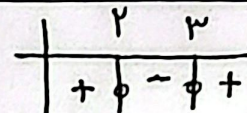
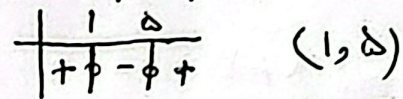


$(-\infty, 2) \cup (3, +\infty)$

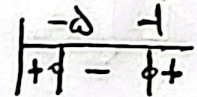
الف) $x^2 - 5x + 6 > 0 \Rightarrow (x-2)(x-3) > 0$



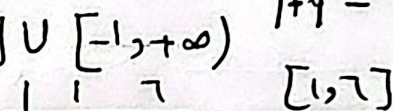
ب) $x^2 - 7x + 10 < 0 \Rightarrow (x-2)(x-5) < 0$



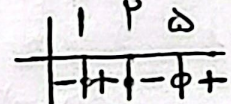
ج) $x^2 + 6x + 5 \geq 0 \Rightarrow (x+1)(x+5) \geq 0$



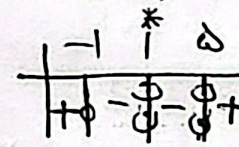
د) $x^2 - 7x + 7 \leq 0 \Rightarrow (x-7)(x-1) \leq 0$



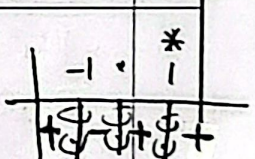
الف) $\frac{x^2 - 3x + 2}{x - 5} < 0 \Rightarrow \frac{(x-1)(x-2)}{x-5} < 0$



ب) $\frac{x^2 - 1}{x^2 - 7x + 8} \geq 0 \Rightarrow \frac{(x-1)(x+1)}{(x-1)(x-8)} \geq 0$

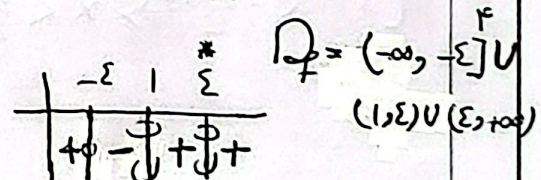


الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \Rightarrow \frac{x^2 - 1}{x^2 - x} \geq 0 \Rightarrow \frac{(x-1)(x+1)}{x(x-1)(x+1)} \geq 0$



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

ب) $y = \sqrt{\frac{x^2 - 17}{x^2 - 5x + 4}} \Rightarrow \frac{(x-4)(x+4)}{(x-4)(x-1)} \geq 0$



$D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$

الف) $y = \sqrt{1-x} \Rightarrow \begin{cases} 1-x \geq 0 \Rightarrow x \leq 1 \\ \varepsilon - \sqrt{1-x} \geq 0 \Rightarrow \sqrt{1-x} \leq \varepsilon \Rightarrow 1-x \leq \varepsilon^2 \Rightarrow x \geq 1-\varepsilon^2 \end{cases} \Rightarrow D_f = [1-\varepsilon^2, 1]$

ب) $y = \sqrt{3-x} \Rightarrow \begin{cases} 3-x \geq 0 \Rightarrow x \leq 3 \\ \varepsilon - \sqrt{3-x} \geq 0 \Rightarrow \varepsilon \geq \sqrt{3-x} \Rightarrow \varepsilon^2 \geq 3-x \Rightarrow x \geq 3-\varepsilon^2 \end{cases} \Rightarrow D_f = [3-\varepsilon^2, 3]$

$$\text{الف) } y = \sqrt{\varepsilon - 2x^2} \Rightarrow \varepsilon - 2x^2 \geq 0 \Rightarrow (x - \sqrt{\frac{\varepsilon}{2}})(x + \sqrt{\frac{\varepsilon}{2}}) \geq 0$$

