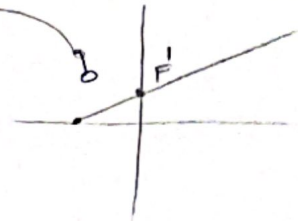


حاصل می شود در این مرحله

$$n = \begin{cases} y-1 & y \geq 0 \rightarrow n = y-1 \rightarrow y = \frac{n+1}{1} \rightarrow \\ -y-1 & y < 0 \rightarrow n = -y-1 \rightarrow y = -\frac{n+1}{1} \rightarrow \end{cases}$$



در این مرحله $y > 1 \rightarrow \frac{n+1}{1} > 1 \rightarrow n > 0$

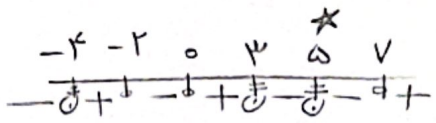
$$y = \pm \sqrt{n}$$

$$y > 1 \rightarrow n < -1$$

در این مرحله $n = -1$

$$g(n) = \sqrt{\frac{n(n-1)}{f(n)}} \rightarrow n = 0 \rightarrow f(n-1) = \dots$$

$$f(n) \rightarrow \dots$$



$$D_f = (-2, -1] \cup [0, 1) \cup [2, +\infty)$$

3- الف) تابع $f(n) = \frac{n^2 - 2n + 1}{n^2 - 2n}$ در $\{1, 2\}$ $\rightarrow n(n-2) \neq 0$

ب) تابع $\sqrt{f(n)}$ $\rightarrow$ $\Delta < 0$ $\rightarrow$ $\Delta \geq 0 \Rightarrow \dots$

$$n^2 - 2n + 1$$

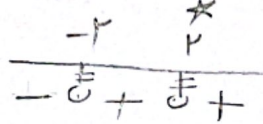
$$n(n-2)$$

$$\rightarrow (-2, 0) \cup (2, +\infty)$$

الف) $y = \sqrt{\frac{n-1}{n^2 - 2n - 1}}$ $\rightarrow \dots$

ب) $y = \frac{n^2 + 1}{n^2 - 2n}$

ع- تابع $f(n)$



$$n^2 - 2n - 1$$

$$D_f = (-2, 2) \cup (2, +\infty)$$

$$D_f = (-2, 2) \cup (2, +\infty)$$

الف) $f(n) = \sqrt{\frac{n(n-1)}{n^2 + n}}$ $\rightarrow \dots$

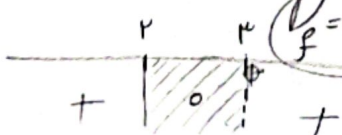
ب) $\sqrt{|n-1| - n^2} \rightarrow \dots$

$$D_f = [1, +\infty)$$

$$|n-1| - n^2 \geq 0 \rightarrow |n-1| \geq n^2$$

الف) $y = \sqrt{(n-1)(n-2)}$

$$D_f = \mathbb{R}$$



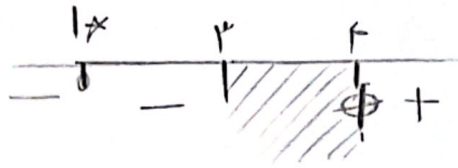
$$n^2 + n - 2 \leq 0$$

$$D_f = [-2, 1]$$

سوال ۴ سمت ۳

$$y = \sqrt{|n-1|} [n-3]$$

میان مثبت
لاصف



$$[n-3]=0 \rightarrow [n]=3 \rightarrow 3 \leq n < 5$$

$$D_f \rightarrow [3, +\infty) \cup \{1\}$$

سوال ۷: u و v عددهای حقیقی باشند، $u^2 + v^2 = 1$ را در نظر بگیرید.

$$||n-1|-1|-k \neq 0 \rightarrow ||n-1|-1| \neq k$$

$$|n-1|-1 > 0 \rightarrow |n-1|-1 = k$$

$$|n-1| > 1 \rightarrow n > 2 \rightarrow n-1 = k \rightarrow k+1$$

$$|n-1| \leq 1 \rightarrow n \leq 2 \rightarrow -n+1 = k \rightarrow 1-k$$

$$|n-1|-1 \leq 0 \rightarrow -|n-1|+1 = k$$

$$n-1+1 = k \rightarrow 1-k$$

$$k=1$$

$$1+k = 1-k \rightarrow k=0$$

۸- اعداد حقیقی u و v را در نظر بگیرید، $u^2 + v^2 = 1$

$$\frac{2n^2 + 3n + 1}{2n^2 + 3n + 1} \rightarrow \neq 0 \rightarrow \neq -1$$

$$\frac{n+1}{n-1} \rightarrow \neq 0 \rightarrow -1$$

$$\rightarrow \neq 0 \rightarrow 1$$

$$2n^2 - 4n + 9 \rightarrow (n-1)^2 = 2$$

$$y = \frac{1}{n+1} \rightarrow n > 0 \rightarrow n \neq 1$$

$$n \neq 1 \rightarrow n > 1$$

$$n+1 \neq 1 \rightarrow n \neq 0$$

$$\frac{1}{n} > 0 \rightarrow n > 1 \rightarrow \times$$

$$\frac{1}{n} < 0 \rightarrow n < 1 \rightarrow \checkmark$$

$$f(n) = \frac{1}{n} \rightarrow [3, 5] \rightarrow \frac{1}{5} \leq f(n) \leq \frac{1}{3}$$

$$-2 < n < 3 \rightarrow -2 \leq 3n-1 \leq 3 \rightarrow -4 \leq 3n \leq 4 \rightarrow -\frac{4}{3} \leq n \leq \frac{4}{3}$$

$$-\frac{4}{3} \leq n \leq \frac{4}{3}$$