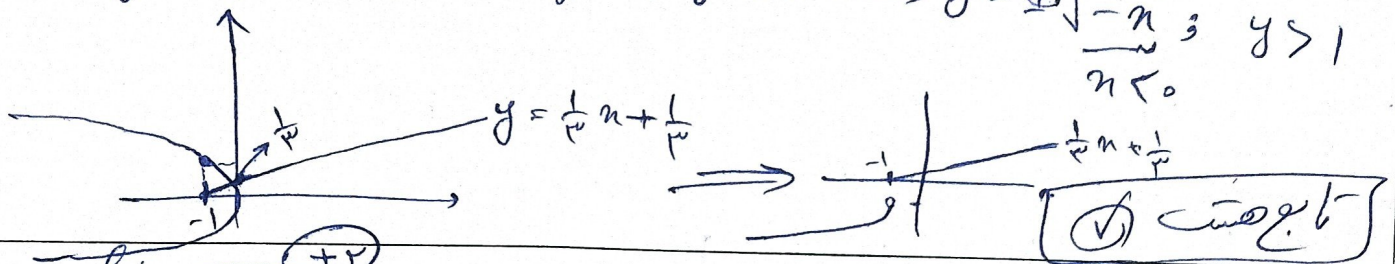


$x \begin{cases} 3y-1 & y \geq 0 \\ -y^2 & y > 1 \end{cases} \rightarrow n = 3y-1 \rightarrow y = \frac{n+1}{3} \text{ و } y \geq 0$
 $y > 1 \rightarrow n = -y^2 \rightarrow y^2 = -n \rightarrow y = \pm \sqrt{-n} \text{ و } y > 1$
 $n < 0$



$\frac{n \cdot f(n-2)}{f(n)} \geq 0 \rightarrow -2, 0, \infty$
 $f(n) \rightarrow -\infty, \infty, 0$
 $\frac{-2}{-} \frac{0}{+} \frac{\infty}{-}$

$D_f = (-\infty, -2] \cup [0, 3) \cup [7, +\infty)$

$f(n) = \frac{2n^2 - 3n + 2}{n^3 - 2n} = \frac{2n^2 - 3n + 2}{n(n-2)(n+2)} \rightarrow a > 0, \Delta < 0 \Rightarrow \text{همواره مثبت}$
 $\Rightarrow D \sqrt{f(n)} = n(n-2)(n+2) > 0 \Rightarrow \frac{-2}{-} \frac{0}{+} \frac{2}{-} \Rightarrow D = (-2, 0) \cup (2, +\infty)$

$D_f = n^3 - 2n \neq 0 \rightarrow n(n-2)(n+2) \neq 0 \Rightarrow D_f = \mathbb{R} - \{-2, 0, 2\}$

الف) $\frac{n-2}{n^2 - 2n^2 - 1} \geq 0 \rightarrow \frac{n-2}{2n^2 - 2n - 1} \geq 0 \rightarrow \frac{(n-2)}{(2-\infty)(2+\infty)} \geq 0 \rightarrow \frac{n-2}{(n-2)(n+2)(n^2+2)} \geq 0$
 $\frac{-2}{-} \frac{2}{+} \Rightarrow D_f = (-2, 2) \cup (2, +\infty)$

ب) $\frac{2n^2+1}{2-2[-n]} \rightarrow 2-2[-n] \neq 0 \rightarrow 2 \neq 2[-n] \rightarrow$
 $\rightarrow [-n] \neq 1 \rightarrow 1 < n \rightarrow n > -1 \Rightarrow D_f = \mathbb{R} - (-3, -2)$

الف) $n(n^2-1) \geq 0 \rightarrow n(n-1)(n+1) \geq 0 \Rightarrow \frac{-1}{-} \frac{0}{+} \frac{1}{-} \Rightarrow n > 0$
 $|n| + n > 0 \rightarrow |n| > -n$

ب) $|n-2| - n^2 \geq 0 \rightarrow |n-2| \geq n^2$
 $|n| - 1 \neq 0 \rightarrow n \neq \pm 1$
 $-n+2 = n^2 \rightarrow n^2+n-2 = (n+2)(n-1) = 0 \rightarrow n = -2, 1$
 $\Rightarrow D_f = [-2, 1) - \{-1\}$

$$(x-2)[x-2] \geq 0$$

$$\begin{array}{c} + \quad 2 \quad + \\ \hline 0 \end{array} \Rightarrow D_f = \mathbb{R}$$

$$|x-1|[x-2] \geq 0$$

$$\begin{array}{c} + \quad + \\ \hline 0 \end{array} \Rightarrow D = [2, +\infty)$$

☁️ 7°

$$\frac{1}{|x-2|-1} = k \rightarrow \begin{cases} |x-2|-1 = k \rightarrow |x-2| = k+1 \\ |x-2|-1 = -k \rightarrow |x-2| = 1-k \end{cases}$$

$$\Rightarrow \begin{cases} x-2 = k+1 \rightarrow x = k+3 \\ 2-x = k+1 \rightarrow x = -k+1 \end{cases}$$

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

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

$$\Rightarrow \begin{cases} x-2 = 1-k \rightarrow x = -k+3 \\ 2-x = 1-k \rightarrow x = k+1 \end{cases}$$

تنگ ۲ عبارت با هم برابر شوند ۳ مقدار پیدا شود.

$$\frac{x^2+2x+2}{x^2+2x+2} \Rightarrow \begin{cases} x^2+2x+2 = 0 \rightarrow (x+1)(x+1) = 0 \rightarrow x = (-1), (-1) \\ \frac{x+1}{x-1} = 0 \rightarrow x = -1 \\ x-1 = 0 \rightarrow x = 1 \end{cases} \Rightarrow \boxed{n = 3}$$

$$x^2 - 2(3)x + 2(3) = 0 \rightarrow x^2 - 4x + 6 = (x-2)^2 = 0 \rightarrow x = 2$$

یک ریشه مضاعف دارد.

$$y = g_{n+1} \left(g_n \frac{1}{x} \right) \rightarrow \begin{cases} g_n \frac{1}{x} > 0 \rightarrow \begin{cases} n > 0, n \neq 1 \\ \frac{1}{x} < 1 \end{cases} \\ n+1 > 0 \rightarrow n > -1 \\ n+1 \neq 1 \rightarrow n \neq 0 \end{cases}$$

$$D_g = (0, +\infty) - \{1\}$$

$$D_f = [-6, 3]$$

$$D_f(3x^2-1) = \mathbb{R} \rightarrow -8 \leq 3x^2-1 \leq 3 \rightarrow -7 \leq 3x^2 \leq 4 \rightarrow -\frac{4}{3} \leq x^2 \leq \frac{4}{3}$$

$$\Rightarrow 0 \leq x^2 \leq \frac{4}{3} \Rightarrow |x| \leq \sqrt{\frac{4}{3}} \Rightarrow \boxed{-\frac{2\sqrt{3}}{3} \leq x \leq \frac{2\sqrt{3}}{3}}$$

$$D_f = \left[-\frac{2\sqrt{3}}{3}, \frac{2\sqrt{3}}{3} \right]$$