

لایه کرباسیان

ب. ل. فدا

تکلیف شماره ۳:

در نفیس داندی تالیف کتابت اشغال داری! چه در راه حل عالی به نوشتن باقیات ماند...

$$y = \frac{x+3}{2x^3+2x^2-1x+3} \rightarrow \text{جهت ضرایب توانه} \rightarrow \sqrt{x-1}$$

-1

$$\begin{array}{r} 2x^3 + 2x^2 - 1x + 3 \\ 2x^3 - 2x^2 \hline \end{array} \quad \begin{array}{r} x-1 \\ 2x^2 + 4x - 3 \end{array}$$

$$\begin{array}{r} 4x^2 - 1x \\ 4x^2 - 4x \hline 3x + 3 \\ - 3x + 3 \hline 0 \end{array}$$

$$x^2 + 4x - 3 = 0$$

$$(x-1)(x+4) = 0$$

$$\begin{array}{c} \frac{-1}{1} \\ \frac{-3}{1} \end{array} = -3$$

$$Df = R_1 - \left\{ 1, \frac{1}{x}, -3 \right\}$$

ب.) $\frac{x+3}{2x^3+4x^2+10x+3} \rightarrow \text{جمع ضرایب توانه} \rightarrow \sqrt{x+1}$

$$\begin{array}{r} 2x^3 + 4x^2 + 10x + 3 \\ 2x^3 + 2x^2 \hline \end{array} \quad \begin{array}{r} x+1 \\ 2x^2 + 7x + 3 \end{array}$$

$$\begin{array}{r} 2x^2 + 7x + 3 \\ 2x^2 + 4x \hline 3x + 3 \\ 3x + 3 \hline 0 \end{array}$$

$$x^2 + 7x + 3 = 0$$

$$(x+1)(x+6) = 0$$

$$\begin{array}{c} \frac{-1}{1} \\ \frac{-3}{1} \end{array} = -3$$

$$Df = R_1 - \left\{ 1, \frac{1}{x}, -3 \right\}$$

$$1) \frac{x+1}{x^2-2x+1} \rightarrow \frac{x+1}{(x-1)^2} \rightarrow x-1 \checkmark$$

-r

$$x^2 - 2x + 1 \mid x+1 \rightarrow x^2 - 2x + 1 \sim b^2 - 2ac = 1 - 4 < 0 \rightarrow x^2$$

$$\frac{-x^2 + 2x}{-x^2 + x} = x - 1$$

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

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

$$\begin{array}{c|c|c} -1 & 1 & \\ \hline + & - & + \\ \hline 0 & 2 & \end{array}$$

$$D_f = \mathbb{R} - (-1, 1]$$

$$y = \frac{r}{x^2 - 2|x-1| - 2x + 2}$$

-r

$$x > 1 \rightarrow x^2 - 2x + 2 - 2x + 2 = x^2 - 4x + 4 = (x-2)^2 \geq 0$$

$$x < 1 \rightarrow x^2 - 2 + 2x - 2x + 2 = x^2 \geq 0$$

$$D_f \subseteq \mathbb{R} - \{0, 1, 2\}$$

$$3) [-x] - 2 \geq 0 \rightarrow [-x] \geq 2$$

-r

$$-x \geq 2 \rightarrow x \leq -2$$

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

$$4) [x]^2 - 2[x] - 3 \neq 0$$

$$([x]-3)([x]+1) \rightarrow [x] \neq 3 \quad [x] \neq -1$$

$$x \notin [3, 4) \quad x \notin [-1, 0)$$

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

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$$i) \left[x - \frac{1}{r} \right] + \left[x + \frac{r}{2} \right] \geq 0$$

$$\left[x - \frac{1}{r} \right] + \left[x + \frac{r}{2} - 1 + 1 \right] \geq 0$$

$$\left[x - \frac{1}{r} \right] + \left[x - \frac{1}{r} \right] + 1 \geq 0$$

$$2 \left[x - \frac{1}{r} \right] \geq -1 \rightarrow \left[x - \frac{1}{r} \right] \geq -\frac{1}{2}$$

$$\left[x - \frac{1}{r} \right] \geq 0$$

$$x - \frac{1}{r} \geq 0 \rightarrow x \geq \frac{1}{r}$$

$$ii) \left[x - \frac{1}{r} \right] + \left[\frac{1}{r} - x \right] \geq 0 \quad D_f = \{ x \mid x \in \mathbb{Z} \}$$

$$i) \frac{\cot x + 1}{\tan x + 1} \rightarrow \frac{\cos}{\sin} \rightarrow \sin x \neq 0 \rightarrow x \neq k\pi$$

$$\frac{\tan x + 1}{\cos} \rightarrow \cos x \neq 0 \quad \tan x + 1 \neq 0$$

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

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

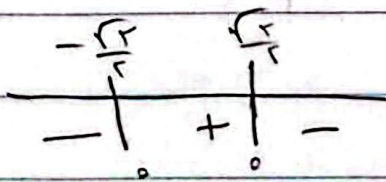
$$ii) 1 - r \sin^2 x \geq 0 \quad \text{آنها مندرجاً در مخرج نیستند}$$

