

سوال (۱)

$$x(x-4) \geq 0$$

$$\frac{x(x-4)}{x(x-1)(x+1)} \geq 0$$

$$D_f = (-1, 0) \cup (0, 1) \cup$$

$$[4, +\infty)$$

$$x(x-1)(x+1) \geq 0$$

$$D_f = \mathbb{R} - \{-1, 0, 1\}$$

سوال (۲)

$$x + |x| > 0$$

$$\odot \times$$

$$\oplus \checkmark$$

$$\ominus \times$$

$$D_f = \mathbb{R}^+$$

$$x|x| > 0$$

$$\odot \times$$

$$\oplus \checkmark$$

$$\ominus \times$$

$$D_f = \mathbb{R}^+$$

سوال (۳)

$$2 - [x] \geq 0$$

$$[x] \leq 2$$

$$D_f = (-\infty, 3)$$

$$2 - [x] > 0$$

$$[x] < 2$$

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

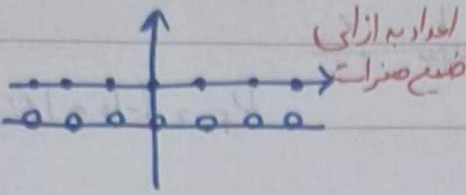
سوال (۴)

$$1 + [x - \frac{1}{3}] + [x + \frac{2}{3}] > 0 \Rightarrow 1 + [x - \frac{1}{3}] > 0$$

$$[x + \frac{2}{3}] \geq \frac{1}{3} \Rightarrow x + \frac{2}{3} \geq 1 \Rightarrow x \geq \frac{1}{3} \Rightarrow D_f = [\frac{1}{3}, +\infty)$$

(ب) $\star y_2 [x] + [-x] \quad [-(x - \frac{1}{x})] \quad [x - \frac{1}{x}] + [-(x - \frac{1}{x})] \geq 0$

شکل تابع



$x \cdot \frac{1}{x} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{x}$

$D_f = \{x \mid x = k + \frac{1}{x}, k \in \mathbb{Z}\}$

(الف) $\sin x \neq 1$



$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$

(ب) $\sin^2 x = \frac{1}{4} \quad \sin x = \pm \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \pm \frac{\sqrt{2}}{2}$

$D_f = \mathbb{R} - \{\frac{k\pi}{2} + \frac{\pi}{4}\}$



(الف) $2 \sin x - 1 \geq 0 \quad \sin x \geq \frac{1}{2}$

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



(ب) $\cos x - 1 \geq 0 \quad \cos x \geq 1$

$\cos x \geq 1$



$D_f = \{2k\pi\}$

(الف) $-1 \leq |x| - 3 \leq 1 \quad 2 \leq |x| \leq 4 \Rightarrow \begin{cases} 2 \leq x \leq 4 \\ -4 \leq x \leq -2 \end{cases}$

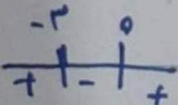
$D_f = [2, 4] \cup [-4, -2]$

(ب) $-1 \leq x^2 + 3x + 1 \leq 1$

$-2 \leq x^2 + 3x \leq 0$

$x^2 + 3x \leq 0$

$x(x+3) \leq 0$

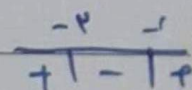
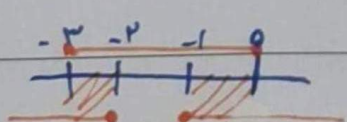


$x \in [-3, 0]$

$0 \leq x^2 + 3x + 2 \Rightarrow 0 \leq (x+1)(x+2)$

$x \in (-\infty, -2] \cup [-1, \infty)$

$D_f = [-3, -2] \cup [-1, 0]$



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(سوال ۸)

الف) $x-2 > 0$ $x > 2$ $a > 0$ $b > 0$ $b \neq 1$ $\log_b^a z < c$
 $2 - \log_2^{x-2} > 0$ $\log_2^{x-2} < 2$ $x-2 < 9$ $x < 11$
 $D_f = (2, 11)$

ب) $x^2 - x > 0$ $x(x-1)(x+1) > 0$ $\frac{-1}{-} \frac{0}{+} \frac{1}{-}$
 $D_f = (-1, 0) \cup (1, +\infty)$

(سوال ۹)

الف) $f^x \neq -1$ $D_f = \mathbb{R}$ ب) $f^x \neq 1$ $D_f = \mathbb{R} - \{0\}$

ج) $f^x \neq 2$ $D_f = \mathbb{R} - \{\log_2^x\}$ د) $D_f = \mathbb{R} - \frac{1}{x}$

ه) $f^x \neq 3$ $D_f = \mathbb{R} - \{\log_3^x\}$

(سوال ۱۰)

الف) $f_{n+1} \in W$ $n \in \frac{W-1}{K}$ $D_f = \{n | n = \frac{K-1}{K}, K \in W\}$

ب) $x = \frac{-dg-b}{cg-a} \Leftarrow \frac{ax+b}{cx+d} = y \Leftarrow$ نکه

$\frac{Kx-1}{Kx-1} \in W \Rightarrow x \in -\frac{-cKx+1}{Kx-1} \Rightarrow x \in \frac{dK-1}{Kx-1}$

$D_f = \{n | n = \frac{dK-1}{Kx-1}, K \in W\}$