

Subject

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پارسه

۲۰

تکلیف

فصلنامه

$$f(u) = \sqrt{1-u^2}$$

$$g = \{(-1, 1), (0, 4), (2, 0), (1, 2)\}$$

$$D_f = \sqrt{(1-u)(1+u)} = \frac{-1+1}{1+1} = 0$$

$$D_g = [-1, 1]$$

مجموعه اعضای $(2-3)$

$$f(u) = \{(-1, 0), (0, 3), (1, 0)\}$$

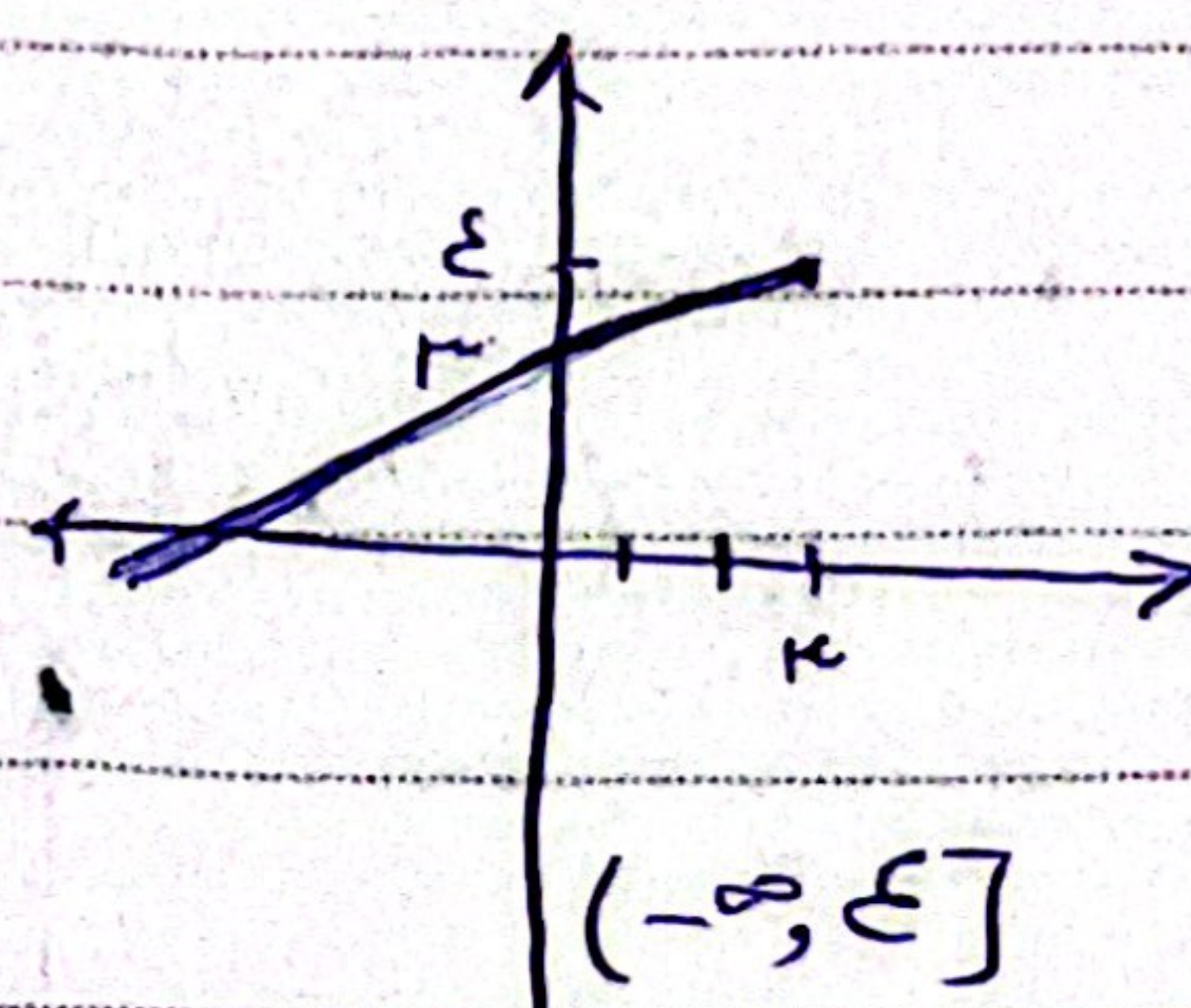
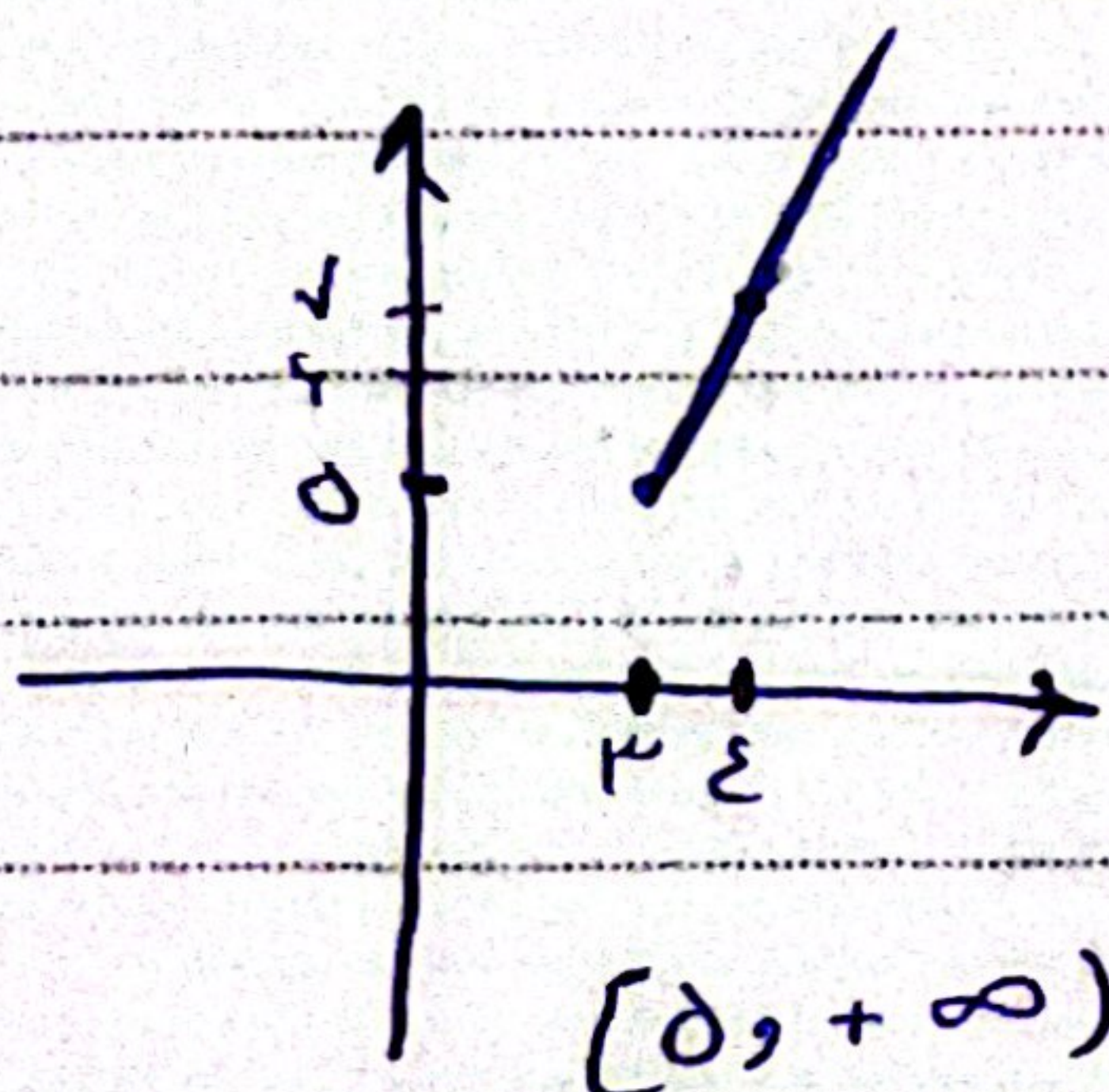
$$g = \{(-1, 2), (0, 1), (2, 0), (1, 1)\}$$

