

۱۹، ۵

سوال (۱)

الف) $x(x-4)$

$x(x-1)(x+1)$

$-1 \quad 0 \quad 1 \quad 4$
 $- \quad + \quad - \quad +$

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

$[4, +\infty)$

ب) $x(x-1)(x+1) \geq 0$

$x(x-1)(x+1)$

$-1 \quad 0 \quad 1 \quad 4$
 $+ \quad - \quad + \quad -$

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

سوال (۲)

الف) $x + |x| > 0$

$0 \times$

$+$ ✓

$- \times$

$D_f = \mathbb{R}^+$

$0 \times$

$+$ ✓

$- \times$

$D_f = \mathbb{R}^+$

ب) $x|x| > 0$

$0 \times$

$+$ ✓

$- \times$

$D_f = \mathbb{R}^+$

سوال (۳)

الف) $2 - [x] \geq 0$

$[x] \leq 2$

$D_f = (-\infty, 3)$

$0 \times$

$+$ ✓

$- \times$

ب) $2 - [x] > 0$

$[x] < 2$

$D_f = (-\infty, 2)$

سوال (۴)

الف) $1 + [x - \frac{1}{3}] + [x + \frac{2}{3}] \geq 0 + 1$

$[x + \frac{2}{3}] \geq \frac{1}{3}$

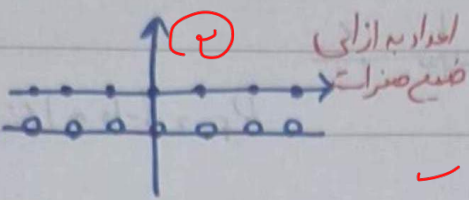
$x + \frac{2}{3} \geq 1$

$x \geq \frac{1}{3}$

$D_f = [\frac{1}{3}, +\infty)$

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

شکل تابع



اعداد ازاوی
ضعیف ضربات

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

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

(الف) $\sin x \neq 1$



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

(ب) $\sin^2 x = \frac{1}{2}$

$\sin x = \pm \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \pm \frac{\sqrt{2}}{2}$



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

(الف) $2 \sin x - 1 \geq 0$

$\sin x \geq \frac{1}{2}$



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

(ب) $\cos x - 1 \geq 0$

$\cos x \geq 1$



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

(الف) $|x| - 3 \leq 1$

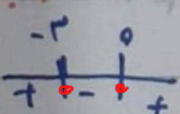
$|x| \leq 4 \Rightarrow \begin{cases} 2 \leq x \leq 4 \\ -4 \leq x \leq -2 \end{cases}$

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

(ب) $-1 \leq x^2 + 3x + 1 \leq 1$

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

$x^2 + 3x \leq 0$



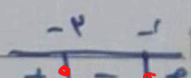
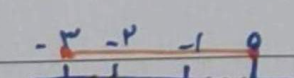
$x \in [-3, 0]$

$x \in [0, 1]$

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

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

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



(سوال ۸)

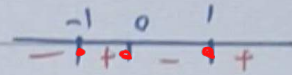
الف) $x-2 > 0$ $x > 2$ $a > 0$ $b > 0$ $b \neq 1$ $\log_b^a x < c$

$2 - \log_2^{x-2} > 0$ $\log_2^{x-2} < 2$ $x-2 < 9$ $x < 11$

$D_f = (2, 11)$

1, 7, 8

ب) $x^2 - x > 0$ $x(x-1)(x+1) > 0$



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

(سوال ۹)

الف) $f^x \neq -1$ $D_f = \mathbb{R}$

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

ج) $f^x \neq 2$ $D_f = \mathbb{R} - \{\log_2^x\}$ $\frac{6}{2}$ $D_f = \mathbb{R} - \frac{1}{4}$

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

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

$\frac{px-r}{rx-d} \in W \Rightarrow x \in -\frac{-dx+r}{rx-d} \Rightarrow x \in \frac{dx-r}{rx-d}$

$D_f = \{n | n = \frac{dK-r}{rK-d}, k \in W\}$