

آین صحت

19, 25

$f(x) = r|x| + 1 + n f(n)$

$f(-n) - n f(n) = r|n| + 1$   
 $f(n) + n f(-n) = r|n| + 1$   
 $\rightarrow f(n)(n^r + 1) = r|n| + 1(1 - n)$   
 $\rightarrow f(n) = \frac{(r|n| + 1)(1 - n)}{n^r + 1}$

(2) ①

$\xrightarrow{n \rightarrow 0} r f(0) = 1 \rightarrow f(0) = \frac{1}{r}$   
 $f(n) = n^r - r n + \frac{1}{r}$

(2) ②

$f(n^r) = n^r - r n^r + \frac{1}{r}$

~~$y n - y = n^r + n + r \rightarrow y n - y = n^r + n + r$~~

$y n - y = n^r + n + r \rightarrow n^r + (1 - y)n + (r + y) \xrightarrow{\Delta \geq 0} y^r - 4y + 4 \geq 0$

(2) ③

$(y - 1)(y + 1) \geq 0 \rightarrow R_f = (-\infty, -1] \cup [1, +\infty)$

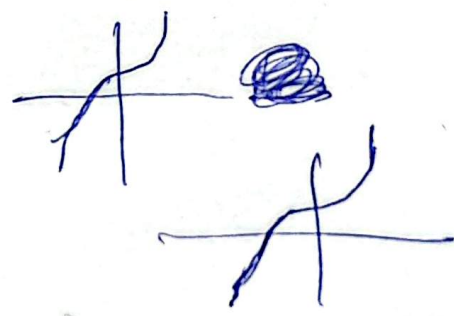
$\min \left[ r \times \frac{y}{y^r} - \Delta \times \frac{1}{y^r} \leq 1, 1 - \frac{r \Delta}{\lambda} \leq \frac{-1}{\lambda} \right]$   
 $R_f = \left[ \frac{-1}{\lambda}, +\infty \right)$

(2) ④

$\max \left[ -9 + (1 - \Delta) \leq r \right]$   
 $R_f = [0, 1]$

(2)

$R_f = [0, +\infty)$



(2)

$R_f = \mathbb{R}$

(2)

$\frac{a}{c} = f \sqrt{f} r$   
 $R_f = [0, +\infty)$   
 $(R_f = \mathbb{R} - \{ \frac{1}{r} \})$

(2) ⑤

$\leq \frac{n^r + r + 1}{\sqrt{n^r + r}} = \sqrt{n^r + r} + \frac{1}{\sqrt{n^r + r}} \xrightarrow{n \rightarrow \infty} \sqrt{r} + \frac{1}{\sqrt{r}} \leq \frac{r}{\sqrt{r}}$   
 $R_f = \left[ \frac{r}{\sqrt{r}}, +\infty \right)$



$n^r + r + \frac{1}{n^r + r} = r$   
 $n^r + r + \frac{1}{n^r + r} \xrightarrow{n \rightarrow \infty} r + \frac{1}{r} \leq \frac{1}{r}$   
 $\frac{1}{r} = r \leq \frac{1}{r}$   
 $R_f = \left[ \frac{1}{r}, +\infty \right)$

(2)

$$y \neq -y \leq x^2 + 9 \rightarrow -x^2 - y \leq x^2 (x - y) \rightarrow x^2 \leq \frac{y - y}{x - y} \leftarrow x \leq \sqrt{\frac{-y - x}{y - x}} \quad (2) \quad (7)$$

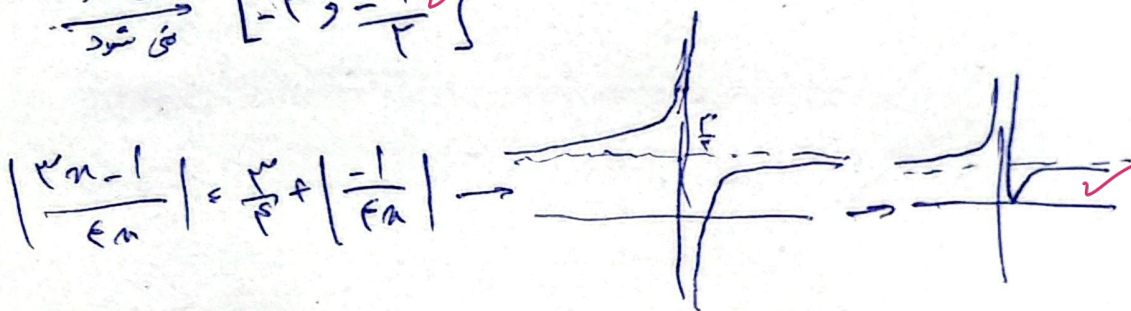
$$R_f = (-\infty, -f] \cup [f, +\infty) \quad \xrightarrow{x \rightarrow y} y \leq -f \quad \xrightarrow{x \rightarrow +\infty} y \leq x$$