$$g - f = \{(-1, 2), (0, 0), (1, 1)\} \rightarrow 2+0+1=3$$

$$f(u) = 2u-1 \quad D_f = [3, +\infty)$$

$$g(u) = \frac{1}{u} + 3 \quad D_g = (-\infty, 3]$$

$$R_f + R_g = (-\infty, 3] \cup [3, +\infty)$$



$$y = \frac{-u^2}{r} + u + 3 \quad R_y \xrightarrow{\text{درجه}} (a, b) \rightarrow \left(\frac{r}{r}, +\infty\right)$$

$$\max \sqrt{b-a} \quad \sqrt{3-(-1)} = 2$$

$$\frac{-u^2}{r} + u + 3 > \frac{r}{r} \rightarrow -\frac{u^2}{r} + u + 4 > 1$$

$$-(u^2 - 4u - 3) > 0$$

$$(-1, 3) \rightarrow \text{نقطه}$$

$$\frac{-1}{0} + \frac{3}{0} = 0$$

$$-(u-3)(u+1) > 0$$

$$a = -1 \quad b = 3$$

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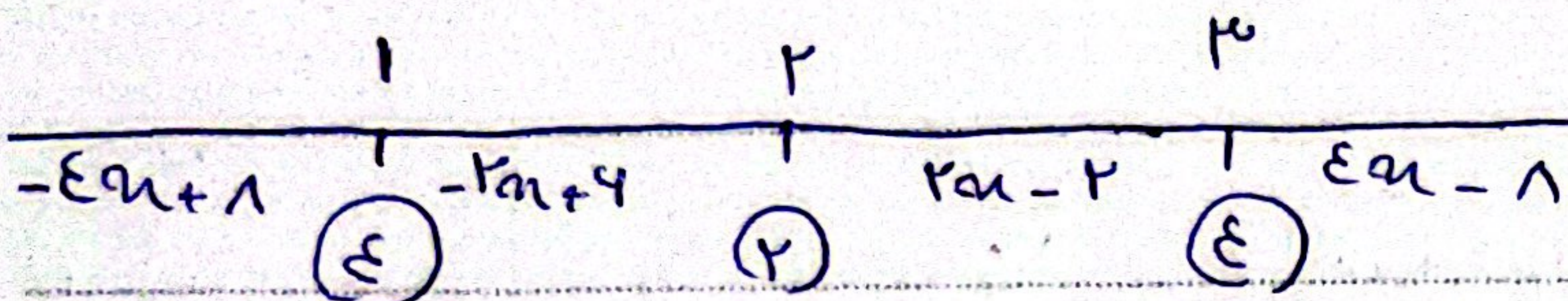
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$\min y, P$

$$y = |a-1| + |a-3| + |a-5|$$

(5)

