

Subject:

سوی ۲

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الف) $y = \frac{(x+2)}{2x^2 + 2x^2 - 10x + 2} \rightarrow (x-1)(2x-1)(x+2)$ $D_f: \mathbb{R} - \{1, \frac{1}{2}, -2\}$

ب) $y = \frac{x+2}{2x^2 + 9x^2 + 6x + 2} \rightarrow (x+1)(x+2)(2x+1)$ $D_f: \mathbb{R} - \{-1, -2, -\frac{1}{2}\}$

الف) $y = \frac{x+2}{x^2 - 2x^2 + 2x - 1} \rightarrow (x-1)(x^2 x + 1) \rightarrow D_f: \mathbb{R} - \{1, -2\}$

ب) $y = \frac{x+2}{x^2 - 2x^2 + 2x - 1} \rightarrow (x-1)(x^2 x + 1) \rightarrow \frac{-2}{+ \frac{1}{x} - \frac{1}{x} +} \rightarrow D_f: (-\infty, -2] \cup (1, +\infty)$

$y = \frac{2}{x^2 - \omega(x-1) - 2x + \omega} \rightarrow \begin{cases} x > 1 \rightarrow x^2 - \omega x + \omega - 2x + \omega = 0 \rightarrow x^2 - (2+\omega)x + 2\omega = 0 \rightarrow (x-2)(x-\omega) = 0 \\ x < 1 \rightarrow x^2 - \omega + \omega x - 2x + \omega = 0 \rightarrow x^2 + \omega x - 2x = 0 \rightarrow x(x + \omega - 2) = 0 \end{cases}$

$D_f: \mathbb{R} - \{-2, 0, \omega\}$

الف) $\sqrt{-x} - 2 \rightarrow [x] - 2 > 0 \rightarrow [x] > 2 \rightarrow x < -2 \Rightarrow D_f: (-\infty, -2]$

ب) $y = \frac{\omega x^2 + 4}{[x]^2 - 2[x] - 2} \rightarrow [x]^2 - 2[x] - 2 = 0, [x] = t, t^2 - 2t - 2 = 0 \rightarrow (t-2)(t+1) = 0$

$t = 2 \rightarrow [x] = 2 \rightarrow x \in [2, 3), t = -1 \rightarrow [x] = -1 \rightarrow x \in [-1, 0) \Rightarrow D_f: \mathbb{R} - \{[2, 3) \cup [-1, 0)\}$

الف) $y = \sqrt{[x - \frac{1}{n}] + [x + \frac{r}{n}]} \rightarrow [x - \frac{1}{n}] + [x + \frac{r}{n}] > 0 \rightarrow [x + \frac{r}{n}] + [x + \frac{r}{n}] > 1$

$\rightarrow [x + \frac{r}{n}] > \frac{1}{2} \rightarrow x + \frac{r}{n} > 1 \rightarrow x > \frac{1}{n} \rightarrow D_f: [\frac{1}{n}, +\infty)$

ب) $y = \sqrt{[x - \frac{1}{n}] + [\frac{1}{n} - x]} \rightarrow [x - \frac{1}{n}] \leq 0 \rightarrow x \leq \frac{1}{n}$

$D_f: \{x | x \leq k + \frac{1}{n}, k \in \mathbb{Z}\}$

Arman

الف) $y = \frac{\cos x + 1}{\tan x + 1} \rightarrow x \neq k\pi + \frac{\pi}{2} \quad D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{2} \right\}$ -9

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

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

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

الف) $y = \sqrt{1 - \sin^2 x} \rightarrow 1 - \sin^2 x \geq 0 \rightarrow \sin^2 x \leq 1 \rightarrow D_f = \left[\frac{k\pi}{2}, k\pi + \frac{\pi}{2} \right]$ -10

ب) $y = \sqrt{1 - \cos^2 x} \rightarrow 1 - \cos^2 x \geq 0 \rightarrow \cos^2 x \leq 1 \rightarrow D_f = \left[\frac{k\pi}{2}, k\pi + \frac{\pi}{2} \right]$

