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$$-1 \leq \frac{v_{n+1}}{d} \leq 1 \Rightarrow -1 \leq v_{n+1} \leq 1 \Rightarrow -1 \leq v_n \leq 1 \Rightarrow -1 \leq n \leq 1$$

$$Df\left(\frac{v_{n+1}}{d}\right) = [-1, 1]$$

$$Df(v_{n+1}) = [-1, 1] \rightarrow \begin{aligned} n = -1 &\rightarrow v(-1) - 1 = -1 \\ n = 1 &\rightarrow v(1) - 1 = 1 \end{aligned} \Rightarrow Df = [-1, 1]$$

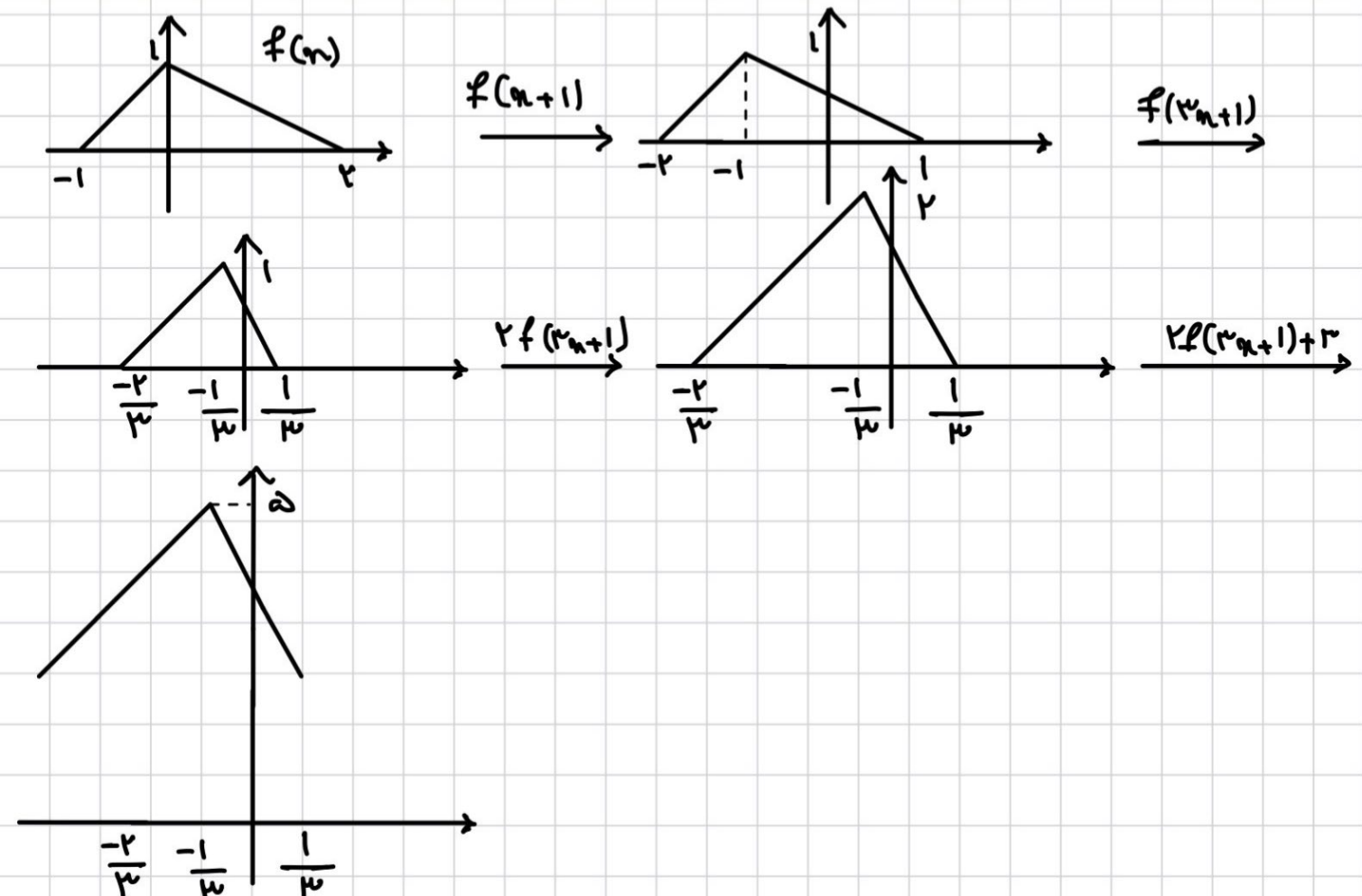
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$$Df\left(\frac{v_{n+1}}{r}\right) = [-1, 1] \rightarrow \begin{aligned} n = -1 &\Rightarrow \frac{v(-1)+1}{r} = -1 \\ n = 1 &\Rightarrow \frac{v(1)+1}{r} = 1 \end{aligned} \Rightarrow Df = [-1, 1]$$