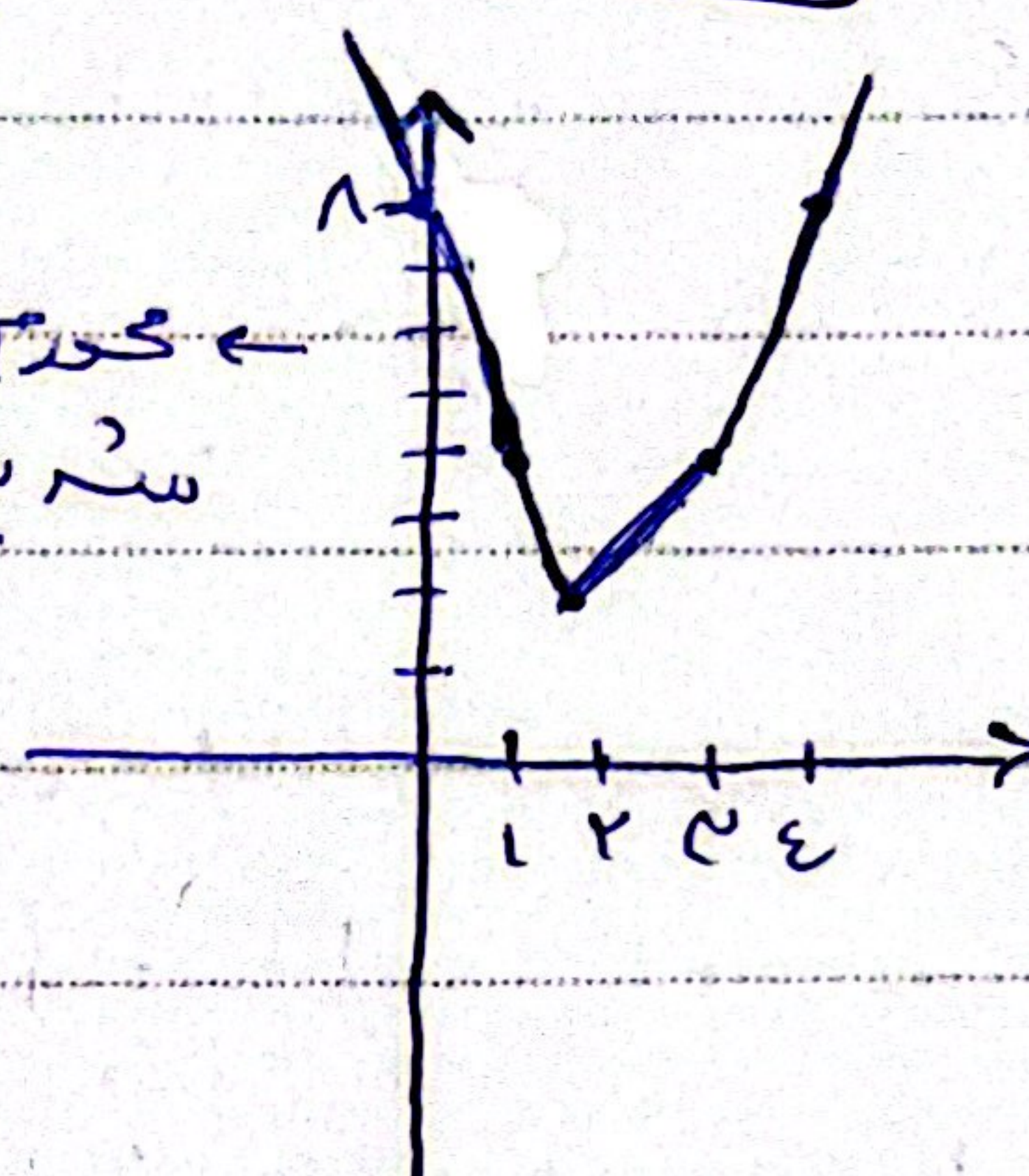


$\min y \rightarrow P$

(P)