خرج صفری شود  $R_f = (-\infty, -f] \cup [f, +\infty) \quad \checkmark$

$$\frac{\sin x = 1}{-1 - x} = \frac{-x + x}{-1 - x} = \frac{-1}{x} \quad \xrightarrow{\sin x = 1} \frac{x + x}{1 + x} = -x$$

(2) (✓)

خرج صفر  
فی شود  $[-x, -\frac{1}{x}]$



(الف) (1)  $R_f = [0, +\infty)$  (1/15)

$$y = \sqrt{\frac{9(x+1)}{f(x+1)}} \Rightarrow y = \sqrt{\frac{9}{f}} \quad R_f = \left\{ \frac{9}{f} \right\} \quad \left\{ \frac{9}{f} \right\}$$

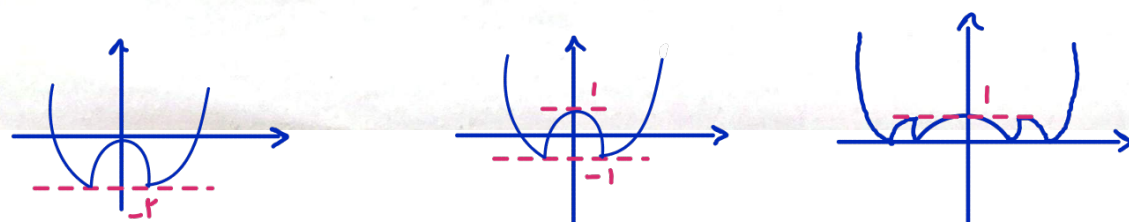
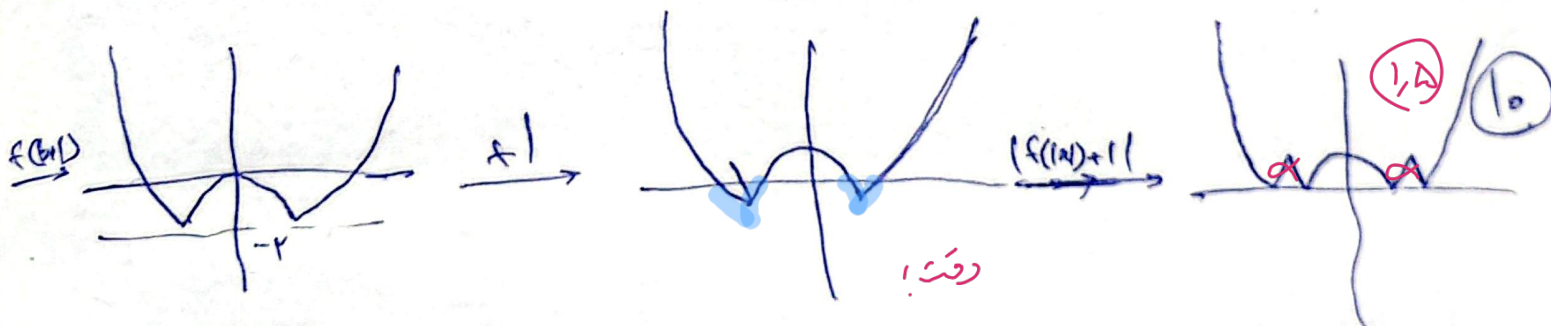
(ب)

$$x \geq 0 \quad x^2 - 2x \leftrightarrow \min \begin{bmatrix} +1 \\ -1 \end{bmatrix}$$

$$R_f = \mathbb{R} \quad \checkmark$$

(2) (9)

$$x \leq 0 \quad -x^2 - 2x \leftrightarrow \max \begin{bmatrix} -1 \\ +1 \end{bmatrix}$$



$$y = f(1-x)$$

$$y = f(1-x) + 1$$

$$y = |f(1-x) + 1|$$