

نام و نام خانوادگی آرشید ندان پاسخنامه تشریحی تکلیف شماره ۵ کلاس دهم نام و نام خانوادگی

۱۹۲۵ آزمون!

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

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

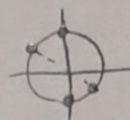
$2k\pi + \frac{\pi}{3} = \{4, 12, \dots\}$

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ب) $y = \frac{\sin x + 3}{\cos x - 1} \rightarrow \cos x - 1 \neq 0 \rightarrow \cos x \neq 1$

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

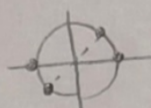
الف) $y = \frac{2\sin x + 1}{\tan x + 1} \rightarrow \begin{cases} \tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \\ \cos x \neq 0 \end{cases}$



$D_f = \mathbb{R} - \left[k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4} \right)$

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ب) $y = \frac{\cos x + 1}{\cot x - 1} \rightarrow \begin{cases} \cot x \neq 1 \\ \sin x \neq 0 \end{cases}$



$D_f = \mathbb{R} - \left[k\pi + \frac{\pi}{4}, k\pi \right)$

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الف) $\sin y = x^2 - 2 \rightarrow -1 \leq x^2 - 2 \leq 1 \xrightarrow{+2} 1 \leq x^2 \leq 3 \rightarrow 1 \leq |x| \leq \sqrt{3}$

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

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

$x \geq 0$

$D_f = [4, 16]$

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

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

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

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

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

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

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الف) $\log_3 x^{x-2} \rightarrow x^{x-2} > 0 \rightarrow x^x > 4 \rightarrow x > 2$

$x^{x-2} \rightarrow D_f = (-\infty, -2) \cup (2, +\infty)$

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

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الف) $y = \log_{x-3} \omega - x$ $\omega - x > 0 \rightarrow \omega > x$
 $x - 3 > 0 \rightarrow x > 3$
 $x - 3 \neq 1 \rightarrow x \neq 4$

$D_f = (3, 5) - \{4\}$

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ب) $y = \log_{x+3} x^2 - 1$ $x^2 - 1 > 0 \rightarrow x^2 > 1 \rightarrow |x| > 1$
 $x + 3 > 0 \rightarrow x > -3$
 $x + 3 \neq 1 \rightarrow x \neq -2$

$D_f = (-3, -1) - \{-2\} \cup (1, +\infty)$

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

$(1, 3) \cup (3, +\infty)$

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ب) $y = \log_{x+\omega} \frac{x+3}{x-2}$ $\frac{x+3}{x-2} > 0 \rightarrow x+3 > 0 \rightarrow x > -3$
 $x+\omega > 0 \rightarrow x > -\omega$
 $x+\omega \neq 1 \rightarrow x \neq 1-\omega$

$D_f = (-\omega, -2) \cup (1-\omega, +\infty) - \{1-\omega\}$

الف) $y = \sqrt{3 - \log_2(x-2)}$ $\rightarrow \begin{cases} x-2 > 0 \rightarrow x > 2 \\ 3 - \log_2(x-2) \geq 0 \rightarrow 3 \geq \log_2(x-2) \rightarrow 1 \geq x-2 \rightarrow 1 \geq x \end{cases}$

$\Rightarrow D_f = [2, 3]$

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ب) $y = \log(2 \log_3 x - 1)$ $\begin{cases} x > 0 \\ 2 \log_3 x - 1 > 0 \rightarrow 2 \log_3 x > 1 \rightarrow \log_3 x > \frac{1}{2} \rightarrow x > \sqrt{3} \end{cases}$

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

الف) $y = \frac{3}{f^x + 1}$ $\rightarrow f^x + 1 \neq 0 \rightarrow f^x \neq -1$ $D_f = \mathbb{R}$

ب) $y = \sqrt{\frac{3}{f^x - 1}}$ $\rightarrow f^x - 1 \neq 0 \rightarrow f^x \neq 1$ $D_f = \mathbb{R} - \{0\}$

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ج) $y = \sqrt{\frac{3}{f^x - 2}}$ $\rightarrow f^x - 2 \neq 0 \rightarrow f^x \neq 2 \rightarrow \log_f 2 \neq x$ $D_f = \mathbb{R} - \{\log_f 2\}$

د) $y = \sqrt{\frac{3}{f^x - 3}}$ $\rightarrow f^x - 3 \neq 0 \rightarrow f^x \neq 3 \rightarrow \log_f 3 \neq x$ $D_f = \mathbb{R} - \{\log_f 3\}$

الف) $(f^x + 1)!$ $\rightarrow f^x + 1 \in \mathbb{N} \rightarrow f^x \in \mathbb{N} - 1 \rightarrow x \in \frac{\mathbb{N} - 1}{f} \rightarrow D_f = \{x | x \in \frac{\mathbb{N} - 1}{f}, k \in \mathbb{N}\}$

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ب) $(\frac{f^x - 2}{f^x - \omega})!$ $\rightarrow \frac{f^x - 2}{f^x - \omega} \in \mathbb{N} \rightarrow f^x - 2 \in (f^x - \omega)\mathbb{N} \rightarrow f^x - 2 \in \omega\mathbb{N} + 1 \rightarrow x \in \frac{1 - \omega\mathbb{N}}{f - \omega}$

$D_f = \{x | x \in \frac{1 - \omega\mathbb{N}}{f - \omega}, k \in \mathbb{N}\}$