

الف) $x^2 - 5x + 4 > 0$

$$\begin{aligned} &\hookrightarrow (x-2)(x-4) > 0 \\ &\hookrightarrow x \in (-\infty, 2) \cup (4, +\infty) \end{aligned}$$

دامنه

ب) $x^2 - 6x + 4 < 0$

$$\begin{aligned} &\hookrightarrow (x-1)(x-4) < 0 \\ &\hookrightarrow x \in (1, 4) \end{aligned}$$

دامنه

ج) $x^2 + 4x + 4 \geq 0$

$$\begin{aligned} &\hookrightarrow (x+1)(x+4) \geq 0 \\ &\hookrightarrow x \in (-\infty, -4] \cup [-1, +\infty) \end{aligned}$$

دامنه

د) $x^2 - 5x + 4 \leq 0$

$$\begin{aligned} &\hookrightarrow (x-1)(x-4) \leq 0 \\ &\hookrightarrow x \in [1, 4] \end{aligned}$$

دامنه

الف) $\frac{x^2 - 2x + 2}{x-1} < 0$

$$\begin{aligned} &\hookrightarrow (x-1)(x-2) < 0 \\ &\hookrightarrow x \in (1, 2) \end{aligned}$$

دامنه

ب) $\frac{x^2 - 1}{x^2 - 2x + 4} \geq 0$

$$\begin{aligned} &\hookrightarrow (x-1)(x+1) \geq 0 \\ &\hookrightarrow x \in (-\infty, -1] \cup [1, +\infty) \end{aligned}$$

دامنه

الف) $y = \sqrt{x^3 - 1}$

$$\begin{aligned} &x^3 - 1 \geq 0 \\ &\hookrightarrow x \geq 1 \end{aligned}$$

دامنه

ب) $y = \sqrt{\frac{x^2 - 1}{x^2 - 4x + 4}}$

$$\begin{aligned} &\frac{x^2 - 1}{x^2 - 4x + 4} \geq 0 \\ &\hookrightarrow (x-1)(x-4) \geq 0 \\ &\hookrightarrow x \in (-\infty, 1] \cup [4, +\infty) \end{aligned}$$

دامنه

الف) $y = \sqrt{4 - \sqrt{2x-2}}$

$$\begin{aligned} &4 - \sqrt{2x-2} \geq 0 \\ &\hookrightarrow \sqrt{2x-2} \leq 4 \\ &\hookrightarrow 2x-2 \leq 16 \\ &\hookrightarrow 2x \leq 18 \\ &\hookrightarrow x \leq 9 \end{aligned}$$

دامنه

ب) $y = \sqrt{3 - \sqrt{2x-2}}$

$$\begin{aligned} &3 - \sqrt{2x-2} \geq 0 \\ &\hookrightarrow \sqrt{2x-2} \leq 3 \\ &\hookrightarrow 2x-2 \leq 9 \\ &\hookrightarrow 2x \leq 11 \\ &\hookrightarrow x \leq 5.5 \end{aligned}$$

دامنه

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$$\text{الف) } y = \sqrt{4-x^2} \rightarrow 4-x^2 \geq 0$$

$$x^2 \leq 4$$

$$x \geq 2$$

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

دامنه

$$\text{ب) } y = \sqrt{4|x|-9} \rightarrow 4|x|-9 \geq 0$$

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

دامنه

$$\begin{array}{l} 4|x| \geq 9 \\ |x| \geq \frac{3}{2} \\ x \geq 3 \quad x \leq -3 \end{array}$$

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$$\text{الف) } y = \sqrt{\frac{|x|+1}{|x|-3}}$$

$$|x|-3 \neq 0$$

$$|x| \neq 3$$

$$x \neq \pm 3$$

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

$$\text{ب) } \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$$

$$\frac{x \geq 0}{\sqrt{x}-3 \neq 0}$$

$$\sqrt{x} \neq 3$$

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

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$$\text{الف) } y = \frac{\sin x}{\cos x - 1}$$

$$\begin{array}{l} \cos x - 1 \neq 0 \\ \cos x \neq 1 \\ x \neq 2k\pi \end{array}$$



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

$$\text{ب) } \frac{\cos x + 1}{\sin x + 1}$$

$$\begin{array}{l} \sin x + 1 \neq 0 \\ \sin x \neq -1 \\ x \neq \frac{3\pi}{2} + 2k\pi \end{array}$$

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



دامنه مقبول

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

$$4|x-2| - \frac{1}{4} > 0$$

$$4|x-2| > \frac{1}{4}$$

$$|x-2| > \frac{1}{16}$$

$$x-2 > \frac{1}{16} \rightarrow x > 2, \frac{1}{16}$$

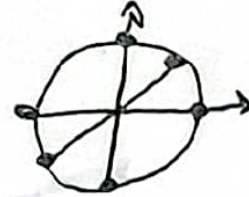
$$x-2 < -\frac{1}{16} \rightarrow x < 2, \frac{1}{16}$$

$$\left\{ (-\infty, 2, \frac{1}{16}) \cup (2, \frac{1}{16}, +\infty) \right\}$$

پیشینه یادم رفت سوال ۱ ادا نه داره (:

ادانه ۱

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



ج) $y = \frac{\tan x + 2}{\cos \sin}$ $\frac{\sin}{\cos} \rightarrow \cos \neq 0$

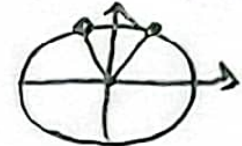
$\frac{\cos}{\sin} \leftarrow \cot x - 1 \rightarrow \frac{\cos}{\sin} - 1 \neq 0$

$\sin \neq 0$

$\frac{\cos}{\sin} \neq 1$

د) $\sin x + 1$

$$f \sin^2 x - 2 \neq 0 \rightarrow f \sin^2 x \neq 2 \rightarrow \sin^2 x \neq \frac{2}{f} \rightarrow \sin x \neq \frac{\sqrt{2}}{f}$$



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

الف) $y = \sqrt{f - 2|x|}$ $f - 2|x| \geq 0$

$f \geq 2|x| \rightarrow f \geq |x|$

$f \geq |x| \rightarrow -f \leq x \leq f$

$D_f \in [-f, f]$

داره

ب) $y = \sqrt{\frac{|x|}{|x|}}$ $|x| \neq 0 \rightarrow x \neq 0$

باقی بقیه اعداد جواب است

$D_f = \mathbb{R} - \{0\}$

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