$-\sqrt{\frac{\varepsilon}{2}}$	$\sqrt{\frac{\varepsilon}{2}}$
$-$	$+$
$+$	$-$

$$D_f = [-\sqrt{\frac{\varepsilon}{2}}, \sqrt{\frac{\varepsilon}{2}}]$$

$$\text{ب) } y = \sqrt{3|x| - 9} \Rightarrow 3|x| - 9 \geq 0 \Rightarrow 3|x| \geq 9 \Rightarrow |x| \geq 3$$

$$\Rightarrow \begin{cases} x \geq 3 \\ x \leq -3 \end{cases} \quad D_f = [3, +\infty) \cup (-\infty, -3]$$

$$\text{ب) } y = \sqrt[3]{\frac{|x|+1}{\sqrt{x}-3}} \Rightarrow \sqrt{x} \neq 0 \Rightarrow x \neq 0 \quad D_f = [0, +\infty) - \{0\}$$

$\swarrow$
 $x \geq 0$

$$\text{الف) } y = \sqrt[3]{\frac{|x|+1}{|x|-c}} \Rightarrow |x| \neq c$$

$$\Rightarrow \begin{cases} x \neq 3 \\ x \neq -3 \end{cases} \quad D_f = \mathbb{R} - \{3, -3\}$$

$$\text{الف) } y = \frac{\sin x}{2\cos x - 1} \Rightarrow \cos x \neq \frac{1}{2} \Rightarrow \begin{cases} x \neq 2k\pi + \frac{\pi}{3} \\ x \neq 2k\pi - \frac{\pi}{3} \end{cases} \quad D_f = \mathbb{R} - \left\{2k\pi \pm \frac{\pi}{3}\right\}$$

$$\text{ب) } y = \frac{\cos x + 1}{2\sin x + 1} \Rightarrow \sin x \neq -\frac{1}{2} \Rightarrow D_f = \mathbb{R} - \left\{2k\pi - \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\right\}$$

$$\text{ج) } y = \frac{\tan x + 2}{\cot x - 1} \Rightarrow \begin{cases} \cot x \neq 1 \\ \tan, \cot \text{ تعریف ستون } \end{cases} \Rightarrow D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{4}, \frac{k\pi}{2}\right\}$$

$$\text{د) } y = \frac{\sin x + 1}{\varepsilon \sin x - 3} \Rightarrow \sin x \neq \frac{3}{\varepsilon} \Rightarrow \sin x \neq \begin{cases} \frac{\sqrt{3}}{2} \\ \frac{1}{2} \\ \frac{\sqrt{3}}{2} \end{cases} \quad D_f = \mathbb{R} - \left\{k\pi \pm \frac{\pi}{6}\right\}$$

$$y = \frac{1}{\sqrt{2|x-2| - \frac{1}{2}}} \Rightarrow 2|x-2| - \frac{1}{2} > 0 \Rightarrow 2|x-2| > \frac{1}{2} \Rightarrow |x-2| > \frac{1}{4}$$

$$\Rightarrow \begin{cases} x-2 > \frac{1}{4} \Rightarrow x > \frac{9}{4} \\ x-2 < -\frac{1}{4} \Rightarrow x < \frac{7}{4} \end{cases} \quad D_f = \left(\frac{9}{4}, +\infty\right) \cup \left(-\infty, \frac{7}{4}\right)$$

$$\text{الف) } y = \sqrt{\varepsilon - 2|x|} \Rightarrow \varepsilon - 2|x| \geq 0 \Rightarrow 2|x| \leq \varepsilon \Rightarrow |x| \leq \frac{\varepsilon}{2}$$

$$\Rightarrow -\frac{\varepsilon}{2} \leq x \leq \frac{\varepsilon}{2} \quad D_f = \left[-\frac{\varepsilon}{2}, \frac{\varepsilon}{2}\right]$$

$$\text{ب) } y = \sqrt{\frac{|x|}{|x|}} \Rightarrow \begin{cases} |x| \neq 0 \Rightarrow x \neq 0 \\ \frac{|x|}{|x|} \geq 0 \end{cases} \quad D_f = \mathbb{R} - \{0\}$$