Subject: سارا عزیزی　　تکلیف شماره ۵　　کلاس دهم　　Year:　　Month:　　Day :

۱

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

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

۲

الف) $y = \dfrac{2\sin x + 1}{\tan x + 1}$
- $\rightarrow \tan x \neq \nexists \rightarrow \mathbb{R} - \{2k\pi \pm \frac{\pi}{2}\}$
- $\tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow \mathbb{R} - \{k\pi - \frac{\pi}{4}\}$

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

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

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

۳

الف) $\sin y = x^2 - 2 \rightarrow -1 \overset{+2}{\leq} x^2 - 2 \overset{+2}{\leq} 1 \rightarrow 1 \leq x^2 \leq 3 \rightarrow 1 \leq x \leq \sqrt{3}$ یا $-1 \geq x \geq -\sqrt{3}$

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

ب) $y = \arccos(\sqrt{x} - 3) \rightarrow -1 \overset{+3}{\leq} \sqrt{x} - 3 \overset{+3}{\leq} 1 \rightarrow 2 \leq \sqrt{x} \leq 4 \rightarrow 4 \leq x \leq 16$

$\rightarrow D_f = [4, 16]$

۴

الف) $\cos y = |x| - 3 \rightarrow -1 \overset{+3}{\leq} |x| - 3 \overset{+3}{\leq} 1 \rightarrow 2 \leq |x| \leq 4 \rightarrow 2 \leq x \leq 4$ یا $-2 \geq x \geq -4$

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

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

$\rightarrow -1 \leq x^2 + 3x + 1$

$0 \leq x^2 + 3x + 2$

$0 \leq (x+2)(x+1)$

x		-2		-1	
	$+$	0	$-$	0	$+$

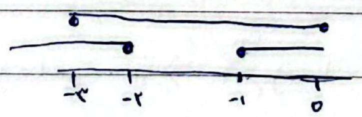
$\rightarrow x^2 + 3x + 1 \leq 1$

$x^2 + 3x \leq 0$

$x(x+3) \leq 0$

x		-3		0	
	$+$	0	$-$	0	$+$

$\cap$



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

Subject: Year: Month: Day :

۵)

الف) $y = \log_2^{x^2-4} \to x^2-4>0 \to (x+2)(x-2)>0 \to$ $\begin{array}{ccccc} & -2 & & 2 & \\ + & 0 & - & 0 & + \end{array}$

$\to D_f = (-\infty,-2)\cup(2,+\infty)$

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

۶)

الف) $y = \log_{x-3}^{5-x}$ $\to$

$\left.\begin{array}{l} 5-x>0 \to x<5 \\ x-3>0 \to x>3 \\ x-3\neq 1 \to x\neq 4 \end{array}\right\} D_f = (3,5)-\{4\}$

ب) $y = \log_{x+3}^{x^2-1}$ $\to$

$\left.\begin{array}{l} x^2-1>0 \to (x+1)(x-1)>0 \quad \begin{array}{ccccc} & -1 & & 1 & \\ + & 0 & - & 0 & + \end{array} \\ x+3>0 \to x>-3 \\ x+3\neq 1 \to x\neq -2 \end{array}\right\} D_f = (-3,-1)\cup(1,+\infty)-\{-2\}$

۷)

الف) $y = \log \dfrac{x^2-4x+3}{x-3} \to \dfrac{x^2-4x+3}{x-3}>0 \to \dfrac{(x-3)(x-1)}{x-3}>0$ $\begin{array}{ccccc} & 1 & & 3 & \\ + & 0 & - & \emptyset & + \end{array}$ $\to D_f = (1,3)\cup(3,+\infty)$

ب) $y = \log_{x+5}^{\frac{x+3}{x-2}}$ $\to$

$\left.\begin{array}{l} \dfrac{x+3}{x-2}>0 \to \begin{array}{ccccc} & -3 & & 2 & \\ + & 0 & - & \emptyset & + \end{array} \\ x+5>0 \to x>-5 \\ x+5\neq 1 \to x\neq -4 \end{array}\right\}$ $\begin{array}{ccc} -5 & -3 & 2 \end{array}$ $\to D_f = (-5,-3)\cup(2,+\infty)-\{-4\}$

۸)

الف) $y = \sqrt{3-\log_2^{(x-2)}} \to x-2>0 \to x>2$

$3-\log_2^{(x-2)} \geq 0 \to \log_2^{(x-2)} \leq 3 \to x-2\leq 8 \to x\leq 10$

$\to D_f = (2,10]$

ب) $y = \log(2\log_3^x - 1) \to x>0$

$2\log_3^x - 1>0 \to \log_3^x > \frac{1}{2} \to x>3^{\frac{1}{2}} \to x>\sqrt{3}$

$D_f = (\sqrt{3},+\infty)$

۹)

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

Subject: Year: Month: Day :

ت) $y=\dfrac{۳}{۴^{x}-۱} \rightarrow ۴^{x}-۱ \neq ۰ \rightarrow ۴^{x} \neq ۱ \rightarrow x \neq ۰ \quad D_f = \mathbb{R}-\{۰\}$

ج) $y=\dfrac{۳}{۴^{x}-۲} \rightarrow ۴^{x}-۲ \neq ۰ \rightarrow ۴^{x} \neq ۲ \rightarrow x \neq \dfrac{۱}{۲} \rightarrow D_f = \mathbb{R}-\left\{\dfrac{۱}{۲}\right\}$

د) $y=\dfrac{۳}{۴^{x}-۳} \rightarrow ۴^{x}-۳ \neq ۰ \rightarrow ۴^{x} \neq ۳ \rightarrow \log_{۴}^{۳} \neq x \rightarrow D_f = \mathbb{R}-\left\{\log_{۴}^{۳}\right\}$

الف) $y=(۴x+۱)! \rightarrow ۴x+۱ \in W \rightarrow ۴x \in W-۱ \rightarrow x \in \dfrac{W-۱}{۴}$ ۲۰

$D_f = \left\{x \mid x \in \dfrac{k-۱}{۴},\ k \in W\right\}$

ب) $y=\left(\dfrac{۳x-۲}{۲x-۵}\right)! \rightarrow \dfrac{۳x-۲}{۲x-۵} \in W \rightarrow ۳x-۲ \in ۲Wx-۵W \rightarrow ۳x-۲Wx \in ۲-۵W$

$x(۳-۲W) \in ۲-۵W$

$D_f = \left\{x \mid x = \dfrac{۲-۵k}{۳-۲k},\ k \in W\right\} \leftarrow x \in \dfrac{۲-۵W}{۳-۲W}$