

$$\left. \begin{array}{l} D_f = [-1, 1] \\ D_g = \{-1, 0, 1, 2\} \end{array} \right\} \Rightarrow \{-1, 0, 1\}$$

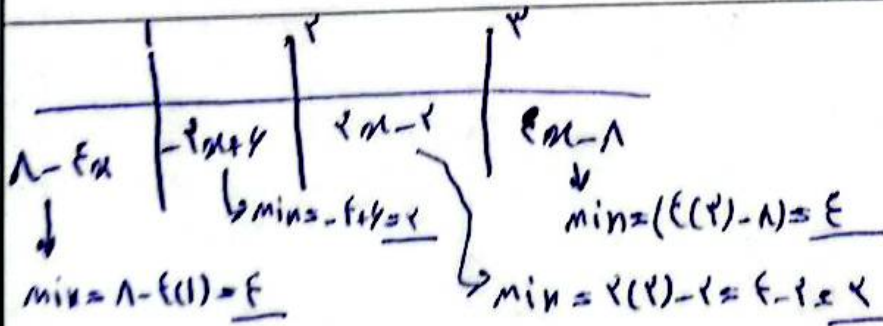
$$\left\{ \underbrace{(-1, 2)}_{f=0 \leq 2}, \underbrace{(0, 0)}_{1-2=0}, \underbrace{(1, 4)}_{4=2} \right\} \Rightarrow R = \{2, 0, 4\}$$

$$\left. \begin{array}{l} R_f = [f(2)-1, +\infty) = [0, +\infty) \\ R_g = (-\infty, \frac{1}{f(2)}+2] = (-\infty, 4] \end{array} \right\} \xrightarrow{U} \mathbb{R} - (4, 0)$$

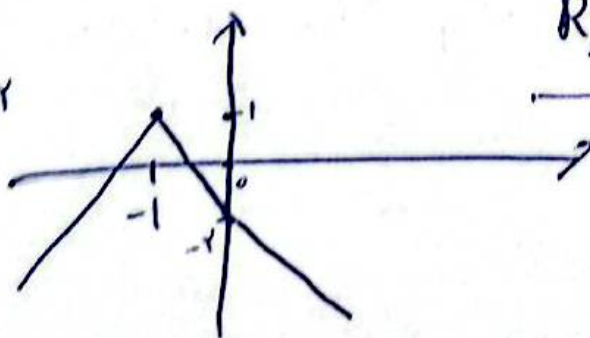
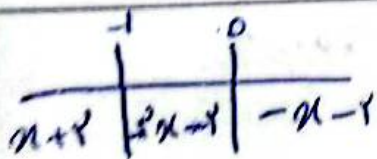


$$y = \frac{x}{2} \Rightarrow -\frac{x^2}{2} + x + 2 = \frac{x}{2}$$

$$-x^2 + 2x + 4 = 0 \quad \left\{ \begin{array}{l} \Delta = 4 \\ \sqrt{\Delta} = 2 \end{array} \right. \Rightarrow (a, b) = (-1, 3) \quad 2 - (-1) \leq f \leq 2 \Rightarrow \underline{f = 2}$$



$$\underline{\min = 2}$$



$$\underline{R_f = (-\infty, 1]}$$

$$y(x+y) = x^2 + \omega x + m$$

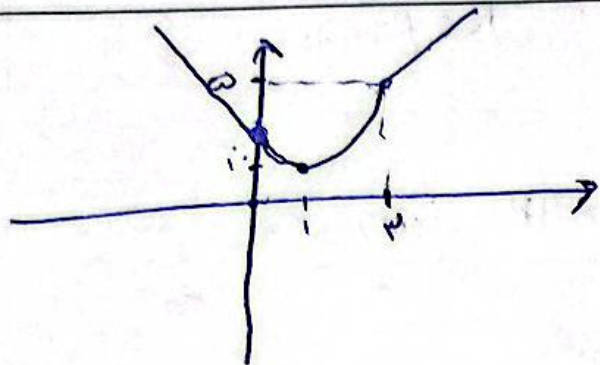
$$x^2 + (\omega - y)x + m - y \rightarrow \Delta = y^2 - 4(y - \omega)m - 4y$$

$$\frac{\Delta > 0}{\omega < 0} \Rightarrow R_f = \mathbb{R}$$

$$y^2 - 4y + 4\omega - 4m > 0$$

$$\Delta < 0 \text{ if } y < 4(\omega - m) \Rightarrow \omega < 1 \text{ if } m < 4 \rightarrow 1 < y < 4$$

$$a > 0 \checkmark$$



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

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

$$[x] - 2x$$

$$x = A \rightarrow [A] - A \rightarrow [-1, 0] \text{ if } A \in [0, 1]$$

$$x^2 + 6x + 2 \xrightarrow{x \leq 0} [-1, +\infty)$$



$$\bigcup \Rightarrow [-1, +\infty)$$

$$P_f \rightarrow x^2 + 2 \geq 0 \rightarrow x \geq -\frac{2}{x} \Rightarrow b = -\frac{2}{x}$$

$$\max f \rightarrow \omega \rightarrow \text{مقدار } \omega \text{ را در } \frac{1}{2} \Rightarrow \omega \leq a+1 \quad a \leq f$$

$$ab = 6x - \frac{2}{x} = -4$$

$$y = \frac{f(x) - g(x)}{1} \xrightarrow{g(x) = \sqrt{1+x} + \sqrt{1-x} - f(x)} y = \frac{f(x) - (1 + \sqrt{1+x} + \sqrt{1-x}) + f(x)}{1} \Rightarrow$$

$$\frac{f(x)}{1} - \sqrt{1+x} - \sqrt{1-x}$$

$$\hookrightarrow \sqrt{x+1} + \sqrt{1-x}$$