

سارینا اسپانی - دوازدهم ریاضی B - شماره تلفن (۴)

$$f(-x) - 2f(x) = 2|x| + 1 \quad f(x) = ? \quad (1)$$

$$x \rightarrow f(-x) - 2f(x) = 2|x| + 1 \quad \times (-x)$$

$$-x \rightarrow f(x) + 2f(-x) = 2|x| + 1$$

$$\begin{cases} -2f(-x) + 2^2 f(x) = 2|x| \cdot 2 + 2 \\ 2f(-x) + f(x) = 2|x| + 1 \end{cases}$$

$$2f(-x) + f(x) = 2|x| + 1$$

$$f(x)(2^2 + 1) = (2x + 2)|x| + 2 + 1$$

$$f(x) = \frac{(2|x| + 1)(1 - 2)}{1 + 2^2}$$

$$f(x^2) = ?$$

$$f(x) + f(0) = x^2 - 3x + 4$$

$$f(0) = 4 \rightarrow f(0) = 3$$

$$f(x) = x^2 - 3x - 3 \rightarrow f(x^2) = x^4 - 3x^2 - 3$$

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

پیدا

(۳)

$$yx - y = x^2 + x + 1$$

$$0 = x^2 - yx + x + y + 1$$

$$\Delta \geq 0 \quad (-y+1)^2 - 4(y+1) \geq 0$$

$$y^2 - 4y + 1 - 4y - 4 \geq 0$$

$$y^2 - 4y - 3 \geq 0$$

$$(y-5)(y+1) \geq 0$$

$$\begin{array}{c|cc} & -1 & 5 \\ \hline & + & - & + \end{array}$$

$$R = (-\infty, -1] \cup [5, +\infty)$$

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

(۴)

$$x_s = \frac{-b}{2a} \rightarrow \frac{\omega}{2} \Rightarrow y_s = f\left(\frac{\omega}{2}\right) = \frac{\omega^2}{4} + 1 = \frac{-\omega^2 + 4}{4} = \frac{-\omega}{4}$$

$$R = \left[\frac{-\omega}{4}, +\infty\right)$$

DAT

ب) $y = \sqrt{-x^2 + 4x - 5}$

$x_5 = \frac{-4}{-2} = 2 \text{ (3)} \rightarrow y_5 = -4 + 16 - 5 = 7 \text{ (4)} \rightarrow \sqrt{7} = 2 \text{ (5)}$

$R_y = [0, 2]$

ج) $y = \sqrt{x^2 - 3x^2 + 4x + 1}$

$\mathbb{R} \xrightarrow{\text{حد}} [0, +\infty)$

د) $y = \log x^3 - 4x^2 + 7x + 4$

بزرگترین توان قدر
است پس برد $\mathbb{R}$
 $x^3 - 4x^2 + 7x + 4 > 0$

$\rightarrow \log (0, +\infty) \quad R_f = (-\infty, +\infty)$

الف) $y = \frac{3x+1}{2x-4} \quad \text{بر} \mathbb{R} - \left\{ \frac{4}{2} \right\}$

(5)

$\mathbb{R} - \left\{ \frac{c}{a} \right\} \rightarrow$

ب) $y = \sqrt{\frac{4x+1}{2x-2}}$

$\mathbb{R} - \{2\} \xrightarrow{\text{حد}} \text{بر} [0, +\infty) - \{2\}$

ج) $y = \frac{x^2+4}{\sqrt{x^2+3}}$

$\sqrt{x^2+3} + \frac{1}{\sqrt{x^2+3}}$

حد $\rightarrow \sqrt{x} + \frac{1}{\sqrt{x}} = \frac{x}{\sqrt{x}}$

$\left[\frac{x}{\sqrt{x}}, +\infty \right)$

د) $y = x^2 + \frac{1}{x^2+4} + 4 - 4 \rightarrow x^2 + \frac{1}{x^2+4} - 4$

$4 + \frac{1}{4} = \frac{17}{4} \text{ (4)} \rightarrow \frac{1}{4}$

$R_y = \left[\frac{1}{4}, +\infty \right)$

$$y = \frac{r_2 r + r}{2r - 1}$$

①

$$y_2 r - y = r_2 r + r$$

$$-r_2 r + y_2 r = y + r \rightarrow r^2 (y - r) = y + r \rightarrow r^2 = \frac{y + r}{y - r}$$

$$r = (-\infty, -r] \cup (r, +\infty) \quad \frac{y+r}{y-r} \geq 0 \quad \frac{-r}{+} \frac{r}{-}$$

