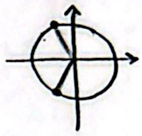
نام و نام خانوادگی: رها موسوی — پاسخنامه تشریحی تکلیف شماره ۵ — کلاس دهم دختر A

۱

الف) $y=\frac{\sin x-2}{2\cos x+1} \rightarrow 2\cos x+1\neq 0 \rightarrow \cos x\neq -\frac{1}{2} \rightarrow D_f=\mathbb{R}-\{2k\pi\pm\frac{2\pi}{3}\}$

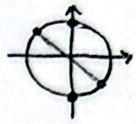


ب) $y=\frac{\sin x+3}{\cos x-1} \rightarrow \cos x-1\neq 0 \rightarrow \cos x\neq 1 \rightarrow D_f=\mathbb{R}-\{2k\pi\}$

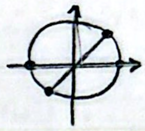
۲

الف) $y=\frac{3\sin x+1}{\tan x+1} \rightarrow \cos x\neq 0\,,\ \tan x\neq -1 \rightarrow D_f=\mathbb{R}-\{k\pi-\frac{\pi}{4}\,,k\pi+\frac{\pi}{2}\}$

یا $D_f=\mathbb{R}-\{k\pi+\frac{3\pi}{4}\,,k\pi+\frac{\pi}{2}\}$



ب) $y=\frac{\cos x+1}{\cot x-1} \rightarrow \sin x\neq 0\,,\ \cot x\neq 1 \rightarrow D_f=\mathbb{R}-\{k\pi\,,k\pi+\frac{\pi}{4}\}$



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الف) $\sin y=x^2-2 \rightarrow -1\leq x^2-2\leq 1 \rightarrow 1\leq x^2\leq 3$

$1\leq x^2 \rightarrow x\geq 1\,,\ x\leq -1$

$x^2\leq 3 \rightarrow -\sqrt{3}\leq x\leq\sqrt{3}$

$\cap \rightarrow 1\leq x\leq\sqrt{3}\ \cup\ -\sqrt{3}\leq x\leq -1$

$D_f=[-\sqrt{3},-1]\cup[1,\sqrt{3}]$

ب) $y=\arccos(\sqrt{x}-3) \rightarrow -1\leq\sqrt{x}-3\leq 1 \rightarrow 2\leq\sqrt{x}\leq 4 \rightarrow 4\leq x\leq 16 \rightarrow D_f=[4,16]$

۴

الف) $\cos y=|x|-3 \rightarrow -1\leq |x|-3\leq 1 \rightarrow 2\leq |x|\leq 4 \rightarrow 2\leq x\leq 4\,,\ -4\leq x\leq -2$

$\rightarrow D_f=[2,4]\cup[-4,-2]$

$-3 \quad 0$: $+\ -\ +$ $\qquad$ $-2 \quad -1$: $+\ -\ +$

ب) $y=\arcsin(x^2+3x+1) \rightarrow -1\leq x^2+3x+1\leq 1$

$x^2+3x\leq 0 \rightarrow x(x+3)\leq 0$

$x^2+3x+2\geq 0 \rightarrow (x+1)(x+2)\geq 0$

$\Rightarrow D_f=[-3,-2]\cup[-1,0]$

$[-3,-2]\cup[-1,0]$

۵

الف) $y=\log_3^{x^2-4} \rightarrow x^2-4>0 \rightarrow x^2>4 \rightarrow x>2\,,\ x<-2 \rightarrow D_f=(-\infty,-2)\cup(2,+\infty)$

ب) $y=\log_2^{2-|x|} \rightarrow 2-|x|>0 \rightarrow |x|<2 \rightarrow -2<x<2 \rightarrow D_f=(-2,2)$

الف) $y=\log_{x-3}^{5-x} \longrightarrow \left.\begin{matrix} 5-x>0 \\ x-3>0 \\ x-3\neq 0 \end{matrix}\right\} \begin{matrix} x<5 \\ x>3 \\ x\neq 4 \end{matrix} \Longrightarrow 3<x<5 , x\neq 4 \Longrightarrow D_f=(3,5)-\{4\}$

