

۱۹, ۸ آزمون ۱

الف) $2\cos n + 1 \neq 0 \rightarrow 2\cos n \neq -1 \rightarrow \cos n \neq -\frac{1}{2}$



$D_f = \mathbb{R} - \left\{ 2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3} \right\}$ ✓

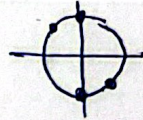
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ب) $\cos n - 1 \neq 0 \rightarrow \cos n \neq 1$



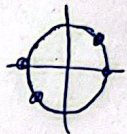
$D_f = \mathbb{R} - \{ 2k\pi \}$ ✓

الف) $\tan n + 1 \neq 0 \rightarrow \tan n \neq -1$



$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4} \right\}$ ✓

ب) $\cot n - 1 \neq 0 \rightarrow \cot n \neq 1$



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

الف) $\sin y \leq n^2 - 2 \rightarrow -1 \leq n^2 - 2 \leq 1$

حالت فتر را هم در نظر بگیرد!

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

$D_f = [1, \sqrt{3}]$ و $D_f = [-\sqrt{3}, -1] \cup [1, \sqrt{3}]$

ب) $-1 \leq \sqrt{n} - 2 \leq 1 \rightarrow 2 \leq \sqrt{n} \leq 4 \rightarrow 4 \leq n \leq 16 \rightarrow D_f = [4, 16]$ ✓

الف) $-1 \leq |n| - 3 \leq 1$

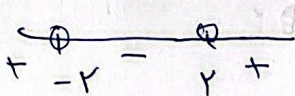
$D_f = [-2, -1] \cup [2, 4]$ ✓

$2 \leq |n| \leq 4 \rightarrow 2 \leq n \leq 4$
 $-2 \geq n \geq -4$

$D_f = [-3, -2] \cup [-1, 0]$ ✓

ب) $-1 \leq n^2 + 3n + 1 \leq 1 \rightarrow \begin{cases} n(n+3) \leq 0 \\ (n+1)(n+2) \geq 0 \end{cases}$

الف) $(n-2)(n+2) > 0$



$(-\infty, -2) \cup (2, +\infty)$ ✓

ب) $2 - |n| > 0 \rightarrow |n| < 2 \rightarrow -2 < n < 2$ ✓

الف) $\omega - n > 0 \rightarrow n < \omega$
 $n - 3 > 0 \rightarrow n > 3$
 $D_f = (3, \omega) - \{ \epsilon \}$

$n - 3 \neq 1 \rightarrow n \neq 4$
 $n + 3 \neq 1 \rightarrow n \neq -2$

ب) $n^2 - 1 > 0 \rightarrow (n-1)(n+1) > 0$
 $n + 3 > 0 \rightarrow n > -3$

$D_f = (-3, -1) - \{-2\} \cup (1, +\infty)$

الف) $\frac{n^2 - 5n + 3}{n - 3} > 0 \rightarrow \frac{(n-1)(n-3)}{n-3} > 0$
 $D_f = (1, 3) \cup (3, +\infty)$

$D_f = (-\infty, -3) \cup (2, +\infty) - \{-2\}$

ب) $\frac{n+3}{n-2} > 0$
 $D_f = (-\infty, -3) \cup (2, +\infty) - \{-2\}$

الف) $\begin{cases} n-2 > 0 \rightarrow n > 2 \\ 3 - \log_2(n-2) \geq 0 \rightarrow \log_2(n-2) \leq 3 \rightarrow n-2 \leq 8 \rightarrow n \leq 10 \end{cases}$
 $D_f = (2, 10]$

$D_f = (\sqrt{3}, +\infty)$

ب) $n > 0$
 $2 \log_3 n - 1 > 0 \rightarrow 2 \log_3 n > 1 \rightarrow \log_3 n > \frac{1}{2} \rightarrow n > 3^{\frac{1}{2}} \rightarrow n > \sqrt{3}$

الف) $\epsilon^n + 1 \neq 0 \rightarrow \epsilon^n \neq -1 \rightarrow D_f = \mathbb{R}$

ب) $\epsilon^n - 1 \neq 0 \rightarrow \epsilon^n \neq 1 \rightarrow D_f = \mathbb{R} - \{\log_3 3\}$

ب) $\epsilon^n - 1 \neq 0 \rightarrow \epsilon^n \neq 1 \rightarrow D_f = \mathbb{R} - \{0\}$

ج) $\epsilon^n - 2 \neq 0 \rightarrow \epsilon^n \neq 2 \rightarrow (3^{\frac{1}{2}})^n \neq 2 \rightarrow 3^{\frac{n}{2}} \neq 2 \rightarrow 3n \neq 4 \rightarrow n \neq \frac{4}{3}$
 $D_f = \mathbb{R} - \{\frac{4}{3}\}$

الف) $\epsilon n + 1 \in \omega \rightarrow n = \frac{\omega - 1}{\epsilon} \rightarrow D_f = \{n \mid n = \frac{\omega - 1}{\epsilon}, \epsilon \in \omega\}$

$\Rightarrow D_f = \{n \mid n = \frac{\omega k - 1}{\epsilon k - 1}, k \in \omega\}$

ب) $\frac{3n-2}{2n-5} \in \omega \rightarrow 2n\omega - 5\omega = 3n-2 \rightarrow 2n\omega - 3n = 5\omega - 2$
 $n(2\omega - 3) = 5\omega - 2$
 $n = \frac{5\omega - 2}{2\omega - 3}$