

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره کلاس دبیرانه B	تایم زده شده ۱۵ دقیقه ۱ $D_f = \mathbb{R} - \left\{1, \frac{1}{2}, -\frac{1}{3}\right\}$ $\Delta = 49 - 4(2)(3) = 49$ $\Delta = 49 - 4(2)(3) = 49$
۲ $D_f = \mathbb{R} - \{1\}$ $D_f = \mathbb{R} - \left\{-\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}\right\}$	۳ $D_f = \mathbb{R} - \left\{-\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}\right\}$ $D_f = \mathbb{R} - \left\{-\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}\right\}$
۴ $D_f = \mathbb{R} - \left\{-\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}\right\}$ $D_f = \mathbb{R} - \left\{-\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}\right\}$	۵ $D_f = \mathbb{R} - \left\{-\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}\right\}$ $D_f = \mathbb{R} - \left\{-\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}\right\}$

۱۲۵) $\tan x + 1 = 0 \rightarrow \tan x = -1 \rightarrow x = \frac{3\pi}{4}, \frac{7\pi}{4}$ دستور دهم $\rightarrow D_f = [1\frac{\pi}{4}, \frac{7\pi}{4}]$

۱۲۶) $\sin x + \cos x > 0 \rightarrow \sin x > -\cos x \rightarrow \sin x > \sin(x - \frac{\pi}{2})$
 بانه قبل مبدون!
 $D_f = [1\frac{\pi}{4}, \frac{7\pi}{4}]$

الف) $f(x) = \sqrt{1 - \sin x} \rightarrow \sin x \geq \frac{1}{2}$
 $D_f = [1\frac{\pi}{6}, \frac{5\pi}{6}] \cup [\frac{7\pi}{6}, \frac{11\pi}{6}]$

ب) $f(x) = \sqrt{1 - 2\cos x} \rightarrow \cos x \leq \frac{1}{2}$
 دستور دهم
 $D_f = [1\frac{\pi}{3}, \frac{5\pi}{3}]$
 بانه آخر بازه از اول بازه کوچکتر است.
 $D_f = [1\frac{\pi}{3}, \frac{5\pi}{3}] \cup [\frac{7\pi}{3}, \frac{11\pi}{3}]$

۱۲۷) $y = \arcsin(x^2 + x + 1) \rightarrow -1 \leq x^2 + x + 1 \leq 1$
 $-1 \leq x^2 + x + 1 \rightarrow x^2 + x + 2 \geq 0 \rightarrow (x+1)^2 + 1 \geq 0$ همیشه درست است.
 $x^2 + x + 1 \leq 1 \rightarrow x^2 + x \leq 0 \rightarrow x(x+1) \leq 0$
 $\Delta = 1 - 4 = -3 < 0$
 $D_f = [-1, 0]$

ب) $\cos y = \sqrt{\omega - x} \rightarrow \omega - x \geq 0 \rightarrow x \leq \omega$
 $\omega - x \geq 0 \rightarrow x \leq \omega$
 $D_f = (-\infty, \omega]$

الف) $f(x) = \log_r(1 - \log_r x)$
 $1 - \log_r x > 0 \rightarrow \log_r x < 1 \rightarrow x < r$
 $D_f = (0, r)$

ب) $f(x) = \log_r(1 - \log_r^2 x)$
 $1 - \log_r^2 x > 0 \rightarrow \log_r^2 x < 1 \rightarrow \log_r x < 1 \rightarrow x < r$
 $D_f = (1, r)$

الف) $\frac{1}{x} \leq \frac{1}{r} \rightarrow x \geq r$
 $D_f = [r, \infty)$

ب) $x = \frac{f(w) - \omega}{-f(w) + \omega}$
 $\frac{f(w) + \omega}{f(w) - \omega} \leq w \rightarrow f(w) + \omega \leq w(f(w) - \omega) \rightarrow f(w) + \omega \leq wf(w) - w\omega$
 $\rightarrow f(w) + \omega \leq wf(w) - w\omega$
 $D_f = \{w | w \leq \frac{f(w) + \omega}{f(w) - \omega}\}$

$$۲- \text{ب}) \frac{x+3}{x^3-2x^2+x-1} \geq 0 \rightarrow \frac{x+3}{(x-1)(x^2-x+1)} \geq 0$$

(مضرب مثبت برای $x-1$)
ریشه ندارد! $\Delta < 0$

$$\frac{-3}{+} \quad \frac{1}{-} \quad \frac{1}{+}$$

$$\sim D_f = (-\infty, -3] \cup (1, +\infty)$$

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

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

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

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

$$|x-1|=1 \rightarrow x=2, 0 \quad |x-1|=\omega \rightarrow x=\omega, -3$$

$$۴- \text{ب}) [x]^2 - 2[x] - 3 = 0 \xrightarrow{[x]=t} t^2 - 2t - 3 = 0 \rightarrow (t-3)(t+1) = 0$$

