

الف) $\sqrt{4-5x-x^2} =$	$2-x \geq 0 \quad x \leq 2$ $4-5x-x^2 \geq 0 \quad (x-1)^2 \leq 1$ $2-x \leq 4$ $-2 \leq x$	$Df \in [-2, 2]$	۱
ب) $\sqrt{3-5x-x^2} =$	$x-2 \geq 0 \quad x \geq 2$ $3-5x-x^2 \geq 0 \quad (x+3)^2 \geq 9$ $9 \geq x-2$ $11 \geq x$	$Df \in [2, 11]$	۱
الف) $\sqrt{4-2x^2} =$	$4-2x^2 \geq 0 \quad \frac{2x^2}{2} \leq \frac{4}{2}$ $x^2 \leq 2 \quad x \leq \sqrt{2}$	$Df \in (-\infty, \sqrt{2}]$	۲
ب) $\sqrt{3 x -9} =$	$3 x -9 \geq 0 \quad \frac{3 x }{3} \geq \frac{9}{3}$ $ x \geq 3$ $-3 \geq x \geq 3$	$Df \in [-3, 3]$	۲
الف) $\sqrt{\frac{ x +1}{ x -3}} =$	$ x -3 \neq 0 \quad x \neq 3 \quad x \neq \pm 3$ $Df \in \mathbb{R} - \{3, -3\}$	فرم جذر صورت تا شری ندارد	۳
ب) $\sqrt{\frac{5x+1}{5x-3}} =$	$5x-3 \neq 0 \quad 5x \neq 3 \quad x \neq \frac{3}{5}$ $Df \in \mathbb{R} - \{\frac{3}{5}\}$		۳
الف) $\frac{\sqrt{3- x }}{ x -1} =$	$3- x \geq 0 \quad x \leq 3 \quad -3 \leq x \leq 3$ $ x -1 \neq 0 \quad x \neq \pm 1$ $Df \in [-3, 3] - \{\pm 1\}$		۴
ب) $\frac{\sqrt{4-x^2}}{ x -1} =$	$4-x^2 \geq 0 \quad x^2 \leq 4 \quad x \leq 2 \quad x \geq -2$ $ x -1 \neq 0 \quad x \neq 1 \quad x \neq \pm 1$ $Df \in [-2, 2] - \{\pm 1\}$		۴
الف) $\frac{x+1}{\sqrt{x+ x }} =$	$x+ x > 0 \quad x \geq - x \quad Df \in \mathbb{R}^+$		۵
ب) $\frac{1}{\sqrt{x x }}$	$x x > 0 \quad Df \in \mathbb{R} - \{0\}$		۵

$$\text{الف) } \sqrt{2-[x]} = \quad 2-[x] \geq 0 \quad [x] \leq 2 \quad Df \in (-\infty, 2)$$

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$$\text{ب) } \frac{1}{\sqrt{2-[x]}} = \quad 2-[x] > 0 \quad [x] < 2 \quad Df \in (-\infty, 2)$$

$$\text{الف) } \frac{1}{x[x]} = \quad x[x] \neq 0 \quad Df \in \mathbb{R} - \{0\}$$

$$\text{ب) } \frac{1}{\sqrt{-x[x]}} = \quad -x[x] > 0 \quad x[x] < 0 \quad \left\{ \begin{array}{l} -1 < x < 1 \\ Df \in (0, 1) \end{array} \right.$$

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$$\text{الف) } \sqrt{\left[x-\frac{1}{x}\right] + \left[x+\frac{1}{x}\right]} = \left[x-\frac{1}{x}\right] + \left[x+\frac{1}{x}\right] \geq 0 \quad \left[x+\frac{1}{x}-1\right] + \left[x+\frac{1}{x}\right] \geq 0$$

$$Df \in \left[-\frac{1}{2}, +\infty\right)$$

$$\frac{2\left[x+\frac{1}{x}\right]}{x} \geq \frac{1}{x} \quad \left[x+\frac{1}{x}\right] \geq \frac{1}{x} \quad x+\frac{1}{x} \geq \frac{1}{x} \quad x \geq \frac{1}{x} - \frac{1}{x} \quad x \geq -\frac{1}{x}$$

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$$\text{ب) } \sqrt{\left[x-\frac{1}{x}\right] + \left[-x+\frac{1}{x}\right]} = \sqrt{\left[x-\frac{1}{x}\right] + \left[-\left(x-\frac{1}{x}\right)\right]} \xrightarrow{\text{if } \begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \end{cases}} \downarrow$$

$$Df = \left\{ x \mid x = k + \frac{1}{x}, k \in \mathbb{Z} \right\} \quad x - \frac{1}{x} \in \mathbb{Z}$$

$$\text{الف) } \frac{1}{x \sin^2 x - 1} = \quad x \sin^2 x \neq \frac{1}{x} \quad \sin^2 x \neq \frac{1}{x} \quad \sin x \neq \sqrt{\frac{1}{x}}$$

$$\text{ب) } \frac{\cot x + 1}{\tan x + 1} = \quad \tan \neq -1 \quad Df \in \mathbb{R} - \{\pi/4, 3\pi/4\}$$

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$$\text{الف) } \sqrt{x \sin x - 1} = \quad \frac{x \sin x}{x} \geq \frac{1}{x} \quad \sin x \geq \frac{1}{x}$$

$$Df \in \mathbb{R} - \{1/2, 3/2, 5/2, 7/2, 9/2, 11/2, 13/2, 15/2\}$$

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$$\text{ب) } \sqrt{1-x \cos x} = \quad \frac{x \cos x}{x} \leq \frac{1}{x} \quad \cos x \leq \frac{1}{x} \quad Df \in \mathbb{R} - \{2/3, 4/3, 5/3, 7/3, 8/3\}$$