

الف) $y + d = n^2$

$$\sqrt{y + d} = n$$

$$y + d \geq 0$$

$$y \geq -d$$

$$R_f = [-d + \infty)$$

ب) $y = n^2 + 1$

$$y - 1 = n^2$$

$$\sqrt{y - 1} = n$$

$$R_f = \mathbb{R}$$

الف) $y = (x - 2)^2 + 2$

$$\sqrt{y - 2} + 2 = x$$

$$y - 2 \geq 0$$

$$y \geq 2$$

$$R_f = [2 + \infty)$$

ب) $x^2 - dx + 1 = y$

$$(x - \frac{d}{2})^2 - \frac{d^2}{4} = y$$

$$x = \sqrt{y + \frac{d^2}{4}} + \frac{d}{2}$$

$$y + \frac{d^2}{4} \geq 0$$

$$R_f = [-\frac{d^2}{4} + \infty)$$

الف) $x^2 = \frac{-2y - 2}{y - 1} = \frac{2y + 2}{y - 1}$

$$\frac{-\frac{2}{y-1}}{+\frac{2}{y-1}}$$

$$R_f = \mathbb{R} - (\frac{2}{y-1})$$

ب) $|x| = -\frac{-4y - 1}{y - 2} = \frac{4y - 1}{y - 2}$

$$\frac{\frac{1}{2}}{+\frac{1}{2}}$$

$$R_f = \mathbb{R} - (\frac{1}{2} \text{ د } 2)$$

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$$y^2 - \varepsilon y = 1$$

$$y^2 - \varepsilon y - 1 = 0$$

$$\Delta \geq 0$$

$$(Ky)^2 - K(y) = 14y^2 + \varepsilon y$$

$$Ky(Ky+1)$$

$$\begin{array}{c} -\frac{1}{K} \quad 0 \\ \hline + \quad - \quad + \end{array}$$

$$R_f = 1K - (-\frac{1}{\varepsilon}, 0)$$

$$\text{ent}_{\min} \left\{ \begin{array}{l} \frac{14}{\varepsilon}, 1 \\ \frac{14-\varepsilon}{-\varepsilon}, \frac{14}{-\varepsilon} = -1 \end{array} \right.$$

$$R_f = [-1, +\infty)$$

$$\text{ب) ent}_{\max} \left\{ \begin{array}{l} \frac{K}{\varepsilon} = 1 \end{array} \right.$$

$$R_f = (-\infty, 1]$$

$$\frac{14+\varepsilon}{K} = \frac{1\varepsilon}{\varepsilon} = 1$$

$$\text{ا) ent}_{\min} \left\{ \begin{array}{l} \frac{-b}{\varepsilon a} \\ \frac{14-\varepsilon}{-\varepsilon} = -1 \end{array} \right.$$

$$R_f = [-1, +\infty)$$

$$[0, +\infty)$$

$$\text{ب) ent}_{\max} \left\{ \begin{array}{l} \frac{-b}{\varepsilon a} \\ \frac{14+\varepsilon}{\varepsilon} = 1 \end{array} \right.$$

$$R_f = [0, \sqrt{1\varepsilon}]$$

Diba

الف) $R_f = 1R$

ب) $R_f = (0, +\infty)$ (9)

$$y = x^4 + 2x^2 + 2x + 1$$

$$y = \sqrt{x^2 + \varepsilon x^2 + 4x + 1}$$

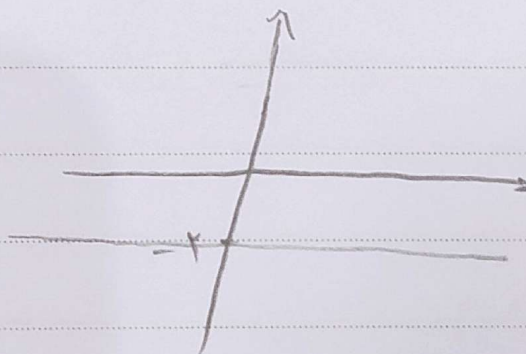
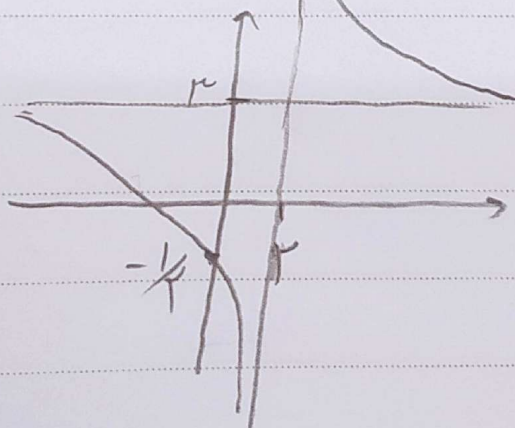
الف) $R_f = 1R - \left\{ \frac{a}{c} \right\} = 1R - \{2\}$

(1)

ب) $R_f = (0, +\infty) - \{2\}$

الف) $y = \frac{2x+1}{x-2}$

ب) $y = \frac{\varepsilon x - 2}{-2x+1} = -2$ (9)



(10)

الف) $R_f = (2, +\infty)$

ب) $\sqrt{n+1/n} = y$

$R_f = (2, +\infty) \cup (-\infty, -2]$