

۲. اولین خوب نوشتن ۱۵٪

خط ϕ
 $f(n) = \sqrt{(a-2)n^2 + an + b} \rightarrow [2, +\infty)$

$a-2=0 \rightarrow a=2 \rightarrow \sqrt{2n+b} \xrightarrow[n=2]{(مفروضه)} \sqrt{4+b} \xrightarrow{b=-4} \sqrt{0}$ D

۱

$f(n) = \sqrt{n^2 + 2n + 2 - m^2} \geq 0 \rightarrow (n+1) + 1 - m^2 \geq 0$

$1 - m^2 \geq 0 \rightarrow m^2 \leq 1 \rightarrow -1 \leq m \leq 1$

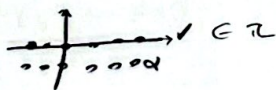
$\downarrow$
 $(1, -1) = (2)$ D

۲

$f(n) = \sqrt{\lfloor n^2 \rfloor} \geq 0 \rightarrow \lfloor n^2 \rfloor \rightarrow \boxed{-2 \leq n \leq 2}$

$\lfloor n \rfloor + \lfloor -n \rfloor + 1 \neq 0$

$\hookrightarrow \lfloor n \rfloor + \lfloor -n \rfloor \neq -1$



$\rightarrow \{-2, -1, 0, 1, 2\}$ D
 $\boxed{\in \mathbb{Z}}$

۳

الف) $\sqrt{n^4 + 4n^2} \rightarrow \sqrt{n^2(n^2 + 4)} \rightarrow \frac{-4}{-4 + 4 + 4} \rightarrow D_f = (-2, +\infty)$ D

ب) $\sqrt{(n^2-1)(n^2-4n^2)} \rightarrow \sqrt{(n^2-1)(-3n^2)}$
 $n^2-1 \rightarrow (+)$

$-1 \cdot 1 \cdot 1 \cdot 1$
 $+ - - +$

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

۴

$y = \sqrt{|n-2|-4} \geq 0 \rightarrow |n-2| \geq 4 \rightarrow \begin{cases} n-2 \geq 4 \rightarrow n \geq 6 \\ n-2 \leq -4 \rightarrow n \leq -2 \end{cases} \quad D_f = (-\infty, -2] \cup [6, +\infty)$ D

$y = \sqrt{\lfloor -12-n \rfloor} \geq 0 \rightarrow \lfloor -12-n \rfloor \geq 0 \rightarrow -12-n \geq 0 \rightarrow -n \geq 12 \rightarrow n \leq -12$

$D_f = [-12, 4]$ D

۵

فترات صالحة

$$4) y = \sqrt{1 - n|n|} > 0 \rightarrow |n|, n|n| \begin{cases} n > 0 \rightarrow 1 > n^2 \rightarrow 1 < n < 1 \\ n < 0 \rightarrow 1 + n^2 > 0 \rightarrow n < \infty \end{cases}$$

$$D_f \rightarrow (-\infty, 1]$$

ب) $x - |x - 1| > 0 \rightarrow x > |x - 1| \rightarrow -x < x - 1 \leq x \rightarrow x < n \leq 1$
 $\sqrt{x - |x - 1|} \neq 1 \rightarrow x - |x - 1| \neq 1 \rightarrow x \neq |x - 1| \rightarrow x \neq 0, 1$

$$y = \frac{\sin^2 n - 1}{\cos n \neq 0} \rightarrow \odot \quad D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k \in \mathbb{Z} \right\}$$

$$y = \frac{\cos n}{x \cos n + 1 \neq 0 \rightarrow \cos n \neq \frac{1}{x}} \quad \odot \quad D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$$

انف) $y = \frac{n + \pi}{|n + 1| - |n + \pi| \neq 0 \rightarrow |n + 1| \neq |n + \pi|}$

$$D_f = \mathbb{R} - \left\{ \pi - \frac{\pi}{2} \right\}$$

ب) $y = \sqrt{|n + 1| - |n + \pi|} > 0 \rightarrow |n + 1| > |n + \pi| \rightarrow (n + 1)^2 > (n + \pi)^2 \rightarrow \pi^2 + 1 + 2\pi > n^2 + 4n + \pi$
 $D_f = (-\infty, -\frac{\pi}{2}] \cup [\frac{\pi}{2}, \infty)$

$$x_{n-1} > 0 \rightarrow x_n > 1 \rightarrow n > \frac{1}{x}$$

$$\log_{\frac{1}{8}} x_{n-1} > 0 \rightarrow x_{n-1} > \frac{1}{8} \rightarrow n > 1$$

$$\log_{\frac{1}{8}} x_{n+1} > 0 \xrightarrow{1 < \frac{1}{8} < 1} 0 < \log_{\frac{1}{8}} x_{n+1} < 1 \rightarrow 1 < x_{n+1} < 8$$

$$\log(x \cos n + 1) \rightarrow \cos n > -\frac{1}{x}$$

$$\odot \quad D_f = \left(k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2} \right)$$

$$y = \sqrt{\log \frac{n-1}{n+1}} > 0 \rightarrow \frac{n-1}{n+1} > 0 \rightarrow \frac{-1+1}{+1-1} > 0 \rightarrow (-\infty, -1) \cup (1, +\infty)$$

$$\rightarrow \log \frac{n-1}{n+1} > 0 \rightarrow \frac{n-1}{n+1} > 1 \rightarrow \frac{n-1}{n+1} - 1 > 0 \rightarrow \frac{-2}{n+1} > 0 \rightarrow \frac{-1}{n+1} > 0 \rightarrow (-\infty, -1)$$

$$(-\infty, -1)$$

$$\leftarrow \frac{1}{n+1} > 0$$