نام و نام خانوادگی ......علی صفری...... پاسخنامه تشریحی تکلیف شماره ۲...... کلاس ...یازدهم تجربی A

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$$2x^2-4x+y^2+6y+k=0 \longrightarrow 2(x^2-2x)+(y+3)^2-9+k=0$$

$$\longrightarrow 2\left((x-1)^2-1\right)+(y+3)^2-9+k=0 \longrightarrow 2(x-1)^2-2+(y+3)^2-9+k=0$$

$$\longrightarrow \underbrace{2(x-1)^2}_{\geq 0}+\underbrace{(y+3)^2}_{\geq 0}+(k-11)=0 \longrightarrow k-11\leq 0 \longrightarrow k\leq 11$$

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$$f_{(x)}=\begin{cases} x^2+4x & x\geq a \\ 2x+a+2 & x\leq a \end{cases} \longrightarrow a^2+4a=3a+2 \longrightarrow a^2+a-2=0$$

$$\xrightarrow{a+b+c=0} \begin{cases} a=1 \ \checkmark \\ a=-2 \ \times \ a>0 \end{cases}$$

$$\longrightarrow f_{(x)}=\begin{cases} x^2+4x & x\geq 1 \\ 2x+3 & x\leq 1 \end{cases} \longrightarrow f_{(1)}=5$$

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$$f_{(x)}=\begin{cases} 2x^2-b & ;\ |x+1|\geq 2 \\ a+2x & ;\ -3\leq x\leq -1 \end{cases} \longrightarrow x+1\geq 2 \quad x+1\leq -2 \longrightarrow x\geq 1 \quad x\leq -3$$

$$\xrightarrow{x=-3} 2x^2-b=a+2x \longrightarrow 18-b=a-6 \longrightarrow \boxed{a+b=24}$$

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$$y=\sqrt{6x-a}+\sqrt{b-3x} \longrightarrow D_f=\{2\} \longrightarrow y=\sqrt{12-a}+\sqrt{b-6}$$

$$\longrightarrow b\geq 6$$

$$\longrightarrow a\leq 12$$

اگر a کوچکتر از ۱۲ یا b بزرگتر از ۶ باشد به غیر از ۲ اعداد دیگری در دامنه وجود دارند

$$\longrightarrow b=6 \quad a=12 \longrightarrow \frac{b}{a}=\frac{1}{2}$$

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الف) $y=\sqrt{\dfrac{x+1}{|x-3|}}+\sqrt{\dfrac{6-x}{x^2+2x+4}} \longrightarrow \dfrac{x+1}{|x-3|}\geq 0$

| $-1$ | | $3^{*}$ | |
|---|---|---|---|
| $-$ | $0$ $+$ | $\nexists$ | $+$ |

$$\longrightarrow D_f=[-1,6]-\{3\}$$

$\Delta<0$ بدون ریشه $\quad \dfrac{6-x}{x^2+2x+4}\geq 0$

| $6$ | |
|---|---|
| $+$ | $0$ $-$ |

ب) $y=\sqrt{[x]-4}+\sqrt{2-[x]} \longrightarrow \begin{cases} [x]-4\geq 0 \to [x]\geq 4 \longrightarrow x\geq 4 \\ 2-[x]\geq 0 \to 2\geq [x] \longrightarrow x<3 \end{cases} D_f=\varnothing$

الف) $y=\sqrt{\dfrac{x^2-x-6}{x^4-13x^2+36}} \longrightarrow \dfrac{x^2-x-6}{x^4-13x^2+36}\geq 0$ ; $x^2-x-6 \to 3,-2$ ; $x^4-13x^2+36 \to \pm 3, \pm 2$

| $-3$ | $-2$ | $2$ | $3$ |
|---|---|---|---|
| $+$ | $-$ | $-$ | $-$ $+$ $+$ |

$\longrightarrow D_f=(-\infty,-3)\cup(2,+\infty)-\{3\}$ 6

ب) $y=\sqrt{\dfrac{x^3-2x^2-5x+6}{x^3+2x^2-5x-6}} \longrightarrow \dfrac{(x-1)(x+2)(x-3)}{(x+1)(x-2)(x+3)}\geq 0$

| $-3$ | $-2$ | $-1$ | $1$ | $2$ | $3$ |
|---|---|---|---|---|---|
| $+$ $-$ | $+$ | $-$ | $+$ | $-$ | $+$ |

