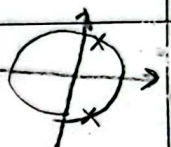
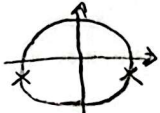
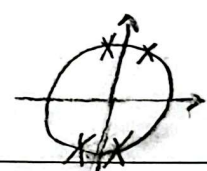


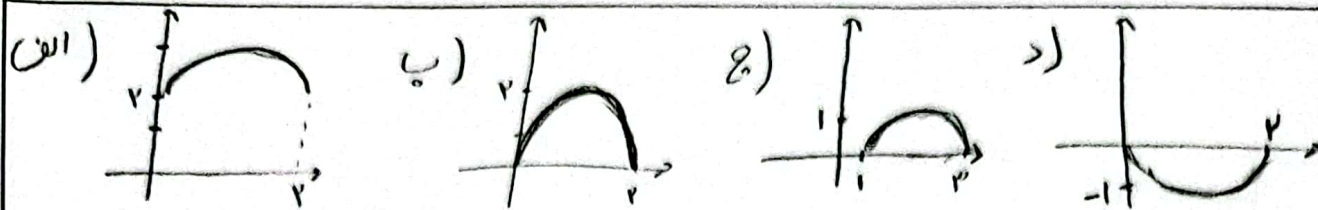
الف) $|x-2| > 0 \Rightarrow |x| \leq 2$ ب) $3|x-1| > 0 \Rightarrow 3|x| \geq 4 \Rightarrow |x| \geq \frac{4}{3}$
 $\Rightarrow |x| \leq 2 \Rightarrow \begin{cases} x \leq \sqrt{2} \\ x \geq -\sqrt{2} \end{cases}$ $\begin{matrix} x \geq 3 \\ x \leq -3 \end{matrix} \Rightarrow D_f: (-\infty, -3] \cup [3, +\infty)$
 $D_f: [-\sqrt{2}, \sqrt{2}]$

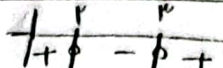
الف) $|x|-3 \neq 0 \Rightarrow |x| \neq 3$ ب) $|x| \geq 0$
 $D_f: \mathbb{R} - \{\pm 3\}$ $\sqrt{x} \neq 3 \Rightarrow x \neq 9$
 $D_f: [0, +\infty) - \{9\}$

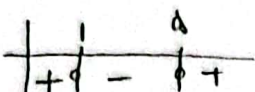
الف) $2\cos x - 1 \neq 0 \Rightarrow 2\cos x = 1 \Rightarrow \cos x \neq \frac{1}{2}$ $D_f: \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$ 
 ب) $\sin x \neq \frac{1}{2} \Rightarrow D_f: \mathbb{R} - \{k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}\}$ 
 2) $\cos x \neq 0$ $\cos x \neq 0 \Rightarrow D_f: \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$ 
 3) $\sin x \neq \pm \frac{\sqrt{3}}{2} \Rightarrow D_f: \mathbb{R} - \{k\pi \pm \frac{\pi}{3}\}$ 

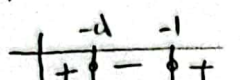
$2|x-1| - \frac{1}{x} > 0 \Rightarrow 2|x-1| > \frac{1}{x} \Rightarrow x|x-1| > 1$
 $\Rightarrow \begin{cases} x-1 > 1 \Rightarrow x > 2 \\ x-1 < -1 \Rightarrow x < 0 \end{cases}$ $\Rightarrow D_f: (-\infty, 0) \cup (2, +\infty)$

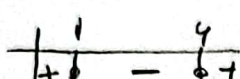
الف) $\varepsilon - 2|x| \geq 0 \Rightarrow 2|x| \leq \varepsilon$ ب) $\varepsilon > 0$
 $|x| \leq \frac{\varepsilon}{2}$ $- \frac{\varepsilon}{2} \leq x \leq \frac{\varepsilon}{2}$ $D_f: \mathbb{R} - \{0\}$



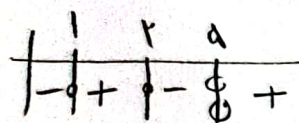
الف) $x^2 - 5x + 4 > 0 \Rightarrow (x-2)(x-3) > 0$  $\Rightarrow (-\infty, 2) \cup (3, +\infty)$

ب) $f(x) = 1, 5$  $\Rightarrow (1, 5)$

ج) $f(x) = -1, -5$  $\Rightarrow (-\infty, -5] \cup [-1, +\infty)$

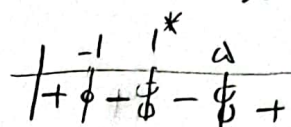
د) $f(x) = 1, 9$  $\Rightarrow [1, 9]$

الف) $\frac{x^2 - 3x + 2}{x - 5} = 0 \Rightarrow x = 1, 2$
 $\frac{x - 5}{x - 5} = 0 \Rightarrow x = 5$



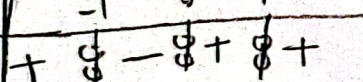
$\Rightarrow (-\infty, 1) \cup (2, 5)$

ب) $x^2 - 1 = 0 \Rightarrow x = \pm 1$
 $x^2 - 4x + 5 = 0 \Rightarrow x = 1, 5$



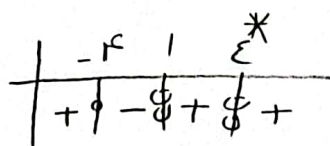
$\Rightarrow (-\infty, -1] \cup (5, +\infty)$

الف) $\sqrt{\frac{x^2 - 1}{x^2 - x}} \geq 0$
 $\Rightarrow \frac{x^2 - 1}{x(x-1)} \geq 0$



$\Rightarrow (-\infty, -1) \cup (0, +\infty) - \{1\}$

ب) $\sqrt{\frac{x^2 - 4}{x^2 - 5x + 4}} \geq 0 \Rightarrow f(x) = \pm \epsilon, 1, \sqrt{\epsilon}$



$\Rightarrow (-\infty, -2] \cup (1, +\infty) - \{4\}$

الف) $2 - x \geq 0 \Rightarrow x \leq 2$

$\epsilon - \sqrt{2 - x} \geq 0 \Rightarrow \sqrt{2 - x} \leq \epsilon$
 $\Rightarrow 2 - x \leq \epsilon^2 \Rightarrow x \geq 2 - \epsilon^2$

$D_f: [2 - \epsilon^2, 2]$

ب) $x - 2 \geq 0 \Rightarrow x \geq 2$

$3 - \sqrt{x - 2} \geq 0 \Rightarrow \sqrt{x - 2} \leq 3$
 $x - 2 \leq 9 \Rightarrow x \leq 11$

$D_f: [2, 11]$