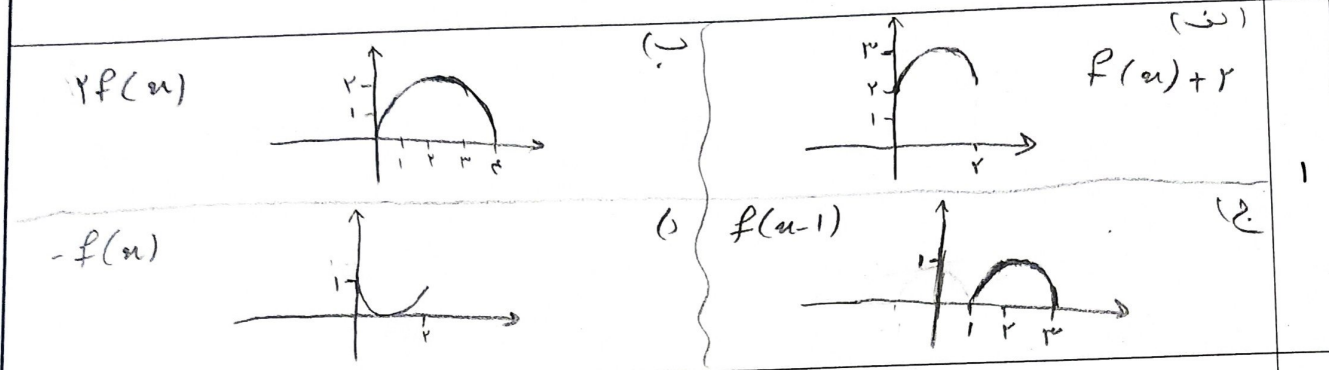




الف) $(x^2 - 2)(x^2 - 3) > 0$ $\frac{+}{-} \frac{+}{-} \frac{+}{-}$ $(-\infty, 2) \cup (3, +\infty)$

ب) $(x-1)(x-5) < 0$ $\frac{+}{-} \frac{+}{-} \frac{+}{-}$ $(1, 5)$

ج) $(x+5)(x+1) \geq 0$ $\frac{-}{+} \frac{-}{+} \frac{-}{+}$ $(-\infty, -5] \cup [-1, +\infty)$

د) $(x-6)(x-1) \leq 0$ $\frac{+}{-} \frac{+}{-} \frac{+}{-}$ $[1, 6]$

الف) $\frac{(x^2-1)(x^2-2)}{x^2-x-5} < 0$ $\frac{+}{-} \frac{+}{-} \frac{+}{-}$ $(-\infty, 1) \cup (2, 5)$

ب) $\frac{(x^2-1)(x^2+1)}{(x-5)(x-1)} \geq 0$ $\frac{-}{+} \frac{+}{-} \frac{+}{-}$ $(-\infty, -1] \cup (5, +\infty)$

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

ب) $\sqrt{\frac{(x^2-4)(x^2+5)}{(x-4)(x-1)}}$ $\frac{-}{+} \frac{+}{-} \frac{+}{-}$ $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$

الف) $2-x \geq 0$ $x \leq 2$ $3-\sqrt{2-x} \geq 0$ $\sqrt{2-x} \leq 3$ $2-x \leq 17 \rightarrow x \geq -15$
 $D_f = [-15, 2]$

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

الف) $\frac{1}{2} - 2u \geq 0$ $2u \leq 1$ $u \leq \frac{1}{2}$ $-\sqrt{1} \leq u \leq \sqrt{1}$
 $D_f = [-1, 1]$

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ب) $\frac{1}{3}|u-9| \geq 0$ $3|u| \geq 9$ $|u| \geq 3$ $u \geq 3$ $u \leq -3$
 $D_f = (-\infty, -3] \cup [3, +\infty)$

الف) $|u| \neq 3 \rightarrow u \neq \pm 3$ $D_f = \mathbb{R} - \{\pm 3\}$

ب) $\sqrt{u} \neq 3 \rightarrow u \neq 9$ $u \geq 0$
 $D_f = [0, 9) \cup (9, +\infty)$

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الف) $2 \cos u \neq 1$ $\cos u \neq \frac{1}{2} \rightarrow u \neq 60^\circ$ $u \neq 300^\circ$
 $D_f = \mathbb{R} - \left\{ 2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3} \right\}$

ب) $2 \sin u \neq -1$ $\sin u \neq -\frac{1}{2}$ $u \neq 210^\circ$ $u \neq 330^\circ$ $D_f = \mathbb{R} - \left\{ 2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6} \right\}$

ج) $\cos u \neq 0$ $u \neq 90^\circ$ $u \neq 270^\circ$ $\sin u \neq 0$ $u \neq 0^\circ$ $u \neq 180^\circ$ $\frac{\cos u}{\sin u} \neq 1 \rightarrow u \neq 45^\circ, 225^\circ$
 $D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{4} \right\}$

د) $\frac{1}{\sin^2 u} \neq 3$ $\sin^2 u \neq \frac{1}{3}$ $\sin u \neq \pm \frac{\sqrt{3}}{2}$ $u \neq 60^\circ, 120^\circ, 240^\circ, 300^\circ$ $D_f = \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{3} \right\}$

$y = \frac{1}{\sqrt{2|u-2| - \frac{1}{2}}}$ $2|u-2| - \frac{1}{2} > 0$

$2|u-2| > \frac{1}{2}$ $|u-2| > \frac{1}{4}$ $u-2 > \frac{1}{4}$ $u > \frac{9}{4}$

$-u+2 > \frac{1}{4}$ $u < \frac{7}{4}$ $D_f = \mathbb{R} - \left(\frac{7}{4}, \frac{9}{4} \right)$

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الف) $\frac{1}{2} - 2|u| \geq 0$ $2|u| \leq 1$ $|u| \leq \frac{1}{2}$ $-\frac{1}{2} \leq u \leq \frac{1}{2}$
 $D_f = [-\frac{1}{2}, \frac{1}{2}]$

ب) $\sqrt{\frac{|u|}{|u|}}$ $|u| \neq 0$ $u \neq 0$ $D_f = \mathbb{R} - \{0\}$

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