a	0	1	3	5	ε
y	1	ε	P	ε	1

سوال 2
! در مسئله سوال

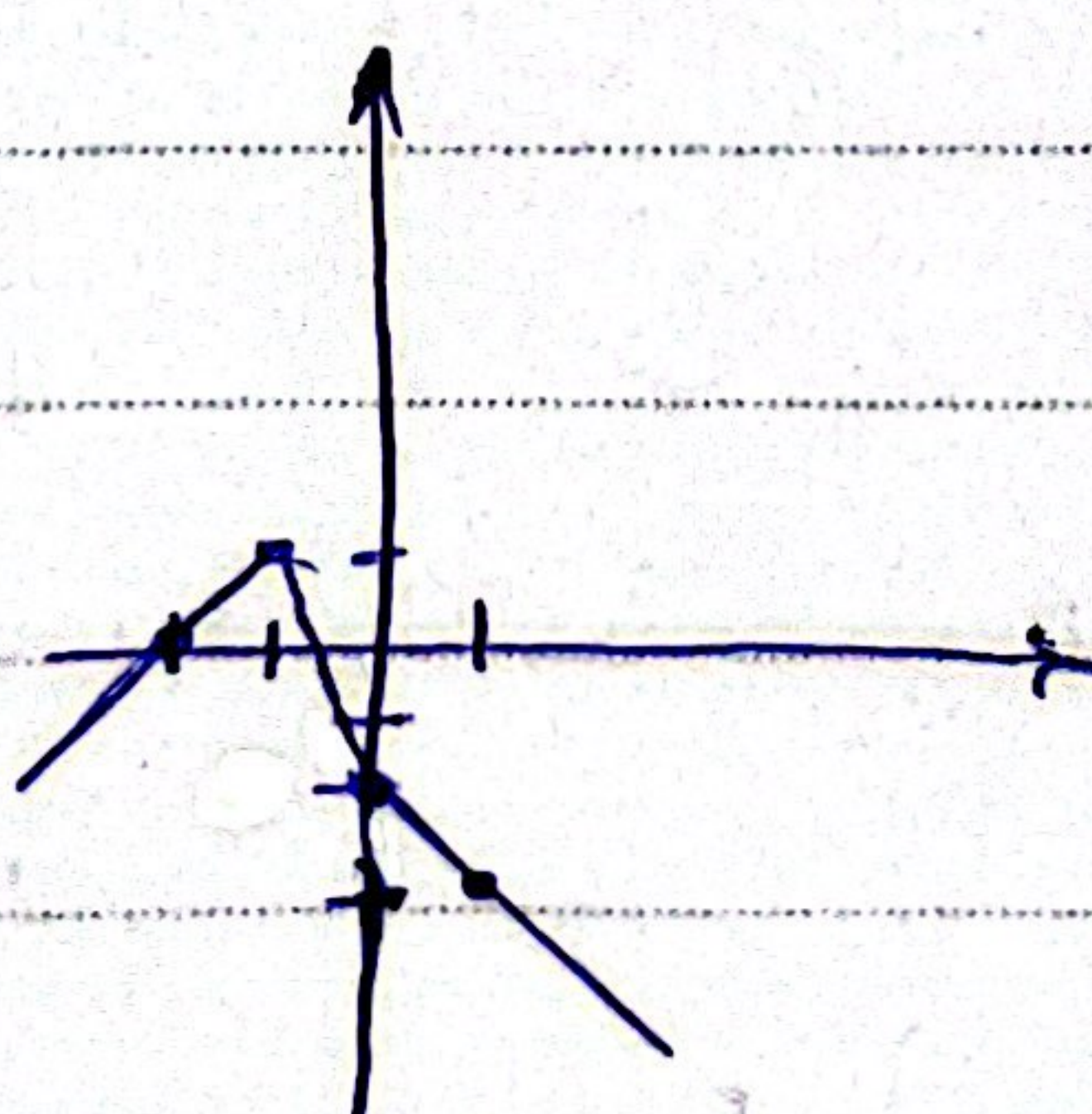
