

۱۵۵ جزیره بارقت ملائمه مسعود

مسوالت تلفظ کلمات مشابه فیه است! اگر اشکال دارید

تمام رافع اشکال میکنه! راه حل هائی که نوشته بارقت ملائمه مسعود

الف) $y = \frac{x+x^2}{x^3+x^2+x-1}$ (۱)

$$(x-1)(x^3+x^2+x-1) \rightarrow x^3+x^2+x-1 \rightarrow x^3+x^2+x-1=0$$

$$(x-1)(x^2+x+1) \rightarrow x^2+x+1=0 \rightarrow x = \frac{-1 \pm \sqrt{1-4}}{2} = \frac{-1 \pm \sqrt{-3}}{2}$$

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

ب) $y = \frac{x+x^2}{x^3+x^2+x+1}$ (۲)

$$(x+1)(x^3+x^2+x+1) \rightarrow x^3+x^2+x+1 \rightarrow x^3+x^2+x+1=0$$

$$(x+1)(x^2+x+1) \rightarrow x^2+x+1=0 \rightarrow x = \frac{-1 \pm \sqrt{1-4}}{2} = \frac{-1 \pm \sqrt{-3}}{2}$$

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

ج) $y = \frac{x+x^2}{x^3-x^2+x-1}$ (۳)

$$(x-1)(x^3-x^2+x-1) \rightarrow x^3-x^2+x-1 \rightarrow x^3-x^2+x-1=0$$

$$(x-1)(x^2-x+1) \rightarrow x^2-x+1=0 \rightarrow x = \frac{1 \pm \sqrt{1-4}}{2} = \frac{1 \pm \sqrt{-3}}{2}$$

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

د) $y = \sqrt{\frac{x+x^2}{x^3-x^2+x-1}}$ (۴)

$$\frac{x+x^2}{x^3-x^2+x-1} \geq 0$$

$$(x-1)(x^2-x+1) \geq 0$$

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

ه) $y = \frac{x}{x^3-2(x-1)-x^2+2}$ (۵)

$$x^3-2(x-1)-x^2+2 \geq 0$$

$$x^3-x^2-2x+2 \geq 0$$

$$(x-1)(x^2-x-2) \geq 0$$

$$(x-1)(x-2)(x+1) \geq 0$$

$D_f = \mathbb{R} - \{1, 2, -1\}$

و) $y = \sqrt{[x]-x}$ (۶)

$$[x]-x \geq 0$$

$$[x] \geq x \rightarrow x \leq [x] \rightarrow x \leq x$$

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

ز) $y = \frac{[x]^2+x}{[x]^2-x[x]-x^2}$ (۷)

$$([x]+1)([x]-x) \rightarrow [x] \neq -1 \rightarrow [x] \neq -1 \rightarrow -1 \leq x < 0$$

$$[x] \neq x \rightarrow x \leq [x] < x+1$$

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

$$الف) y = \sqrt{\left[n - \frac{1}{2}\right] + \left[n + \frac{1}{2}\right]}$$

✗

○

$$ب) y = \sqrt{\left[n - \frac{1}{2}\right] + \left[\frac{1}{2}\right]}$$

$$الف) y = \frac{\cos(x+1)}{\tan(x+1)} \rightarrow \tan(x+1) \neq 0$$

(6)

.15

$$\tan(x+1) \neq -1 \rightarrow D_f = \mathbb{R} - \left\{xk + \frac{3\pi}{4}, xk + \frac{7\pi}{4}\right\}$$

①

$\tan n$ و $\cot n$ باید تعریف شوند! $\left[n \neq \frac{k\pi}{2}\right]$

$$\text{فقط } 0 \leq \sin n \leq \frac{1}{2}$$

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

.15

$$D_f = \left[xk + \frac{\pi}{6}, xk + \frac{5\pi}{6}\right]$$

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$$الف) y = \sqrt{\cos x - 1} \rightarrow \cos x - 1 \geq 0 \rightarrow \frac{3\pi}{2} \leq x \leq \frac{5\pi}{2}$$

