

تکلیف سرچ

مسئله ١

الف) $(n-1)(2n-1)(2n-5) \neq 0$: $n-1$ نقش پیدا کند.

مسئله ١

$$\Rightarrow n-1 \neq 0 \Rightarrow n \neq 1 \quad \{ 2n-1 \neq 0 \Rightarrow n \neq \frac{1}{2} \} \quad \{ 2n-5 \neq 0 \Rightarrow n \neq \frac{5}{2} \}$$

ج

$$O_p = \mathbb{R} - \left\{ 1, \frac{1}{2}, \frac{5}{2} \right\}$$

$$\Rightarrow (n-1)(2n-1)(2n-5) = 0 \Rightarrow \begin{cases} n = \frac{1}{2} \\ n = 1 \\ n = \frac{5}{2} \end{cases}$$

ب) $(n+1)(2n-1)(2n-5) \neq 0$: $n+1$ نقش پیدا کند.

$$O_p = \mathbb{R} - \left\{ -1, \frac{1}{2}, \frac{5}{2} \right\} \quad \hookrightarrow n+1 \neq 0 \Rightarrow n \neq -1$$

مسئله ٢

$$\text{الف) } \begin{cases} \text{I: } 2n-1 \geq 0 \Rightarrow 2n \geq 1 \Rightarrow n \geq \frac{1}{2} \\ \text{II: } n - \sqrt{2n-1} \neq 0 \Rightarrow n \neq \sqrt{2n-1} \Rightarrow n^2 \neq 2n-1 \Rightarrow n^2-2n+1 \neq 0 \end{cases}$$

$$\Rightarrow (n-1)^2 \neq 0 \Rightarrow n \neq 1$$

$$O_p: \text{I} \cap \text{II} : \left(-\infty, \frac{1}{2} \right] - \{1\}$$

ج

$$\text{ب) } \begin{cases} \text{I: } 2n-1 \geq 0 \Rightarrow 2n \geq 1 \Rightarrow n \geq \frac{1}{2} \\ \text{II: } n - \sqrt{2n-1} \neq 0 \Rightarrow n \neq \sqrt{2n-1} \Rightarrow n^2 \neq 2n-1 \Rightarrow n^2-2n+1 \neq 0 \end{cases}$$

$$O_p: \text{I} \cap \text{II} : \left[\frac{1}{2}, +\infty \right) - \{1\}$$

$$\text{الف) } 2\cos n - 1 \neq 0 \Rightarrow 2\cos n \neq 1 \Rightarrow \cos n \neq \frac{1}{2}$$

$$O_p = \mathbb{R} - \left\{ 2k\pi \pm \frac{\pi}{3} \right\}$$



ج

$$\text{ب) } 2\sin n + 1 \neq 0 \Rightarrow 2\sin n \neq -1 \Rightarrow \sin n \neq -\frac{1}{2}$$



$$O_p: \mathbb{R} - \left\{ 2k\pi - \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right\}$$

تقسیم ۱ - الف:

$$\frac{K_m^2 - K_0 m^2 + 101m - 10}{-(K_m^2 - K_0 m^2)} \bigg| \frac{m-1}{K_m^2 - 14m + 10 : (m-1)(m-10)}$$

$$\frac{-14m^2 + 101m - 10}{-(-14m^2 + 14m)}$$

$$\frac{10m - 10}{-(+10m - 10)}$$

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تقسیم ۱ - ب:

$$\frac{K_m^2 - m^2 - 11m - K}{-(K_m^2 + K_m^2)} \bigg| \frac{m+1}{K_m^2 - Km - K : m^2 - Km - 11 : (m-1)(m+11)}$$

$$\frac{-Km^2 - 11m - K}{-(-Km^2 - Km)}$$

$$\frac{-Km - K}{-(-Km - K)}$$

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$$\begin{cases} m = \frac{1}{11} = 1 \\ m = -\frac{1}{11} \end{cases}$$

$$2.) \left\{ \begin{array}{l} \text{I: } \cot n - 1 \neq 0 \Rightarrow \cot n \neq 1 \Rightarrow \text{Unit Circle with } \frac{\pi}{4} \text{ and } \frac{5\pi}{4} \text{ marked} \\ \text{II: } \sin n \neq 0 \Rightarrow \text{Unit Circle with } 0, \pi \text{ marked} \\ \text{III: } \cos n \neq 0 \Rightarrow \text{Unit Circle with } \frac{\pi}{2}, \frac{3\pi}{2} \text{ marked} \end{array} \right\} n = D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}, k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$$

$$3) \text{ If } \sin^2 n - \frac{\mu}{r} \neq 0 \Rightarrow \sin^2 n \neq \frac{\mu}{r} \Rightarrow \sin n \neq \pm \sqrt{\frac{\mu}{r}}$$



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

أ) $(n-1)(n-4) > 0$

$$\frac{1}{n-1} \quad \frac{4}{n-4} \Rightarrow D_f = (-\infty, 1) \cup (4, +\infty) : \text{مسألة ٢}$$

