

$$-2 \leq \frac{x_n + 2}{2} \leq 4 \rightarrow -10 \leq x_n + 2 \leq 8$$

$$-12 \leq x_n \leq 6$$

$$(-4 \leq n \leq 2)$$

۱

$$-2 \leq n \leq 2$$

$$-4 \leq x_n \leq 4$$

$$-1 \leq x_n - 2 \leq 7$$

$$\sim D_f : [-1, 7]$$

۲

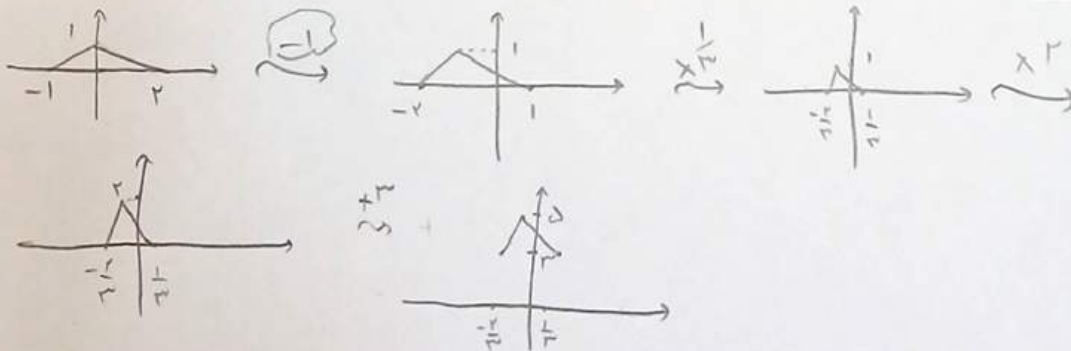
$$-1 \leq n < 2 \sim -2 \leq x_n + 1 \leq 1 \sim -1 \leq \frac{x_n + 1}{2} < 1$$

$$-1 \leq 2 - \Delta n < 1$$

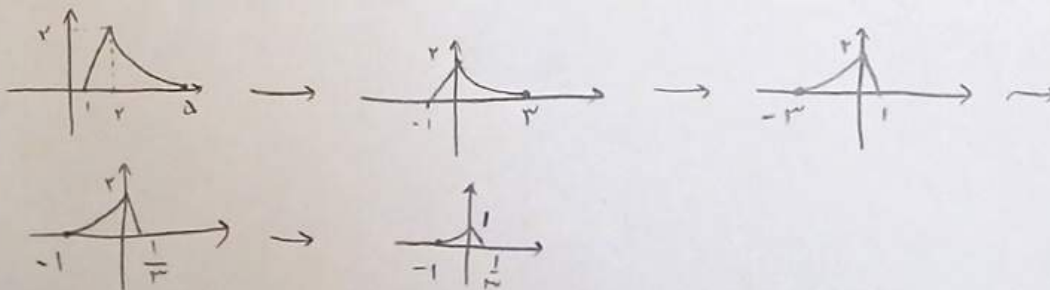
$$-3 < -\Delta n < 1$$

$$-\frac{3}{\Delta} < n \leq \frac{1}{\Delta}$$

۳



۴



۵

$$y = -\frac{1}{r}(n-r)^2 + r$$

$$0 = -\frac{1}{r}(n-r)^2 + r \rightarrow -r = -\frac{1}{r}(n-r)^2 \rightarrow 1 = (n-r)^2$$

حقیقت برقرار است

$$\pm r = n - r$$

$$\begin{aligned} n &= r \\ n &= 1 \end{aligned}$$

$$u, v: (1, 4)$$

$$r_n + r = 1 \rightarrow r_n = -1 \rightarrow n = -\frac{1}{r} = \alpha$$

$$y = 1 - r f(1) \Rightarrow y = 1 - r(4) = -\sqrt{v} = \beta$$

$$\alpha \beta = -\frac{1}{r} \alpha - v = \frac{v}{r}$$

$$D_{f(n-1)} = (a+1, \Delta]$$

$$D_{g(n+1)} = [-r, b-1) \rightarrow D_{f(n-1)+g(n+1)} = (-r, \Delta)$$

$$a+1 = -r \rightarrow a = -r$$

$$b-1 = \Delta \rightarrow b = \Delta + 1 \rightarrow a-b = \boxed{-9}$$

$$D_{y_1} = [-r, \Delta] \rightarrow -r \leq m \leq \Delta \rightarrow -\frac{r}{r} \leq \frac{m}{r} \leq \frac{\Delta}{r} \rightarrow \boxed{\frac{1}{r} \leq \frac{m}{r} + 1 \leq \frac{\Delta}{r}}$$

$$R_{y_1} = [-b, r] \rightarrow$$

$$-1 \leq f(m) \leq r \rightarrow -r \leq f(m) \leq r$$

$$-2 \leq f(m) - r \leq 1 \rightarrow 0 \leq |f(m) - r| \leq \Delta \rightarrow 0 \leq |f(m) - r| \leq \Delta$$

$$R_{y_2} = [0, \sqrt{\Delta}]$$

$$g(n) = \left\lfloor \frac{n-r+1}{r(n-r)+1} \right\rfloor + 1 \rightarrow g(n) = \left\lfloor \frac{n-1}{r(n-r)} \right\rfloor + 1 \rightarrow$$

$$n + \left\lfloor \frac{n-1}{r(n-r)} \right\rfloor + 1 < 0 \rightarrow n+1 < 0 \rightarrow n < -1$$

در این مرحله جواب نهایی می شود

$$n + \frac{n-1}{r(n-r)} + 1 < 0 \rightarrow \frac{r(n-r) + n - 1}{r(n-r)} < 0 \rightarrow \frac{r(n^2 - r) + n - 1}{r(n-r)} < 0 \rightarrow n = \pm \sqrt{r}$$

در مرحله آخر

$$(-\infty, -\sqrt{r}) \leftarrow n < -1$$