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به همین راه پاسخ‌های که نوشتیم با لغت مطابقت دارند و این بار هم از لغت فارسی به فارسی ترجمه کردیم.

ا) $y = \sqrt{\left[x - \frac{1}{p}\right] + \left[x + \frac{1}{p}\right]}$ $\left[x - \frac{1}{p}\right] + \left[x + \frac{1}{p}\right] \geq 0 \rightarrow \left[x + \frac{1}{p} - 1\right] + \left[x + \frac{1}{p}\right] \geq 0$
 $\left[x + \frac{1}{p}\right] - 1 + \left[x + \frac{1}{p}\right] \geq 0 \rightarrow 2\left[x + \frac{1}{p}\right] \geq 1 \rightarrow \left[x + \frac{1}{p}\right] \geq \frac{1}{2} \rightarrow x + \frac{1}{p} \geq \frac{1}{2} \rightarrow x \geq \frac{1}{2} - \frac{1}{p}$
 $D_y = \left[\frac{1}{2} - \frac{1}{p}, +\infty\right)$

ب) $y = \sqrt{\left[x - \frac{1}{p}\right] + \left[\frac{1}{p} - x\right]}$ $\rightarrow \sqrt{\left[x - \frac{1}{p}\right] + \left[-\left(x - \frac{1}{p}\right)\right]} \rightarrow \begin{cases} x \in \mathbb{Z} \rightarrow 0 \\ x \notin \mathbb{Z} \rightarrow -1 \end{cases}$
 $D_y = \{x \mid x = k + \frac{1}{p}, k \in \mathbb{Z}\}$

الف) $y = \frac{\cot x + 1}{\tan x + 1}$.۱۵

$\tan x + 1 \neq 0 \rightarrow \tan x \neq -1$

$D_y = R - \left\{ \frac{\pi}{2}, \frac{3\pi}{2} \right\}$
 $\tan x$ و $\cot x$ باید تعریف شوند $x \neq \frac{\pi}{2} + k\pi$

ب) $y = \sqrt{1 - \sin^2 x}$.۱۵
 $1 - \sin^2 x \geq 0 \rightarrow 1 \geq \sin^2 x \rightarrow \frac{1}{2} \geq \sin^2 x \rightarrow -\frac{1}{\sqrt{2}} \leq \sin x \leq \frac{1}{\sqrt{2}}$ ①

$D_y = \left[\frac{\pi}{4}, \frac{3\pi}{4} \right] \cup \left[\frac{5\pi}{4}, \frac{7\pi}{4} \right]$

در بازه نامشخص است و اول بازه باید کوچکتر از آخر بازه باشد

الف) $y = \sqrt{2 \sin x - 1}$.۱۵

$2 \sin x - 1 \geq 0 \rightarrow 2 \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2}$

$D_y = \left[\frac{\pi}{6}, \frac{5\pi}{6} \right] \cup \left[\frac{7\pi}{6}, \frac{11\pi}{6} \right]$.۱۵۵

ب) $y = \sqrt{1 - 2 \cos x}$.۱۲۵

$1 - 2 \cos x \geq 0 \rightarrow 1 \geq 2 \cos x \rightarrow \frac{1}{2} \geq \cos x$ ارزشین یه است!

$D_y = \left[\frac{\pi}{3}, \frac{5\pi}{3} \right]$

الف) $y = \arcsin(x^2 + 3x + 1)$

I: $-1 \leq x^2 + 3x + 1 \rightarrow 0 \leq x^2 + 3x + 2$
 II: $x^2 + 3x + 1 \leq 1 \rightarrow x^2 + 3x \leq 0$
 I ∩ II: $[-2, -1] \cup [0, 1]$
 ب) $\cos y = \sqrt{1 - 2x}$
 $1 - 2x \geq 0 \rightarrow 1 \geq 2x \rightarrow \frac{1}{2} \geq x$
 $-1 \leq \sqrt{1 - 2x} \leq 1 \rightarrow -1 \leq 1 - 2x \leq 1 \rightarrow 0 \leq 2x \leq 2 \rightarrow 0 \leq x \leq 1$
 $(-\infty, \frac{1}{2}] \cap [0, 1] = [0, \frac{1}{2}]$ ②

