

الف) $S \mid \frac{\Delta}{4}$

$$R_f = [-1, 0, +\infty)$$

$$\frac{-\Delta}{4a} = \frac{2\Delta - 1}{-2} = -\frac{1\sqrt{2}}{2} = -1, 0$$

عرض اکسترم (مستقیم)

ب) $\rightarrow (-\infty, 4] \rightarrow [0, 2]$

ج) $\rightarrow R \rightarrow [0, +\infty)$

د) $\rightarrow R \Rightarrow R_f = (-\infty, +\infty)$

هـ) $R_f = R - \left\{ \frac{2}{2} \right\}$

و) $R_f = \sqrt{R - \frac{1}{2}}$ $\Rightarrow [0, +\infty) - \left\{ \frac{1}{2} \right\}$

ز) $\sqrt{x^2 + 1} + \frac{1}{\sqrt{x^2 + 1}} \Rightarrow a + \frac{1}{a} \xrightarrow{\min a = \sqrt{2}} R_f = \left[\sqrt{2} + \frac{1}{\sqrt{2}}, +\infty \right)$

ح) $\frac{x^2 + 1}{a} + \frac{1}{\frac{x^2 + 1}{a}} - 1 \Rightarrow a + \frac{1}{a} \xrightarrow{\min a = \frac{1}{2}} R_f = \left[\frac{9}{2}, +\infty \right)$

101: $y x^2 - y = x^2 + 4$

$$(x-y)x^2 + (4+y) \xrightarrow{\Delta \geq 0} 0 - (x-y)(4+y) \geq 0 \Rightarrow$$

$$R_f = \mathbb{R} - (-2, 4)$$

201: $\min \square \rightarrow \frac{3(0) + 4}{0 - 1} = -4$
 $\max \square \rightarrow \frac{3(+\infty) + 4}{(+\infty)^2 - 1} = 3$

صنخ صغری استوار $\rightarrow R_f = \mathbb{R} - (-2, 4)$

$\max \square \rightarrow \frac{x+4}{1-x} = -2$
 $\min \square \rightarrow \frac{-x+4}{-1-x} = -\frac{1}{2}$

صنخ صغری $\rightarrow [-2, -\frac{1}{2}]$

الف) $\max \square \rightarrow \frac{x}{4}$
 $\min \square \rightarrow \frac{x}{4}$

صنخ صغری $\rightarrow \mathbb{R} - \left\{ \frac{x}{4} \right\} \xrightarrow{||} R_f = [0, +\infty) - \left\{ \frac{x}{4} \right\}$

ب) $\max \square \rightarrow \frac{9}{4}$
 $\min \square \rightarrow \frac{9}{4}$

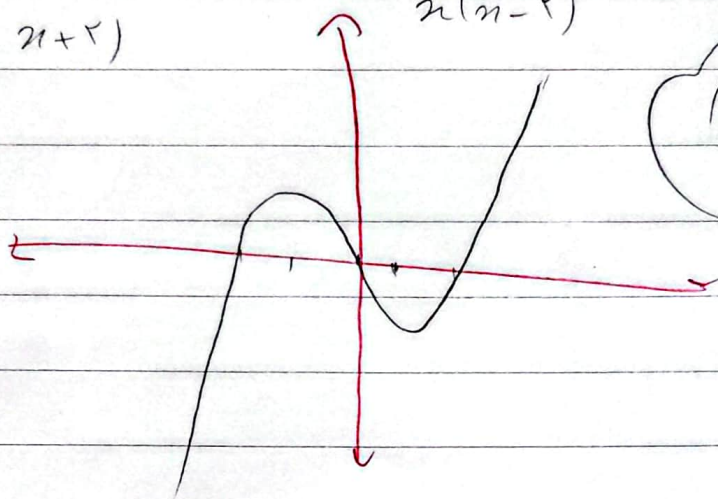
صغری که گزیند، صغری که صورت، راهم صغری کند $\left(\frac{9}{4} \right)$ $\rightarrow R_f = \left\{ \frac{9}{4} \right\}$

$y = \sqrt{\frac{9}{4}}$ صغری عبارت

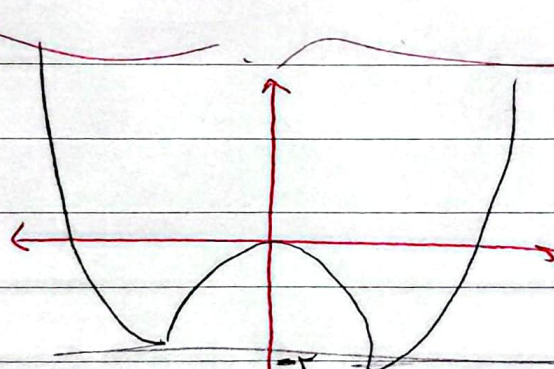
(4)

$$\begin{array}{c|c}
 -x^2 - 2x & x^2 - 2x \\
 -x(x+2) & x(x-2)
 \end{array}$$

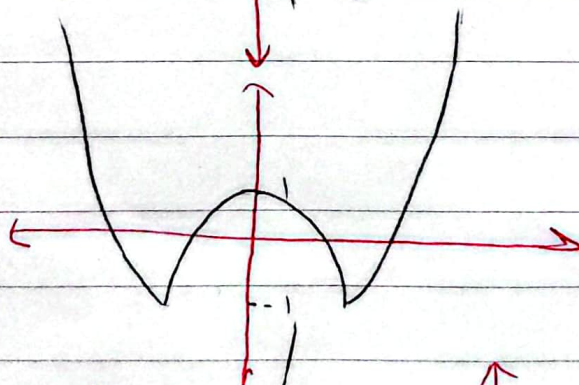
$$R_f = \mathbb{R}$$



$$f(|x|)$$



$$L(|x|) + 1$$



$$|L(|x|) + 1|$$

