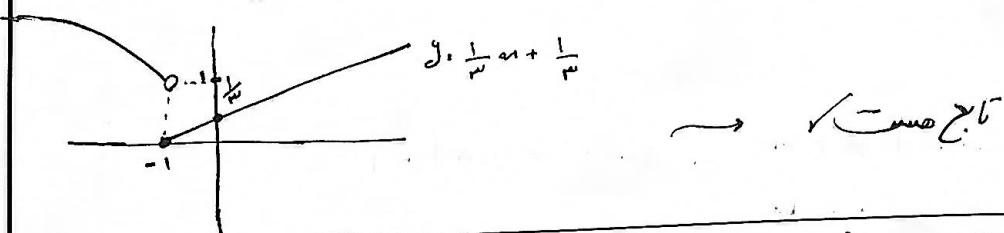


$$u = 3y - 1 \rightarrow y = \frac{1}{3}u + \frac{1}{3}, y \geq 0 \Rightarrow \frac{1}{3}u + \frac{1}{3} \geq 0 \rightarrow u \geq -1$$

$$u = -y^2 \rightarrow y = \pm \sqrt{-u} \xrightarrow{y \geq 1} y = +\sqrt{-u}, \text{ و } u < -1$$



$$D_{f(m)}: \mathbb{R} - \{4\} \quad \begin{cases} u=0, f(m-2)=0 \rightarrow m-2 \in \{-6, 3, 5\} \rightarrow m \in \{-2, 5, 7\} \\ f(m)=0 \rightarrow m \in \{-6, 3, 5\} \end{cases}$$

$$D_{f(m-2)}: \mathbb{R} - \{4\}$$

$$\begin{array}{c} -6 & -2 & 0 & 3 & 5 & 7 \\ - & + & - & + & - & + \end{array} \rightarrow D_{g(m)}: (-6, -2] \cup [0, 3) \cup [7, +\infty)$$

$$\text{الف) } u^3 - 4u \neq 0 \rightarrow u(u-2)(u+2) \neq 0 \rightarrow D_{f(m)}: \mathbb{R} - \{0, 2, -2\}$$

$$\text{ب) } f(m) > 0 \Rightarrow \frac{2m^2 - 3m + 2}{u(m-2)(m+2)} > 0 \xrightarrow{\text{علامت}} \begin{array}{c} -2 & 0 & 2 \\ - & + & - & + \end{array}$$

$$\rightarrow D_{f(m)}: (-2, 0) \cup (2, +\infty)$$

$$\text{الف) } y = \sqrt{\frac{u-2}{(u-2)(u+2)(u^2+2)}} \quad \begin{array}{c} -2 & 0 & 2 \\ - & + & - & + \end{array} \rightarrow D: (-2, 2) \cup (2, +\infty)$$

$$\text{ب) } \frac{2m^2+1}{3-2[-m]} \rightarrow 3 = 2[-m] \rightarrow [-m] = 3 \rightarrow 3 \leq -m < 3$$

$$\rightarrow -3 > m \geq -2$$

$$\rightarrow D_{f(m)}: \mathbb{R} - (-3, -2]$$

$$\text{الف) } f(m): \sqrt{\frac{u(u-1)(u+1)}{u^2+u}} \quad |u|+u > 0 \rightarrow u > 0 \quad \begin{array}{c} -1 & 0 & 1 \\ - & + & - & + \end{array}$$

$$\xrightarrow{2 \text{ NH}} D_{f(m)}: [1, +\infty)$$

$$\text{ب) } |u-2| - u^2 \geq 0 \quad \begin{cases} u \geq 2 \rightarrow -u^2 + u - 2 \geq 0 \xrightarrow{\Delta < 0} \text{خارج از دامنه} \\ u < 2 \rightarrow -u^2 - u + 2 \geq 0 \Rightarrow -2 \leq u \leq 1 \end{cases}$$

$$|u-1| \neq 0$$

$$u \neq \pm 1$$

$$\rightarrow D_{f(m)}: [-2, -1) \cup (-1, 1)$$

انت $D_y: \mathbb{R}$

$$\{n\} \text{ با علامت مثبت } \leftarrow (n-2) \{n-2\} \geq 0 \leftarrow n-2 \geq 0$$

$$ب) \frac{1}{|n-1|} \{n-2\} \sim |n-1| \{n-2\} \rightarrow \{n-2\} \geq 0 \Rightarrow n-2 \geq 0$$

$$\rightarrow D_y = [2, +\infty)$$

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$$| |n-2|-1 | - k \neq 0 \rightarrow |n-2|-1 \neq \pm k \rightarrow |n-2| \neq (\pm k) + 1$$

$$\rightarrow n-2 \neq \pm \{(\pm k) + 1\} \rightarrow n \neq \begin{cases} +k+3 \\ -k+3 \\ -k+1 \\ +k+1 \end{cases}$$

$$\Rightarrow -k+1 = k+3 \Rightarrow -2 = 2k \Rightarrow k = -1$$

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$$\Rightarrow k+1 = -k+3 \Rightarrow 2k = 2 \Rightarrow k = 1$$

$$k = 1$$

$$\rightarrow n \neq \{1, 2, 3\} \checkmark$$

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$$n^2 + 3n + 2 \neq 0 \xrightarrow{a+b} n \neq \{-1, -2\} \quad n-1 \neq 0 \rightarrow n \neq 1$$

$$\frac{n+1}{n-1} \neq \rightarrow n \neq \{-1\} \xrightarrow{\text{استدلال}} n \neq \{-1, -2, 1\} \Rightarrow n = 2$$

$$\Rightarrow n^2 - 9n + 9 = 0 \rightarrow (n-3)^2 = 0 \rightarrow n = 3$$

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$$l_y \frac{1}{n} \rightarrow n > 0, n \neq 1$$

$$l_y \frac{1}{n+1} \rightarrow n+1 > 0 \Rightarrow n > -1, n+1 \neq 1 \Rightarrow n \neq 0$$

$$l_y \frac{1}{n} > 0 \Rightarrow -l_y \frac{1}{n} < 0 \rightarrow l_y \frac{1}{n} < 0 \rightarrow \frac{l_y \frac{1}{n}}{l_y \frac{1}{n}} < 0 \rightarrow \frac{1}{1} < 0 \rightarrow \text{نادرست}$$

$$\rightarrow 0 < n < 1 \Rightarrow \text{نتیجه} \rightarrow D_y = (0, 1)$$

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$$-2 \leq 3n^2 - 1 \leq 2 \rightarrow -\frac{1}{3} \leq n^2 \leq \frac{1}{3} \rightarrow -\frac{1}{\sqrt{3}} \leq n \leq \frac{1}{\sqrt{3}}$$

$$\rightarrow n^2 \leq \frac{1}{3} \rightarrow -\frac{1}{\sqrt{3}} \leq n \leq \frac{1}{\sqrt{3}} \Rightarrow D = \left[-\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}} \right]$$

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