②

$$\min \rightarrow \textcircled{0} \rightarrow \textcircled{-r}$$

$$(-\infty, -r] \cup (r, +\infty) \leftarrow \textcircled{r}$$

$$\max \rightarrow +\infty \rightarrow \textcircled{r}$$

$$f(x) = \frac{r \sin x + r}{\sin x - r}$$

③

$$\max \rightarrow \textcircled{+1} \rightarrow \frac{r}{-r} = \textcircled{-r}$$

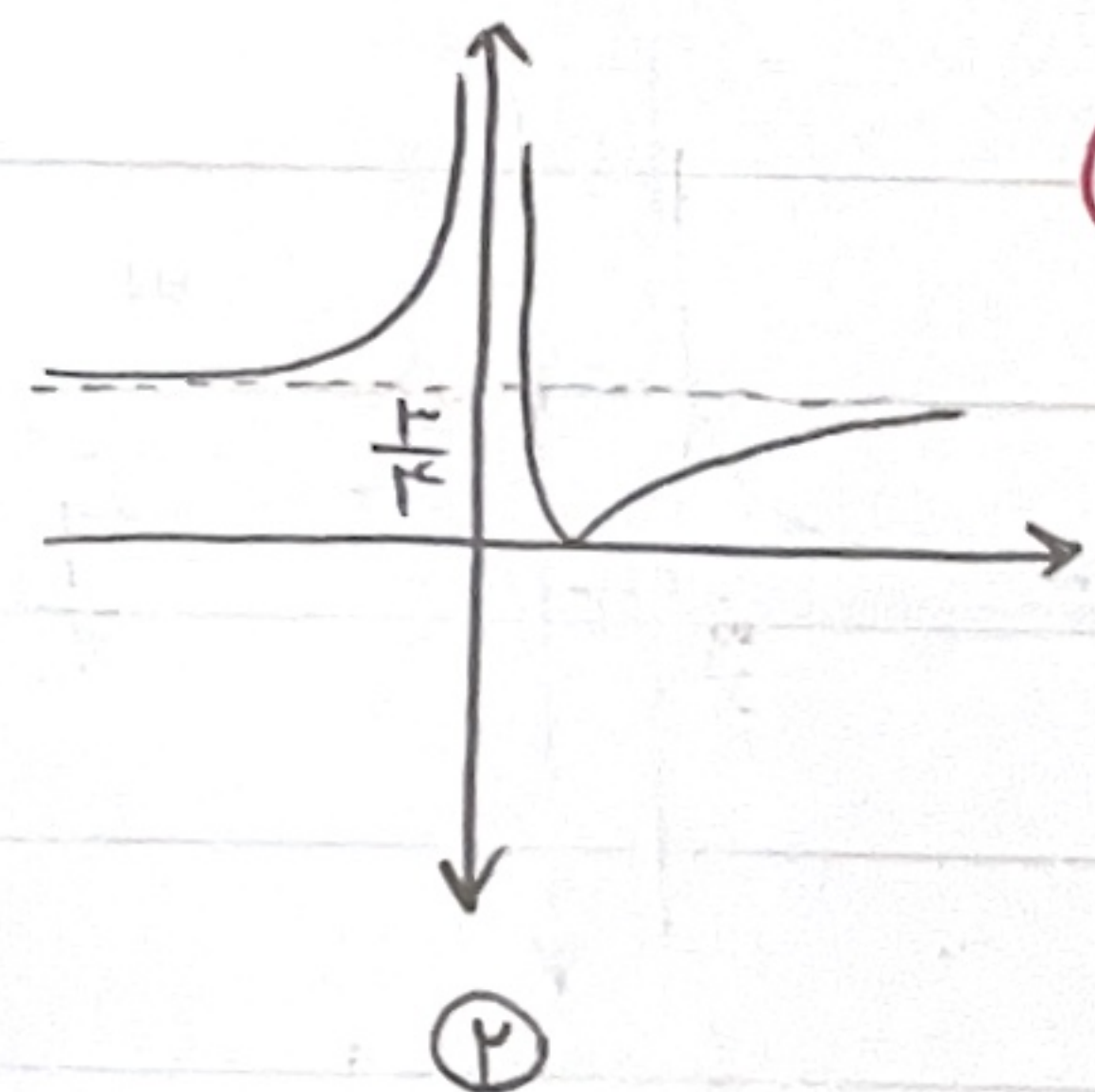
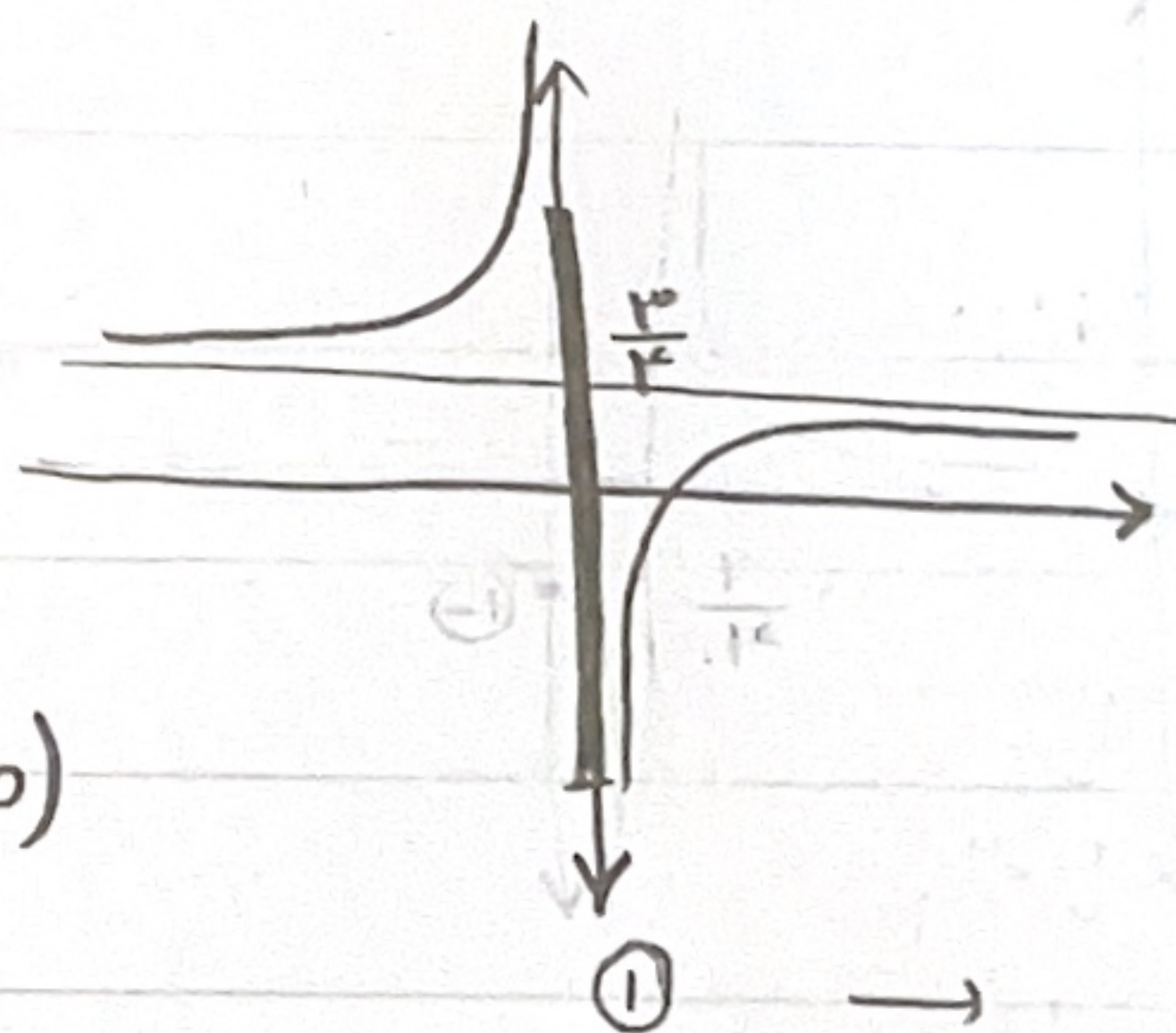
$$[-r, -\frac{1}{r}]$$

