

$$f(n) \rightarrow D_f = [-2, 4]$$

$$f\left(\frac{3n+2}{5}\right) \Rightarrow -2 \leq \frac{3n+2}{5} \leq 4 \rightarrow -12 \leq 3n \leq 18 \rightarrow -4 \leq n \leq 6 \rightarrow D_{f\left(\frac{3n+2}{5}\right)} = [-4, 6]$$

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$$f\left(\frac{3n}{2} - 1\right) \rightarrow D_{f\left(\frac{3n}{2} - 1\right)} = [-2, 3] \Rightarrow -2 \leq n \leq 2 \rightarrow -7 \leq 3n \leq 9 \rightarrow -\frac{7}{3} \leq n \leq 3 \rightarrow D_{f(n)} = \left[-\frac{7}{3}, 3\right]$$

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$$f\left(\frac{3n+1}{2}\right) \rightarrow D_{f\left(\frac{3n+1}{2}\right)} = [-1, 3] \Rightarrow -1 \leq n \leq 3 \rightarrow -3 \leq 3n \leq 9 \rightarrow -2 \leq 3n+1 \leq 10$$

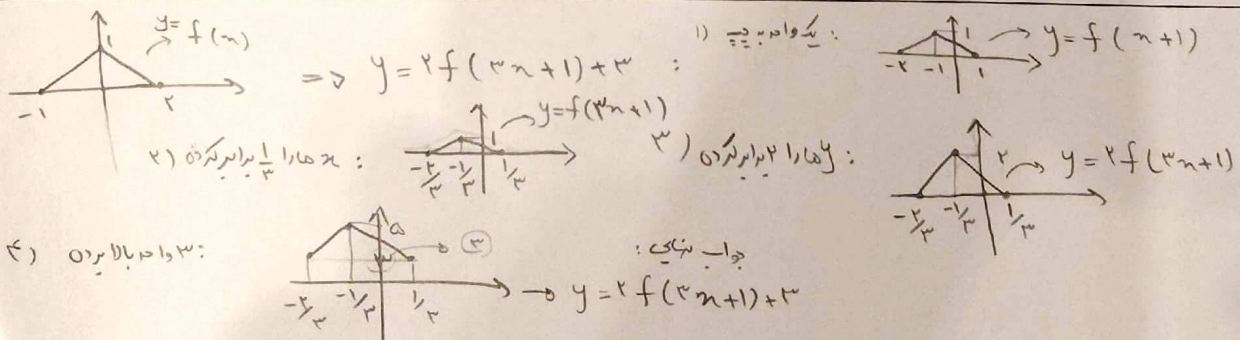
$$D_{f(2-5n)} = ?$$

$$\hookrightarrow -1 \leq \frac{3n+1}{2} < 0 \Rightarrow -1 \leq f(n) < 0 \Rightarrow D_{f(n)} = [-1, 0)$$

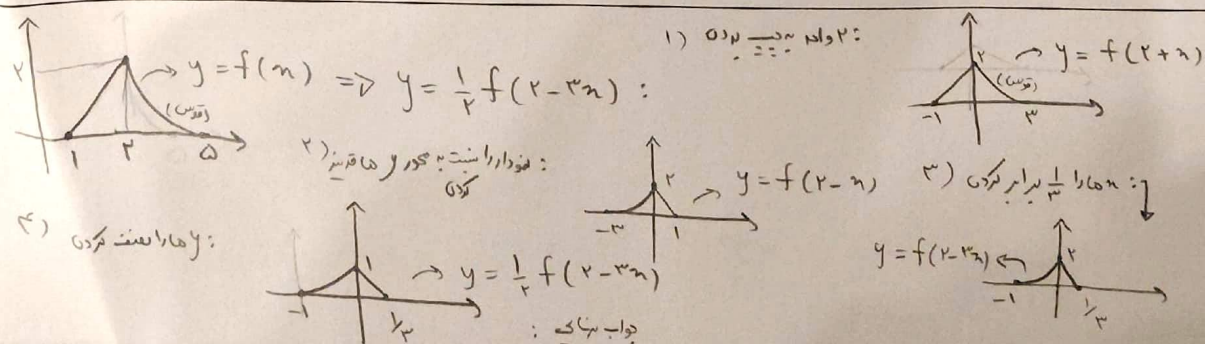
$$\Rightarrow -1 \leq 2-5n < 0 \rightarrow -3 \leq -5n < 3 \rightarrow -3 < 5n \leq 3$$

$$\hookrightarrow -\frac{3}{5} < n \leq \frac{3}{5} \Rightarrow D_{f(2-5n)} = \left(-\frac{3}{5}, \frac{3}{5}\right]$$

