

الف) $\frac{\cot x + 1}{\tan x + 1}$

$\cot = \frac{\cos}{\sin}$ $\tan x = \frac{\sin}{\cos}$

مستطابله شود!

سوال ۱۷) ۳ نوشته شده بود و در صفحه آخر نوشته بود

$\sin x \neq 0 \rightarrow x \neq k\pi$, $\cos x \neq 0 \rightarrow x \neq \frac{k\pi}{2}$

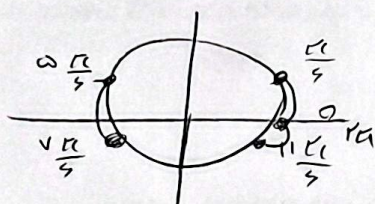
مستطابله شود!

$\tan x \neq -1 \rightarrow x \neq \frac{k\pi - \pi}{2}$

به بیاری نیست چون $\frac{\pi}{4}$ را نوشتیم! $R = \frac{\pi}{4}$, $\frac{5\pi}{4}$, $\frac{3\pi}{4}$, $\frac{7\pi}{4}$

ب) $\sqrt{1 - 4\sin^2 x}$ $1 - 4\sin^2 x \geq 0$
 $1 \geq 4\sin^2 x \rightarrow \frac{1}{2} \geq \sin^2 x \rightarrow$

$\frac{1}{2} \geq \sin x \geq -\frac{1}{2}$ ۲



$x \in [0, \frac{\pi}{2}] \cup [\frac{3\pi}{2}, 2\pi] \cup [\pi, \frac{3\pi}{2}] \cup [\frac{\pi}{2}, \pi]$

$D_f = [-\frac{\pi}{2} + k\pi, \frac{\pi}{2} + k\pi]$ -۲

الف) $y = \sqrt{4\sin x - 1}$ $4\sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{4}$

$\sin \frac{\pi}{6}, \frac{5\pi}{6} = \frac{1}{2}$

$D_f = [\frac{\pi}{6} + k\pi, \frac{5\pi}{6} + k\pi]$

ب) $y = \sqrt{1 - 4\cos x}$ $1 - 4\cos x \geq 0 \rightarrow 4\cos x \leq 1$

$\cos x \leq \frac{1}{4}$

$D_f = [\frac{\pi}{3} + k\pi, \frac{5\pi}{3} + k\pi]$

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$\cos \frac{\pi}{3}, \frac{5\pi}{3} = \frac{1}{2}$

$$\text{الف) } y = \arcsin(x^2 + 1) \quad -1 \leq x^2 + 1 \leq 1 \rightarrow x^2 + 1 \geq -1 \quad x^2 + 1 \leq 1$$

$$\text{ب) } y = \arcsin(x^2 + 1) \quad -1 \leq x^2 + 1 \leq 1$$

$$0 \leq \sqrt{1-x^2} \leq 1 \quad 0 \leq 1-x^2 \leq 1$$

$$1-x^2 \geq 0 \rightarrow x \leq \frac{1}{\sqrt{2}}$$

$$1-x^2 \leq 1 \rightarrow -x^2 \leq 0 \rightarrow x \geq 0 \quad D_f = [0, \frac{1}{\sqrt{2}}]$$

$$D_f = [-1, -\frac{1}{2}] \cup [-1, 0]$$

$$\text{الف) } y = \log_r(1 - \log_\mu x) \quad x > 0$$

$$1 - \log_\mu x > 0 \rightarrow \log_\mu x < 1 \rightarrow x < \mu$$

$$D_f = (-\infty, \mu)$$

$$\text{ب) } y = \log_r(1 - \log_\mu x) \quad 1 - \log_\mu x > 0 \rightarrow \log_\mu x < 1 \rightarrow x < \mu$$