$$\min \rightarrow \textcircled{-1} \rightarrow \frac{+r}{-r} = \textcircled{\frac{-1}{r}}$$

$$\text{الف) } y = \left| \frac{r_2 - 1}{r_2} \right|$$

مجاہد افق $= \frac{r}{r}$
مجاہد عمودی $= 0$

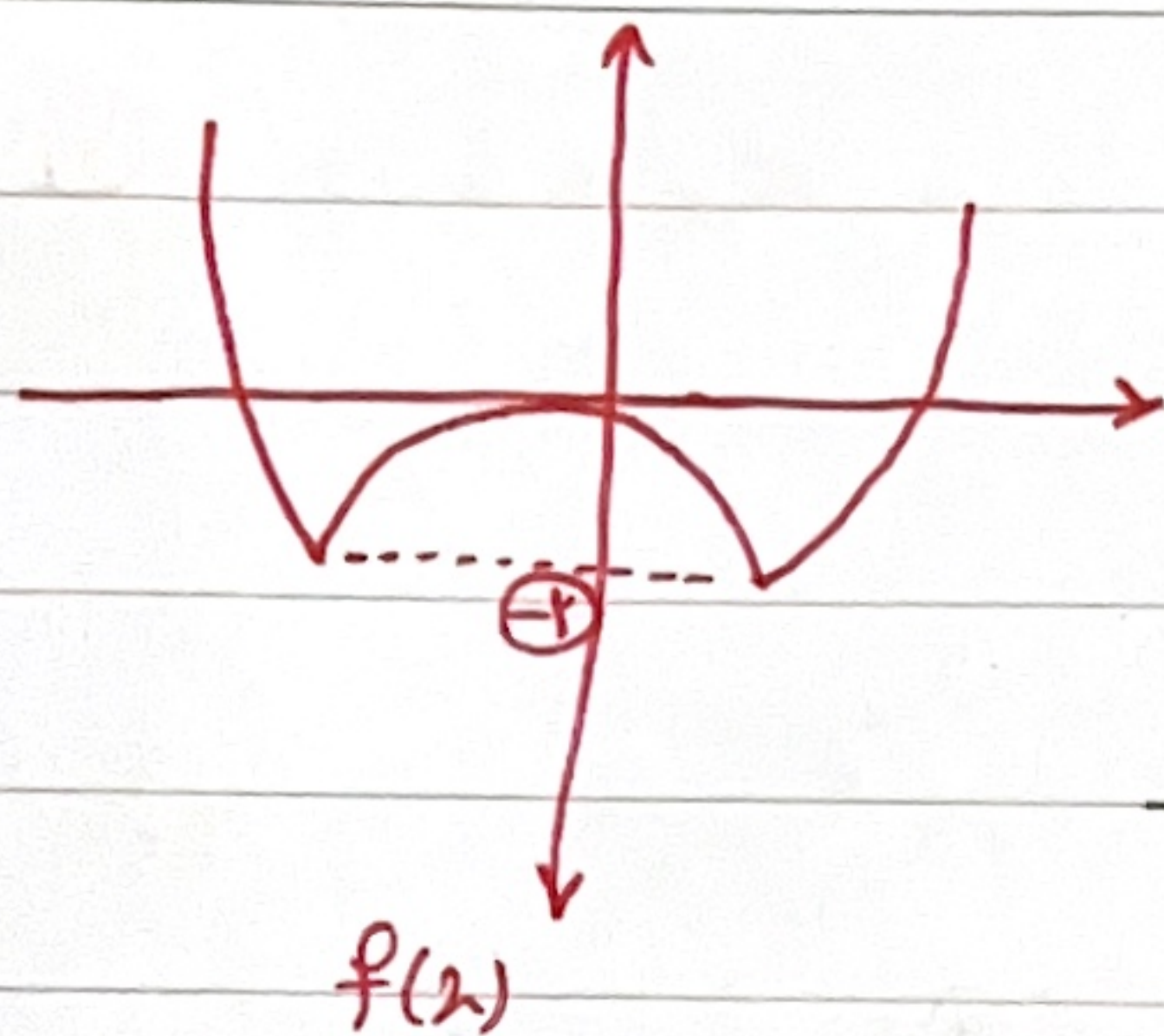
$$Ry = [0, +\infty)$$



$$\text{ب) } y = \sqrt{\frac{9x-18}{-1+4x}} \rightarrow \sqrt{\frac{9}{4}} = \frac{3}{2}$$

