

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

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

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

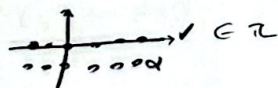
$1 - m^2 \geq 0 \rightarrow m^2 \leq 1 \rightarrow -1 \leq m \leq 1$

$\downarrow$
 $1 - (-1) = \boxed{2}$

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

$[n] + [-n] + 1 \neq 0$

$\hookrightarrow [n] + [-n] \neq -1$



$\rightarrow \{-2, -1, 0, 1, 2\}$

$\boxed{\infty}$

الف) $\sqrt{n^2 + 4n^2} \rightarrow \sqrt{n^2(n+4)} \rightarrow \frac{-4 \pm \sqrt{16+4n^2}}{-2 \pm 2} \rightarrow D_f = [-2, +\infty)$

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

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

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

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

$y = \sqrt{\sum |2-n|} \geq 0 \rightarrow \sum |2-n| \rightarrow -2 \leq 2-n \leq 2 \rightarrow -2 \leq n \leq 4$

$D_f = [-2, 4]$

الف) $y = \sqrt{1 - x|x|} > 0 \rightarrow 1 - x|x| > 0 \rightarrow x|x| < 1$

فإنه صلي

$x > 0 \rightarrow x^2 < 1 \rightarrow -1 < x < 1$

$x < 0 \rightarrow -x^2 < 1 \rightarrow x^2 > -1 \rightarrow x \in \mathbb{R}$

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

ب) $x - |x - 1| > 0 \rightarrow x > |x - 1| \rightarrow -x < x - 1 < x \rightarrow x < 1$

$\sqrt{x - |x - 1|} \neq 1 \rightarrow x - |x - 1| \neq 1 \rightarrow x \neq |x - 1| \rightarrow x \neq 0, 1$

$D_f = [x, 1] - \{0, 1\}$

$y = \frac{\sin^2 x - 1}{\cos x} \neq 0 \rightarrow \odot$

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

$y = \frac{\cos x}{x \cos x + 1} \neq 0 \rightarrow \cos x \neq \frac{1}{x}$

$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{1}{x} \right\}$

الف) $y = \frac{x + 2}{|x + 1| - |x + 2|} \neq 0 \rightarrow |x + 1| \neq |x + 2|$

① $x + 1 \neq x + 2 \rightarrow x \neq 1$

② $x + 1 \neq -(x + 2) \rightarrow x \neq -\frac{3}{2}$

$D_f = \mathbb{R} - \left\{ 1, -\frac{3}{2} \right\}$

ب) $y = \sqrt{|x + 1| - |x + 2|} > 0 \rightarrow |x + 1| > |x + 2| \rightarrow (x + 1)^2 > (x + 2)^2 \rightarrow x^2 + 2x + 1 > x^2 + 4x + 4 \rightarrow -2x > 3 \rightarrow x < -\frac{3}{2}$

$D_f = (-\infty, -\frac{3}{2}] \cup [1, \infty)$

$x - 1 > 0 \rightarrow x > 1 \rightarrow x > \frac{1}{x}$

$\log_{\frac{1}{8}} x > 0 \rightarrow x < 1$

$\log_{\frac{1}{8}} \log_{\frac{1}{8}} x > 0 \rightarrow \log_{\frac{1}{8}} x > 1 \rightarrow x < \frac{1}{8}$

$D_f = (1, \infty)$

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

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

$y = \sqrt{\log \frac{x-1}{x+1}} > 0 \rightarrow \frac{x-1}{x+1} > 0 \rightarrow x < -1 \text{ or } x > 1$

$\log \frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 1 \rightarrow x - 1 > x + 1 \rightarrow -2 > 2 \rightarrow \text{no solution}$

$\log \frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} < 1 \rightarrow x - 1 < x + 1 \rightarrow -2 < 2 \rightarrow \text{always true}$

$D_f = (-\infty, -1) \cup (1, \infty)$

$(-\infty, -1)$