

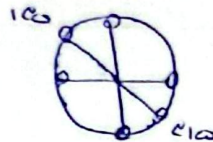
راه‌های نوشتن با دقت مطالعه شود

۱۷، ۲۵

$$\frac{\cot x + 1}{\tan x + 1} \Rightarrow \cos x \neq 0$$

$$\sin x \neq 0$$

$$\tan x \neq -1$$



$$R = \{ \cancel{k\pi}, k\pi - \frac{\pi}{2} \}$$

۱، ۲۵

$$\sqrt{1 - \varepsilon \sin^2 x} \Rightarrow 1 - \varepsilon \sin^2 x \geq 0$$

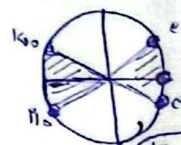
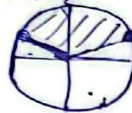
$$\varepsilon \sin^2 x \leq 1 \Rightarrow$$

$$\text{الف) } 2 \sin x - 1 \geq 0 \Rightarrow \sin x \geq \frac{1}{2}$$

$$-\frac{1}{2} \leq \sin x \leq \frac{1}{2}$$

$$\uparrow \uparrow$$

$$\sin^2 x \leq 1$$



$$[2k\pi - \frac{\pi}{6}, 2k\pi + \frac{\pi}{6}]$$

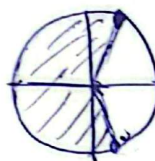
U $\Rightarrow$ اتحاد

$$[2k\pi - \frac{\pi}{6}, 2k\pi + \frac{\pi}{6}]$$

$$[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$$

۱، ۲۵

$$\text{ب) } 1 - 2 \cos x \geq 0 \Rightarrow \cos x \leq \frac{1}{2}$$

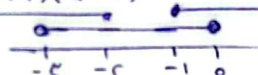


مع بنابر آیه‌ی بازه از ابتداه آن
کمیتر باشد

$$\text{الف) } -1 \leq x^2 + 2x + 1 \leq 1 \xrightarrow{-1} -2 \leq x^2 + 2x \leq 0$$

$$\begin{array}{c} -2 & -1 \\ + & - & + \\ \frac{1}{2} & & \frac{1}{2} \end{array}$$

$$\begin{aligned} & \bullet \leq x^2 + 2x + 2 \\ & \bullet \leq (x+1)(x+2) \end{aligned}$$



$$\begin{aligned} & x^2 + 2x \leq 0 \\ & -2 & 0 \\ & + & - & + \\ & \frac{1}{2} & & \frac{1}{2} \end{aligned}$$

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

۵

$$\text{ب) } \cos x = \sqrt{1 - x} \xrightarrow{1} 0 - 2x \geq 0 \Rightarrow x \leq 0$$

$$\xrightarrow{2} -1 \leq \sqrt{1 - x} \leq 1 \Rightarrow 1 - x \leq 1 \Rightarrow x \geq 0$$

$$\log_2 (1 - \log_2 x) \Rightarrow 1 - \log_2 x \geq 0 \Rightarrow \log_2 x \leq 1 \Rightarrow x \leq 2$$

$$D_f = (0, 2)$$

۱، ۲۵

منابعین ۵ را است پس حجت ناماده عوض مرشد

$$\log_2 (1 - \log_2 \frac{1}{x})$$

$$\Rightarrow 1 - \log_2 \frac{1}{x} \geq 0 \Rightarrow \log_2 x \leq 1 \Rightarrow x \leq 2$$

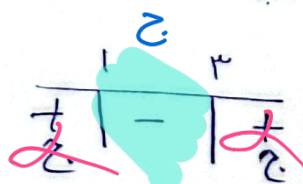
$$\log_2 \frac{1}{x} < 1 \Rightarrow x > \frac{1}{2} \Rightarrow D_f = (\frac{1}{2}, +\infty)$$

$$\text{الف) } \sqrt{\frac{\varepsilon x - x^2}{2 - x}}$$

$$D_f = [1, 2]$$

$$\Rightarrow \frac{\varepsilon x - x^2}{2 - x} \geq 0 \Rightarrow \varepsilon x - x^2 \geq 0$$

$$\Rightarrow x^2 - \varepsilon x + \varepsilon \leq 0$$



$$\begin{aligned} & \bullet \leq x^2 - \varepsilon x + \varepsilon \\ & \bullet \leq (x-1)(x-\varepsilon) \end{aligned}$$

