

18/5

پیشانی دہشت

1) $2x^3 + 3x^2 - 11x + 4 \neq 0 \rightarrow (x-1)(x+2)(2x-1)$

(1)

$2x^3 + 3x^2 - 11x + 4 = 0 \rightarrow$ ~~فرض کریں~~ $x-1 \neq 0 \rightarrow x \neq 1, -2, \frac{1}{2}$

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

ب) $2x^3 + 9x^2 + 11x + 3 \neq 0 \rightarrow (x+1)(2x+1)(x+3)$

$x \neq -\frac{1}{2}, -1, -3 \rightarrow D_f = \mathbb{R} - \{-\frac{1}{2}, -1, -3\}$

الف) $x^2 - 2x + 1 = (x-1)(x-1)$

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

(2)

ب) $\frac{x+3}{(x-1)(x-1)} \geq 0$

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

$\frac{x+3}{x-1} \geq 0 \rightarrow D_f = [-3, -1] \cup (1, +\infty)$

$x^2 - \Delta(x-1) - 2x + \Delta \neq 0$

$\Delta > 1$

$x-1 \neq x-1$

حالت اول

$x^2 - \Delta(x-1) - 2x + \Delta = x^2 - \Delta x + \Delta - 2x + \Delta = x^2 - (\Delta+2)x + 2\Delta$

$(x-2)(x-\Delta) \rightarrow x \neq 2, x \neq \Delta$

$D_f = (-\infty, -3) \cup (-3, 0) \cup (0, 1) \cup (1, 2) \cup (2, \Delta) \cup (\Delta, +\infty)$

$|x-1| = 1-x \rightarrow x^2 - \Delta(1-x) - 2x + \Delta = x^2 + \Delta x - 2x + \Delta = x^2 + (\Delta-2)x + \Delta$

$= x(x+\Delta) \rightarrow x \neq 0, x \neq -\Delta$

حالت دوم

$$الف) \sqrt{[-x]^2} - [-x] - 2 \geq 0 \quad [-x] \geq 2$$

$$-x \geq 2 \rightarrow \boxed{x \leq -2}$$

$$ب) [-x]^2 - 2[-x] - 3 \neq 0 \rightarrow [-x] = t \rightarrow t^2 - 2t - 3 = 0$$

$$[-x] \neq -1 \rightarrow \cancel{t \neq -1} \rightarrow t \neq -1 \rightarrow (t-3)(t+1) = 0 \rightarrow t \neq -1$$

$$[-x] \neq -1 \rightarrow \cancel{t \neq -1} \rightarrow t \neq -1 \rightarrow (-\infty, -1) \cup (-1, 3) \cup (3, +\infty)$$

$$الف) \left[x - \frac{1}{x}\right] + \left[x + \frac{1}{x}\right] \geq 0 = 2\left[x - \frac{1}{x}\right] + 1 \rightarrow 2\left[x - \frac{1}{x}\right] + 1 \geq 0$$

$$\left[x - \frac{1}{x}\right] \geq 0 \rightarrow x - \frac{1}{x} \geq 0 \rightarrow D_f = \left[\frac{1}{x}, \infty\right)$$

$$ب) \left[x - \frac{1}{x}\right] + \left[\frac{1}{x} - x\right] = 2 = x - \frac{1}{x} \rightarrow [t] + [-t] = -1 \quad t \in \mathbb{Z}$$

$$x - \frac{1}{x} \in \mathbb{Z} \rightarrow D_f = \left\{\frac{1}{x} + n \mid n \in \mathbb{Z}\right\}$$

$$الف) \sin x \neq 0 \quad \cos x \neq 0 \quad \tan x \neq 1 \rightarrow \tan x \neq -1$$

$$x \neq k\pi, x \neq \frac{\pi}{2} + k\pi, x \neq -\frac{\pi}{2} + k\pi$$

$$ب) 1 - \sin^2 x \geq 0 \quad \sin^2 x \leq \frac{1}{2} \quad \sin x \leq \frac{1}{\sqrt{2}} \quad D = \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}\right]$$

$\odot_{\phi=2} \left[k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4} \right)$

الف) $-1 \leq x^2 + 2x + 1 \leq 1 \quad -2 \leq x^2 + 2x \leq 0$

$$x^r + r^p x + r > 0 \quad (x+1)(x+r) > 0 \rightarrow x \leq -r, \quad x > -1$$

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

جواب ۵.۵ محاسبه کنیم -۱ است
 $\rightarrow 1 \leq \sqrt{5-2n} \leq -1 \rightarrow 5-2n \leq 1 \rightarrow n \geq 2$
 $D_f = [2, \frac{5}{2}]$

(الف) $\log_p (1 - \log_3 x)$ $x > 0$ $1 - \log_3 x > 0$ (9)

$$\log_3 x < 1 \rightarrow x < 3 \rightarrow P_f = (0, 3)$$

ب) $\log_r(1 - \log_{\frac{1}{r}} x)$ $\log_{\frac{1}{r}} x < 1$ $x > (\frac{1}{r})^1$ $D = (\frac{1}{r}, +\infty)$

$$\text{الف } \frac{\varepsilon x^2}{x^2 - 1} \geq 0 \rightarrow x^2 - x^2 \geq 1$$

$$x^2 - x^2 \geq 1$$

$$D_f = (-\infty, 0) \cup (\varepsilon, +\infty)$$

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

$$x(x-1) > 0?$$

1, 2, 3

$$\text{نقطة! } x - x^2 \geq 1 \rightarrow x^2 - \varepsilon x + 1 \leq 0 \rightarrow (x-1)(x-\varepsilon) \leq 0 \rightarrow 1 \leq x \leq \varepsilon$$

$$\text{ب) } D_f = \left\{ \frac{\varepsilon - \varepsilon n}{x_n - 1} \mid n \in \mathbb{Z}, n \geq 0 \right\}$$

$$\text{الف - 1. } \frac{x_n - n^2}{x_n - 1} \geq 0 \rightarrow \frac{x_n - n^2}{x_n - 1} \geq 1 \rightarrow x_n - n^2 \geq x_n - 1 \rightarrow x_n - n^2 \geq 1$$

$$x_n - \varepsilon n + 1 \leq 0 \rightarrow (n-1)(n-1) \leq 0 \rightarrow \frac{1}{+} \frac{1}{-} \frac{1}{+} \rightarrow D_f = [1, 1]$$

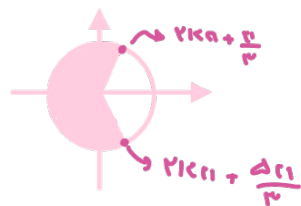
$$\text{ب - 1. } \sqrt{\omega - 2n} \rightarrow \omega - 2n \geq 0 \rightarrow n \leq \frac{\omega}{2}$$

$$\rightarrow D_f = \left[\frac{\omega}{2}, \frac{\omega}{2} \right]$$

$$-1 \leq \sqrt{\omega - 2n} \leq 1 \rightarrow \omega - 2n \leq 1 \rightarrow -2n \leq -\omega + 1 \rightarrow n \geq \frac{\omega - 1}{2}$$

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$$\text{ب - 2. } 1 - 2c \sin n \geq 0 \rightarrow \sin n \leq \frac{1}{2c}$$



$$\rightarrow D_f = \left[\arcsin\left(\frac{1}{2c}\right), \pi - \arcsin\left(\frac{1}{2c}\right) \right]$$