الف) $y = \log_p(1 - \log_p x)$.۱۵

$1 - \log_p x > 0 \rightarrow 1 > \log_p x \rightarrow \frac{1}{p} > x \rightarrow (-\infty, \frac{1}{p})$
 $\log_p x < 1 \rightarrow x < p$
 $D_f = (-\infty, \frac{1}{p})$ ①

ب) $y = \log_p(1 - \log_p \frac{1}{x})$.۱۵
 $1 - \log_p \frac{1}{x} > 0 \rightarrow 1 > -\log_p x \rightarrow \frac{1}{p} > x \rightarrow (-\infty, \frac{1}{p})$
 $\log_p \frac{1}{x} < 1 \rightarrow \frac{1}{x} < p \rightarrow x > \frac{1}{p} \rightarrow D_f = (\frac{1}{p}, +\infty)$

الف) $y = \sqrt{x^2 - x^2 - 1}$

$x^2 - x^2 - 1 \geq 0 \rightarrow -1 \geq 0$ ۱ ≤ x ≤ ۳

$-x^2 + 4x - 1 \geq 0$
 $a + b + c = 0 \rightarrow \frac{b^2 - 4ac}{4a} = \frac{16 - 4}{4} = 3$
 $D_f = R - \{1, 3\}$.۱۵

باید جدول تین علامت رسم کنی تا علامت مشخص شود!

ب) $y = \left(\frac{x^2 + \omega}{x^2 + 1} \right)!$ $\frac{x^2 + \omega}{x^2 + 1} \in \omega \rightarrow x^2 + \omega = \omega(x^2 + 1) \rightarrow x^2 - \omega x^2 = \omega - \omega$

$D_y = \left\{ x \mid x = \frac{\omega k - \omega}{1 - \omega} \right\}$ k ∈ ω

$x \in \left(\frac{\omega - 1}{1 - \omega} \right)$

۳- کس عبارت مخرج را دستکاری میکنیم تا ک ساده تر شود...

$$(x^2 - 2x + 1) - 5/|x-1| + 4 \rightarrow (x-1)^2 - 5/|x-1| + 4 \xrightarrow{|x-1|=t} t^2 - 5t + 4$$

$$(t-1)(t-4) = 0 \rightarrow t=1, t=4$$

$$\rightarrow D_f = \mathbb{R} - \{-3, 0, 2, 5\}$$

$$|x-1|=1 \rightarrow x=2 \text{ و } 0 \quad |x-1|=4 \rightarrow x=5, -3$$

$$4- \text{ب} \quad [x]^2 - 2[x] - 3 = 0 \xrightarrow{[x]=t} t^2 - 2t - 3 = 0 \rightarrow (t-3)(t+1) = 0$$

$$t=3 \rightarrow [x]=3 \rightarrow x \in [3, 4)$$

$$t=-1 \rightarrow [x]=-1 \rightarrow x \in [-1, 0)$$

$$\rightarrow D_f = (-\infty, -1) \cup [3, 4) \cup [4, +\infty)$$

$$\mathbb{R} - \left\{ \frac{1}{2}, [3, 4) \cup [4, 5] \right\}$$

$$5- \text{ب} \quad \left[x - \frac{1}{x} \right] + \left[-x + \frac{1}{x} \right] \geq 0$$

