نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

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

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

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الف) $y=\frac{2\sin x+1}{\tan x+1} \Rightarrow$ $\tan x \neq -1 \Rightarrow x \neq k\pi - \frac{\pi}{4}, k\pi + \frac{3\pi}{4}$ ، $\tan x \in \mathbb{R} \Rightarrow x \neq k\pi \pm \frac{\pi}{2}$ $\Rightarrow D_f = \mathbb{R} - \{k\pi - \frac{\pi}{4}, k\pi + \frac{3\pi}{4}, k\pi \pm \frac{\pi}{2}\}$

ب) $y=\frac{\cos x+1}{\cot x-1} \Rightarrow$ $\cot x \neq 1 \Rightarrow x \neq k\pi + \frac{\pi}{4}, k\pi - \frac{3\pi}{4}$ ، $\cot x \in \mathbb{R} \Rightarrow x \neq k\pi$ $\Rightarrow D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{2}, k\pi - \frac{3\pi}{4}\}$

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الف) $\sin y = x^2 - 2 \Rightarrow -1 \leq x^2 - 2 \leq 1 \Rightarrow 1 \leq x^2 \leq 3 \Rightarrow D_f = [1, \sqrt{3}]$

ب) $y = \arccos(\sqrt{x} - 2) \Rightarrow -1 \leq \sqrt{x} - 2 \leq 1 \Rightarrow 1 \leq \sqrt{x} \leq 3 \Rightarrow 1 \leq x \leq 9 \Rightarrow D_f = [1, 9]$

$\Rightarrow x \geq 0$ (شرط ریشه زوج)

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الف) $\cos y = |x| - 3 \Rightarrow 2 \leq |x| \leq 4 \Rightarrow -4 \leq x \leq -2 \text{ ، } 2 \leq x \leq 4 \Rightarrow D_f = [-4, -2] \cup [2, 4]$

ب) $y = \arcsin(x^2 + 3x + 1) \Rightarrow -2 \leq x^2 + 3x \leq 0 \Rightarrow -3 \leq x \leq 0$

$x^2 + 3x = 0 \Rightarrow x = -3, 0$

$x^2 + 3x = -2 \Rightarrow x = -1, -2$ (قبول)

$\Rightarrow D_f = [-3, 0]$

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الف) $y = \log_3^{x^2-4} \Rightarrow x^2 - 4 > 0 \Rightarrow x^2 > 4 \Rightarrow x > \sqrt{4} \Rightarrow D_f = (2, \infty)$

ب) $y = \log_2^{4-|x|} \Rightarrow 4 - |x| > 0$

$4 - x > 0 \Rightarrow x < 4$

$4 + x > 0 \Rightarrow x > -4$

$\Rightarrow D_f = (-4, 4)$

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الف) $y=\log_{x-2}^{5-x}$ $\Rightarrow 5-x>0 \Rightarrow x<5$

$x-2>0 \Rightarrow x>2$, $x-2\neq 1 \Rightarrow x\neq 3$ $\Big\} D_f=(2,5)-\{3\}$

ب) $\log_{x+2}^{x^2-1}$

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

$x+2>0 \Rightarrow x>-2$

$x+2\neq 1 \Rightarrow x\neq -1$ $\Big\} \Rightarrow D_f=(-2,-1)\cup(-1,\infty)$

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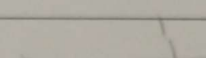
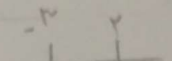
الف) $y=\log\frac{x^2-4x+3}{x-2}$ $\Rightarrow \frac{(x-1)(x-3)}{x-2}>0$



$\Rightarrow D_f=(1,2)\cup(3,\infty)$

ب) $y=\log\frac{x^2}{x-1}$

$\frac{x+2}{x-2}>0 \Rightarrow$



$x+5>0 \Rightarrow x>-5$

$x+5\neq 1 \Rightarrow x\neq -4$ $\Big\} D_f=(-5,-4)\cup(-4,-2)\cup(2,\infty)$

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

$2-\log_2^{x-2}>0 \Rightarrow 2\geq \log_2^{x-2} \Rightarrow x\leq 10 \Rightarrow D_f=(2,10]$

ب) $y=\log(2\log_2^x-1)$ $\Rightarrow$ $x>0$

$2\log_2^x-1>0 \Rightarrow \log_2^x>\frac{1}{2} \Rightarrow x>2^{\frac{1}{2}} \Rightarrow D_f=(\sqrt{2},\infty)$

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الف) $y=\frac{2}{2^x+1} \Rightarrow 2^x+1\neq 0 \Rightarrow 2^x\neq -1 \Rightarrow D_f=\mathbb{R}$

ب) $y=\frac{2}{2^x-1} \Rightarrow 2^x-1\neq 0 \Rightarrow 2^x\neq 1 \Rightarrow D_f=\mathbb{R}-\{0\}$

ج) $y=\frac{2}{2^{2x}-2^x} \Rightarrow 2^{2x}-2^x\neq 0 \Rightarrow 2^x\neq 2 \Rightarrow D_f=\mathbb{R}-\{\log_2^2\}$ $\log_2^2=1$

د) $y=\frac{2}{2^{2x}-2^2} \Rightarrow 2^{2x}-2^2\neq 0 \Rightarrow 2^x\neq 2 \Rightarrow D_f=\mathbb{R}-\{\log_2^2\}$

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الف) $y=(2x+1)! \Rightarrow 2x+1\in W \Rightarrow x\in \frac{W-1}{2} \Rightarrow D_f=\{x \mid x=\frac{k-1}{2}, k\in W\}$

ب) $y=(\frac{3x-2}{2x-5})! \Rightarrow \frac{3x-2}{2x-5}\in W \Rightarrow 3x-2=2wx-5w \Rightarrow 3x-2wx=2-5w \Rightarrow x=\frac{2-5w}{3-2w}$

$\Rightarrow D_f=\{x \mid x=\frac{5k-2}{2k-3}, k\in W\}$