۱، ۲۵

$$y = \frac{\varepsilon x + \omega}{2x + \varepsilon} \in W \Rightarrow 2xW + \varepsilon W = \varepsilon x + \omega \Rightarrow$$

$$2xW - \varepsilon x = \omega - \varepsilon W$$

$$x(2W - \varepsilon) = \omega - \varepsilon W$$

$$x = \frac{\omega - \varepsilon W}{2W - \varepsilon}$$

$$x = \frac{\omega - \varepsilon K}{2K - \varepsilon} \mid K \in W$$

الف) $2x^3 + 3x^2 - 8x + 3 \rightarrow$ $2x^3 + 3x^2 - 8x + 3 \mid x-1$
 $2x^3 + 5x^2 - 11x + 3$
 $(x-1)(2x^2 + 5x - 3) = 0 \Rightarrow D = R - \left\{ \frac{1}{2}, 1, 3 \right\}$
 $2x^2 + 5x - 3 = 0 \Rightarrow x = \frac{-5 \pm \sqrt{25 + 24}}{4} \Rightarrow x = \frac{-5 \pm 7}{4} \Rightarrow x = \frac{1}{2}, -3$
 تقبیر آنبه! دقت!

ب) $2x^3 + 9x^2 + 10x + 3 \rightarrow$ $2x^3 + 9x^2 + 10x + 3 \mid x+1$
 $2x^3 + 7x^2 + 13x + 3$
 $2x^2 + 7x + 3 \mid x+1$
 $2x^2 + 2x + 5x + 3$
 $3x + 3 \mid x+1$
 $3x + 3 \mid x+1$
 0
 $D = R - \left\{ -1, -\frac{3}{2}, -\frac{3}{3} \right\}$

الف) $x^3 - 2x^2 + 2x - 1 = 0$
 $\Rightarrow \frac{x^3 - 2x^2 + 2x - 1}{x^2 - x + 1} \mid x-1$
 $x^3 - x^2 + x - 1$
 $-x^2 + 2x - 1$
 $-x^2 + x - x + 1$
 $x - 1$
 0
 $(x-1)(x^2 - x + 1) = 0$
 $\Delta < 0$
 $D = R - \{1\}$

ب) $\sqrt{\frac{x+3}{(x-1)(x^2-x+1)}} > 0$
 $\Rightarrow \frac{x+3}{(x-1)(x^2-x+1)} > 0$
 $\Delta < 0$
 $\frac{-3}{x} \mid \frac{1}{x} \mid \frac{1}{x}$

$x^3 - 5x^2 + 5x - 2x + 5 = 0$
 $x^3 - 5x^2 + 3x + 5 = 0$
 $(x-2)(x^2 - 3x - 5) = 0$
 $x = 2, 5$
 $x^3 - 5x^2 + 3x + 5 = 0$
 $x^3 - 5x^2 + 3x + 5 = 0$
 $(x-2)(x^2 - 3x - 5) = 0$
 $x = 2, 5$
 $x^3 - 5x^2 + 3x + 5 = 0$
 $x^3 - 5x^2 + 3x + 5 = 0$
 $(x-2)(x^2 - 3x - 5) = 0$
 $x = 2, 5$

الف) $[-x] - 2 > 0 \Rightarrow [-x] > 2 \Rightarrow -x > 2 \Rightarrow x < -2$
 $x \leq -2$
 دقت! $\frac{1}{1/5}$

ب) $y = \frac{5x^2 + 9}{[x]^2 + 2[x] - 3}$
 $\Rightarrow [x] = t \Rightarrow t^2 - 2t - 3 = 0$
 $(t-3)(t+1) = 0$
 $t = 3, -1$
 $[x] = 3 \Rightarrow 3 \leq x < 4$
 $[x] = -1 \Rightarrow -1 \leq x < 0$
 $R - \left\{ [3, 4) \cup [-1, 0) \right\}$