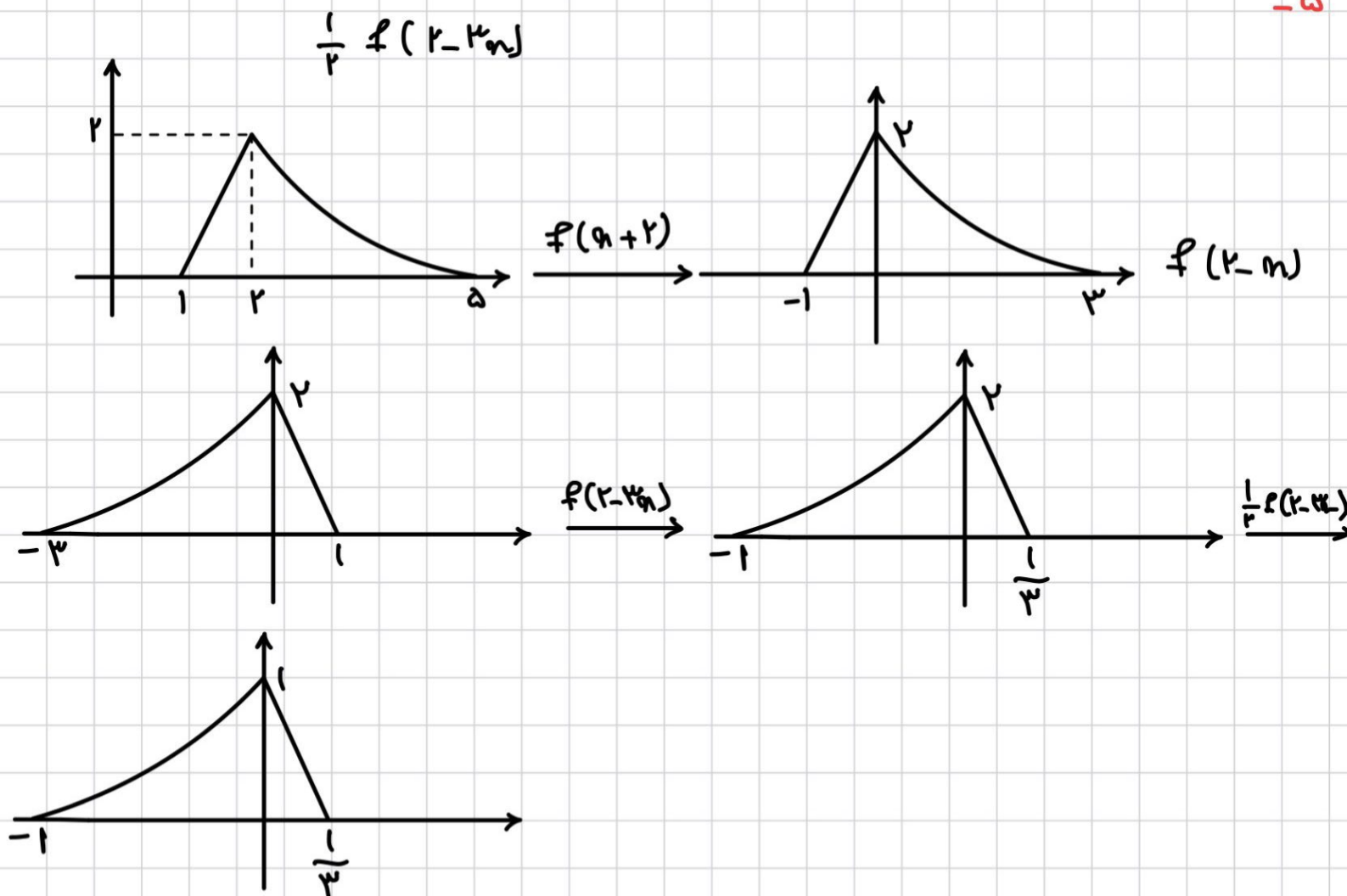
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$$-1 \leq \frac{v_{n+1}}{d} \leq 1 \Rightarrow -1 \leq v_{n+1} \leq 1 \Rightarrow -1 \leq v_n \leq 1 \Rightarrow Df(v_{n+1}) = \left[-\frac{1}{d}, \frac{1}{d}\right]$$