$\hookrightarrow (3,4)\cup(4,5)$ 6

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

ب) $y=\log_{x+3}^{x^2-1} \longrightarrow \left.\begin{matrix} x^2-1>0 \\ x+3>0 \\ x+3\neq 1 \end{matrix}\right\} \begin{matrix} x>1 , x<-1 \\ x>-3 \\ x\neq -2 \end{matrix} \Longrightarrow D_f=(-3,-1)\cup(1,+\infty)-\{-2\}$

الف) $y=\log\dfrac{x^2-4x+3}{x-3} \rightsquigarrow \dfrac{x^2-4x+3}{x-3}>0 \longrightarrow \dfrac{(x-1)(x-3)}{x-3}>0 \longrightarrow D_f=(1,3)\cup(3,+\infty)\longrightarrow(1,+\infty)-\{3\}$

$\begin{array}{c|c|c} & 1 & 3^{*} \\ - & + & + \end{array}$ 7

$\begin{array}{c|c|c} & -3 & 2 \\ + & - & + \end{array}$

ب) $y=\log_{x+5}^{\frac{x+3}{x-2}} \longrightarrow \left.\begin{matrix} \frac{x+3}{x-2}>0 \\ x+5>0 \\ x+5\neq 1 \end{matrix}\right\} \begin{matrix} \longrightarrow(-\infty,-3)\cup(2,+\infty) \\ x>-5 \\ x\neq -4 \end{matrix} \Longrightarrow D_f=(-5,-4)\cup(-4,-3)\cup(2,+\infty)=(-5,-3)\cup(2,+\infty)-\{-4\}$

الف) $y=\sqrt{3-\log_2^{(x-2)}} \longrightarrow 3-\log_2^{(x-2)}\geq 0 \longrightarrow \log_2^{(x-2)}\leq 3 \longrightarrow x-2\leq 8 \longrightarrow x\leq 10$

$\longrightarrow x-2>0 \longrightarrow x>2$

$\cap \Longrightarrow D_f=(2,10]$

$\hookrightarrow 2<x\leq 10 \longrightarrow (2,10]$ 8

ب) $y=\log(2\log_3^x-1) \longrightarrow x>0$

$\longrightarrow 2\log_3^x-1>0 \longrightarrow \log_3^x>\frac{1}{2} \longrightarrow x>3^{\frac{1}{2}} \longrightarrow x>\sqrt{3} \Longrightarrow D_f=(\sqrt{3},+\infty)$

الف) $y=\dfrac{3}{4^x+1} \longrightarrow 4^x+1\neq 0 \longrightarrow 4^x\neq -1 \rightsquigarrow D_f=\mathbb{R}$

ب) $y=\dfrac{3}{4^x-1} \longrightarrow 4^x-1\neq 0 \longrightarrow 4^x\neq 1 \rightsquigarrow x\neq 0$

$D_f=\mathbb{R}-\{0\} \quad , \quad D_f=\mathbb{R}-\{\log_4^1\}$ 9

ج) $y=\dfrac{3}{4^x-2} \longrightarrow 4^x-2\neq 0 \longrightarrow 4^x\neq 2$

$D_f=\mathbb{R}-\{\frac{1}{2}\} \quad , \quad D_f=\mathbb{R}-\{\log_4^2\}$

د) $y=\dfrac{3}{4^x-3} \longrightarrow 4^x-3\neq 0 \longrightarrow 4^x\neq 3$

$\hookrightarrow \log_4^3\neq 0 \rightsquigarrow \mathbb{R}$

$\hookrightarrow D_f=\mathbb{R}-\{\log_4^3\}$

الف) $y=(4x+1)! \longrightarrow 4x+1\in\mathbb{W} \longrightarrow x\in\dfrac{\mathbb{W}-1}{4} \longrightarrow D_f=\{x \mid x=\dfrac{K-1}{4} , K\in\mathbb{W}\}$ 10

ب) $y=\left(\dfrac{3x-2}{2x-5}\right)! \longrightarrow \dfrac{3x-2}{2x-5}\in\mathbb{W} \rightarrow 3x-2\in 2x\mathbb{W}-5\mathbb{W} \rightarrow x\in\dfrac{5\mathbb{W}-2}{2\mathbb{W}-3} \rightarrow D_f=\{x \mid x=\dfrac{5K-2}{2K-3} , K\in\mathbb{W}\}$

$\dfrac{-5\mathbb{W}+2}{3-2\mathbb{W}}$