چون متناهی است و است حجت عوض می شود

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

$$\text{الف) } y = \sqrt[r]{x^2 - x^r - 1}$$

$$x^2 - x^r - 1 \geq 0$$

$$x^2 - x^r \geq 1$$

$$D_f = [1, \mu]$$

$$\frac{x}{1-x} \geq \frac{\mu}{1-\mu}$$

$$x \geq \mu$$

$$x^2 - x^r \geq \mu$$

$$(x-1)(x-\mu) \leq 0$$

$$\text{ب) } y = \left(\frac{x^2 + \omega}{x^2 + \mu} \right)!$$

$$\frac{x^2 + \omega}{x^2 + \mu} \leq \omega \rightarrow \frac{x^2 + \omega}{x^2 + \mu} = \omega \rightarrow x^2 + \omega = \omega x^2 + \omega \mu$$

$$x^2 + \omega = \omega x^2 + \omega \mu$$

$$D_f = \{x/x = \frac{\mu - \omega}{\mu + \omega}, \mu \leq \omega\} \quad x(\mu + \omega) = \mu - \omega \rightarrow x = \frac{\mu - \omega}{\mu + \omega}$$

اشیا را دستار

$$\text{ب- 9) } y = \log_r(1 - \log_\mu x) \rightarrow \log_\mu x < 1 \rightarrow x < \mu$$

$$\rightarrow 1 - \log_\mu x > 0 \rightarrow \log_\mu x < 1 \rightarrow x < \mu$$

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

[illegible]

$$r_x^* + \omega x - r \Rightarrow \Delta = r\omega - \frac{F(K)(-r)}{K} \quad K\eta \rightarrow x = \frac{-\omega \pm \sqrt{\omega^2 + 4r\eta}}{2}$$

$(\alpha + 1) (r\alpha^2 + v\alpha + w)$
 $\downarrow$
 $\oplus$
 $\Delta = F\alpha - F(r)(r)$
 $\downarrow$
 α
 $r\alpha$
 $\alpha = \frac{-v \pm \sqrt{v^2 - 4rw}}{r}$
 $\rightarrow$ $(-r)$
 $\rightarrow$ $(-\frac{1}{r})$

$$\begin{array}{r} 10x + 10 \\ 10x + 10 \\ \hline 000 \end{array}$$

$$R_f = R - \left\{ -\frac{1}{r} - \frac{1}{r} \right\}$$

$$x = \frac{-v \pm \sqrt{v^2 - 4\mu\alpha}}{2\mu}$$

$$D_f = R - \underbrace{S + 1}_S$$

$$(x-1)(x^2-x+1)$$

$(+)$ $\Delta = 1$

النتيجة $\Delta = 1 - f(1)(1) < a \rightarrow$

$$\begin{array}{c} x \quad - \quad \infty \rightarrow 1 \\ \hline + \quad - \quad - \quad + \end{array}$$

$(x-1)(x^2-x+1)$
 $\textcircled{1} \rightarrow \Delta < 0 \rightarrow$

$$\rho_f = (-\infty, -1] \cup (1, +\infty)$$

الف) $\sqrt{[x]-2}$

$[-\infty]-2 \geq 2$

$[x] \geq 4 \rightarrow x \geq 4$

$D_f = (-\infty, -2]$

$\rightarrow (x \leq -2)$

ب) $\frac{5x^2+4}{[x]^2-2[x]-3}$

$[x]^2-2[x]-3 \neq 0$

$([x]-3)([x]+1)$

$[x] \neq 3, -1$

$[x] = -1 \rightarrow -1 \leq x < 0$

$[x] = 3 \rightarrow 3 \leq x < 4$

$D_f = \mathbb{R} - ([-1, 0) \cup [3, 4))$

الف) $y = \sqrt{[x-\frac{1}{p}] + [x+\frac{r}{p}]}$

$2[x-\frac{1}{p}] + 1 \geq 0 \rightarrow n = [x-\frac{1}{p}] \rightarrow 2n+1 \geq 0 \rightarrow n \geq -\frac{1}{2} \rightarrow n \geq 0$

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

ب) $y = \sqrt{[x-\frac{1}{p}] + [\frac{1}{p}-x]}$

$a = x - \frac{1}{p}$

$a \in \mathbb{Z} \quad [a] + [-a] = 0 \rightarrow x - \frac{1}{p} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{p}$

$a \notin \mathbb{Z} \quad [a] + [-a] = -1$

$D_f = \{x / x \in \mathbb{Z} + \frac{1}{p}, \mathbb{Z} \}$

۳- بعض عبارت مفرج را دستکاری میکنیم تا کی ساده تر شود...

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

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

$$|x-1|=1 \rightarrow x=2, 0 \quad |x-1|=4 \rightarrow x=5, -3 \rightarrow D_f = \mathbb{R} - \{-3, 0, 2, 5\}$$