$\longrightarrow D_f=(-\infty,-3)\cup[-2,-1)\cup[1,2)\cup[3,+\infty)$

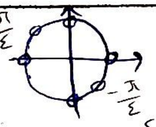
الف) $y=\sqrt{[-x]-2} \longrightarrow [-x]-2\geq 0 \to [-x]\geq 2 \quad -x\geq 2 \to x\leq -2$

$D_f=(-\infty,-2]$

ب) $y=\dfrac{5x^2+6}{[x]^2-2[x]-3} \longrightarrow [x]^2-2[x]-3\neq 0 \longrightarrow \begin{cases}[x]\neq 3 \to x\notin[3,4)\\ [x]\neq -1 \to x\notin[-1,0)\end{cases}$ 7

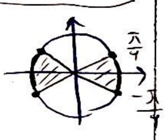
$D_f=\mathbb{R}-[3,4)-[-1,0)$

الف) $y=\dfrac{\cot x+1}{\tan x+1} \longrightarrow \begin{cases}\sin x\neq 0 \to x\neq\{k\pi\}\\ \cos x\neq 0 \to x\neq\{k\pi+\frac{\pi}{2}\}\\ \tan x+1\neq 0 \longrightarrow \tan x\neq -1 \longrightarrow x\neq\{k\pi-\frac{\pi}{4}\}\end{cases}$




$D_f=\mathbb{R}-\{k\pi, k\pi+\frac{\pi}{2}, k\pi-\frac{\pi}{4}\}$ یا $D_f=\mathbb{R}-\{\frac{k\pi}{2}, k\pi-\frac{\pi}{4}\}$ 8

ب) $y=\sqrt{1-4\sin^2x} \longrightarrow 1-4\sin^2x\geq 0 \to 4\sin^2x\leq 1 \to \sin^2x\leq\frac{1}{4}$




$\longrightarrow -\frac{1}{2}\leq\sin x\leq\frac{1}{2} \longrightarrow D_f=[k\pi-\frac{\pi}{6}, k\pi+\frac{\pi}{6}]$

الف) $y=\sqrt{1-\log_{\frac{1}{2}}^{x-1}} \longrightarrow \begin{cases}x-1>0 \to x>1\\ 1-\log_{\frac{1}{2}}^{x-1}\geq 0 \longrightarrow \log_{\frac{1}{2}}^{x-1}\leq 1 \longrightarrow x-1\geq\frac{1}{2} \to x\geq\frac{3}{2}\end{cases} \longrightarrow D_f=[\frac{3}{2},+\infty)$ 9

ب) $y=\dfrac{\sqrt{x^2-x}}{1-\log_4^{x^2-3x}} \longrightarrow \begin{cases}x^2-x\geq 0 & \begin{array}{cc}0 & 1\\ + \; - & +\end{array}\\ x^2-3x>0 & \begin{array}{cc}0 & 3\\ + \; - & +\end{array}\\ \log_4^{x^2-3x}\neq 1 \longrightarrow x^2-3x\neq 4 \to x^2-3x-4\neq 0 \to \begin{cases}x\neq 4\\ x\neq -1\end{cases}\end{cases}$

$-1 \quad 0 \quad 1 \quad 3 \quad 4 \longrightarrow D_f=(-\infty,-1)\cup(-1,0)\cup(3,4)\cup(4,+\infty)$

الف) $y=\sqrt{2^{4x-x^2}-8} \longrightarrow 2^{-x^2+4x}\geq 8 \longrightarrow -x^2+4x\geq 3 \to x^2-4x+3\leq 0$

| $1$ | $3$ |
|---|---|
| $+$ $-$ | $+$ |

$\longrightarrow D_f=[1,3]$ 10

ب) $y=\left(\dfrac{3x+5}{2x+4}\right)! \longrightarrow \dfrac{3x+5}{2x+4}\in W \longrightarrow x\in\dfrac{-(4w-5)}{2w-3} \longrightarrow D_f=\left\{x \,\middle|\, x=\dfrac{-4k+5}{2k-3}, k\in W\right\}$

$2wx+4w=3x+5 \to 2wx-3x=5-4w$

$\to x(2w-3)=5-4w \to x=\dfrac{5-4w}{2w-3}$