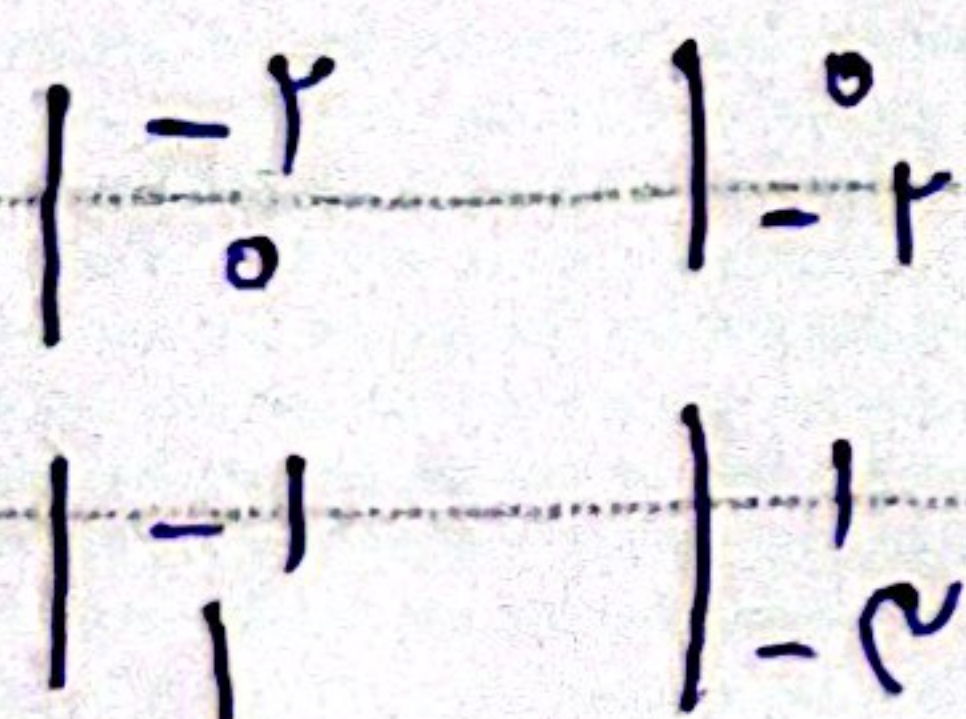
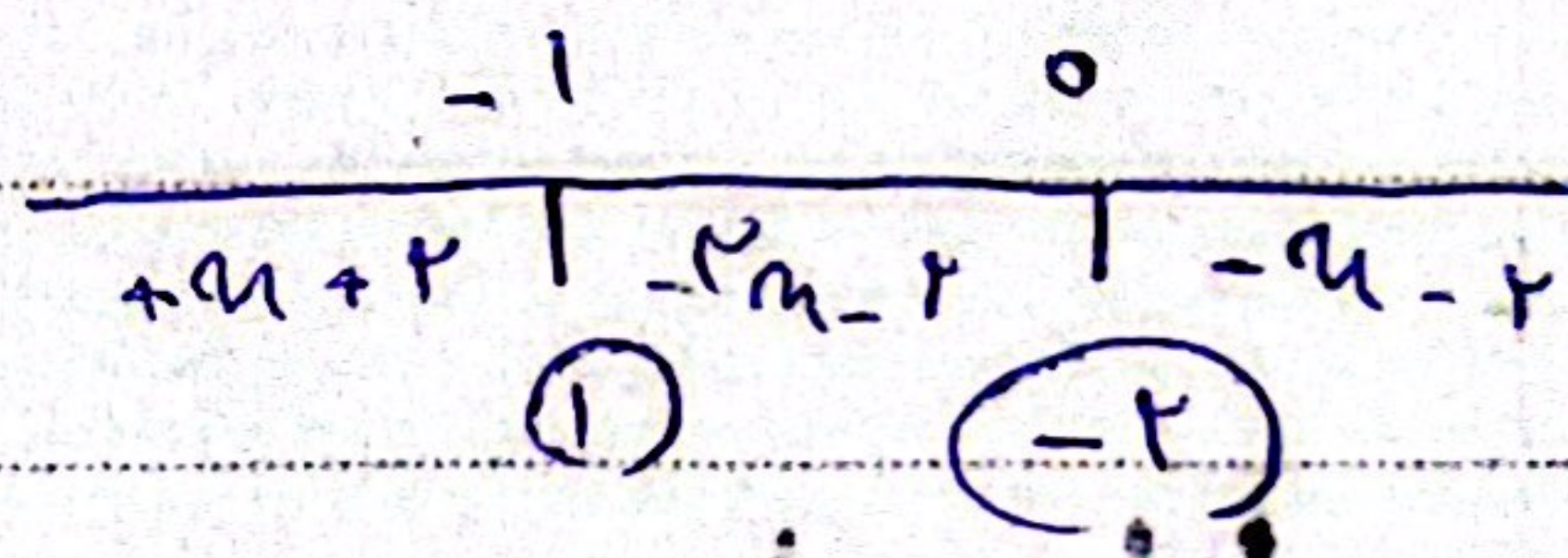


