اولین ریاضی دوره تکلیف شماره ۴

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$\sqrt{4-\sqrt{2-x}}$

$2-x \geq 0 \Rightarrow x \leq 2$

$4-\sqrt{2-x} \geq 0$

$\Rightarrow -14 \leq x \leq 2$

$D_f = [-14, 2]$ ✓

$\sqrt{3-\sqrt{x-2}}$

$0 \leq x-2 \leq 9$

$\Rightarrow 2 \leq x \leq 11$

$\Rightarrow D_f = [2, 11]$ ✓

(۲)

۱۷, ۲۵

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$y = \sqrt{4-2x^2}$

$4-2x^2 \geq 0$

$2-x^2 \geq 0$

$x^2 \leq 2$

$\sqrt{2} \geq x \geq -\sqrt{2}$

$D_f = [-\sqrt{2}, \sqrt{2}]$ ✓

$y = \sqrt{3|x|-9}$

$3|x|-9 \geq 0$

$3|x| \geq 9$

$|x| \geq 3$

$x \geq 3$

$x \leq -3$

$D_f = (-\infty, -3] \cup [3, \infty)$ ✓

(۲)

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

$|x|-3 \neq 0$

$|x| \neq 3$

$x \neq 3$

$x \neq -3$

$D_f = \mathbb{R} - \{-3, 3\}$ ✓

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

$\sqrt{x}-2 \neq 0$

$\sqrt{x} \neq 2$

$x \neq 4$

$D_f = [0, \infty) - \{4\}$ ✓

(۲)

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$y = \frac{\sqrt{3-|x|}}{|x|+2}$

عبارت زیر رادیکال $\geq 0$

$3-|x| \geq 0$

$|x| \leq 3$

$-3 \leq x \leq 3$

$D_f = [-3, 3]$ ✓

$y = \frac{\sqrt{4-x^2}}{|x|-1}$

$|x|-1 > 0$

$|x| > 1$

$x > 1$ یا $x < -1$

$4-x^2 \geq 0$

$x^2 \leq 4$

$-2 \leq x \leq 2$

$|x|-1 \neq 0$

$|x| \neq 1$

$x \neq \pm 1$

$D_f = [-2, -1) \cup (1, 2]$

$D_f = [-2, 2] - \{\pm 1\}$

(۱,۵)

۵

$y = \frac{x+1}{\sqrt{x+|x|}}$

$D_f = \mathbb{R}^+$ ✓

$y = \frac{1}{\sqrt{x|x|}}$

$D_f = \mathbb{R}^+$ ✓

(۲)

$y=\sqrt{2-[x]}$

$2-[x]\geq 0$

$D_f=(-\infty,2]$ ✓

$y=\frac{1}{\sqrt{2-[x]}}$

$2-[x]>0$ , $\sqrt{2-[x]}\neq 0$

$D_f=(-\infty,2)$ ✓

(۴)

۶

$y=\frac{1}{x[x]}$

$D_f=\mathbb{R}-[0,1)$ ✓

$y=\frac{1}{\sqrt{-x[x]}}$

$D_f=\emptyset$ ✓

(۳)

!Check!

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الف) $[x-\frac{1}{4}]+[x+\frac{2}{4}]\geq 0$

$[x+\frac{2}{4}]-1+[x+\frac{2}{4}]\geq 0$

$2[x+\frac{2}{4}]\geq 1$

$[x+\frac{2}{4}]\geq \frac{1}{2}$

$x+\frac{2}{4}\geq 1$

$x\geq \frac{1}{4}$

$D_f=[\frac{1}{4},\infty)$ ✓

ب)

$D_f=\{x=k+\frac{1}{4}\mid k\in\mathbb{Z}\}$ ✓

!Check!

(۲)

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$y=\frac{1}{2\sin^2 x-1\neq 0}$

$2\sin^2 x-1>0$

$2\sin^2 x>1$

$\sin^2 x>\frac{1}{2}$

$\sin x>\frac{\sqrt{2}}{2}$

$\sin x<-\frac{\sqrt{2}}{2}$

$\sin x\neq\pm\frac{\sqrt{2}}{2}$

$D_f=(k\pi+\frac{\pi}{4},k\pi+\frac{3\pi}{4})$

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

$y=\frac{\cot x+1}{\tan x+1}$ $\tan x\neq -1$ $\tan x\neq 0$ $\cot x\neq 0$

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

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

(۵)

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$y=\sqrt{2\sin x-1}$

$2\sin x-1\geq 0$

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

$D_f=[2k\pi+\frac{\pi}{6},2k\pi+\frac{5\pi}{6}]$ ✓

$y=\sqrt{1-2\cos x}$

$1-2\cos x\geq 0$

$2\cos x\leq 1$

$\cos x\leq\frac{1}{2}$ ✓

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

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

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