(7)

$$D_f = \left[xk + \frac{3\pi}{2}, xk + \frac{5\pi}{2}\right]$$

$$ب) y = \sqrt{1 - \cos x} \rightarrow 1 - \cos x \geq 0 \rightarrow 0 \leq x \leq \frac{\pi}{2}$$

$$D_f = \left[xk + \frac{\pi}{2}, xk + \frac{3\pi}{2}\right] \quad \frac{\pi}{2} \leq x \leq \frac{3\pi}{2}$$

$$الف) y = \arcsin(n^2 + n + 1) \rightarrow -1 \leq n^2 + n + 1 \leq 1$$

(8)

$$n^2 + n + 1 \leq 1 \rightarrow n^2 + n \leq 0 \rightarrow n(n+1) \leq 0$$

$$n^2 + n + 1 \geq -1 \rightarrow n^2 + n + 2 \geq 0 \rightarrow (n+1)(n+2) \geq 0$$

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

$$\begin{array}{c|ccc} n & - & + & 0 \\ y & + & - & + \end{array} \quad \text{I}$$

$$\begin{array}{c|ccc} n & - & + & - \\ y & + & - & + \end{array} \quad \text{II}$$

$$ب) \cos y = \sqrt{\omega - xn}$$

$$D_f = \left[x, \frac{\omega}{n}\right]$$

$$\omega - xn \geq 0 \rightarrow x \leq \frac{\omega}{n}$$

$$n \geq 1$$

$$-xn + \omega \leq 0$$

$$\sqrt{\omega - xn} \rightarrow \sqrt{\omega - xn} \leq 1 \rightarrow \omega - xn \leq 1 \rightarrow \omega - 1 \leq xn \rightarrow \frac{\omega - 1}{n} \leq x$$

الف - $y = \log_r (1 - \log_r^n)$ $\rightarrow \log_r^n \rightarrow n > 0$
 $\hookrightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1 \rightarrow n < r$

$Df = (0, r)$

الف) $y = \log_r (1 - \log_r^n)$ $\rightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1$
 $\hookrightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1 \rightarrow n < r$
 $Df = (0, r)$

ب) $y = \log_r (1 - \log_r^{1/r})$ $\rightarrow 1 - \log_r^{1/r} > 0 \rightarrow \log_r^{1/r} < 1$
 $\hookrightarrow 1 - \log_r^{1/r} > 0 \rightarrow \log_r^{1/r} < 1 \rightarrow n > \frac{1}{r}$
 $Df = (\frac{1}{r}, +\infty)$

ج) $y = \sqrt{r^n - n^2} - 1$ $\rightarrow r^n - n^2 - 1 > 0 \rightarrow r^n - n^2 > 1$

n	1	r
y	-1	-1

 $(n - n^2 - 1) > 0 \rightarrow (n - 1)(n + 1) > 0$
 $Df = [r, +\infty)$

حسب فاکتوریل باید ضمیمه اعداد بی باشد!

د) $y = \left(\frac{r^n - 1}{r^n + 1} \right)^{1/r}$ $\rightarrow r^n + 1 = 0 \rightarrow r^n = -1$
 $Df = \mathbb{R} - \{ \frac{1}{r} \}$

ب - $y = \log_r (1 - \log_r^{1/r})$ $\rightarrow \log_r^{1/r} \rightarrow n > 0$
 $\hookrightarrow 1 - \log_r^{1/r} > 0 \rightarrow \log_r^{1/r} < 1$ ^{منابع (1, 2)} $\rightarrow n > \frac{1}{r}$
 $Df = (\frac{1}{r}, +\infty)$

