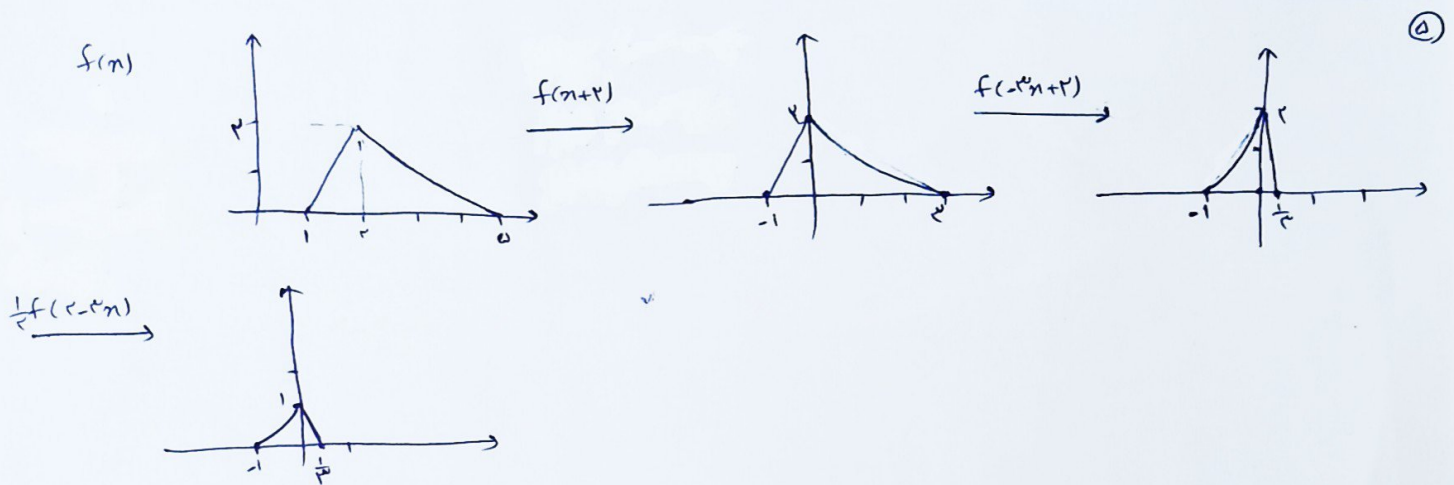
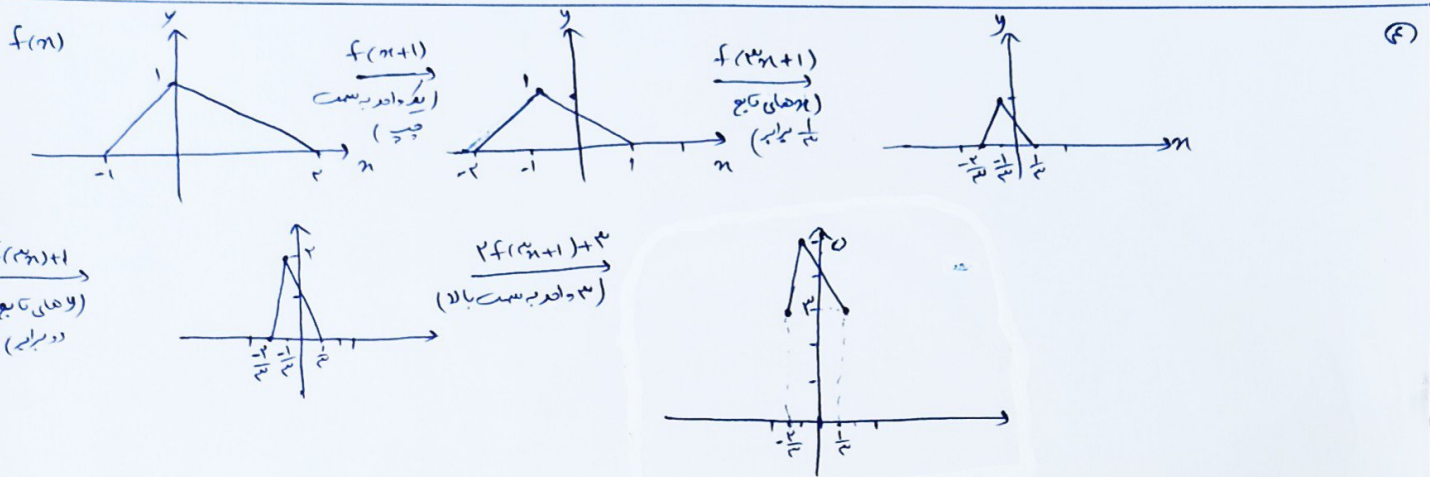


$$-x \leq \frac{x^2 + 1}{2} \leq x \rightarrow -10 \leq x^2 + 1 \leq 10 \rightarrow -11 \leq x^2 \leq 11 \rightarrow -x \leq x \leq x \Rightarrow [-x, x]$$

$$f(x, y) \begin{cases} x \leq y \\ x > y \end{cases} \Rightarrow \begin{cases} f(x, y) = x - y \leq -1 \\ f(x, y) = x - y \leq 1 \end{cases} \Rightarrow p_f \in [-1, 1]$$

$$-1 \leq r < r \rightarrow -r \leq r+1 < 10 \rightarrow -1 \leq \frac{r+1}{r} < 10$$

