

۱۹,۲۵ آزمون خوب نوشتی

الف) $\frac{n+3}{(n-1)(2n^2+5n-3)}$ $\rightarrow 2n^2+5n-3=0 \rightarrow -a \pm \sqrt{a^2+4c}$ $\rightarrow \frac{1}{2}, -3$
 $D_f \rightarrow \mathbb{R} - \{\frac{1}{2}, -3\}$

ب) $\frac{n+3}{(n+1)(2n^2+7n+3)}$ $2n^2+7n+3=0 \rightarrow n^2+7n+4=0 \rightarrow (n+1)(n+4)$ $\rightarrow -\frac{1}{2}, -\frac{3}{2}$
 $D_f \rightarrow \mathbb{R} - \{-1, -\frac{1}{2}, -\frac{3}{2}\}$ Ⓟ

الف) $\frac{n+3}{(n-1)(n^2-n+1)}$ $\rightarrow D_f = \mathbb{R} - \{1\}$ Ⓟ

ب) $\frac{n+3}{(n-1)(n^2-n+1)} \geq 0$ $\rightarrow \frac{-3}{+} - \frac{1}{-} + \rightarrow D_f = (-\infty, -3] \cup (1, +\infty)$ Ⓟ

if $\rightarrow n \geq 1 \rightarrow \frac{n^2-5n+6}{n^2-n+1} \rightarrow \frac{n^2-5n+6}{n^2-n+1} \rightarrow (n-2)(n-3)$
 if $\rightarrow n < 1 \rightarrow \frac{n^2-5n+6}{n^2-n+1} \rightarrow \Delta < 0 \rightarrow$ همیشه مثبت
 $D_f = \mathbb{R} - \{-3, 0, 2, 3\}$ Ⓟ

الف) $[-n]-2 \geq 0 \rightarrow [-n] \geq 2 \rightarrow n \leq -2$

ب) $\frac{5n^2+4}{[n]^2-2[n]-3}$ $\rightarrow ([n]-3)([n]+1)$ $\rightarrow D_f \rightarrow \mathbb{R} - \{3, -1\} \cup [-1, 0)$ Ⓟ

الف) $\sqrt{[n+\frac{1}{2}]-1} + [n+\frac{1}{2}] \geq 0 \rightarrow [n+\frac{1}{2}] + [n+\frac{1}{2}] \geq 1$ $\rightarrow [n+\frac{1}{2}] \geq \frac{1}{2} \rightarrow [n+\frac{1}{2}] \geq 1$
 $D_f = [\frac{1}{2}, +\infty)$

ب) $\sqrt{[n-\frac{1}{3}]} + [-(n-\frac{1}{3})] \rightarrow D_f \rightarrow n - \frac{1}{3} \in \mathbb{Z}$ Ⓟ

$D_f = \{n | n = k + \frac{1}{3}, k \in \mathbb{Z}\}$

$$\text{الف) } \frac{\cos x}{\sin x + 1} = \frac{\sin x}{\cos x} x + 1$$

$$\sin x \neq 0$$

$$\cos x \neq 0$$

$$\tan x \neq -1$$

$$x \neq 135^\circ, 315^\circ$$

$$D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, \frac{k\pi}{2} - \frac{\pi}{4}, \frac{k\pi}{2} + \frac{\pi}{4} \right\}$$

$$\text{ب) } 1 - 4 \sin^2 x \geq 0 \rightarrow 4 \sin^2 x \leq 1 \rightarrow \sin^2 x \leq \frac{1}{4} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$$

$$D_f \rightarrow \left\{ \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right] \right\}$$

$$\text{الف) } 2 \sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{2} \quad D_f = \left[\frac{k\pi}{2} + \frac{\pi}{6}, \frac{k\pi}{2} + \frac{5\pi}{6} \right]$$

$$\text{ب) } 1 - 2 \cos x \geq 0 \rightarrow \frac{1}{2} \geq \cos x$$

این بازه نباید از ابتدای بازه کوچکتر باشد

$$D_f = \left[\frac{k\pi}{2} + \frac{\pi}{3}, \frac{k\pi}{2} + \frac{2\pi}{3} \right]$$

$$\text{الف) } -1 \leq x^2 + 3x + 1 \leq 1$$

$$x^2 + 3x \leq 0$$

$$x^2 + 3x + 2 \geq 0$$

$$(x+1)(x+2)$$

$$I \cap II \rightarrow [-2, -1] \cup [0, 1]$$

$$\frac{-2}{+1} - \frac{0}{-1} + \frac{0}{+1} = [-2, 0]$$

$$\frac{-2}{+1} - \frac{-1}{-1} + \frac{0}{+1} = [-2, 1] \cup [1, +\infty)$$

$$\text{ب) } 0 \leq \sqrt{a-x} \leq 1 \rightarrow 0 \leq a-x \leq 1 \rightarrow a-x \leq 1 \rightarrow x \geq a-1$$

$$D_f \rightarrow [2, 3]$$

$$x \geq 2$$

$$\text{الف) } 1 - \log_x x > 0 \rightarrow 1 > \log_x x \rightarrow x < 2, x > 0$$

$$D_f \rightarrow (0, 2)$$

$$\text{ب) } 1 - \log_{\frac{x}{2}} x > 0 \rightarrow 1 > \log_{\frac{x}{2}} x \rightarrow x > \frac{1}{2}, x > 0$$

$$D_f \rightarrow \left(\frac{1}{2}, +\infty \right)$$

$$\text{الف) } x^{n-n^2} \geq x^2 \rightarrow x^{n-n^2-2} \geq 1 \rightarrow x^{n^2-3n} \leq 1 \rightarrow (n-1)(n-3)$$

$$D_f = [1, 3]$$

$$\frac{1}{+1} - \frac{3}{-1} + \frac{0}{+1} =$$

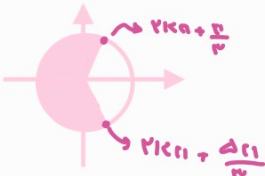
$$\text{ب) } \frac{x_{n+1}}{x_{n+2}} \in \mathbb{W}$$

$$\rightarrow x \in \left(-\frac{x_{n+1}}{x_{n+2}}, \frac{x_{n+1}}{x_{n+2}} \right)$$

$$D_f = \left\{ n \mid n = \frac{-k \pm \omega}{\mu k - \nu} \right\}$$

$$D_f = \left\{ n \mid n = \frac{-k \pm \omega}{\mu k - \nu} \right\}$$

ب-۷ $1 - 2c \cdot \sin \geq 0 \rightarrow \sin \leq \frac{1}{r}$



$\rightarrow \text{Def} \left[r \cos \left(n + \frac{\pi}{r} \right), r \sin \left(n + \frac{\pi}{r} \right) \right]$

ب-۸ $\sqrt{\omega - 2n} \rightarrow \omega - 2n \geq 0 \rightarrow n \leq \frac{\omega}{2}$

$-1 \leq \sqrt{\omega - 2n} \leq 1 \rightarrow \omega - 2n \leq 1 \rightarrow -2n \leq -\omega + 1 \rightarrow n \geq \frac{\omega - 1}{2}$

همواره برقرار است ✓

$\xrightarrow{\wedge} \text{Def} \left[\frac{\omega - 1}{2}, \frac{\omega}{2} \right]$