5

R_y

$$y = |a| - P(m+1)$$

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



(P)

15

m میشود

$$y = \frac{a^2 + 2a + m}{a+1}$$

$R \leftarrow y, P$

(P) (5)

$$a^2 + (2-y)a + m - y = 0$$

$$y^2 - 4y + 2a - \epsilon m \xrightarrow{\Delta \leq 0} 4y - \epsilon(2a - \epsilon m) \leq 0$$

$$a = \frac{y-2 \pm \sqrt{(2-y)^2 - \epsilon m + \epsilon y}}{\epsilon} = \frac{y^2 - 4y + 2a - \epsilon m + \epsilon y}{\epsilon}$$

$$4y - 100 + 14m \leq 0$$

$$y^2 - 4y + 2a - \epsilon m \geq 0$$

$$14m \leq 48 \Rightarrow m \leq 4$$

$$\frac{a^2 + 2a + \epsilon}{a+1} \rightarrow \frac{(a+1)(a+\epsilon)}{(a+1)} \rightarrow a+\epsilon$$

$$b_2 \rightarrow m \neq \epsilon$$

$$m \in \{1, 2, 3\}$$

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$$R_f = \mathbb{R}$$

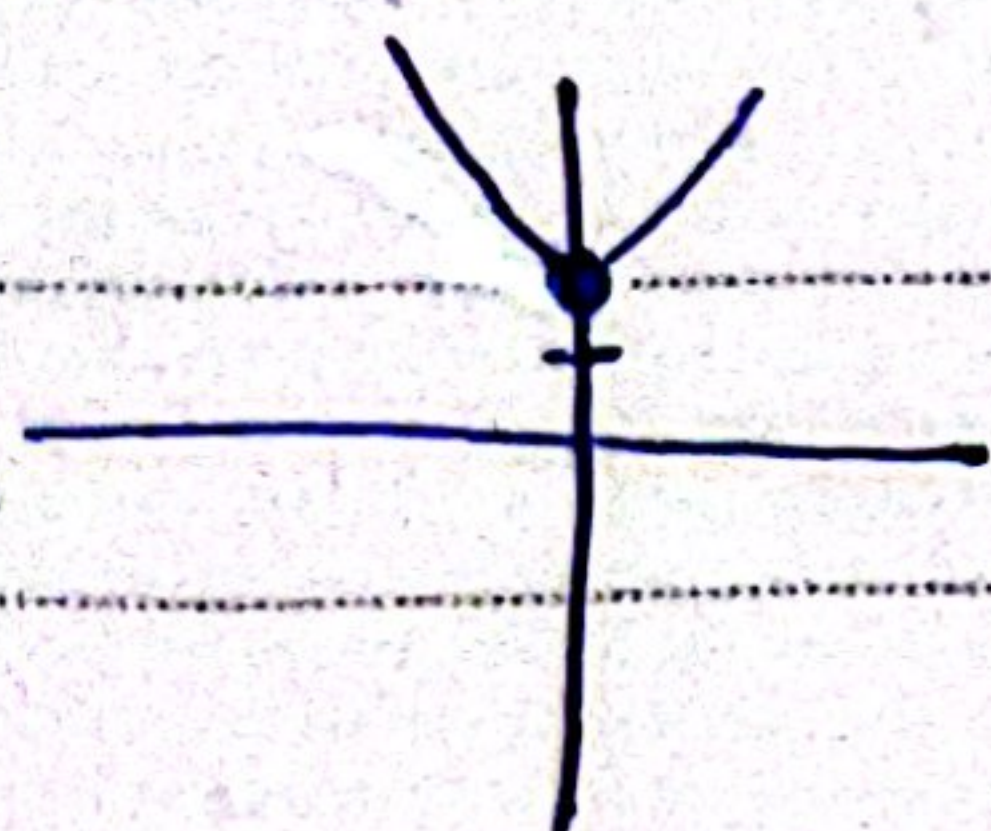
(V)

