

نام و نام خانوادگی نوشته شده است به صورت صحیح و درست درج شود!

الف) $\frac{x+3}{(x-1)(x-\frac{1}{x})(x+3)(x)}$ $\rightarrow D_f = \mathbb{R} - \{-3, \frac{1}{x}, -3\}$

ب) $\frac{x+3}{(x+1)(x+\frac{1}{x})(x+3)(x)}$ $\rightarrow D_f = \mathbb{R} - \{-3, -1, -\frac{1}{x}\}$

الف) $\frac{x+3}{(x-1)(x^2-x+1)}$ $\rightarrow D_f = \mathbb{R} - \{1\}$
 ریشه ندارد $\Delta < 0$

ب) $\sqrt{\frac{x+3}{(x-1)(x^2-x+1)}}$ $\rightarrow \frac{-3}{+\infty - \frac{1}{+} +} \rightarrow D_f = \mathbb{R} - (-3, 1]$

$y = \frac{2}{x^2 - \omega |x-1| - 2x + \omega}$
 if $x < 1 \rightarrow x^2 - \omega + \omega x - 2x + \omega \neq 0$
 $x(x+3) \neq 0 \rightarrow x \neq 0, x \neq -3$ ①

if $x \geq 1 \rightarrow x^2 - \omega x + \omega - 2x + \omega \neq 0$
 $(x-2)(x-\omega) \neq 0 \Rightarrow x \neq 2, x \neq \omega$ ②
 ① $\cup$ ② $\rightarrow D_f = \mathbb{R} - \{-3, 0, 1, \omega\}$
 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

الف) $[-x] - 2 \geq 0 \rightarrow [-x] \geq 2 \rightarrow D_f = (-\infty, -2]$

ب) $[x]^2 - 2[x] - 3 \neq 0 \rightarrow ([x]-3)([x]+1) \neq 0$
 ① $[x] \neq -1$
 ② $[x] \neq 3$
 ① $\cup$ ② $\rightarrow D_f = (-\infty, -1) \cup [0, 3) \cup [4, +\infty)$

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

ب) $[x - \frac{1}{x}] + [\frac{1}{x} - x] \geq 0$
 ① $x - \frac{1}{x}$ ② $\frac{1}{x} - x$
 ② $\rightarrow 0$ ① $\rightarrow 0$
 if $x < 0 \rightarrow D_f = \{x | x = -k + \frac{1}{x}, k \in \mathbb{N}\}$
 if $x > 0 \rightarrow D_f = \{x | x = k - \frac{1}{x}, k \in \mathbb{N}\}$

الف) $\frac{\cot x + 1}{\tan x + 1} = \frac{\cot x + \tan x}{\tan x - 1}$ $D_f = \mathbb{R} - \left\{ \frac{\pi}{4}, k\pi + \frac{5\pi}{4} \right\}$
 دقة!

ب) $1 - 2\sin^2 x \geq 0 \rightarrow \sin^2 x \leq \frac{1}{2} \rightarrow -\frac{1}{\sqrt{2}} \leq \sin x \leq \frac{1}{\sqrt{2}}$ 1, 1.5
 $D_f = \left[2k\pi - \frac{\pi}{4}, 2k\pi + \frac{\pi}{4} \right] \cup \left[2k\pi + \frac{3\pi}{4}, 2k\pi + \frac{5\pi}{4} \right]$

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

ب) $1 - 2\cos x \geq 0 \rightarrow \cos x \leq \frac{1}{2} \rightarrow D_f = \left[2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3} \right]$

الف) $-1 \leq x^2 + 3x + 1 \leq 1$ Df: $[-5, -3] \cup [-1, 1]$
 $x^2 + 3x \leq 0 \rightarrow \frac{-3}{2} \leq x \leq 0$ (1)
 $x^2 + 3x + 2 \geq 0 \rightarrow \frac{-3}{2} \leq x \leq -1$ (2)
 $(1) \cap (2) \Rightarrow D_f = [-5, -3] \cup [-1, 1]$ 1, 1.5
 ~~$D_f = [-3, -1]$~~

