

الف  $\sqrt{4-2x} \rightarrow 4-2x \geq 0 \rightarrow 2 \geq x$   $\sqrt{4-2x} \geq 0 \rightarrow 4 \geq 4-2x \rightarrow 12 \geq 2-2x \rightarrow x \geq -14$

$\rightarrow Df = \{14, 2\} = (-14, +\infty) \cap (-\infty, 2\}$

ب  $\sqrt{3-5x-2} \rightarrow x-2 \geq 0 \rightarrow x \geq 2$   $\sqrt{3-5x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2 \rightarrow 11 \geq x$

$\rightarrow Df = (-\infty, 11\} \cap \{2, +\infty) = \{2, 11\}$

الف  $y = \sqrt{4-2x^2} \rightarrow 4-2x^2 \geq 0 \rightarrow 4 \geq 2x^2 \rightarrow 2 \geq x^2 \rightarrow \sqrt{2} \geq x$   $\rightarrow Df = (-\infty, \sqrt{2}\}$

ب  $y = \sqrt{3|x|-9} \rightarrow 3|x|-9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3 \rightarrow x \geq 3, x \leq -3$

$\rightarrow Df = \{3, +\infty) \cup (-\infty, -3\}$

الف  $y = \sqrt[3]{\frac{|x|+1}{|x|-3}} \rightarrow |x|-3 \neq 0 \rightarrow |x| \neq 3 \rightarrow x \neq 3, -3 \rightarrow Df = \mathbb{R} - \{3, -3\}$

ب  $y = \sqrt[3]{\frac{5x+1}{5x-3}} \rightarrow x \geq 0$   $\sqrt{5x-3} \neq 0 \rightarrow \sqrt{5x} \neq 3 \rightarrow x \neq 9$

$\rightarrow Df = \{0, +\infty) - \{9\}$

الف  $y = \frac{\sqrt{3-|x|}}{|x|+2} \rightarrow |x|+2 \neq 0 \checkmark$   $3-|x| \geq 0 \rightarrow 3 \geq |x| \rightarrow 3 \geq x, -3 \leq x$

$\rightarrow Df = \{-3, 3\}$

ب  $y = \frac{\sqrt{4-x^2}}{|x|-1} \rightarrow |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq 1, -1$   $4-x^2 \geq 0 \rightarrow 4 \geq x^2 \rightarrow 2 \geq x, -2 \leq x$   
 $\rightarrow Df = [-2, 2] - \{1, -1\}$

الف  $y = \frac{x+1}{\sqrt{x+|x|}}$   $\rightarrow x+|x| > 0$  باعدگاری  $\checkmark$  اعداد +  $\times$  اعداد منفی  $\times$  عدد ۰

$\rightarrow Df = \mathbb{R}^+$

ب  $y = \frac{1}{\sqrt{x|x|}}$   $\rightarrow x|x| > 0$  باعدگاری  $\checkmark$  اعداد +  $\times$  اعداد منفی  $\times$  عدد ۰  
 $\rightarrow Df = \mathbb{R}^+$

الف)  $y = \sqrt{2-x} \rightarrow 2-x \geq 0 \rightarrow x \leq 2 \rightarrow Df = (-\infty, 2]$

ب)  $y = \frac{1}{\sqrt{2-x}} \rightarrow 2-x > 0 \rightarrow x < 2 \rightarrow Df = (-\infty, 2)$

الف)  $y = \frac{1}{x \ln x} \rightarrow x \ln x \neq 0 \rightarrow x \neq 0 \text{ و } x \neq 1 \rightarrow Df = \mathbb{R} - \{0, 1\}$

ب)  $y = \frac{1}{\sqrt{-x \ln x}} \rightarrow -x \ln x > 0 \rightarrow \text{این عبارت مثبت و نام‌ها در زیر علامت هستند} \rightarrow Df = \emptyset$   
 غیر هم علامت

الف)  $\sqrt{x - \frac{1}{x}} + [x + \frac{1}{x}] \rightarrow [x - \frac{1}{x}] + [x + \frac{1}{x}] \geq 0 \rightarrow [x + \frac{1}{x} - 1] + [x + \frac{1}{x}] \geq 0 \rightarrow 2[x + \frac{1}{x}] - 1 \geq 0$   
 $\rightarrow 2[x + \frac{1}{x}] \geq 1 \rightarrow [x + \frac{1}{x}] \geq \frac{1}{2} \rightarrow x + \frac{1}{x} \geq \frac{1}{2} \rightarrow x \geq \frac{1}{x} \rightarrow Df = \{\frac{1}{x}, +\infty\}$

ب)  $\sqrt{\frac{x - \frac{1}{x}}{y}} + \sqrt{\frac{-x + \frac{1}{x}}{-y}} < \begin{cases} y \in \mathbb{Z} \rightarrow \text{جواب} = 0 \checkmark \\ y \notin \mathbb{Z} \rightarrow \text{جواب} = -1 \times \end{cases} \rightarrow [x - \frac{1}{x}] + [x + \frac{1}{x}] \geq 0$   
 $x - \frac{1}{x} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{x} \rightarrow Df = \{x | x \in \mathbb{Z} + \frac{1}{x}\}$

الف)  $y = \frac{1}{2 \sin^2 x - 1} \rightarrow 2 \sin^2 x - 1 \neq 0 \rightarrow 2 \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{2} \rightarrow \sin^2 x \neq \frac{1}{4} \rightarrow \sin x \neq \pm \frac{\sqrt{2}}{2}$

$\rightarrow Df = \mathbb{R} - \{x | x = \frac{\pi}{4} + k\pi, x = \frac{3\pi}{4} + k\pi\}$

ب)  $y = \frac{\cot x + 1}{\tan x + 1}$   $\cot$  «نقطه ۰ و ۱۸۰ تعریف نشده»  $\tan$  «نقطه ۹۰ و ۲۷۰ تعریف نشده»  
 $\tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow \tan x \neq 135^\circ, 315^\circ$   
 $\rightarrow Df = \mathbb{R} - \{x | x = \frac{\pi}{4} + k\pi, x = \frac{3\pi}{4} + k\pi\}$

الف)  $y = \sqrt{2 \sin x - 1} \rightarrow 2 \sin x - 1 \geq 0 \rightarrow 2 \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2}$

$\rightarrow Df = \{x | x = \frac{\pi}{6} + 2k\pi, x = \frac{5\pi}{6} + 2k\pi\}$

ب)  $y = \sqrt{1 - 2 \cos x} \rightarrow 1 - 2 \cos x \geq 0 \rightarrow 1 \geq 2 \cos x \rightarrow \frac{1}{2} \geq \cos x$

$\rightarrow Df = \{x | x = \frac{\pi}{3} + 2k\pi, x = \frac{5\pi}{3} + 2k\pi\}$