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٢٠ آفرین!

نویسندگان: - آفرین

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

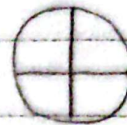
$$D_f = \mathbb{R} - \left\{ 2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3} \right\}$$



-1

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

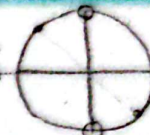
$$D_f = \mathbb{R} - \{ 2k\pi \}$$



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$$\text{الف) } y = \frac{2 \sin x + 1}{\tan x + 1} = \tan x \neq -1 \Rightarrow D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4} \right\}$$

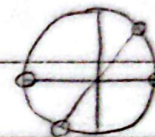
$$\tan x \rightarrow \sin x / \cos x \rightarrow \cos x \neq 0$$



-1

$$\text{ب) } y = \frac{\cos x + 1}{\cot x - 1} = \cot x \neq 1 \Rightarrow D_f = \mathbb{R} - \left\{ k\pi, k\pi + \frac{\pi}{2} \right\}$$

$$\cot x \rightarrow \cos x / \sin x \rightarrow \sin x \neq 0$$



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

$$-\sqrt{3} \leq x \leq -1$$

$$\text{ب) } y = \arccos(\sqrt{x} - 3) \Rightarrow -1 \leq \sqrt{x} - 3 \leq 1 \Rightarrow 2 \leq \sqrt{x} \leq 4 \Rightarrow 4 \leq x \leq 16 \quad D_f = [4, 16]$$

$$\text{الف) } \cos y = |x| - 3 \Rightarrow -1 \leq |x| - 3 \leq 1 \Rightarrow 2 \leq |x| \leq 4 \Rightarrow 2 \leq x \leq 4 \quad D_f = [-4, -2] \cup [2, 4]$$

$$-2 \leq x \leq -4$$

$$\text{ب) } y = \arcsin(x^2 + 3x + 1) \Rightarrow -1 \leq x^2 + 3x + 1 \leq 1 \Rightarrow \text{① } x^2 + 3x + 1 \geq -1 \Rightarrow \text{② } x^2 + 3x + 1 \leq 1$$

①

$$\begin{array}{c} -x & -1 \\ + & - & + \end{array}$$

$$\begin{array}{c} -x & 0 \\ + & - & + \end{array}$$

$$\begin{array}{c} x^2 + 3x + 2 \geq 0 \\ \text{① } (x+1)(x+2) \geq 0 \end{array}$$

$$\begin{array}{c} x^2 + 3x \leq 0 \\ \text{② } x(x+3) \leq 0 \end{array}$$

$$(-\infty, -2] \quad [-1, +\infty) \quad (-\infty, -2] \quad [0, +\infty)$$

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$$\Rightarrow [-2, -2] \cup [-1, 0]$$

$$\text{الف) } y = \log_{2^x} x \Rightarrow x^2 - 4 > 0 \Rightarrow x^2 > 4 \Rightarrow x > 2 \text{ or } x < -2 \quad D = (-\infty, -2) \cup (2, \infty)$$

$$x < -2$$

$$\text{ب) } y = \log_{\frac{x-1}{x}} x \Rightarrow |x| < 2 \Rightarrow -2 < x < 2 \quad D = (-2, 2)$$

P4YCO

الف)  $y = \log_{x-2}^{x-1}$   $x-1 > 0 \Rightarrow x > 1$   $x-2 \neq 1$   $D_f = (1, \infty) - \{3\}$  4

$x-2 > 0 \Rightarrow x > 2$   $x \neq 3$  (2)

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

$x+3 > 0$   $x > -3$   $x \neq -2$   $x \neq -4$

$D_f = (1, \infty) \cup (-3, -1) - \{-2\}$  5

الف)  $y = \log_{x-2}^{x^2-5x+6}$  ← جواب اياه صفات (2)

ب)  $\log_{x+2} \frac{x+3}{x-2}$   $\frac{x+3}{x-2} > 0$   $\frac{-x+3}{x-2} > 0$   $x \neq 2$   $x \in (-\infty, -2) \cup (2, +\infty)$

$x > -2$   $x \neq 2$

$\Rightarrow D_f = ((-\infty, -2) \cup (2, +\infty)) - \{2\}$  10

الف)  $y = \sqrt{3 - \log_2(x-2)}$   $x-2 > 0 \Rightarrow x > 2$  (2) 11

$3 - \log_2(x-2) \geq 0$   $\log_2(x-2) \leq 3$   $x-2 \leq 8$   $x \leq 10$   $D_f = [2, 10]$

ب)  $y = \log_2(2 \log_2 x - 1)$   $x > 0$   $2 \log_2 x - 1 > 0$   $\log_2 x > \frac{1}{2}$   $x > 2^{\frac{1}{2}}$   $D_f = (\sqrt{2}, +\infty)$  15

الف)  $y = \frac{x}{x^2+1}$   $x \neq -1$   $D_f = \mathbb{R}$  (2) 14

ب)  $y = \frac{x}{x^2-1}$   $x \neq 1$   $x \neq -1$   $D_f = \mathbb{R} - \{1, -1\}$  20

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

د)  $y = \frac{x}{x^2-3}$   $x \neq \sqrt{3}$   $x \neq -\sqrt{3}$   $D_f = \mathbb{R} - \{\log_2 \sqrt{3}, \log_2 -\sqrt{3}\}$

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الف)  $y = (x+1)!$   $kx+1 \leq w$   $x \leq \frac{w-1}{k}$   $D_f = \{x \mid x = \frac{k-1}{k}, kw\}$  -1. (2)

ب)  $y = \left( \frac{wx-y}{y(x-a)} \right)!$   $\Rightarrow x = -\frac{-ax+y}{y^2w-w}$   $D_f = \{x \mid x = \frac{-ax+y}{-y^2k+y}, kw\}$  1.1

5  $\log \frac{x^2-4x+3}{x-3}$   $x-3 \neq 0$   $x^2-4x+3$   $x-3$   $x \neq +3$   $\leftarrow$  سوال 1 قسمت الف

$(x-1)(x-3)$   $x-3$   $(+1)$   $(+3)$   $(+3) \leftarrow x-3$

$\frac{+1}{-1} + \frac{+3}{+1} +$   $[1, +\infty) - \{3\}$

$D_f = [1, +\infty) - \{3\}$

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