$$-1 \leq r - \Delta r \leq \Delta r \rightarrow -r \leq -\Delta r < r \rightarrow \frac{-r}{\Delta} < r \leq \frac{r}{\Delta} \rightarrow D = \left( \frac{-r}{\Delta}, \frac{r}{\Delta} \right]$$



$$y = -\frac{1}{\omega} \pi^r + \frac{\epsilon}{\Delta} \pi + 1$$

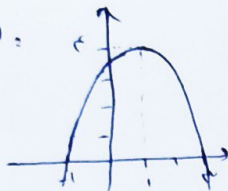
$$\text{ext} \begin{cases} \pi \leq \frac{\frac{\epsilon}{\Delta}}{\frac{\epsilon}{\Delta}} = \frac{\epsilon}{\Delta} \\ y \leq -\frac{1}{\omega} \left( \frac{\epsilon}{\Delta} \right)^r + \frac{\epsilon}{\Delta} \times \frac{\epsilon}{\Delta} + 1 = \frac{\epsilon}{\Delta} + \frac{\epsilon}{\Delta} + 1 = \frac{\epsilon}{\Delta} \end{cases}$$

$$-\frac{1}{\omega} \pi^r + \frac{\epsilon}{\Delta} \pi + 1 \leq \frac{\epsilon}{\Delta} \xrightarrow{(\times \Delta)} -\Delta \pi^r + \epsilon \pi + \Delta = -1\epsilon$$

$$\Delta \pi^r - \epsilon \pi - \Delta \leq 0 \Rightarrow \pi^r - \epsilon_0 \pi - \Delta \leq 0 \quad (5 \times 9)$$

$$\underbrace{\Delta \pi^r - \epsilon_0 \pi - \Delta}_{(x)} \leq 0 \Rightarrow \begin{cases} \pi \leq \frac{\epsilon_0}{\Delta} \xrightarrow{(+\frac{1}{\Delta})} \frac{1}{\Delta} \times \frac{\epsilon_0}{\Delta} + \frac{1}{\Delta} = \frac{\epsilon_0}{\Delta} \quad (V) \\ \pi \leq \frac{\epsilon_0}{\Delta} \xrightarrow{(+\frac{1}{\Delta})} \frac{\epsilon_0 - 1\epsilon}{\Delta} + \frac{1}{\Delta} = \frac{\Delta}{\Delta} = 1 \quad (I) \end{cases}$$

f(x):



$$1 - \sqrt{f(x)} \rightarrow \text{ext} \left| \begin{matrix} \alpha \\ \beta \end{matrix} \right., \alpha \beta < 0?$$

$$x+1 \xrightarrow{x \leq 0} 1 \Rightarrow x+1 \leq 1 \Rightarrow \alpha \leq \frac{1}{x}$$

$$1 - \sqrt{f(x)} < \beta \Rightarrow \boxed{\beta < -1}$$

$$\alpha \beta \Rightarrow \left( \frac{1}{x} \right)$$

$$D_f = (a, c], D_g = [-1, b), y = f(x-1) + g(x+1), a-b < ?$$

$$D_x(f, g)$$

$$D_{f(x-1)} \Rightarrow a < x-1 \leq c \rightarrow a+1 < x \leq c+1$$

$$\cap$$

$$a+1 < x \leq c+1 \rightarrow \boxed{a+1} \Rightarrow a-b < -1-1 = -2$$

$$D_{g(x+1)} \Rightarrow -1 \leq x+1 < b \rightarrow -2 \leq x < b-1$$

$$y_1 \leq f\left(\frac{x}{x+1}\right)$$

$$\left(\frac{x}{x+1}\right) \begin{matrix} x < -1 \\ x < 0 \end{matrix} \rightarrow \begin{matrix} \frac{x}{x}+1 \leq \frac{1}{x} \\ \frac{0}{x}+1 \leq \frac{1}{x} \end{matrix}$$

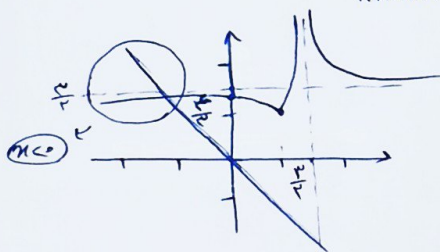
$$\Rightarrow D_{y_1} = \left[-\frac{1}{x}, \frac{1}{x}\right]$$

$$[-1, 1] \subseteq R_{f(x)} \subseteq R_{f\left(\frac{x}{x+1}\right)} \Rightarrow -1 \leq f(x) - 1 \leq 1 \Rightarrow 0 \leq |f(x) - 1| \leq 1 \Rightarrow 0 \leq \sqrt{|f(x) - 1|} \leq 1$$

$$R_{y_1} = [0, 1]$$

$$f(x) = \left| \frac{x+1}{x-1} \right| \Rightarrow \left| \frac{(x-1)+1}{x-1} \right| + 1 = \left| \frac{x-1}{x-1} \right| + 1$$

$$m+g(m) < 0 \Rightarrow g(m) < -m$$



$$\begin{matrix} \text{مجاورة} = \frac{1}{x} \\ \text{مجاورة} = \frac{1}{x} \end{matrix}$$

$$\frac{x-1}{x-1} + 1 < -x$$

$$\frac{x-1+x-1}{x-1} < -x \xrightarrow{x < 0} x-1 < -x \Rightarrow -x < 1-x \Rightarrow x > 1$$

$$x > 1 \Rightarrow x > 1$$

$$x > 1 \leq x < -1$$

$$\boxed{x < -1} \leftarrow \boxed{x < 0}$$