پایه آمالی

تکلیف شماره ۴ — به نام خدا — دهم C دختران

(۱

$y=\sqrt{4-\sqrt{2-x}} \rightarrow 2-x \geq 0 \quad 2 \geq x \quad D_y=[-14,2]$

$4-\sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16 \rightarrow x \geq -14$

$y=\sqrt{3-\sqrt{x-2}} \rightarrow x-2 \geq 0 \rightarrow \boxed{x \geq 2}, \quad 3-\sqrt{x-2} \geq 0$

$3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2$

$\boxed{11 \geq x}$

$D_y=[2,11]$

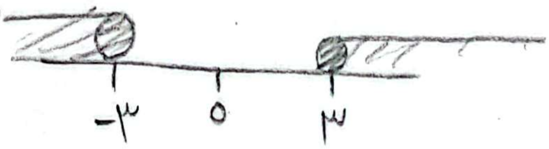
(۲

$y=\sqrt{4-2x^2} \rightarrow 4-2x^2 \geq 0 \rightarrow 4 \geq 2x^2 \rightarrow 2 \geq x^2 \xrightarrow{\sqrt{\ }}$

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

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

$x \geq 3 \cup x \leq -3$



(۳

$y=\sqrt[3]{\dfrac{|x|+1}{|x|-3}} \rightarrow |x|-3 \neq 0 \rightarrow x \neq -3,3$

$D_f=R-\{-3,3\}$

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

$\sqrt{x}+1 \rightarrow \boxed{x \geq 0}$

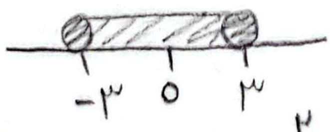
$\sqrt{x}-3 \rightarrow \sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \quad \boxed{x \neq 9}$

$D_f=[0,+\infty)-\{9\}$

(۴

$y=\dfrac{\sqrt{3-|x|}}{|x|+2} \rightarrow 3-|x| \geq 0 \quad 3 \geq |x| \rightarrow -3 \leq x \leq 3$

$|x|+2$ صفر نمی‌شه



$y=\dfrac{\sqrt{4-x^2}}{|x|-1} \quad 4-x^2 \geq 0 \rightarrow 4 \geq x^2 \quad 2 \geq x \geq -2$

$|x|-1 \rightarrow |x|-1 \neq 0 \rightarrow |x| \neq 1 \quad x \neq 1,-1 \quad [-2,2]-\{1,-1\}$

(۵

$y=\dfrac{x+1}{\sqrt{x+|x|}} \to x+|x|>0$ $\begin{matrix} + & \checkmark \\ - & \times \\ 0 & \times \end{matrix}$ $D_f=(0,+\infty)\to R^+$

$y=\dfrac{1}{\sqrt{x|x|}} \to x|x|>0$ $\begin{matrix} + & \checkmark \\ - & \times \\ 0 & \times \end{matrix}$ $D_f=R^+$

(۶

$y=\sqrt{۲-[x]} \to ۲-[x]\geq 0 \to [x]\leq ۲$

$x<۳ \to (-\infty,۳)$

$y=\dfrac{1}{\sqrt{۲-[x]}} \to ۲-[x]>0$

$۲>[x]$

$x<۲ \to (-\infty,۲)$

(۷

$y=\dfrac{1}{x[x]} \to x\geq 1,\ x\leq -1$

$\frac{1}{۲}$ 0

$x\neq 0$

$[x]\neq 0$

$(-\infty,-1]\cup[1,+\infty)$

$y=\dfrac{1}{\sqrt{-x[x]}}$ $-x[x]>0$ $\begin{matrix} + & \times \\ - & \times \\ 0 & \times \end{matrix} \to D_f=\varnothing$

(۸

$y=\sqrt{[x-\frac{1}{۳}]+[x+\frac{۲}{۳}]} \Rightarrow [x-\frac{1}{۳}]+[x+\frac{۲}{۳}]\geq 0$

$[x+\frac{۲}{۳}-1]+[x+\frac{۲}{۳}]\geq 0$ $[x+\frac{۲}{۳}]\geq \frac{1}{۲}$

$x+\frac{۲}{۳}\geq 1 \to \boxed{x\geq \frac{1}{۳}}$

$y=\sqrt{[x-\frac{1}{۳}]+[-x+\frac{1}{۳}]} \Rightarrow \underbrace{[x-\frac{1}{۳}]}_{a}+[-\underbrace{(x-\frac{1}{۳})}_{a}]\geq 0$

$[a]+[-a]=0 \to a\in Z$ باشد

$[a]+[-a]=-1$ $a\in Z$ نباشد

$D_f=\{x \mid x=y+\frac{1}{۲},\ y\in Z\}$

(۹

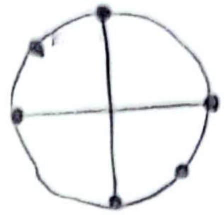
$y=\frac{1}{۲\sin^{۲}x-1} \Rightarrow ۲\sin^{۲}x-1\neq 0$

$۲\sin^{۲}x\neq 1 \longrightarrow \sin^{۲}x\neq\frac{1}{۲}$

$D_f=\mathbb{R}$ $\qquad \sin x\neq\pm\sqrt{\frac{1}{۲}}$

$y=\frac{\cot x+1}{\tan x+1}$ → $\cot \neq$ تعریف نشده → $k\pi$

→ $\tan x+1\neq 0 \quad \tan x\neq -1$



$x=k\pi-\frac{\pi}{۴},\ k\pi+\frac{\pi}{۲}$

$D_f=\mathbb{R}-\{k\pi-\frac{\pi}{۴},\ k\pi+\frac{\pi}{۲},\ k\pi\}$

(۱۰

$y=\sqrt{۲\sin x-1} \longrightarrow ۲\sin x\geqslant 1 \quad \sin x\geqslant\frac{1}{۲}$

$D_f=(۲k\pi,\ k\pi)$

$y=\sqrt{1-۲\cos x} \rightarrow 1-۲\cos x\geqslant 0 \quad 1\geqslant ۲\cos x \quad \cos x\leqslant\frac{1}{۲}$

$D_f=\mathbb{R}-\{۲k\pi\pm\frac{\pi}{۴},\ ۲k\pi\pm\frac{\pi}{۶},\ ۲k\pi\}$