$$f(x) = \begin{cases} x+r, & x \geq r \\ x^2 - rx + r, & 0 \leq x < r \\ |x| + r, & x < 0 \end{cases}$$

$$R_1 = [0, +\infty) \quad |x|_0^r \quad |x|_r^r$$

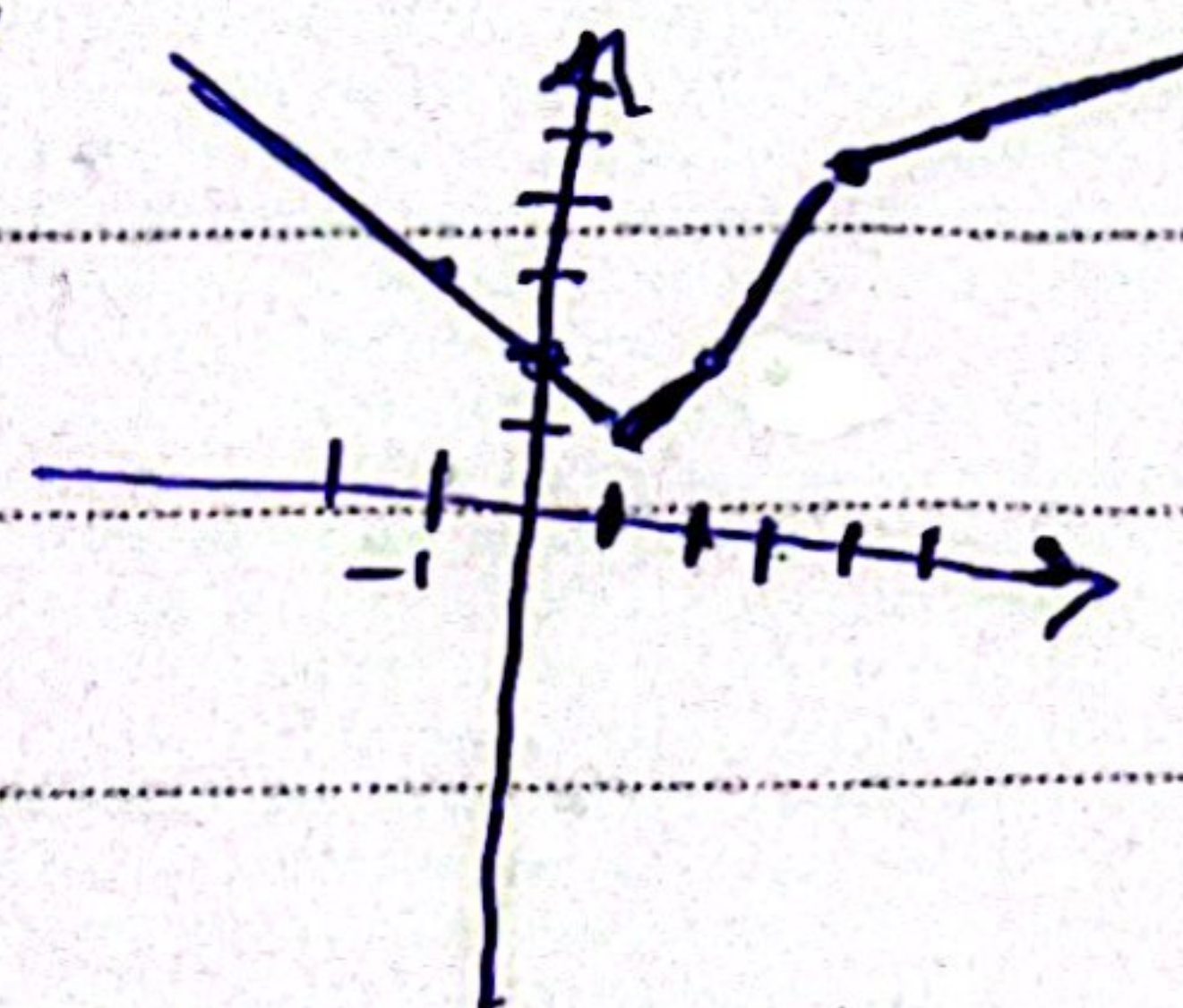
$$g = (x-1)^2 + 1 \rightarrow S \mid 1$$