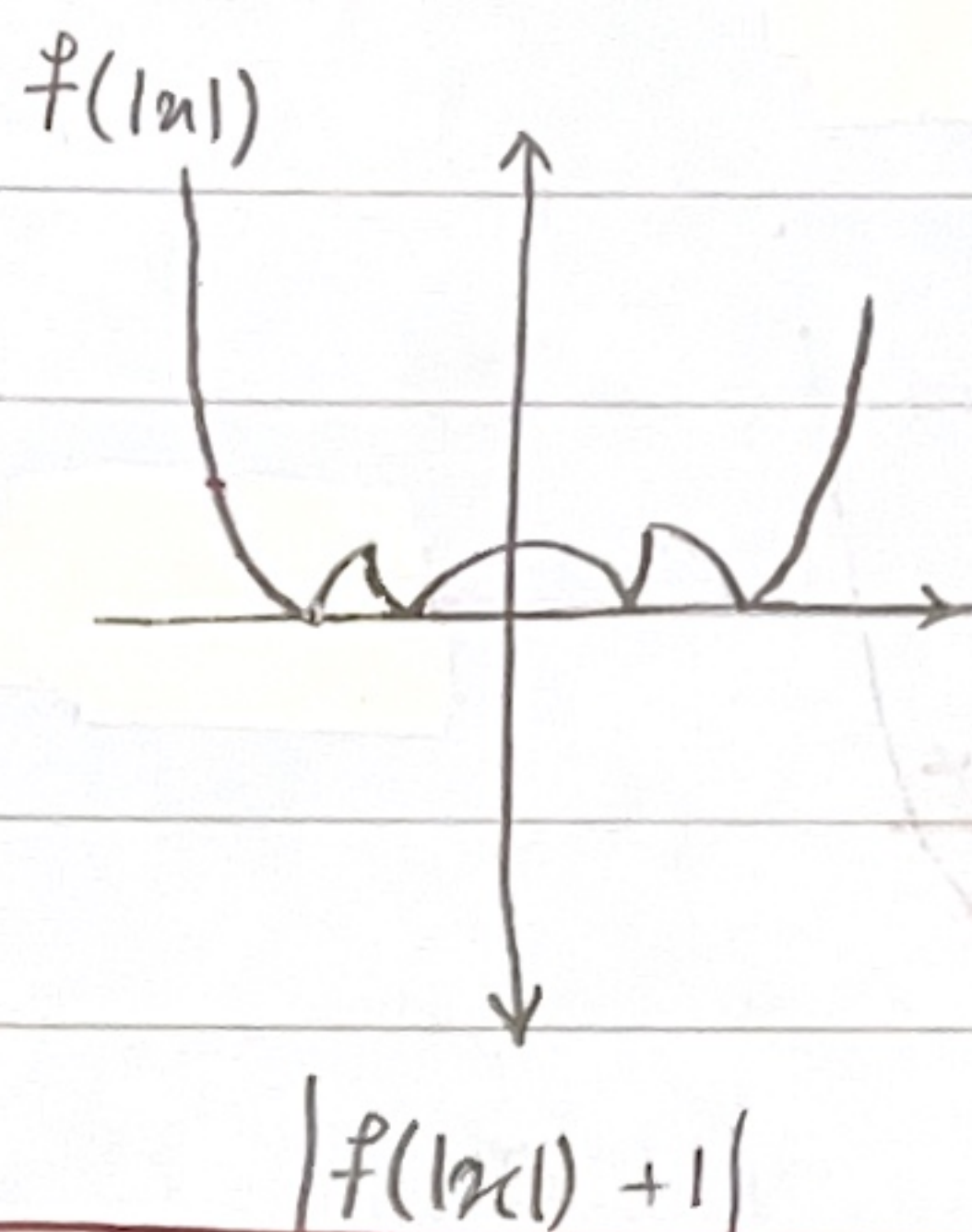
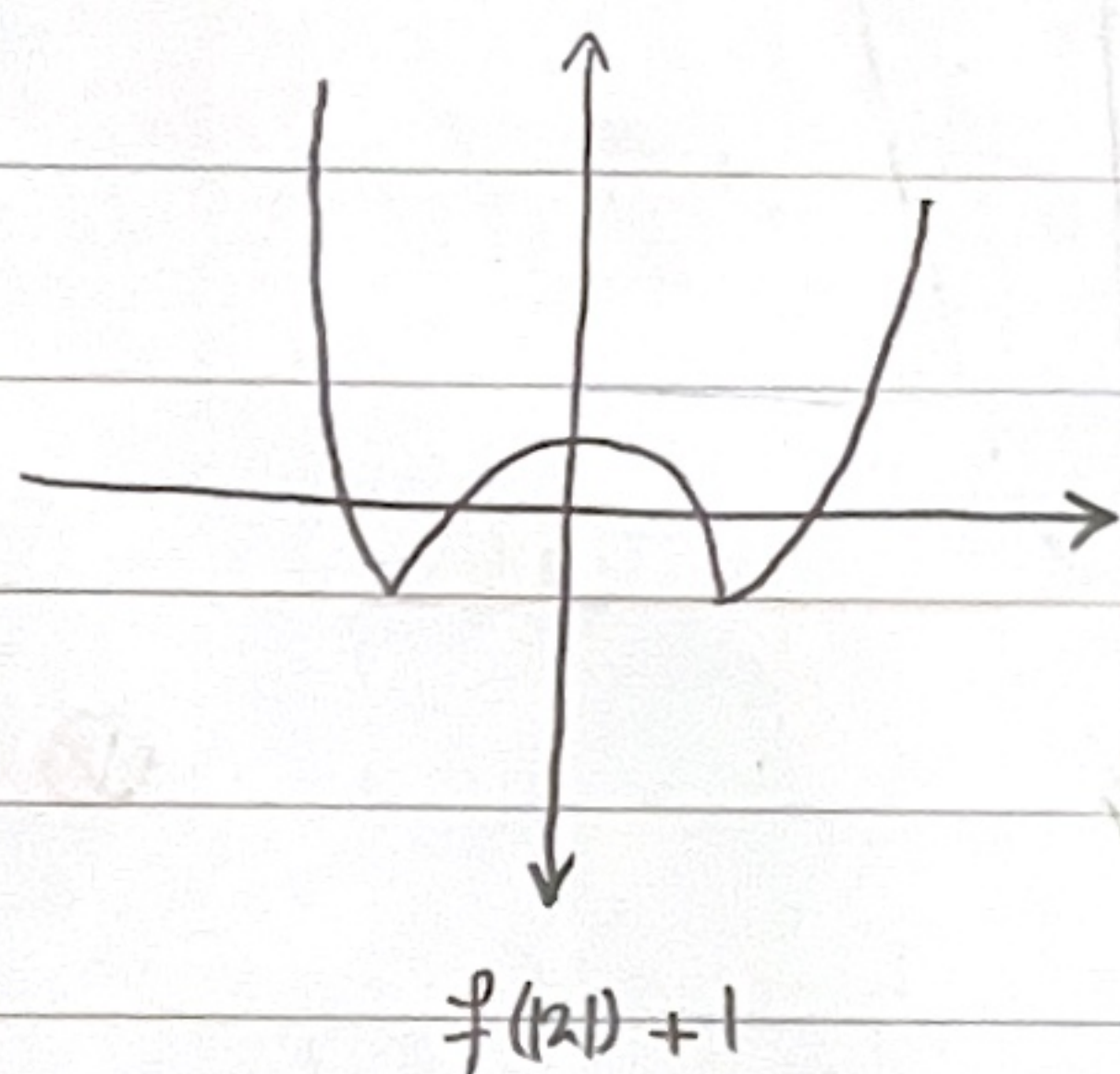
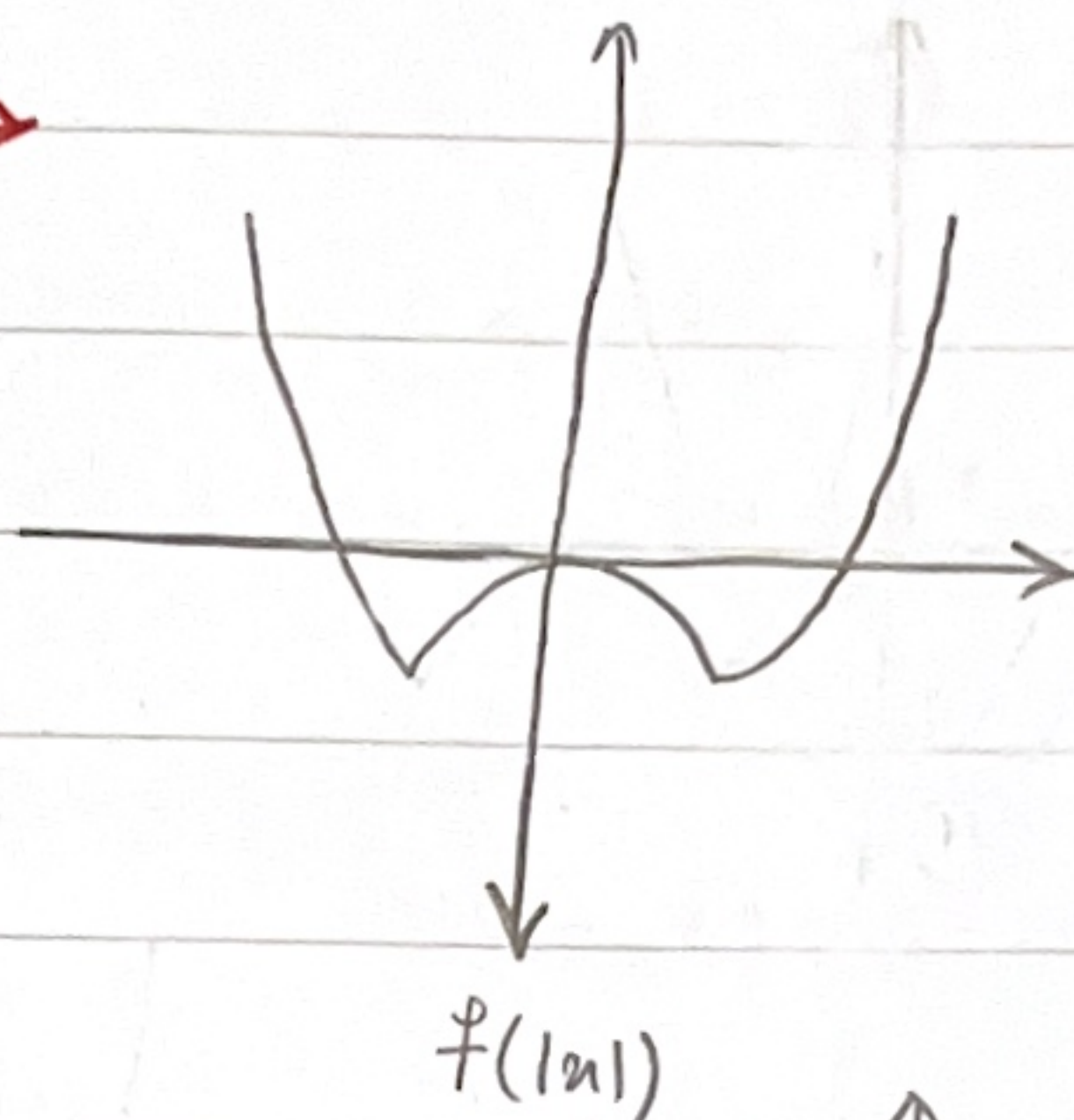
$$\frac{9(x-2)}{4(x-2)}$$

$$Ry = \left\{ \frac{3}{2} \right\}$$



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

⑩



$$y = x|x| - x^2$$

⑨

$$\frac{-x^2 - x^2}{x^2 - x^2}$$

$x \rightarrow \mathbb{R}$