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

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

$$r \sin^2 x = 1 \quad \sin x = \pm \frac{1}{\sqrt{r}}$$

$$1 - r \sin^2 x = -1 \quad \sin x = \pm \frac{1}{\sqrt{r}}$$



$$-\frac{1}{\sqrt{r}} \leq \sin x \leq \frac{1}{\sqrt{r}}$$



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

$$1 - r \sin^2 x \leq 0 \rightarrow (1 - r \sin^2 x) (1 + r \sin^2 x) \leq 0 \rightarrow \text{در این صورت}$$

در این صورت

الف) $r \sin x - 1 > 0$
 $\sin x > \frac{1}{r}$



$D_f = [2k\pi + \frac{\pi}{r}, 2k\pi + \frac{\pi}{r}]$ ✓
 به انتهای بازه نباید از ابتدای بازه کوچکتر باشد

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ب) $1 - r \cos x > 0$
 $\cos x < \frac{1}{r}$



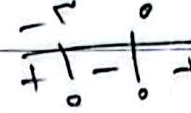
$D_f = R - (2k\pi - \frac{\pi}{r}, 2k\pi + \frac{\pi}{r})$

الف) $-1 \leq x^2 + rx + 1 \leq 1$

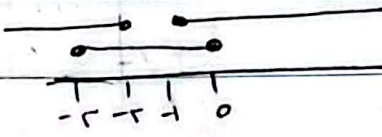
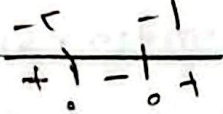
$-2 \leq x^2 + rx \leq 0$

$x^2 + rx + 1 > 0$

$x(x+r) > 0$



$(x+1)(x+r) > 0$



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

ب) $-1 \leq \sqrt{a-x} \leq 1$



$a - rx \leq 1$
 $rx \geq a-1$
 $x \geq \frac{a-1}{r}$

$a - rx > 0$

$x \leq \frac{a}{r}$

$x \leq \frac{a}{r}$

$x \leq \frac{a}{r}$

$D_f = [\frac{a-1}{r}, \frac{a}{r}]$

$\log_b^a = c$ معبر کدام مساوی ندارد
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الف) $1 - \log_r x \geq 0 \rightarrow \log_r x \leq 1 \rightarrow x \leq r$

$D_f = [0, r]$

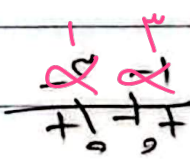
ب) $\log_r^x \geq 1 \rightarrow x \leq \frac{1}{r}$ $x > 0$

$D_f = [0, \frac{1}{r}]$

منابع و الیت
 بیت صبت عومن مرشدا

الف) $2^{x^2-x} - 1 > 0 \rightarrow 2^{x^2-x} > 1$

$x^2 - x > 0 \rightarrow x^2 - x + 1 > 0$



$D_f = [-1, 1]$
 $[1, 1]$

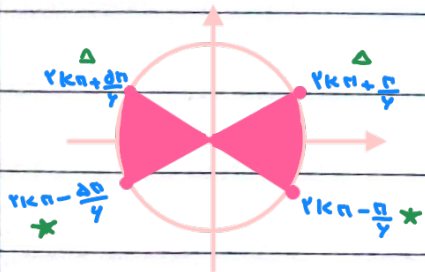
$(n-r)(n-1) \leq 0$

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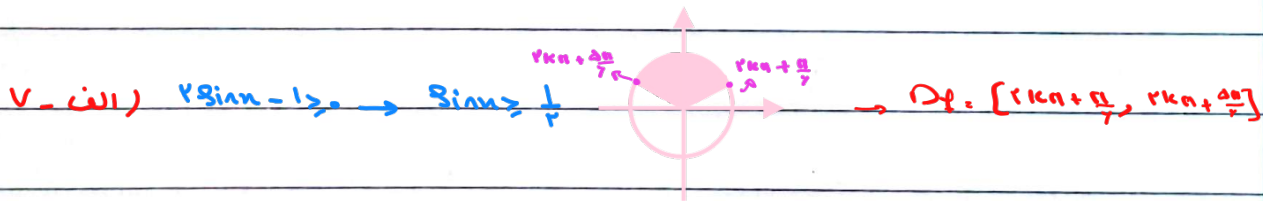
$$ج) \frac{r\pi + \Delta}{r\pi + \epsilon} \in W \rightarrow x \in \frac{rW - \Delta}{rW - r}$$

$$D_f = \{x \mid x = \frac{rK - \Delta}{r - rK}, \exists K \in W, x \neq -r\}$$

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



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



$$9- الف) y = \log_r (1 - \log_r^n) \rightarrow \log_r^n \rightarrow n > 0$$

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

$$D_f = (0, r)$$

$$9- ب) y = \log_r (1 - \log_r^n) \rightarrow \log_r^n \rightarrow n > 0$$

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

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