میدانیم:

$$[x] + [-x] \begin{cases} \hookrightarrow x \in \mathbb{Z} & 0 \checkmark \\ \hookrightarrow x \notin \mathbb{Z} & -1 \times \end{cases}$$

$$\rightarrow \left[x - \frac{1}{x} \right] \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{x}$$

$$D_f = \left\{ x \mid x = k + \frac{1}{x}, k \in \mathbb{Z} \right\}$$

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

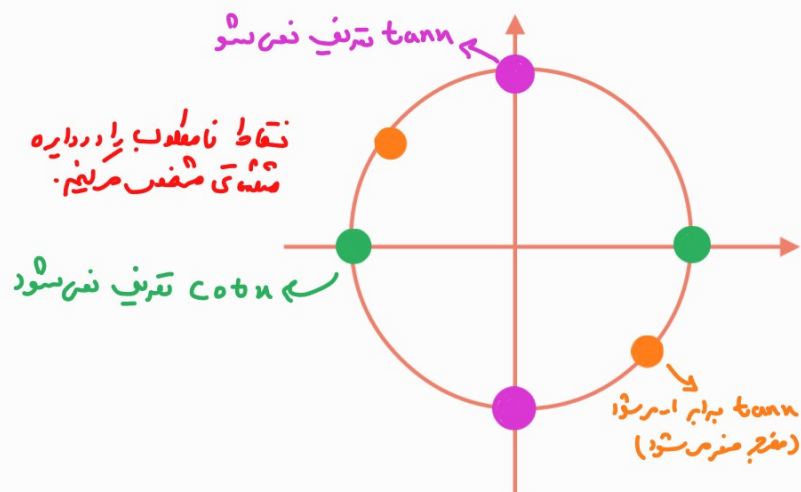
نقاط نامطلوب را در دایره مشخص می کنیم.

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

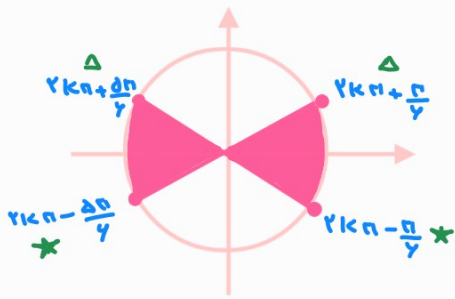
$$x \neq k\pi + \frac{\pi}{2} \cup x \neq k\pi$$

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

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



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



$\rightarrow D_f = [rkn - \frac{\Delta n}{y}, rkn + \frac{\Delta n}{y}]$

4- الف) $r \sin n - 1 \geq 0 \rightarrow \sin n \geq \frac{1}{r}$

$\rightarrow D_f = [rkn + \frac{\Delta n}{y}, rkn + \frac{\Delta n}{y}]$

4- ب) $1 - r \cos n \geq 0 \rightarrow \cos n \leq \frac{1}{r}$

$\rightarrow D_f = [rkn + \frac{\Delta n}{y}, rkn + \frac{\Delta n}{y}]$

4- الف) $y = \log_r (1 - \log_r^n)$ $\rightarrow \log_r^n \rightarrow n > 0$

$\hookrightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1 \rightarrow n < r$

$D_f = (0, r)$

4- ب) $y = \log_r (1 - \log_r^n \frac{1}{r})$ $\rightarrow \log_r^n \frac{1}{r} \rightarrow n > 0$

$\hookrightarrow 1 - \log_r^n \frac{1}{r} > 0 \rightarrow \log_r^n \frac{1}{r} < 1$ ^{مناسب} $\rightarrow n > \frac{1}{r}$

$D_f = (\frac{1}{r}, +\infty)$

١. الف - ١. $\frac{n^2 - 1}{2} \geq 0 \rightarrow \frac{n^2 - 1}{2} \geq \frac{1}{2} \rightarrow n^2 - 1 \geq 1 \rightarrow$
 $n^2 - 2n + 1 \leq 0 \rightarrow (n-1)(n-1) \leq 0.$ $\frac{1}{+} \frac{1}{-} \frac{1}{+} \rightarrow D_f = [1, 1]$