ب) $(n-1)(n-5) < 0$

$$\frac{1}{n-1} \quad \frac{5}{n-5} \Rightarrow D_f = (1, 5)$$

ج) $(n+1)(n+5) \geq 0$

$$\frac{-1}{n+1} \quad \frac{-5}{n+5} \Rightarrow D_f = [-1, +\infty) \cup (-\infty, -5]$$

د) $(n-1)(n-4) \leq 0$

$$\frac{1}{n-1} \quad \frac{4}{n-4} \Rightarrow D_f = [1, 4]$$

أ) $\frac{(n-1)(n-4)}{n-5} \geq 0$

$$\frac{1}{n-1} \quad \frac{4}{n-4} \quad \frac{5}{n-5} : D_f = (-\infty, 1) \cup (4, 5) : \text{مسألة ٣}$$

ب) $\frac{n^2 - 1}{(n-1)(n-5)} \geq 0$

$$\frac{-1}{n-1} \quad \frac{1}{n-5} \quad \frac{5}{n-5} \Rightarrow D_f = (5, +\infty) \cup (-\infty, -1]$$

($n^2 - 1 = 0 \Rightarrow n^2 = 1 \Rightarrow n = \pm 1$)

أ) $\frac{(n-1)(n-4)}{1 - n^2 - 1} \geq 0$

$$\frac{1}{n-1} \quad \frac{4}{n-4} \quad \frac{1}{n} \Rightarrow D_f = [\mu, +\infty)$$

مسألة ٤ : ٢

$(n-1)(n^2 + n + 1) \geq 0$
 $\Delta < 0$ (دائمًا موجب)

ب) $x^2 - 1 \neq 0 \Rightarrow x^2 \neq 1 \Rightarrow x \neq \pm 1 \Rightarrow D_f = \mathbb{R} - \{\pm 1\}$

الف) $x^2 - 4 > 0 \Rightarrow x(x-2) > 0$

$D_f = (-\infty, -2) \cup (2, +\infty)$

ب) $4 - x^2 > 0 \Rightarrow x^2 < 4 \Rightarrow -2 < x < 2$

II: $|x| - 2 > 0 \Rightarrow |x| > 2 \Rightarrow -2 > x > 2$

III: $|x| - 2 \neq 1 \Rightarrow |x| \neq 3 \Rightarrow x \neq \pm 3$

سؤال ٢) $\frac{x^2 - 4}{x^2 - 1}$

II: $D_f = (2, 3) \cup (-3, -2) - \{x_0 - x_1\}$

2.) I: $\frac{x^2 - \sqrt{x} + 1}{x - 1} > 0 \Rightarrow \frac{(x-1)(x-1)}{(x-1)} > 0 \Rightarrow \frac{x^2 - 1}{x-1} > 0 \Rightarrow (x+1)(x-1) > 0$

II: $1 - x > 0 \Rightarrow x < 1$

III: $1 - x \neq 1 \Rightarrow x \neq 0$

I $\cap$ II $\cap$ III = $(1, 0) - \{0\}$

> I: $(x-1)(x-1) > 0 \Rightarrow \frac{x^2 - 1}{x-1} > 0 \Rightarrow (x+1)(x-1) > 0 \Rightarrow (-\infty, -1] \cup [1, +\infty)$

II: $4 - x^2 > 0 \Rightarrow x^2 < 4 \Rightarrow -2 < x < 2$

II: $x \neq 1$

III: $x > 0$

I $\cap$ II $\cap$ III = $(0, 1) - \{1\}$

الف) $\frac{x(x-1)}{x(x+1)}$

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

	-1	0	1
$x(x-1)$	+	+	-
$x(x+1)$	+	-	+
D	+	-	+

سؤال ٨) ٢

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

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

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

$$n - f(n) = 0 \Rightarrow n = f(n) = n = 26 - 1$$

حل: قبل منقول با هم

$$n - f(n) \geq 0$$

$$f(n) \rightarrow f(n) = 0 \Rightarrow n = 26 - 1$$

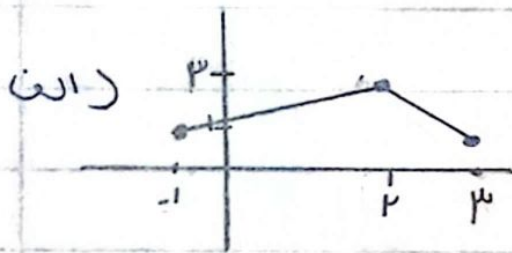
حل: قبل منقول با هم

$$P_f = (-26 - 1] \cup [26, 26]$$

$$-2 \quad -1 \quad 1 \quad 2$$

$$- \frac{1}{2} + \frac{1}{2} - \frac{1}{2} + \frac{1}{2} -$$

	-2	-1	1	2
$n - f(n)$	-	-	+	+
$f(n)$	+	-	-	+
P	-	+	-	+



ب)