ب) $-1 \leq \sqrt{a - 2x} \leq 1 \rightarrow 0 \leq a - 2x \leq 1 \rightarrow D_f = [2, \frac{a}{2}]$

الف) $\log_{\frac{1}{2}} x \rightarrow x > 0$ (1)
 $1 - \log_{\frac{1}{2}} x > 0 \rightarrow 0 < x \leq 2$ (2)
 $(1) \cap (2) \Rightarrow D_f = (0, 2]$ 2

ب) $\log_{\frac{1}{2}} x \rightarrow x > 0$ (1)
 $1 - \log_{\frac{1}{2}} x > 0 \rightarrow x > \frac{1}{2}$ (2)
 $\Rightarrow D_f = (\frac{1}{2}, +\infty)$

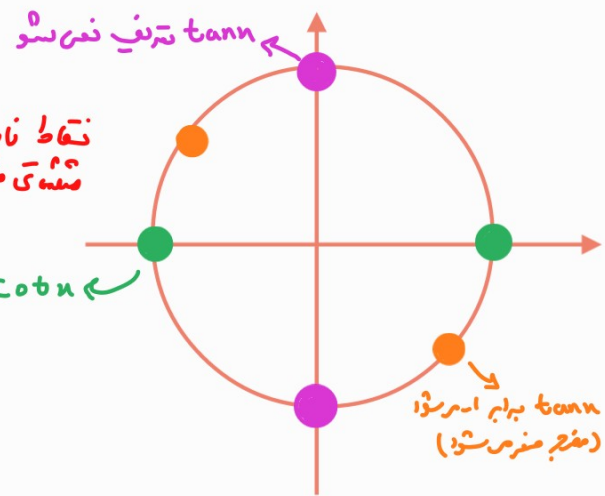
الف) $\sqrt{4x - x^2} - 1 \geq 0 \rightarrow \sqrt{4x - x^2} \geq 1 \rightarrow -x^2 + 4x \geq 1 \rightarrow -x^2 + 4x - 1 \geq 0$
 $D_f = [1, 3]$ 2

ب) $\frac{3x + 6}{2x + 4} \in \mathbb{W} \rightarrow D_f = \left\{ x \mid x = \frac{a - 4k}{2k - 3}, k \in \mathbb{W} \right\}$

9- الف) $y = \frac{\cot x + 1}{\tan x + 1}$

→ نقاط نامعلوم را در دایره
مستوی می‌نویسیم.

$\cot x$ تعریف نمی‌شود



$x \neq k\pi + \frac{\pi}{2}$

$x \neq k\pi + \frac{\pi}{2} \cup x \neq k\pi$

$\hookrightarrow x \neq \frac{k\pi}{2}$

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

8- الف) $-1 \leq x^2 + \frac{3}{x} + 1 \leq 1 \xrightarrow{\frac{4}{x} - \frac{5}{x}} -1 \leq x^2 + \frac{3}{x} + \frac{4}{x} - \frac{5}{x} \leq 1$

$\frac{1}{x} \leq x^2 + \frac{3}{x} + \frac{4}{x} \leq \frac{4}{x} \rightarrow \frac{1}{x} \leq \left(x + \frac{3}{x}\right)^2 \leq \frac{4}{x}$

$\int \left(x + \frac{3}{x}\right)^2 \leq \frac{4}{x} \rightarrow -\frac{3}{x} \leq x + \frac{3}{x} \leq \frac{3}{x} \rightarrow -3 \leq x \leq 0 \quad I$

$\cup \left(x + \frac{3}{x}\right)^2 \geq \frac{1}{x} \rightarrow x + \frac{3}{x} \geq \frac{1}{x} \rightarrow x \geq -1 \quad \cup \quad x + \frac{3}{x} \leq -\frac{1}{x} \rightarrow x \leq -2 \quad II$

$I \cap II \rightarrow D_f = [-3, -2] \cup [-1, 0]$