

نام و نام خانوادگی: ...، پانصد و شصت و هفتم، کلاس دهم، پایه هفتم، شماره ...، تکلیف شماره ...، کلاس دهم، پایه هفتم، شماره ...، تکلیف شماره ...

الف) $y = \frac{\sin x - 2}{\cos x + 1} \Rightarrow \cos x + 1 \neq 0 \Rightarrow \cos x \neq -1 \Rightarrow \cos x \neq -\frac{1}{1}$

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

ب) $y = \frac{\sin x + 2}{\cos x - 1} \Rightarrow \cos x - 1 \neq 0 \Rightarrow \cos x \neq 1$

$D_f = \mathbb{R} - \{2k\pi\}$

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الف) $y = \frac{2 \sin x + 1}{\tan x + 1} \Rightarrow \tan x + 1 \neq 0 \Rightarrow \tan x \neq -1 \Rightarrow x \neq k\pi - \frac{\pi}{4}$

$\Rightarrow \cos x \neq 0 \Rightarrow x \neq k\pi + \frac{\pi}{2}$

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



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ب) $y = \frac{\cos x + 1}{\cot x - 1} \Rightarrow \cot x - 1 \neq 0 \Rightarrow \cot x \neq 1 \Rightarrow x \neq k\pi + \frac{\pi}{4}$

$\Rightarrow \sin x \neq 0 \Rightarrow x \neq k\pi$

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



الف) $\sin y = x^2 - 2 \Rightarrow -1 \leq x^2 - 2 \leq 1 \Rightarrow \begin{cases} -1 \leq x^2 - 2 \Rightarrow 1 \leq x^2 \Rightarrow x \geq 1 \vee x \leq -1 \\ x^2 - 2 \leq 1 \Rightarrow x^2 \leq 3 \Rightarrow -\sqrt{3} \leq x \leq \sqrt{3} \end{cases}$

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

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ب) $y = \arccos(\sqrt{x} - 3) \Rightarrow -1 \leq \sqrt{x} - 3 \leq 1 \Rightarrow \begin{cases} -1 \leq \sqrt{x} - 3 \Rightarrow 2 \leq \sqrt{x} \Rightarrow 4 \leq x \\ \sqrt{x} - 3 \leq 1 \Rightarrow \sqrt{x} \leq 4 \Rightarrow x \leq 16 \end{cases}$

$D_f = [4, 16]$

الف) $\cos y = |x| - 3 \Rightarrow -1 \leq |x| - 3 \leq 1 \Rightarrow \begin{cases} -1 \leq |x| - 3 \Rightarrow 2 \leq |x| \\ |x| - 3 \leq 1 \Rightarrow |x| \leq 4 \Rightarrow -4 \leq x \leq 4 \end{cases}$

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

ب) $y = \arcsin(x^2 + 3x + 1) \Rightarrow \begin{cases} x^2 + 3x + 1 \geq -1 \rightarrow x^2 + 3x + 2 \geq 0 \rightarrow (x+1)(x+2) \geq 0 \\ x^2 + 3x + 1 \leq 1 \rightarrow x^2 + 3x \leq 0 \rightarrow x(x+3) \leq 0 \end{cases}$

$\frac{-2}{+} \frac{-1}{-}$

$\frac{-3}{+} \frac{0}{-}$

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

الف) $y = \log_{x^2-4} x^2-4 \rightarrow x^2-4 > 0 \rightarrow x^2 > 4 \rightarrow |x| > 2$

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

ب) $y = \log_{x^2-4} x^2-4 \rightarrow x^2-4 > 0 \rightarrow 2 > |x| \rightarrow -2 < x < 2$

$D_f = (-2, 2)$

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الف) $y = \log_{x-3}^{5-x} \rightarrow 5-x > 0 \rightarrow 5 > x$ $x-3 \rightarrow x-3 > 0 \rightarrow x > 3$ } $D_f = (3, 5) - \{4\}$ $x-3 \neq 1 \rightarrow x \neq 4$ ب) $y = \log_{x+3}^{x^2-1} \rightarrow x^2-1 > 0 \rightarrow x^2 > 1 \rightarrow D = (-\infty, -1) \cup (1, +\infty)$ $x+3 \rightarrow x+3 > 0 \rightarrow x > -3 \rightarrow D = (-3, +\infty)$ $x+3 \neq 1 \rightarrow x \neq -2$ $D_{f(1)} = (-3, -2) \cup (-2, -1) \cup (1, +\infty)$	6
الف) $y = \log \frac{x^2-2x+3}{x-3} \rightarrow \frac{(x-1)(x-3)}{x-3} > 0 \rightarrow \frac{1}{-x+3} > 0 \rightarrow D_f = (1, 3) \cup (3, +\infty)$ ب) $y = \log \frac{x+3}{x-2} \rightarrow \frac{x+3}{x-2} > 0 \rightarrow \frac{-x-3}{x-2} > 0$ $x+3 \rightarrow x+3 > 0 \rightarrow x > -3$ $x-2 \rightarrow x-2 > 0 \rightarrow x > 2$ $x-2 \neq 1 \rightarrow x \neq 3$ $D_f = (-3, -2) \cup (-2, -1) \cup (2, +\infty)$	7
الف) $y = \sqrt{3 - \log_2(x-2)}$ $x-2 > 0 \rightarrow x > 2$ $3 - \log_2(x-2) \geq 0 \rightarrow 3 \geq \log_2(x-2) \rightarrow 1 \geq x-2 \rightarrow 3 \geq x$ $D_f = (2, 3]$ ب) $y = \log(\log_3^x - 1)$ $x > 0$ $\log_3^x - 1 > 0 \rightarrow \log_3^x > 1 \rightarrow \log_3^x > \frac{1}{1}$ $\rightarrow x > 3^{\frac{1}{1}} \rightarrow x > 3$ $D_f = (3, +\infty)$	8
الف) $y = \frac{3}{f^x+1} \rightarrow f^x+1 \neq 0 \Rightarrow f^x \neq -1 \Rightarrow D_f = \mathbb{R}$ ب) $y = \frac{3}{f^x-1} \rightarrow f^x-1 \neq 0 \Rightarrow f^x \neq 1 \Rightarrow D_f = \mathbb{R} - \{0\}$ ج) $y = \frac{3}{f^x-2} \rightarrow f^x-2 \neq 0 \Rightarrow f^x \neq 2 \Rightarrow D_f = \mathbb{R} - \{\log_f^2\}$ د) $y = \frac{3}{f^x-3} \rightarrow f^x-3 \neq 0 \Rightarrow f^x \neq 3 \Rightarrow D_f = \mathbb{R} - \{\log_f^3\}$	9
الف) $y = (fx+1)! \rightarrow fx+1 \in \mathbb{W} \rightarrow fx \in \mathbb{W}-1 \rightarrow x \in \frac{\mathbb{W}-1}{f}$ $D_f = \{x x = \frac{k-1}{f}, k \in \mathbb{W}\}$ ب) $y = \left(\frac{fx-2}{fx-5}\right)! \rightarrow \frac{fx-2}{fx-5} \in \mathbb{W} \rightarrow fx-2 = wx-5w$ $\Rightarrow fx-2 = wx-5w \Rightarrow x = \frac{f-5w}{f-w}$ $D_f = \{x x = \frac{5k-2}{f-k}, k \in \mathbb{W}\}$	10