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$$f(x) = \sqrt{1-x^2} \rightarrow 1-x^2 \geq 0 \rightarrow 1 \geq x^2 \rightarrow -1 \leq x \leq 1$$

$$D_{g \cap f} = \{\pm 1, 0\} \Rightarrow 2g - 3f = \left\{ (-1, 2-0), (0, 1-0), (1, 3-0) \right\}$$

$$= \left\{ (-1, 2), (0, 1), (1, 3) \right\} \Rightarrow \{x^2\}$$

$$2 \times 0 + 1 = 1$$

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$$y = 2x - 1 \xrightarrow{x \in [3, +\infty)} R_y = [5, +\infty)$$

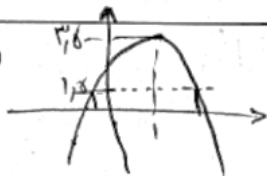
$$g(x) = \frac{1}{x} x + 3 \xrightarrow{x \in (-\infty, 3]} R_{y'} = (-\infty, 4]$$

$$\Rightarrow R_f \cup R_g = (-\infty, 4] \cup [5, +\infty)$$

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$$y = -\frac{x^2}{2} + x + 3 \xrightarrow{\text{ext } 1/2, 0}$$



$$\Rightarrow -\frac{x^2}{2} + x + 3 = \frac{3}{2} \Rightarrow -\frac{x^2}{2} + x + \frac{3}{2} = 0$$

$$\Rightarrow \begin{cases} x_1 = 3 \\ x_2 = -1 \end{cases}$$

$$\Rightarrow (a, b) = (-1, 3) \Rightarrow \begin{cases} a = -1 \\ b = 3 \end{cases} \Rightarrow b - a = 3 - (-1) = 4$$

$$\Rightarrow \sqrt{b-a} = \sqrt{4} = 2$$

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$$\begin{array}{c|c|c|c} 1 & 2 & 3 & \\ \hline -x+1 & -2x+4 & 2x-2 & 4x-1 \\ \hline [1, +\infty) & [2, 4] & [1, 2] & [2, +\infty) \end{array}$$

$$\Rightarrow \text{کترین مقدار: } 2$$

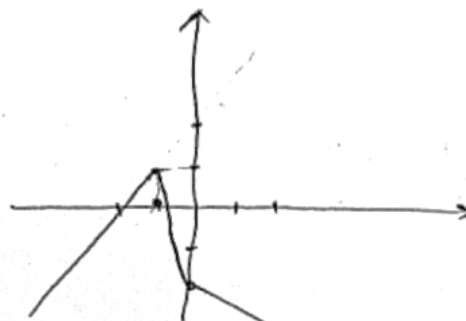


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$$\begin{array}{c|c|c} -1 & 0 & \\ \hline x+2 & -2x-2 & -x-5 \\ \hline (1) & (-2) & \end{array}$$

