

الف) $4 - 2x^2 \geq 0$

$4 \geq 2x^2$

$2 \geq x^2$

$\sqrt{2} \geq x \quad D_f = [-\sqrt{2}, \sqrt{2}]$

$-\sqrt{2} \leq x$

ب) $3|x-9| \geq 0$

$3|x| \geq 9$

$|x| \geq 3 \quad D_f = (-\infty, -3] \cup [3, +\infty)$

$x \geq 3$

$x \leq -3$

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الف) $|x| - 3 \neq 0$

$|x| \neq 3$

$x \neq \pm 3$

$D_f = \mathbb{R} - \{-3, 3\}$

ب) $\sqrt{x} - 3 \neq 0$

$\sqrt{x} \neq 3$

$x \neq 9$

$x \geq 0$

$D_f = [0, +\infty) - \{9\}$

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الف) $2 \cos x - 1 \neq 0$

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



$D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$

ب) $\frac{\cos x}{\sin x} \neq 1 \quad k\pi + \frac{\pi}{4}, k$

$\sin x \neq 0 \quad k\pi \quad D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{2}\}$

$\sin^2 x \neq \frac{1}{2}$

$\sin^2 x \neq \frac{1}{2}$

$\sin x \neq \pm \frac{\sqrt{2}}{2}$

$D_f = \{2k\pi \pm \frac{\pi}{4}, 2k\pi \pm \frac{3\pi}{4}\}$

ب) $2 \sin x \neq -1$

$\sin x \neq -\frac{1}{2}$



$D_f = \mathbb{R} - \{2k\pi - \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\}$

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$2|x-2| - \frac{1}{x} > 0 \quad x-2 < -\frac{1}{x}$

$2|x-2| > \frac{1}{x} \quad x < \frac{1}{x}$

$|x-2| > \frac{1}{2x} \quad D_f = (-\infty, \frac{1}{2}] \cup [\frac{1}{2}, +\infty)$

$x-2 > \frac{1}{2x}$

$x > \frac{1}{2x}$

الف) $4 - 2|x| \geq 0$

$4 \geq 2|x|$

$2 \geq |x|$

$2 \geq x \quad D_f = [-2, 2]$

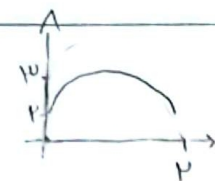
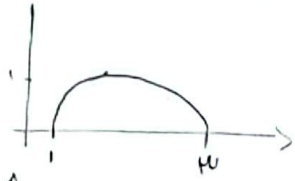
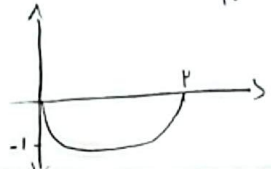
$-2 \leq x$

$-2 \leq x \leq 2$

ب) $\frac{|x|}{|x|} \Rightarrow$ هواره مثبت یا منفی $x \neq 0$

$(-\infty, 0) \cup (0, +\infty)$

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الف)  ب) 	۲)  ۳) 	۱
الف) $(x-2)(x-3) > 0$ $\begin{array}{c cc} x & 2 & 3 \\ \hline & + & - \end{array}$ $(-\infty, 2) \cup (3, +\infty)$ ب) $(x-1)(x-4) < 0$ $\begin{array}{c cc} x & 1 & 4 \\ \hline & + & - \end{array}$ $(1, 4)$	۲) $(x+1)(x+5) \geq 0$ $\begin{array}{c cc} x & -1 & -5 \\ \hline & + & - \end{array}$ $(-\infty, -5] \cup [-1, +\infty)$ ۳) $(x-1)(x-4) \leq 0$ $\begin{array}{c cc} x & 1 & 4 \\ \hline & + & - \end{array}$ $[1, 4]$	۲
الف) $\frac{(x-1)(x-5)}{x-2} < 0$ $\begin{array}{c ccc} x & 1 & 2 & 5 \\ \hline & + & - & + \end{array}$ $(-\infty, 1) \cup (2, 5)$	ب) $\frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$ $\begin{array}{c ccc} x & 1 & 5 & -1 \\ \hline & + & - & + \end{array}$ $(-\infty, -1] \cup \{1\} \cup (5, +\infty)$	۳
الف) $x^3 - x > 0$ $x(x^2 - 1) > 0$ $x = 0$ $x = \pm 1$ $x^3 - 1 > 0 \Rightarrow x > 1$ $x^3 > 1$ $x > 1$ ب) $(x-1)(x-4) > 0$ $\begin{array}{c ccc} x & 1 & 4 & - \\ \hline & + & - & + \end{array}$ $(-\infty, 1) \cup (4, +\infty)$ $D_f =$	۴) $(x-1)(x-4) > 0$ $\begin{array}{c ccc} x & 1 & 4 & - \\ \hline & + & - & + \end{array}$ $(-\infty, 1) \cup (4, +\infty)$ $D_f =$	۴
الف) $2-x \geq 0$ $2 \geq x$ $D_f = [-1, 2]$ ب) $4 - \sqrt{2-x} \geq 0$ $4 \geq \sqrt{2-x}$ $16 \geq 2-x$ $x \geq -14$	ب) $x-2 \geq 0$ $x \geq 2$ $3 - \sqrt{x-2} \geq 0$ $3 \geq \sqrt{x-2}$ $9 \geq x-2$ $11 \geq x$ $D_f = [2, 11]$	۵