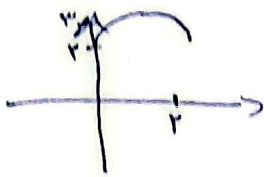
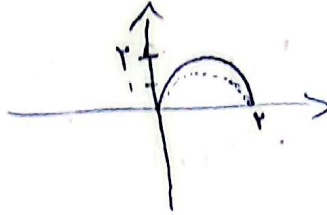


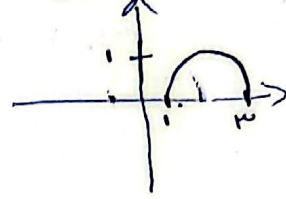
الف)



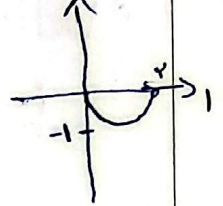
ب)



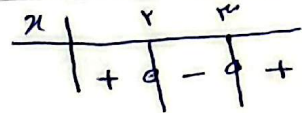
ج)



د)



الف) $x^2 - 4x + 4 > 0$ $x^2 - 4x + 4 = (x-2)(x-2)$ $x \neq 2$
 $x = (-\infty, 2) \cup (2, +\infty)$



ب) $x^2 - 4x + 4 < 0 \rightarrow (x-1)(x-4)$ $x = (1, 4)$

ج) $x^2 + 4x + 4 > 0 \rightarrow (x+1)(x+4)$ $x = (-\infty, -4] \cup [-1, +\infty)$

د) $x^2 - 4x + 4 \leq 0 \rightarrow (x-1)(x-4)$ $x = [1, 4]$

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الف) $\frac{x^2 - 3x + 2}{x - 1} < 0$ $\frac{(x-2)(x-1)}{x-1} < 0$ $x = (-\infty, 1) \cup (2, +\infty)$

ب) $\frac{x^2 - 1}{x^2 - 4x + 4} \geq 0$ $\frac{(x-1)(x+1)}{(x-2)(x-2)} \geq 0$ $x = (-\infty, -1] \cup [1, 2) \cup (2, +\infty)$

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الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}}$ $\frac{x^2 - 1}{x^2 - x} \geq 0 \rightarrow x^2 - 1 \geq 0$ $(x-1)(x^2 + x + 1) \geq 0$
 $\frac{x^2 - 1}{x^2 - x} \geq 0 \rightarrow x^2 - 1 \geq 0$ $x^2 - x \geq 0$ $x(x-1) \geq 0$ $x \geq 1$ or $x \leq 0$
 $\frac{x^2 - 1}{x^2 - x} \geq 0$ $\frac{(x-1)(x+1)}{x(x-1)} \geq 0$ $\frac{x+1}{x} \geq 0$ $x = (-\infty, -1] \cup (0, +\infty)$
 $\frac{x^2 - 1}{x^2 - x} \geq 0$ $\frac{(x-1)(x+1)}{x(x-1)} \geq 0$ $\frac{x+1}{x} \geq 0$ $x = (-\infty, -1] \cup (0, +\infty)$

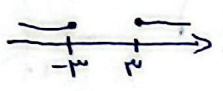
۴

الف) $2 - x \geq 0$ $x \leq 2$ $\sqrt{2-x} \geq 0$ $\sqrt{2-x} \leq 2$ $2 - x \leq 4$ $x \geq -2$
 $D_f = [-2, 2]$
 ب) $x - 2 \geq 0$ $x \geq 2$ $3 - \sqrt{x-2} \geq 0$ $\sqrt{x-2} \leq 3$ $x - 2 \leq 9$ $x \leq 11$
 $D_f = [2, 11]$

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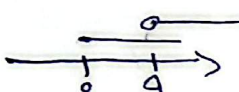
$$|x-2| > 0 \quad |x| < 4 \quad |x| < 2 \quad |x| < \sqrt{2} \quad D_f = [-\sqrt{2}, \sqrt{2}]$$

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ب) $3|x|-9 > 0 \quad 3|x| > 9 \quad |x| > 3 \quad x > 3$
 $x < -3$

 $D_f = (-\infty, -3] \cup [3, +\infty)$

الف) $|x|-2 > 0 \quad x \neq \pm 2 \quad D_f = \mathbb{R} - \{\pm 2\}$

ب) $x > 0 \quad \sqrt{x}-2 > 0 \quad x \neq 9$


 $D_f = (9, +\infty) \cup [0, 9)$

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الف) $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4}\}$ $2\cos x - 1 > 0$
 $\frac{1}{2} = 2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4}$

ب) $D_f = \mathbb{R} - \{2k\pi + \frac{3\pi}{4}, 2k\pi + \frac{11\pi}{4}\}$ $2\sin x + 1 > 0$
 $\frac{1}{2} = \frac{3\pi}{4} + 2k\pi, \frac{11\pi}{4} + 2k\pi$

ج) $D_f = \mathbb{R} - \{\frac{k\pi}{2}, k\pi + \frac{\pi}{2}\}$ 
 د) $D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$ 

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$2|x-2| - \frac{1}{x} > 0 \quad 2|x-2| > \frac{1}{x} \quad |x-2| > \frac{1}{x}$
 $x > \frac{1}{x}$
 $x < \frac{1}{x}$
 $D_f = (\frac{-1}{x}, \frac{1}{x})$

9

الف) $2-2|x| > 0 \quad 2|x| < 4 \quad |x| < 2 \quad D_f = [-2, 2]$
 $x < 2$

ب) $\frac{|x|}{|x|} > 0 \quad |x| > 0 \quad x > 0$
 $|x| \rightarrow \mathbb{R} - \{0\}$ $x < 0$
 $D_f = \mathbb{R} - \{0\}$

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