(J)



$$|x|_0^r \quad |x|_r^r$$

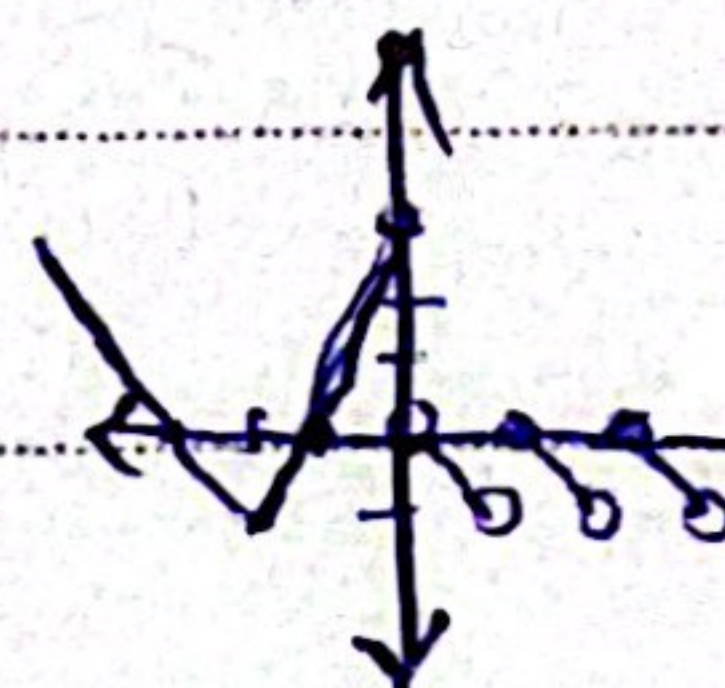
$$R_{gr} = [r, +\infty)$$



$$R_g = \mathbb{R}$$

(J)

$$f(x) = \begin{cases} x+r, & x \leq 0 \\ x^2 - rx, & x > 0 \end{cases}$$



$$R_1 = [-1, +\infty)$$

$$R_r = (-1, 0] \quad R_1 \cup R_r = [-1, +\infty)$$

$$g = a + 1 - \sqrt{rx + r}$$

$$D_g = [a+r, +\infty) \rightarrow x_2 = \frac{r}{b} \rightarrow b = \frac{r}{x_2}$$

(9)

(J)

$$D_g = [b, +\infty)$$

$$R_f \rightarrow y_{max} \rightarrow \sqrt{rx + r} \leq 0 \rightarrow x = -\frac{r}{r}$$

$$R_g = (-\infty, 0]$$

$$g = a + 1 - 0 \rightarrow 0 \rightarrow a = 1$$

$$ab \leq \frac{r}{r} \rightarrow a \in \mathbb{R} \rightarrow -9$$

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$$f(u) = \sqrt{u+1} + \sqrt{1-u}$$

$$u+1 \geq 0 \rightarrow u \geq -1$$

$$R_g = [-1, \sqrt{2}]$$

$$u \in [-1, 1]$$

(12)

$$f(u) + g(u) = \sqrt{1+1+\sqrt{1-u}}$$

$$1-u \geq 0 \rightarrow u \leq 1$$

(5)

$$D_f = D_g$$

$$f(1) = \sqrt{2} \quad f(-1) = \sqrt{2} \quad f(0) = 2$$

$$R_g = \mathbb{R} \quad y = \frac{f(u)}{4} - \frac{g(u)}{2}$$

$$f(1) + g(1) = \sqrt{2} + \sqrt{1-1} \rightarrow g(1) = \sqrt{2} - \sqrt{2} = 0$$

$$f(-1) + g(-1) = \sqrt{2} + \sqrt{1-(-1)} = g(-1) = 2 - \sqrt{2}$$

$$g(1) = \frac{\sqrt{2}}{4} - \frac{\sqrt{2}}{2} = -\frac{\sqrt{2}}{4}$$

$$\sqrt{2} - \sqrt{2} = -\sqrt{2}$$

$$g(-1) = \frac{2-\sqrt{2}}{4} - \frac{\sqrt{2}}{2} = \frac{2-\sqrt{2}-2\sqrt{2}}{4} = \frac{2-3\sqrt{2}}{4}$$