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

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

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

$$\mathbb{R} - \left\{ \frac{1}{2}, [3, 4) \cup [-1, 0) \right\}$$

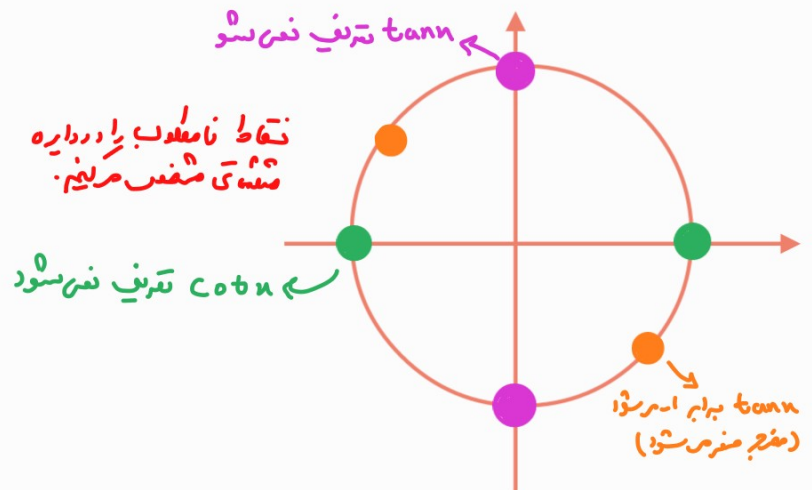
$$۹- \text{الف}) y = \frac{\cot x + 1}{\tan x + 1}$$

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

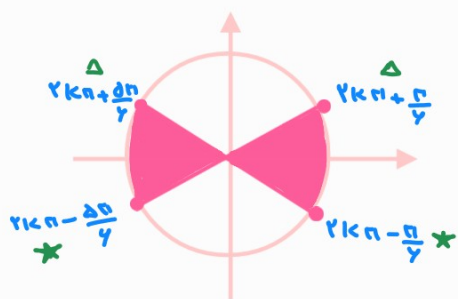
$$x \neq k\pi + \frac{\pi}{4} \cup x \neq k\pi$$

$$\rightarrow x \neq \frac{k\pi}{4}$$

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

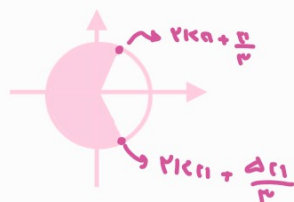


4- ب) $1 - r \sin n \geq 0 \rightarrow r \sin n \leq 1 \rightarrow \sin n \leq \frac{1}{r} \rightarrow -\frac{1}{r} \leq \sin n \leq \frac{1}{r}$



$\rightarrow D_f = [\kappa n - \frac{\Delta}{r}, \kappa n + \frac{\Delta}{r}]$

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



$\rightarrow D_f = [\kappa n + \frac{\Delta}{r}, \kappa n + \frac{\Delta}{r}]$

8- الف) $-1 \leq x + y + 1 \leq 1 \rightarrow -1 \leq x + y + \frac{1}{r} - \frac{\Delta}{r} \leq 1$

$\frac{1}{2} \leq x + y + \frac{1}{r} \leq \frac{3}{2} \rightarrow \frac{1}{2} \leq (x + \frac{y}{r})^2 \leq \frac{3}{2}$

$\int (x + \frac{y}{r})^2 \leq \frac{3}{2} \rightarrow -\frac{\sqrt{3}}{r} \leq x + \frac{y}{r} \leq \frac{\sqrt{3}}{r} \rightarrow -r \leq x \leq 0 \quad I$

$\int (x + \frac{y}{r})^2 \geq \frac{1}{2} \rightarrow x + \frac{y}{r} \geq \frac{1}{\sqrt{2}} \rightarrow x \geq -1 \leq x + \frac{y}{r} \leq \frac{1}{\sqrt{2}} \rightarrow x \leq -r \quad II$

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

8- ب) $\sqrt{\omega - rn} \rightarrow \omega - rn \geq 0 \rightarrow n \leq \frac{\omega}{r}$

$\rightarrow D_f = [r, \frac{\omega}{r}]$

$-1 \leq \sqrt{\omega - rn} \leq 1 \rightarrow \omega - rn \leq 1 \rightarrow -rn \leq -\omega + 1 \rightarrow n \geq r$

همواره برقرار است ✓