الف - $\lfloor n - \frac{1}{n} \rfloor + \lfloor n + \frac{1}{n} \rfloor \geq 0 \xrightarrow{+1} \lfloor n - \frac{1}{n} \rfloor + 1 + \lfloor n + \frac{1}{n} \rfloor \geq 1$
 $\lfloor n + \frac{1}{n} \rfloor + \lfloor n + \frac{1}{n} \rfloor \geq 1 \rightarrow \lfloor n + \frac{1}{n} \rfloor \geq \frac{1}{2}$ اولین عدد صحیح بزرگتر از $\frac{1}{2}$ برابر یک است!
 $n > \frac{1}{2} \rightarrow D_f = [\frac{1}{2}, +\infty)$

ب - $\lfloor n - \frac{1}{n} \rfloor + \lfloor -n + \frac{1}{n} \rfloor \geq 0$

میدانیم:

$\lfloor n \rfloor + \lfloor -n \rfloor \begin{cases} n \in \mathbb{Z} & 0 \checkmark \\ n \notin \mathbb{Z} & -1 \times \end{cases}$

$\rightarrow \lfloor n - \frac{1}{n} \rfloor \in \mathbb{Z} \rightarrow n \in \mathbb{Z} + \frac{1}{n}$

$D_f = \{ n \mid n = k + \frac{1}{n}, k \in \mathbb{Z} \}$

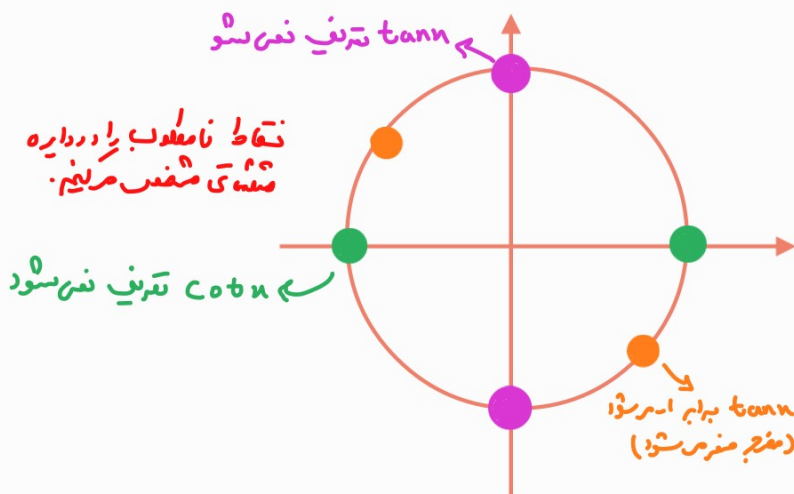
الف - $y = \frac{\cot n + 1}{\tan n + 1}$

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

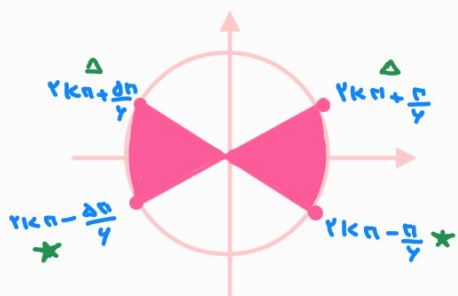
$n \neq k\pi + \frac{\pi}{4} \cup n \neq k\pi$

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

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



ب - $1 - \sqrt{2} \sin n \geq 0 \rightarrow \sqrt{2} \sin n \leq 1 \rightarrow \sin n \leq \frac{1}{\sqrt{2}} \rightarrow -\frac{1}{\sqrt{2}} \leq \sin n \leq \frac{1}{\sqrt{2}}$



$\rightarrow D_f = [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$

1. - ب) $\frac{r_n + \omega}{r_n + \varepsilon} \in W \rightarrow n \in -\frac{r\omega - \omega}{r\omega - r} \rightarrow n \in \frac{\omega - r\omega}{r\omega - r}$

$D_F = \{n \mid n = \frac{-rk + \omega}{rk - r}, k \in W\}$