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



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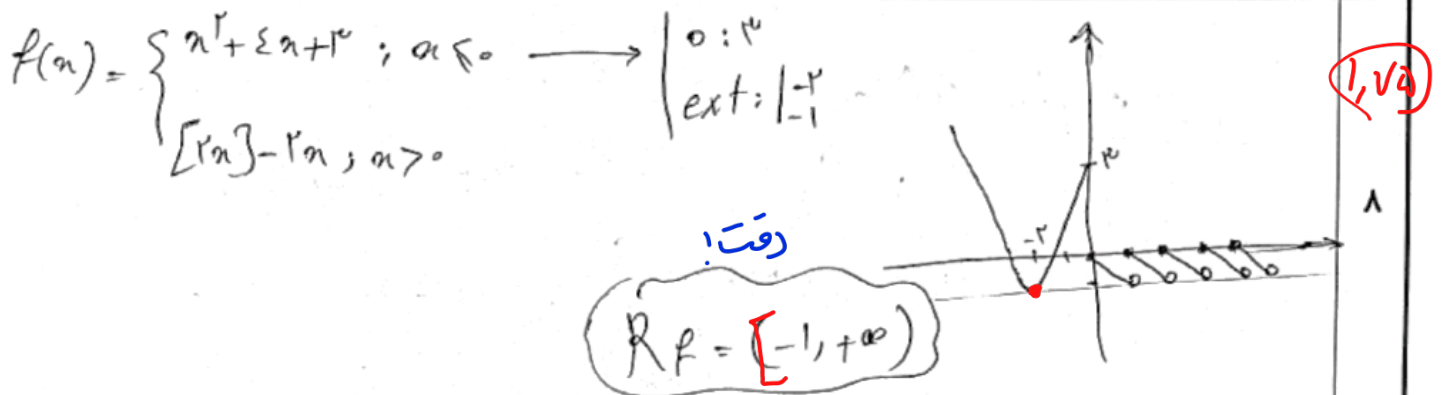
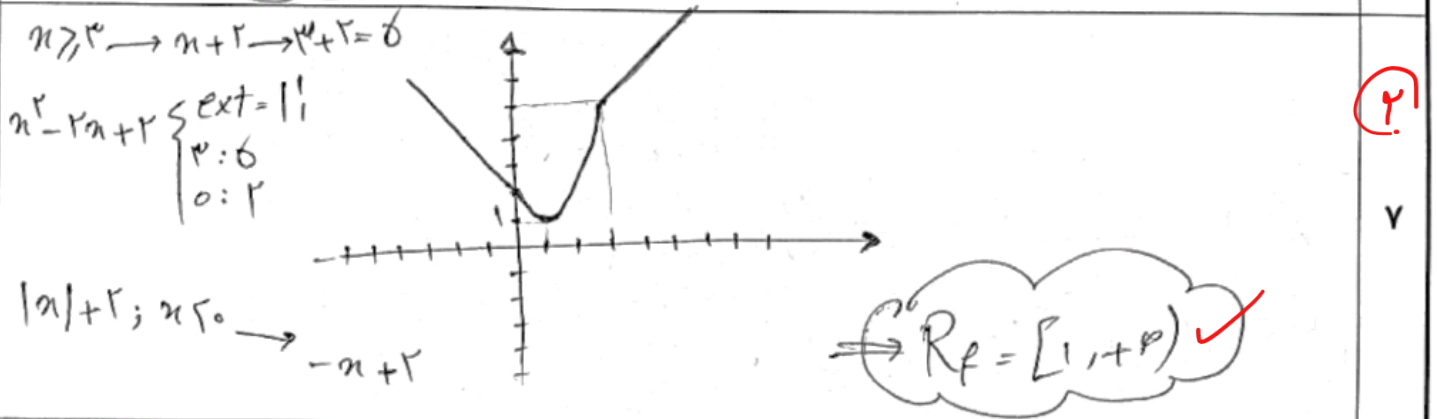
$y = \frac{n^2 + \delta n + m}{n+1} \rightarrow \begin{cases} \text{در معادله درجه 2 تابع IR نمی شود} \\ \text{معادله خطی} \rightarrow R = \mathbb{R} \end{cases}$

$(n+1)(\text{cloud}) = n^2 + \delta n + m \Rightarrow \text{cloud} = n - \gamma \Rightarrow m = -\gamma \Rightarrow m \leq -\gamma$

از طرفی چون γ حقیقی و $\gamma > 0$ است پس به ازای $n = -1$ y ندارد. $\leftarrow$ بد تابع IR نمی شود.

$\Rightarrow$ {صفر عدد طبیعی}

پاسخنامه رو بخون



$\sqrt{a} \rightarrow \begin{cases} \text{graph} \end{cases} \Rightarrow -\sqrt{a} = \begin{cases} \text{graph} \end{cases} \Rightarrow \begin{cases} \delta - \sqrt{a} \\ R = (-\infty, \delta] \end{cases}$

$\Rightarrow a = \varepsilon$

$\sqrt{2n+3} \geq 0 \rightarrow 2n+3 \geq 0 \rightarrow n \geq -\frac{3}{2} \rightarrow b = -\frac{3}{2} \Rightarrow ab = (\varepsilon)(-\frac{3}{2}) = -\frac{3\varepsilon}{2}$

$\sqrt{n+1} \geq 0 \rightarrow n \geq -1$

$\sqrt{n+1} \geq 0 \rightarrow n \leq 1$

$\Rightarrow n = [-1, 1]$

$f(1) = 2\sqrt{2} \rightarrow f(1) + g(1) = 3\sqrt{2} \Rightarrow g(1) = \sqrt{2} \quad Dg = Df$

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

$\frac{f(n)}{4} - \frac{g(n)}{3} \rightarrow \begin{cases} \frac{f(1)}{4} - \frac{g(1)}{3} = \frac{2\sqrt{2}}{4} - \frac{\sqrt{2}}{3} = 0 \\ \frac{f(-1)}{4} - \frac{g(-1)}{3} = \frac{-\sqrt{2}}{4} - \frac{-\sqrt{2}}{3} = \sqrt{2} \end{cases}$

$\Rightarrow R = [0, \sqrt{2}]$