

$$y = \frac{n^r + n + r}{n-1} \Rightarrow yx - y = x^r + n + r - n^r + (-y)x + r + y$$

$$= \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{y \pm 1 \pm \sqrt{(1-y)^2 - 4(1-r+y)}}{2} \rightarrow \delta \gg$$

$$1+y^r - ry - 1 - \epsilon y \gg, \quad y^r - 4y - \sqrt{\Delta} = (y-v)(y+1) \gg 0$$

$$\frac{1}{4} \frac{1}{(1-y)^2} \quad R_f = R - (-1, v)$$

1) $y = x^2 - 4x + 1$
 2) $y = \sqrt{x^2 + 4x + 40} \Rightarrow y_{min} = \frac{b}{2a} = \frac{4}{2} = 2 \Rightarrow \sqrt{(-2, 4)} = [0, 4]$
 3) $R_f = [0, +\infty)$
 4) $R_f = (-\infty, +\infty)$

$1) = y = \frac{x+1}{x-7} \Rightarrow x = \frac{-y-1}{y-7} \Rightarrow x = \frac{y+1}{y-7} \quad y-7 \neq 0 \quad y \neq 7 \quad R - \left\{ \frac{7}{1} \right\}$
 $2) y = \sqrt{\frac{x+1}{x-7}} \Rightarrow R_f = [0, \infty) \setminus \left\{ \frac{7}{1} \right\} = [0, \infty) \setminus \{7\}$
 $3) \sqrt{\frac{x+1}{x-7}} = y \quad x + \frac{1}{x} \geq 7 \quad \sqrt{\frac{x+1}{x-7}} \geq \frac{7}{\sqrt{x}} \quad (+\infty) \quad R_f = \left[\frac{1}{7}, +\infty \right)$
 $4) y = x^2 + \frac{1}{x+7} = (x^2 + 1) + \frac{1}{x+7} - 1 \Rightarrow \left[\frac{1}{7}, +\infty \right) \Rightarrow \left[\frac{1}{7}, +\infty \right)$

$$y n^r - y = c n^r + f \Rightarrow (y - c) n^r + y - f \quad D \geq 0 \Rightarrow -f(y - c)(-y - f) \geq 0$$

$$f y + y - f \geq 0 \quad R = (f, c)$$

$$\lambda^T = 0 \Rightarrow y = \frac{c}{-1} = -1 \quad \lambda^T = +\infty \Rightarrow y = 1$$

~~معمولی~~ $\rightarrow R_1 = R = (-1 \ 0)$

$y \sin x + r y = r \sin x - 1 = r y + 1 = r \sin x - y \sin x$
 $\sin x (1 - y) = 1 + r y \Rightarrow \sin x = \frac{1 + r y}{1 - y} \quad -1 \leq \frac{1 + r y}{1 - y} \leq 1$
 $\sin x = 1 \Rightarrow y = \frac{r - 1}{1 + r} = \frac{1}{r}$
 $\sin x = -1 \Rightarrow \frac{r - 1}{1 + r} = -1 \Rightarrow R = \left[-\frac{1}{r}, \frac{1}{r} \right]$

$$u^2 \cdot u = a$$

$$u^2 \cdot u = -\frac{b}{a} = \frac{1}{r}$$

$$f(u) = \frac{u + \frac{1}{r}}{u + 1}$$

$$u = -\frac{1}{r} \Rightarrow f(u) = \dots$$

$$R_f = (0, 1)$$

$$u^2 - u \neq -1 \Rightarrow u^2 - u + 1 \neq 0$$

$$\Delta < 0 \Rightarrow 1 - 4 < 0$$

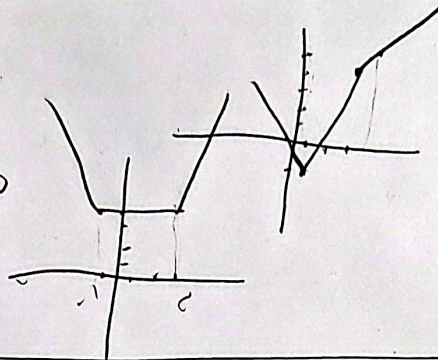
$$D_f = \mathbb{R}$$

$$u = 1 \quad u = -1$$

$$y = -1 \quad y = 1$$

$$u = 0 \Rightarrow y = -1 \quad u = 1 \Rightarrow y = 0$$

$$u = -1 \Rightarrow y = 1$$



$$u = 1 \Rightarrow y = -1$$

$$u = -1 \Rightarrow y = 1$$

$$u = 1 \Rightarrow y = -1$$

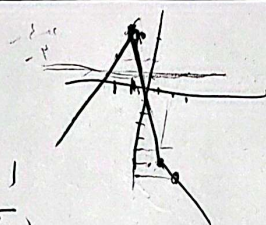
$$u = -1 \Rightarrow y = 1$$

$$y = -u + 1 + u + 1 = u + 1 \Rightarrow u + 1 = 1$$

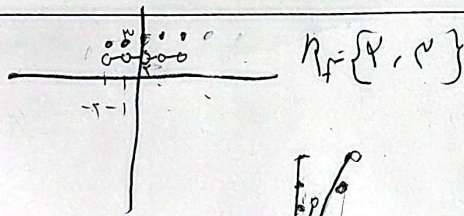
$$u = -1$$

$$-1 \cdot u + 1 = -u + 1 \Rightarrow -u + 1 = y$$

$$u = 1 \Rightarrow y = -1$$

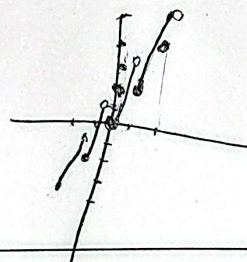


$$y = [u] + [-u] + c$$



$$y = ru = [u]$$

$$y = [u] \Rightarrow u = 1 \Rightarrow y = 1$$



$$y = \sin u - \sin u + 1 = 1$$

$$\sin u = 1 \Rightarrow u = \frac{\pi}{2}$$

$$\sin u = -1 \Rightarrow u = \frac{3\pi}{2}$$

$$\sin u = 0 \Rightarrow u = 0$$

$$R_f = \left[\frac{\pi}{2}, \frac{3\pi}{2} \right]$$

$$y = \sin u + \sin u + 1 = 2 \sin u + 1$$

$$R_f = [1, 2]$$

$$\sin u = 0 \Rightarrow y = 1 \quad \sin u = -1 \Rightarrow y = 0$$

$$\sin u = 1 \Rightarrow y = 2$$