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$$y = \frac{-1}{r} n^r + \frac{r}{a} n + 1 \rightarrow s = \begin{cases} n s = \frac{-b}{r a} = \frac{-1 \times r}{a \times r} = \frac{-r}{a} \\ y s = \frac{-1 \times r \times r}{r \times a \times a} + \frac{r \times r}{a \times a} + 1 = \frac{-r}{a} + 1 = \frac{r-1}{a} \end{cases} \Rightarrow s \left(\frac{r-1}{a}, \frac{r}{a} \right)$$

$$s'(\frac{r-1}{a}, \frac{r}{a}) \rightarrow y = \frac{-1}{r} \left(n - \frac{r-1}{a} \right)^r + \frac{r-1}{a} \Rightarrow y' = \frac{-1}{r} (n - \frac{r-1}{a})^{r-1} + r$$

$$\hookrightarrow y' = \frac{-1}{r} (n - \frac{r-1}{a})^{r-1} + r \rightarrow x^r = \frac{-1}{r} (n - \frac{r-1}{a})^{r-1} \rightarrow (n - \frac{r-1}{a})^r = a \rightarrow n - \frac{r-1}{a} = \pm \sqrt[r]{a}$$

$\hookrightarrow \begin{cases} n = \sqrt[r]{a} \\ n = -\sqrt[r]{a} \end{cases} \Rightarrow \text{جواب}$

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$$y = 1 - r f(r n + r) \rightarrow y = 1 - r f(r) = 1 - 1 = -1$$

$$\hookrightarrow s'(\alpha, \beta) \rightarrow \alpha \beta = ? \Rightarrow \underline{\underline{\beta = y = -1}}$$

$$\hookrightarrow s(1, \frac{1}{r}) \Rightarrow r n + r = 1$$

$$\underline{\underline{\alpha = n = -\frac{1}{r}}}$$

$$\hookrightarrow (\alpha, \beta) = (-\frac{1}{r}, -1) \rightarrow \alpha \beta = -\frac{1}{r} \times -1 = \underline{\underline{\frac{1}{r}}}$$

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$$\begin{cases} D_f = (a, r] \\ D_g = [-1, b) \end{cases} \rightarrow y = f(n-1) + g(n+1) : D_y = \underline{\underline{(-r, a)}}$$

$$D_{f'} = (a+1, \underline{\underline{a}}] \quad D_{g'} = [\underline{\underline{-r}}, b-1) \Rightarrow \begin{cases} b-1 = a \rightarrow \underline{\underline{b = r}} \\ a+1 = -r \rightarrow \underline{\underline{a = -r}} \end{cases}$$

$$\rightarrow a - b = -r - r = \underline{\underline{-2}}$$

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$$y_1 = f\left(\frac{n}{r} + 1\right) \rightarrow y_r = \sqrt{r f(n) - r}$$

$$y_r = f(n) \rightarrow R_{y_1} = R_{y_r} = [-1, r] \rightarrow -1 \leq f(n) \leq r \rightarrow -r \leq r f(n) \leq r^2$$

$$\Rightarrow -a \leq r f(n) - r \leq 1 \rightarrow y_r = \sqrt{[-a, 1]} = \sqrt{[1, a]} = \sqrt{[r, a]}$$

$$\hookrightarrow y_r = [-r, \sqrt{a}] : R_{y_r} = [-r, \sqrt{a}] / D_{y_1} = [-r, a] \rightarrow f\left(\frac{n}{r} + 1\right) = y_1$$

$$\Rightarrow -r \leq n \leq a \rightarrow \frac{-r}{r} \leq \frac{n}{r} \leq \frac{a}{r} \rightarrow \frac{-1}{r} \leq \frac{n}{r} + 1 \leq \frac{a}{r} \rightarrow D_{y_1} = D_{y_r} = \underline{\underline{[-\frac{1}{r}, \frac{a}{r}]}}$$

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$$f(n) = \left| \frac{n+1}{r n + 1} \right| \rightarrow g(n) = \left| \frac{(n-r)+1}{r(n-r)+1} \right| + 1 \rightarrow g(n) = \left| \frac{n-1}{r n - r} \right| + 1 \Rightarrow n + g(n) <$$

$$\hookrightarrow n + \left| \frac{n-1}{r n - r} \right| + 1 < \rightarrow n + 1 < \rightarrow \underline{\underline{n < -1}} \Rightarrow \frac{r n^2 - r n + n - 1 + r n - r}{r n - r} < \rightarrow \frac{r n^2 - r}{r n - r} < \rightarrow \frac{r(n^2 - 1)}{r(n-1)} < \rightarrow \frac{r(n+1)}{r} < \rightarrow \underline{\underline{n+1 <}}$$

$$\Rightarrow \frac{-\sqrt{r}}{-1} + \frac{\sqrt{r}}{0} \rightarrow (-\infty, -\sqrt{r}) \cup (\sqrt{r}, \frac{r}{r}) \cup (\frac{r}{r}, \infty) \rightarrow (-\infty, -\sqrt{r}) \cup (\sqrt{r}, \infty) : \text{جواب}$$

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