$\sqrt{\left[x - \frac{1}{2}\right] + \left[\frac{x}{2}\right]} \Rightarrow \left[x - \frac{1}{2}\right] + \left[\frac{x}{2}\right] + 1 > 0$
 $\left[x - \frac{1}{2}\right] + \left[\frac{x}{2}\right] + 1 > 0$
 $2\left[x - \frac{1}{2}\right] > -1 \Rightarrow \left[x - \frac{1}{2}\right] > -\frac{1}{2} \Rightarrow x - \frac{1}{2} > 0$
 $x > \frac{1}{2}$
 $\sqrt{\left[x - \frac{1}{2}\right] + \left[\frac{1}{2} - x\right]} \Rightarrow \left[x - \frac{1}{2}\right] + \left[\frac{1}{2} - x\right] = 0$
 $[t] + [-t] = 0$
 $x - \frac{1}{2} \in \mathbb{Z} \Rightarrow x = \frac{1}{2} + k, k \in \mathbb{Z}$

ب- ۱

همه ضرایب توان های زوج با ضرایب توان های فرد برابر است پس عبارت به $n+1$ بخش پذیر است.

$$\begin{array}{r|l} 2n^3 + 9n^2 + 10n + 3 & n+1 \\ -2n^3 + 2n^2 & \\ \hline \end{array}$$

$$\begin{array}{r} 2n^2 + 10n + 3 \\ -2n^2 + 2n \\ \hline \end{array}$$

$$\rightarrow (n+1)(2n^2 + 2n + 3)$$

$$\begin{array}{r} 2n + 3 \\ -2n + 3 \\ \hline \end{array}$$

$$0$$

$$\int n+1=0 \rightarrow n=-1$$

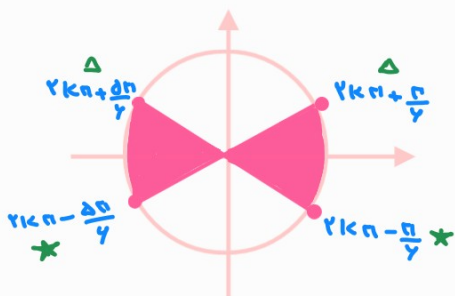
ریشه های عبارت را بدست می آوریم

$$2n^2 + 2n + 3 = 0 \rightarrow n = \frac{-2 \pm \sqrt{4 - 24}}{4} \rightarrow n = -1, -\frac{3}{2}$$

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

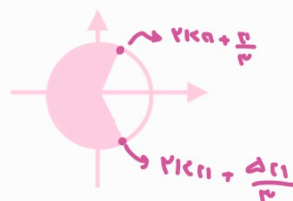
الف - ۴) $[-n] - 2 \geq 0 \rightarrow [-n] \geq 2 \rightarrow -n \geq 2 \rightarrow n \leq -2 \rightarrow D_f = (-\infty, -2]$

ب - ۴) $1 - 4 \sin^2 n \geq 0 \rightarrow 4 \sin^2 n \leq 1 \rightarrow \sin^2 n \leq \frac{1}{4} \rightarrow -\frac{1}{2} \leq \sin n \leq \frac{1}{2}$



$$\rightarrow D_f = \left[k\pi + \frac{5\pi}{12}, k\pi + \frac{7\pi}{12} \right]$$

ب - ۵) $1 - 2 \cos n \geq 0 \rightarrow \cos n \leq \frac{1}{2}$



$$\rightarrow D_f = \left[2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3} \right]$$

الف - ٩ $y = \log_r (1 - \log_r^n)$ $\rightarrow \log_r^n \rightarrow n > 0$
 $\hookrightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1 \rightarrow n < r$

$Df_z (0, r)$

ب - ٩ $y = \log_r (1 - \log_r^n \frac{1}{r})$ $\rightarrow \log_r^n \frac{1}{r} \rightarrow n > 0$
 $\hookrightarrow 1 - \log_r^n \frac{1}{r} > 0 \rightarrow \log_r^n \frac{1}{r} < 1 \xrightarrow{\text{مناسبة (١, ٠)}} n > \frac{1}{r}$

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

الف - ١٠ $\frac{f_{n-n^2}}{2} - 1 \geq 0 \rightarrow \frac{f_{n-n^2}}{2} \geq 1 \rightarrow f_{n-n^2} \geq 2 \rightarrow$
 $n^2 - 2n + 3 \leq 0 \rightarrow (n-1)(n-3) \leq 0$ $\frac{1}{+} \mid \frac{3}{-} \mid \frac{+}{+} \rightarrow Df = [1, 3]$