

الف) $y = \sqrt{4 - \sqrt{2-x}}$ $\begin{cases} 2-x \geq 0 \rightarrow x \leq 2 \\ 4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 2 \rightarrow 2-x \leq 4 \rightarrow x \geq -14 \end{cases} \rightarrow D_f = [-14, 2]$

ب) $y = \sqrt{3 - \sqrt{x-2}}$ $\begin{cases} x-2 \geq 0 \rightarrow x \geq 2 \\ 3 - \sqrt{x-2} \geq 0 \rightarrow \sqrt{x-2} \leq 3 \rightarrow x-2 \leq 9 \rightarrow x \leq 11 \end{cases} \rightarrow D_f = [2, 11]$

الف) $y = \sqrt{4 - 2x^2}$ $4 - 2x^2 \geq 0 \rightarrow 2x^2 \leq 4 \rightarrow x^2 \leq 2 \rightarrow -\sqrt{2} \leq x \leq \sqrt{2} \rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$

ب) $y = \sqrt{3|x|-9}$ $3|x|-9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3 \rightarrow \begin{cases} x \geq 3 \\ x \leq -3 \end{cases} \rightarrow D_f = (-\infty, -3] \cup [3, +\infty)$

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

ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $\begin{cases} x \geq 0 \\ \sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9 \end{cases} \rightarrow D_f = [0, +\infty) - \{9\}$

الف) $y = \frac{\sqrt{3-|x|}}{|x|+2}$ $\begin{cases} 3-|x| \geq 0 \rightarrow |x| \leq 3 \rightarrow -3 \leq x \leq 3 \\ |x|+2 \neq 0 \rightarrow |x| \neq -2 \end{cases} \rightarrow D_f = [-3, 3]$

ب) $y = \frac{\sqrt{4-x^2}}{|x|-1}$ $\begin{cases} 4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2 \\ |x|-1 \neq 0 \rightarrow x \neq \pm 1 \end{cases} \rightarrow D_f = [-2, 2] - \{\pm 1\}$

الف) $y = \frac{x+1}{\sqrt{x+|x|}}$ $x+|x| > 0 \rightarrow |x| > -x \rightarrow D_f = \mathbb{R}^+$

ب) $y = \frac{1}{\sqrt{x|x|}}$ $x|x| > 0 \rightarrow D_f = \mathbb{R}^+$

الف) $y = \sqrt{2 - [x]} \rightarrow 2 - [x] \geq 0 \rightarrow [x] \leq 2 \rightarrow x < 3 \rightarrow D_f = (-\infty, 3)$ ✓

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

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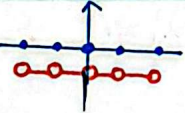
الف) $y = \frac{1}{x[x]}$ $\rightarrow x[x] \neq 0 \rightarrow D_f = \mathbb{R} - [0, 1]$ ✓

(2)

ب) $y = \frac{1}{\sqrt{-x[x]}}$ $\rightarrow -x[x] > 0$
 عدد منفر (0)
 (+) موجب x
 (-) منفر x
 $\Rightarrow D_f = \emptyset$ ✓

7

الف) $y = \sqrt{[x - \frac{1}{3}] + [x + \frac{2}{3}]} \rightarrow [x - \frac{1}{3}] + [x + \frac{2}{3}] \geq 0 \rightarrow [x + \frac{2}{3}] + [x + \frac{2}{3}] \geq 1$

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

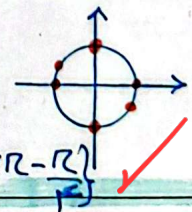
$x - \frac{1}{3} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{3} \rightarrow D_f = \{x \mid x = k + \frac{1}{3}, k \in \mathbb{Z}\}$ ✓

$2[x + \frac{2}{3}] \geq 1$
 $\rightarrow [x + \frac{2}{3}] \geq \frac{1}{2}$
 $\rightarrow x \geq -\frac{1}{3}$
 $\rightarrow D_f = [-\frac{1}{3}, +\infty)$ ✓

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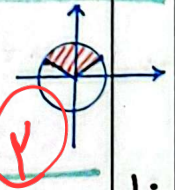
الف) $y = \frac{1}{2\sin^2 x - 1} \rightarrow 2\sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{2} \rightarrow \sin x \neq \pm \frac{\sqrt{2}}{2} \Rightarrow$
 $D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$ ✓

ب) $y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \cot x \neq \text{تعريف لشده}$
 $\tan x \neq -1$
 $\rightarrow D_f = \mathbb{R} - \{k\pi - \frac{\pi}{4}\}$ ✓



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الف) $y = \sqrt{2\sin x - 1} \rightarrow 2\sin x - 1 \geq 0 \rightarrow 2\sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2}$
 $D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$ ✓



10

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

$D_f = [2k\pi + \frac{\pi}{3}, 2k\pi - \frac{\pi}{3}]$
 $D_f = \mathbb{R} - (2k\pi - \frac{\pi}{3}, 2k\pi + \frac{\pi}{3})$ ✓



$2k\pi + \frac{5\pi}{6}$