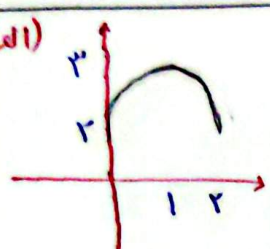
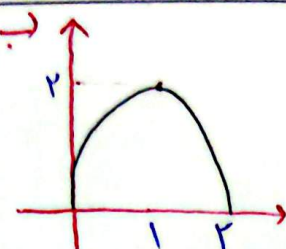
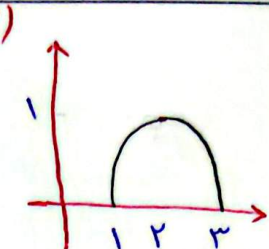
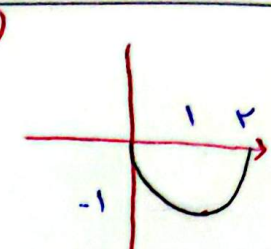
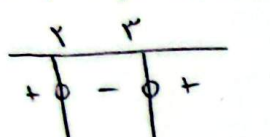
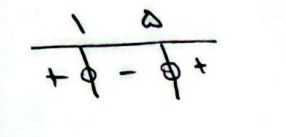
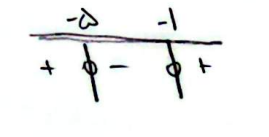
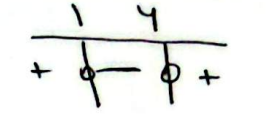
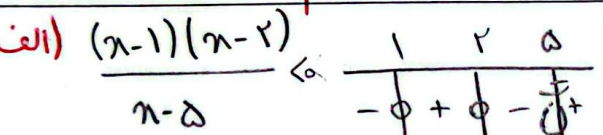
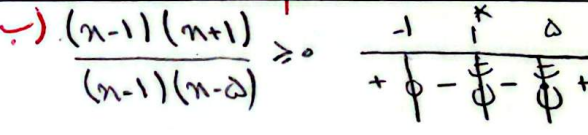
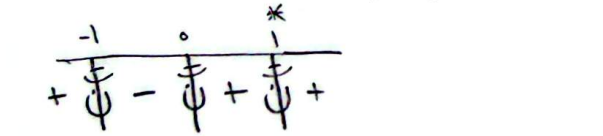
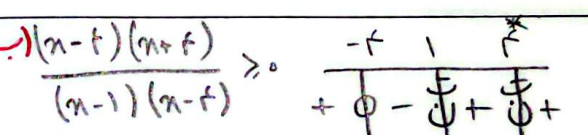


الف) 	ب) 	ج) 	د) 	1
الف) $(x-1)(x-2) > 0$  $(-\infty, 1) \cup (2, +\infty)$	ب) $(x-1)(x-2) < 0$  $1 < x < 2$	ج) $(x+1)(x+2) \geq 0$  $(-\infty, -2] \cup [-1, +\infty)$	د) $(x-1)(x-4) \leq 0$  $1 \leq x \leq 4$	2
الف) $\frac{(x-1)(x-2)}{x-3} < 0$  $(-\infty, 1) \cup (2, 3)$	ب) $\frac{(x-1)(x+1)}{(x-1)(x-2)} \geq 0$  $(-\infty, -1] \cup (2, +\infty)$	3		
الف) $\frac{x^2-1}{x^2-x} \geq 0 \Rightarrow \frac{(x-1)(x+1)}{x(x-1)(x+1)} \geq 0$  $(-\infty, -1) \cup (0, 1) \cup (1, +\infty)$	ب) $\frac{(x-1)(x+1)}{(x-1)(x-2)} \geq 0$  $(-\infty, -1] \cup (1, 2) \cup (2, +\infty)$	4		
الف) $4 - \sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 4$ $\Rightarrow 2-x \leq 16 \Rightarrow x \geq -14$, $\sqrt{2-x} \geq 0 \Rightarrow 2-x \geq 0 \Rightarrow x \leq 2$ $\Rightarrow -14 \leq x \leq 2 = [-14, 2]$	ب) $\sqrt{x-2} \geq 0 \Rightarrow x-2 \geq 0 \Rightarrow x \geq 2$ $3 - \sqrt{x-2} \geq 0 \Rightarrow \sqrt{x-2} \leq 3 \Rightarrow x-2 \leq 9 \Rightarrow x \leq 11$ $2 \leq x \leq 11 = [2, 11]$	5		

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$$4 - 2x^2 \geq 0 \Rightarrow 2x^2 \leq 4 \Rightarrow x^2 \leq 2$$

$$\Rightarrow -\sqrt{2} \leq x \leq \sqrt{2}$$

$$[-\sqrt{2}, \sqrt{2}]$$

$$2|x| - 9 \geq 0 \Rightarrow 2|x| \geq 9 \Rightarrow |x| \geq \frac{9}{2}$$

$$\Rightarrow x \geq \frac{9}{2}, x \leq -\frac{9}{2}$$

$$\Rightarrow (-\infty, -\frac{9}{2}] \cup [\frac{9}{2}, +\infty)$$

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$$\sqrt[3]{\frac{|x|+1}{|x|-3}} \Rightarrow |x| \neq 3 \Rightarrow x \neq 3, -3$$

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

$$\sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \Rightarrow \sqrt{x} > 3 \Rightarrow x > 9$$

$$\hookrightarrow \sqrt{x} \geq 0 \Rightarrow x \geq 0$$

$$\Rightarrow [0, 9) \cup (9, +\infty)$$

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$$2 \cos x - 1 \neq 0$$

$$\Rightarrow 2 \cos x \neq 1 \Rightarrow \cos x \neq \frac{1}{2}$$

$$\arccos \frac{1}{2} = 2k\pi \pm \frac{\pi}{3}$$

$$\Rightarrow D_f = \mathbb{R} - \left\{ 2k\pi \pm \frac{\pi}{3} \right\} \quad k \in \mathbb{Z}$$

$$2 \sin x + 1 \neq 0$$

$$\sin x + \frac{1}{2} \neq 0 \Rightarrow \sin x \neq -\frac{1}{2}$$

$$\Rightarrow D_f = \mathbb{R} - \left\{ 2k\pi + \frac{7\pi}{6}, 2k\pi - \frac{\pi}{6} \right\} \quad k \in \mathbb{Z}$$

$$\tan x \neq 0$$

$$\cot x \neq 0$$

$$\cot x \neq 1$$

$$D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{4} \right\} \quad k \in \mathbb{Z}$$

$$2 \sin^2 x \neq 2$$

$$\Rightarrow \sin^2 x \neq 1 \Rightarrow \sin x \neq \pm 1$$

$$D_f = \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{2} \right\} \quad k \in \mathbb{Z}$$

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$$\sqrt{2|x-2| - \frac{1}{x}} > 0 \Rightarrow 2|x-2| \geq \frac{1}{x} \Rightarrow |x-2| \geq \frac{1}{x} \begin{cases} x > \frac{1}{x} \\ x < \frac{1}{x} \end{cases}$$

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

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$$4 - 2|x| \geq 0 \Rightarrow 2 \geq |x| \Rightarrow 2 \geq |x|$$

$$\Rightarrow -2 \leq x \leq 2 \Rightarrow [-2, 2]$$

$$\sqrt{\frac{|x|}{|x|}} \geq 0, |x| \neq 0$$

$$\Rightarrow D_f = \mathbb{R} - \{0\} \cup (-\infty, 0) \cup (0, +\infty)$$

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