

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۸۷... کلاس (۱۳۹۵) ...

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

$\Rightarrow D_f = \mathbb{R} - \left\{ x \mid x = k\pi + \frac{\pi}{2} \text{ و } x = k\pi + \frac{3\pi}{2} \right\}$

ب $\frac{\sin x + 1}{\cos x - 1} = y \Rightarrow \cos x - 1 \neq 0 \Rightarrow \cos x \neq 1 \Rightarrow D_f = \mathbb{R} - \{x \mid x = k\pi\}$

الف $y = \frac{\sqrt{\sin x + 1}}{\tan x + 1} \Rightarrow \tan x + 1 \neq 0 \Rightarrow \tan x \neq -1$

$\Rightarrow D_f = \mathbb{R} - \left\{ x \mid x = k\pi - \frac{\pi}{4} \text{ و } x = k\pi + \frac{3\pi}{4} \right\}$

ب $\frac{\cos x + 1}{\cot x - 1} = y \Rightarrow \cot x - 1 \neq 0 \Rightarrow \cot x \neq 1 \Rightarrow D_f = \mathbb{R} - \left\{ x \mid x = k\pi + \frac{\pi}{4} \text{ و } x = k\pi + \frac{5\pi}{4} \right\}$

الف $\sin y = x^2 - 1 \Rightarrow -1 \leq x^2 - 1 \leq 1 \Rightarrow 0 \leq x^2 \leq 2 \Rightarrow x \in [-\sqrt{2}, \sqrt{2}]$

$\Rightarrow \sqrt{x} \geq x \text{ و } x \geq 1 \Rightarrow D_f = [1, \sqrt{2}] \cup [-\sqrt{2}, -1]$

ب $y = \arccos(\sqrt{x-3}) \Rightarrow 1 \geq \sqrt{x-3} \geq -1$
 $\Rightarrow \sqrt{x} \geq 2 \Rightarrow D_f = [4, 7]$

الف $\cos y = |x| - 3 \Rightarrow -1 \leq |x| - 3 \leq 1 \Rightarrow 2 \leq |x| \leq 4$

$\Rightarrow x \geq 2 \Rightarrow x \leq -2 \text{ و } |x| \leq 4 \Rightarrow x \leq -2 \text{ و } x \geq 2 \Rightarrow D_f = [-4, -2] \cup [2, 4]$

ب $y = \arcsin(\sqrt{x^2 + 4x + 1}) \Rightarrow -1 \leq \sqrt{x^2 + 4x + 1} \leq 1$
 $\Rightarrow x^2 + 4x + 1 \geq -1 \Rightarrow x(x+4) \geq -2 \Rightarrow D_f = [-5, -2] \cup [0, 1]$

الف $y = \log_{\frac{1}{2}}(x^2 - 4)$

$x^2 - 4 > 0 \Rightarrow x > 2 \text{ و } x < -2$

ب $y = \log_{\frac{1}{2}}(x - |x|)$
 $\Rightarrow x - |x| > 0 \Rightarrow x > |x| \Rightarrow x > 2 \text{ و } x > -2$

$\Rightarrow D_f = (-2, 2)$

الف) $y = \log_{x-2} \omega - x$

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

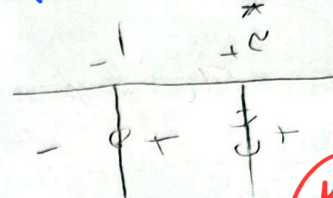
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ب) $y = \log_{x+2} x^2 - 1$

$x^2 - 1 > 0 \Rightarrow x > 1, x < -1$
 $x + 2 > 0, x > -2, x + 2 \neq 1 \Rightarrow x \neq -1$
 $D_f = (-1, +\infty) - \{-1\}$

الف) $y = \log \frac{x^2 - 2x + 2}{x - 2}$

$(x-2)(x+1) > 0$
 $D_f = (-1, +2) \cup (2, +\infty)$



ب) $y = \log \frac{x+2}{x-2}$

$\frac{x+2}{x-2} > 0 \Rightarrow x < -2 \text{ or } x > 2$
 $x + 2 \neq 1 \Rightarrow x \neq -3 \Rightarrow D_f = (-\infty, -3) \cup (2, +\infty) - \{-3\}$

الف) $y = \sqrt{x - \log(x-2)}$

$x - 2 > 0$
 $x > 2$

$x - \log(x-2) \geq 0 \Rightarrow x \geq \log(x-2) \Rightarrow x - 2 \leq 1 \Rightarrow x \leq 3$
 $D_f = (-\infty, 3] \cap (2, +\infty) = (2, 3]$

ب) $\log(x \log x - 1) = y$

$x > 0, x \log x - 1 > 0 \Rightarrow \log x > \frac{1}{x}$
 $\Rightarrow x > \frac{1}{x} \Rightarrow D_f = x > \frac{1}{x}$

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

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

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

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

الف) $y = (x+1)!$ $x+1 \in \mathbb{N} \Rightarrow x \in \mathbb{N} - 1$

$\Rightarrow D_f = \{x \mid x = k-1, k \in \mathbb{N}\}$

ب) $(\frac{x^2 - y}{y(x-2)})! = y$

$\frac{x^2 - y}{y(x-2)} \in \mathbb{N} \Rightarrow x = \frac{-\omega\omega + y}{y\omega - y} \Rightarrow x = \frac{\omega\omega - y}{y\omega - y}$

$D_f = \{x \mid x = \frac{\omega k - y}{y k - y}, k \in \mathbb{N}\}$