt{r})^9] = 192 \quad \checkmark$

25

30