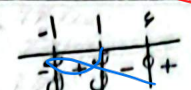


الف) $\frac{x^2-4x}{x^3-x} \geq 0$ $\frac{x(x-4)}{x(x^2-1)} \Rightarrow \frac{x-4}{(x-1)(x+1)}$  $D_f = (-1, 1) \cup [4, \infty)$ $-1, 4$

ب) $\frac{x^5-x^3}{x^3-x} \geq 0$ $\frac{x^3(x^2-1)}{x(x^2-1)} \Rightarrow x^2$ $D_f = \mathbb{R} - \{1, 0, -1\}$ (1)
 حرات به ریشه های پنج باشد و طبق حذف می

الف) $x+|x| \geq 0$ $D_f = (0, \infty)$
 $x > -|x|$

ب) $x|x| \geq 0$ $D_f = (0, \infty)$

الف) $2-[x] \geq 0$ $D_f = (\infty, 3)$
 $2 \geq [x]$

ب) $2-[x] > 0$ $D_f = (\infty, 2)$
 $2 > [x]$

الف) $[x-\frac{1}{3}] + [x+\frac{2}{3}] \geq 0$ $[x+\frac{2}{3}-1] + [x+\frac{2}{3}] \geq 0$ $[x+\frac{2}{3}-1+1] + [x+\frac{2}{3}] \geq 0$
 $D_f = [\frac{1}{3}, \infty)$ $2[x+\frac{2}{3}] \geq 1$ $[x+\frac{2}{3}] \geq \frac{1}{2}$ $x+\frac{2}{3} \geq \frac{1}{2}$ $x \geq \frac{1}{6}$

ب) $[x-\frac{1}{3}] + [-x+\frac{1}{3}] \geq 0$ $[x-\frac{1}{3}] + [-(x-\frac{1}{3})]$
 $\begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \end{cases}$ $x-\frac{1}{3} \in \mathbb{Z}$
 $D_f = \{x | x = k + \frac{1}{3}, k \in \mathbb{Z}\}$

الف) $\sin x - 1 \neq 0$ $D_f = \mathbb{R} - \{\frac{\pi}{2}\}$
 $\sin x \neq 1$ $x \neq \frac{\pi}{2} + 2k\pi$

ب) $2 \sin^2 x - 1 \neq 0$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4}\}$ $1, \Delta$
 $\sin^2 x \neq \frac{1}{2}$ $\sin x \neq \pm \frac{\sqrt{2}}{2}$

الف) $2\sin x - 1 \geq 0$ $\sin x \geq \frac{1}{2}$ $D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$ ب) $\cos x - 1 \geq 0$ $\cos x \geq 1$ $D_f = \{k\pi\}$ <u>1, 7, 8</u>	6
الف) $-1 \leq x - 3 \leq 1$ $D_f = [-4, -2] \cup [2, 4]$ $2 \leq x \leq 4$ $-4 \leq x \leq -2$ $2 \leq x \leq 4$ ب) $-1 \leq x^2 + 3x + 1 \leq 1$ $x^2 + 3x + 2 \geq 0$ $(x+1)(x+2) \geq 0$ $x = -1$ $x = -2$ $-2 \leq x^2 + 3x \leq 0$ $x(x+3) \leq 0$ $x = 0$ $x = -3$ $D_f = [-3, -2] \cup [-1, 0]$	7
الف) $2 - \log_3(x-2) \geq 0$ $x-2 \geq 3$ $x \geq 5$ $2 > \log_3(x-2)$ $9 > x-2$ $11 > x$ $D_f = (2, 11]$ ب) $x^3 - x \geq 0$ $x(x^2 - 1) \geq 0$ $x(x-1)(x+1) \geq 0$ $x = 0$ $x = \pm 1$ $D_f = (-1, 0) \cup (1, +\infty)$	8
الف) $x^x + 1 \neq 0$ $x^x \neq -1$ $D_f = \mathbb{R}$ ب) $x^x - 1 \neq 0$ $x^x \neq 1$ $x \neq 0$ $D_f = \mathbb{R} - \{0\}$ ج) $x^x - 2 \neq 0$ $x^x \neq 2$ $x \neq \log_x 2$ $D_f = \mathbb{R} - \{\log_x 2\}$ د) $x^x - 3 \neq 0$ $x^x \neq 3$ $x \neq \log_x 3$ $D_f = \mathbb{R} - \{\log_x 3\}$	9
الف) $(x+1)!$ $x+1 \in \mathbb{W}$ $x \in \frac{W-1}{F}$ $D_f = \{x x = \frac{k-1}{F}, k \in \mathbb{W}\}$ ب) $\left(\frac{x-2}{x-5}\right)!$ $x-2 \in \mathbb{W}$ $x-5 \in \mathbb{W}$ $x \in \frac{2 \cup \mathbb{W}}{5 - \mathbb{W}}$ $D_f = \{x x = \frac{2 - \omega k}{5 - \omega k}, k \in \mathbb{W}\}$	10