و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۴ ..... کلاس دهم سیرانیک ۱۹/۵

الف) $y=\sqrt{4-\sqrt{2-x}}$ ← $2-x\geq 0 \rightarrow x\leq 2$ ، $D_f=[-14,2]$ ✓
← $4-\sqrt{2-x}\geq 0 \rightarrow \sqrt{2-x}\leq 4 \Rightarrow 2-x\leq 16 \rightarrow -14\leq x$

ب) $y=\sqrt{2-\sqrt{x-2}} \rightarrow x-2\geq 0 \rightarrow x\geq 2$
← $2-\sqrt{x-2}\geq 0 \rightarrow \sqrt{x-2}\leq 2 \rightarrow \sqrt{x-2}\leq\sqrt{9}$ ، $x-2\leq 9 \rightarrow x\leq 11$
$D_f=[2,11]$ ✓

(۲)

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

(۲)

ب) $y=\sqrt{2|x|-9} \rightarrow 2|x|-9\geq 0 \rightarrow 2|x|\geq 9 \rightarrow |x|\geq 4 \rightarrow x\leq -4$ ، $x\geq 4$
$D_f=[4,+\infty)\cup(-\infty,-4]$ ✓ $D_f=(-\infty,-4]\cup[4,+\infty)$

الف) $y=\sqrt[4]{\frac{|x|+1}{|x|-2}} \rightarrow |x|-2\neq 0 \rightarrow |x|\neq 2$ ← $x\neq 2$ ، $x\neq -2$ ، $D_f=\mathbb{R}-\{2,-2\}$ ✓

(۲)

ب) $\sqrt[4]{\frac{\sqrt{x}+1}{\sqrt{x}-2}} \rightarrow \sqrt{x}\Rightarrow x\geq 0$
$\sqrt{x}-2\neq 0 \rightarrow \sqrt{x}\neq 2 \rightarrow \sqrt{x}\neq\sqrt{9} \rightarrow x\neq 9$ ، $D_f=\mathbb{R}^+-\{9\}$ ✓
$D_f=[0,9)\cup(9,+\infty)$

ج) $y=\sqrt{\frac{4-|x|}{|x|+2}} \rightarrow 4-|x|\geq 0 \rightarrow 4\geq|x|$ ← $x\leq 4$ ، $x\geq -4$ ، $D_f=[-4,4]$ ✓
← $|x|+2\in\mathbb{R}$

(۲)

د) $y=\frac{\sqrt{4-x^2}}{|x|-1} \rightarrow \sqrt{4-x^2}\geq 0 \Rightarrow 4-x^2\geq 0 \rightarrow 4\geq x^2 \rightarrow 2\geq x\geq -2$
$|x|-1\neq 0 \rightarrow |x|\neq 1 \rightarrow x\neq 1, x\neq -1$ ، $D_f=[-2,-1)\cup(-1,1)\cup(1,2]$ ✓

ه) $y=\frac{x+1}{\sqrt{x+|x|}} \rightarrow x+|x|>0$
$x^+ \rightarrow 2x$ ✓
$x^- \rightarrow 0$ ✗
$x=0 \rightarrow 0$ ✗
$\Rightarrow D_f=(0,+\infty)=\mathbb{R}^+$ ✓

(۲)

و) $y=\frac{}{\sqrt{x|x|}} \rightarrow x|x|>0 \rightarrow x^+ \rightarrow +$ ✓
$x^- \rightarrow -$ ✗
$x=0 \rightarrow 0$ ✗
$\Rightarrow D_f=(0,+\infty)=\mathbb{R}^+$ ✓

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

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

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الف) $y=\frac{1}{x[x]} \rightarrow x[x]>0 \quad D_f=(-\infty,0)\cup[1,+\infty)$ ✓

ب) $y=\frac{1}{\sqrt{-x[x]}}$ ← همواره مثبت یا صفر است ← صورت کسر ۱ است $\quad D_f=\emptyset$ ✓

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

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

ب) $y=\sqrt{[x-\frac{1}{2}]+[-x+\frac{1}{2}]}$ ($[-x+\frac{1}{2}]=-(x-\frac{1}{2})-a$)

$a\in\mathbb{Z} \rightarrow [a]+[-a]=0$
$a\notin\mathbb{Z} \rightarrow [a]+[-a]=-1$
$\rightarrow x-\frac{1}{2}\in\mathbb{Z}$

$D_f=\{x \mid x=k+\frac{1}{2}, k\in\mathbb{Z}\}$ ✓

۲

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

$D_f=\mathbb{R}-\{\frac{k\pi}{2}+\frac{\pi}{4}\}$ ✓

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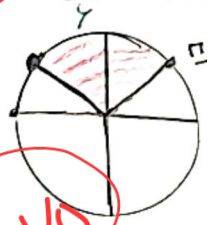
ب) $y=\frac{\cot x+1}{\tan x+1} \quad \tan x+1\neq 0 \rightarrow \tan x\neq -1$

$\cot x=\frac{\cos x}{\sin x} \rightarrow \sin x\neq 0$

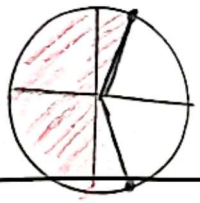
$\tan x=\frac{\sin x}{\cos x} \rightarrow \cos x\neq 0$

$D_f=\mathbb{R}-\{\frac{k\pi}{2}, \cancel{\frac{k\pi}{2}+\frac{\pi}{4}}\}$ $k\pi-\frac{\pi}{4}$

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



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



$D_f=[2k\pi+\frac{\pi}{3}, 2k\pi+\cancel{\frac{5\pi}{3}}\ \frac{\pi}{3}]$

$2k\pi+\frac{5\pi}{3}$

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