الف) $y = \arcsin(x^2 + 1) \rightarrow x^2 + 1 \leq 1 \rightarrow x^2 + 1 \leq 1 \rightarrow x^2 \leq 0 \rightarrow x = 0$ -11

ب) $y = \arcsin(x^2 + 1) \rightarrow x^2 + 1 \leq 1 \rightarrow x^2 + 1 \leq 1 \rightarrow x^2 \leq 0 \rightarrow x = 0$

$D_f = [0, 1]$

ب) $y = \sqrt{\omega - x} \rightarrow \omega - x \geq 0 \rightarrow \omega - x \geq 0 \rightarrow x \leq \omega$ -12

$\omega - x \geq 0 \rightarrow x \leq \omega \Rightarrow D_f = \left[\omega, \frac{\omega}{2} \right]$

الف) $y = \log_r(1 - \log^2 x) \rightarrow 1 - \log^2 x > 0 \rightarrow \log^2 x < 1 \rightarrow x < 1, x > 0 \rightarrow D_f = (0, 1)$ -13

ب) $y = \log_r(1 - \log^2 x) \rightarrow 1 - \log^2 x > 0 \rightarrow \log^2 x < 1 \rightarrow x > 1, x > 0 \rightarrow D_f = \left(\frac{1}{e}, +\infty \right)$

الف) $y = \sqrt{r^{x-a} - 1} \rightarrow r^{x-a} - 1 \geq 0 \rightarrow r^{x-a} \geq 1 \rightarrow x - a \geq 0 \rightarrow x \geq a$ -14

$x - a \geq 0 \rightarrow (x - a) \geq 0 \rightarrow D_f = [a, +\infty)$

ب) $y = \left(\frac{r^{x+\omega}}{r^{x+\omega}} \right) \rightarrow \frac{r^{x+\omega}}{r^{x+\omega}} \rightarrow \frac{r^{x+\omega} - \omega}{r^{x+\omega} - \omega} \rightarrow \frac{\omega - r^{x+\omega}}{r^{x+\omega} - \omega}$

$D_f = \left[a, x \leq \frac{\omega - r^{x+\omega}}{r^{x+\omega} - \omega}, x \in \mathbb{R} \right]$

Arman

حسابات سوالات اول و دوم:

$$\begin{array}{r} 2x^n + 5x^r - 1x + r \quad | \quad x-1 \\ 2x^n - 2x^r \\ \hline 6x^r - 1x \\ 6x^r - 6x \\ \hline -5x + r \\ -5x + 5 \\ \hline 0 \end{array} \quad \begin{array}{l} 2x^r + 6x - r \\ \rightarrow (x+1)(x - \frac{1}{2}) \end{array}$$

$$6x^r - 1x$$

$$6x^r - 6x$$

$$-5x + r$$

$$-5x + 5$$

0

$$\begin{array}{r} 7x^n + 9x^r + 6x + r \quad | \quad x+1 \\ 7x^n + 7x^r + 6x + r \\ \hline 2x^r + 6x \\ 2x^r + 2x \\ \hline 4x + r \\ 4x + 4 \\ \hline 0 \end{array} \quad \begin{array}{l} 2x^r + 6x + r \\ \rightarrow (x+1)(2x+1) \end{array}$$

$$7x^n + 7x^r$$

$$2x^r + 6x$$

$$2x^r + 2x$$

$$4x + r$$

$$4x + 4$$

0

$$\begin{array}{r} x^n - 2x^r + 5x - 1 \quad | \quad x-1 \\ x^n - x^r \\ \hline -x^r + 5x \\ -x^r + x \\ \hline -4x + 5 \\ -4x + 4 \\ \hline 1 \end{array} \quad \begin{array}{l} x^r - 2x + 1 \\ x^r - x + 1 \\ \hline -x + 1 \\ -x + 1 \\ \hline 0 \end{array}$$

$$x^n - x^r$$

$$-x^r + 5x$$

$$-x^r + x$$

$$-4x + 5$$

$$-4x + 4$$

$$1$$