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$$y = -\frac{1}{r} n^r + \frac{r}{a} n + 1 \rightarrow -\frac{b}{\frac{r}{a}} = \frac{-\frac{r}{a}}{-\frac{1}{r}} = \frac{r}{a} \quad \text{ent} \left| \begin{array}{c} \frac{r}{a} \\ \frac{r}{a} \end{array} \right| \xrightarrow[\text{مستأخر}]{\text{نقل}} (r, r)$$

$$r - \frac{r}{a} = \frac{1}{a}$$

$$r - \frac{r}{a} = \frac{r}{a} \Rightarrow \frac{r}{a} = \frac{r}{a}$$

$$\Rightarrow -\frac{1}{r} (n - \frac{r}{a})^r + \frac{r}{a} \rightarrow y = -\frac{1}{r} (n - \frac{r}{a})^r + r \xrightarrow{y=0} -\frac{1}{r} (n - \frac{r}{a})^r = r \Rightarrow (n - \frac{r}{a})^r = a \Rightarrow n - \frac{r}{a} = \pm a \Rightarrow n = \frac{r}{a} \pm a$$

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$$\kappa_n + r = 1 \Rightarrow n = -\frac{1}{r} \Rightarrow y = 1 - r f\left(\frac{\kappa_n + r}{r}\right) = 1 - 1 = -r \Rightarrow \beta = -r$$

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

$$\begin{aligned} a < n-1 < c \rightarrow a+1 < n < d \\ -1 < n+1 < b \Rightarrow -2 < n < b-1 \end{aligned}$$

$$\left. \begin{aligned} (a+1, d] \cap [-2, b-1) &= (-2, d) \Rightarrow \\ a+1 &= -2 \Rightarrow a = -3 \\ b-1 &= d \Rightarrow b = c \end{aligned} \right\} a-b = -9$$

$$\begin{aligned} -2 < n < d \Rightarrow -\frac{r}{f} < \frac{n}{f} < \frac{d}{f} \Rightarrow -\frac{1}{f} < \frac{n}{f} + 1 < \frac{d}{f} \Rightarrow D_{y_r} = \left[-\frac{1}{f}, \frac{d}{f}\right] \\ -1 < f < r \Rightarrow -2 < rf < r \Rightarrow -2 < rf-3 < 1 \Rightarrow 0 < |rf-3| < d \Rightarrow \end{aligned}$$

$$0 < \sqrt{|rf-3|} < \sqrt{d} \Rightarrow R_{y_1} = [0, \sqrt{d}]$$

$$f(n) = \left| \frac{n+1}{r_{n+1}} \right| \xrightarrow{\text{واحد، راست}} \left| \frac{(n-2)+1}{r_{(n-2)+1}} \right| \xrightarrow{\text{یک، راست}} g(n) = \left| \frac{n-1}{r_{n-2}} \right| + 1$$

$$n + g(n) < 0 \Rightarrow n + \underbrace{\left| \frac{n-1}{r_{n-2}} \right| + 1}_{\text{تاسنی}} < 0 \Rightarrow n < -1 \Rightarrow \text{قدر مطلق} \Rightarrow$$

$$n+1 + \frac{n-1}{r_{n-2}} < 0 \Rightarrow \frac{(n+1)(r_{n-2}) + (n-1)}{r_{n-2}} < 0 \Rightarrow \frac{r(n^2-2)}{r_{n-2}} < 0 \Rightarrow$$

$\underbrace{r(n^2-2)}_{\text{عدد مثبتی}} < 0 \Rightarrow n < -1$

$$n^2-2 > 0 \Rightarrow n^2 > \sqrt{2} \Rightarrow \begin{matrix} n > \sqrt{2} & n < -1 \\ n < \sqrt{2} & \end{matrix} \rightarrow n < -\sqrt{2} \rightarrow (-\infty, -\sqrt{2})$$