

الف) $y = \sqrt{4 - \sqrt{2 - x}}$ $D_f = -1 \leq x \leq 2$	$2 - x \geq 0 \quad 2 \geq x$ $4 - \sqrt{2 - x} \geq 0 \quad 4 \geq \sqrt{2 - x}$ $16 \geq 2 - x \quad -14 \leq x$	۱
ب) $y = \sqrt{3 - \sqrt{x - 2}}$ $D_f = 11 \geq x \geq 2$	$x - 2 \geq 0 \quad x \geq 2 \quad 9 \geq x - 2$ $3 - \sqrt{x - 2} \geq 0 \quad 3 \geq \sqrt{x - 2} \quad 11 \geq x$	
الف) $y = \sqrt{4 - 2x^2}$ ب) $y = \sqrt{3 x - 9}$	$4 - 2x^2 \geq 0 \quad 4 \geq 2x^2 \quad 2 \geq x^2$ $D_f = \sqrt{2} \geq x \geq -\sqrt{2}$ $3 x - 9 \geq 0 \quad 3 x \geq 9$ $ x \geq 3 \quad D_f = x \geq 3 \cup x \leq -3$	۲
الف) $y = \sqrt[3]{\frac{ x + 1}{ x - 3}}$ ب) $y = \sqrt[3]{\frac{\sqrt{x} + 1}{\sqrt{x} - 3}}$	$D_f = \mathbb{R} - \{3, -3\}$ $x \geq 0 \quad \sqrt{x} - 3 \neq 0 \Rightarrow x \neq 9$ $D_f = x \geq 0, x \neq 9$	۳
الف) $y = \frac{\sqrt{3 - x }}{ x + 2}$ ب) $y = \frac{\sqrt{4 - x^2}}{ x - 1}$ $D_f = [2, 1) \cup (1, 9) \cup (-9, -2]$	$3 - x \geq 0 \quad x + 2 \Rightarrow$ همواره مثبت $3 \geq x \Rightarrow D_f = 3 \geq x \geq -3$ $4 - x^2 \geq 0 \quad 4 \geq x^2 \quad 2 \geq x \geq -2$ $ x - 1 \neq 0 \Rightarrow x \neq 1 \Rightarrow x \neq 1, -1$	۴
الف) $y = \frac{x + 1}{\sqrt{x + x }}$ ب) $\frac{1}{\sqrt{x x }}$	$x + x \Rightarrow$ همواره مثبت $D_f = \mathbb{R}^+ - \{0\} \cup D_f = x > 0$ $x x > 0 \quad x > - x \quad x x \neq 0$ $D_f = \mathbb{R}^+ - \{0\} \cup D_f = x > 0$	۵

الف) $y = \sqrt{2 - [x]}$

$2 - [x] \geq 0 \quad 2 \geq [x]$
 $Df = x < 2$

ب) $y = \frac{1}{\sqrt{2 - [x]}}$

$2 - [x] > 0 \quad 2 > [x]$
 $Df = x < 2$

الف) $y = \frac{1}{x[x]}$

$x[x] \neq 0$
 $Df = \mathbb{R} \setminus (-\infty, 0) \cup [1, +\infty)$

ب) $y = \frac{1}{\sqrt{-x[x]}}$

$-x[x] > 0 \quad x < [x]$
 $-x[x] \Rightarrow$ معادله متغی است
 $\Rightarrow Df = \emptyset$

الف) $y = \sqrt{[x - \frac{1}{3}] + [x + \frac{2}{3}]}$

$[x - \frac{1}{3}] + [x + \frac{2}{3}] + 1 \geq 0$
 $2[x - \frac{1}{3}] \geq 1 \quad [x - \frac{1}{3}] \geq \frac{1}{2} \Rightarrow [x - \frac{1}{3}] \geq 1 \quad Df = x \geq \frac{1}{3}$

ب) $\sqrt{[x - \frac{1}{3}] + [-x + \frac{1}{3}]} \Rightarrow [x] + [-x] \Rightarrow$ با توجه به نمودار
 $\Rightarrow Df = \mathbb{Z}$

الف) $y = \frac{1}{2 \sin^2 x - 1}$

$2 \sin^2 x - 1 \neq 0 \quad 2 \sin^2 x \neq 1$

$Df = \mathbb{R} - \left\{ 2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2} \right\}$

ب) $y = \frac{\cot x + 1}{\tan x + 1}$

~~$\tan x + 1 \neq 0$~~ $\tan x \neq -1$

$Df = \mathbb{R} - \left\{ 0 + \frac{k\pi}{2}, 2k\pi + \frac{3\pi}{2}, 2k\pi + \frac{5\pi}{2} \right\}$

الف) $y = \sqrt{2 \sin x - 1}$

$2 \sin x - 1 \geq 0 \quad 2 \sin x \geq 1$

$Df = \mathbb{R} - (2k\pi + \pi, 2k\pi)$ ~~$2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2}$~~

$\hookrightarrow Df = (0, 2k\pi + \pi)$

ب) $y = \sqrt{1 - 2 \cos x}$

$1 - 2 \cos x \geq 0 \quad 1 \geq 2 \cos x$

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

$Df = \left\{ \left[2k\pi + \frac{\pi}{3}, 2k\pi + \pi, 2k\pi + \frac{5\pi}{3} \right] \right\}$