

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

$2 \cos x + 1 \neq 0$

$\cos x \neq -\frac{1}{2}$

$Df = \mathbb{R} - \left\{ 2k\pi - \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3} \right\}$



سوال 1

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

$\cos x - 1 \neq 0$

$\cos x \neq 1$

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



الف) $y = \frac{2 \sin x + 1}{\tan x + 1}$

$\tan x + 1 \neq 0$
 $\tan x \neq -1$

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

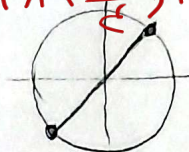


سوال ۲

ب) $y = \frac{\cos x + 1}{\cot x - 1}$

$\cot x - 1 \neq 0$
 $\cot x \neq 1$

$Df = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4} \right\}$



الف) $\sin y = x^2 - 2$

$-1 \leq x^2 - 2 \leq 1$

$1 \leq x^2 \leq 3$

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

سوال ۳

$Df = [1, \sqrt{3}]$

$-\sqrt{3} \leq x^2 \leq -1$

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

ب) $y = \arccos(\sqrt{x} - 2) \Rightarrow -1 \leq \sqrt{x} - 2 \leq 1 \Rightarrow 1 \leq \sqrt{x} \leq 3 \Rightarrow 1 \leq x \leq 9$ II

$\sqrt{x} \Rightarrow x \geq 0$ I $\Rightarrow Df = I \cap II = [1, 9]$

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

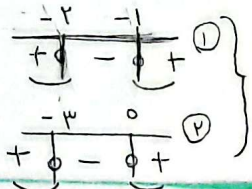
$Df = [2, 4] \cup [-4, -2]$

سوال ۴

ب) $y = \arcsin(x^2 + 3x + 1)$

$-1 \leq x^2 + 3x + 1 \leq 1$

① $x^2 + 3x + 2 \geq 0 \Rightarrow (x+2)(x+1) \geq 0$



② $x^2 + 3x \leq 0 \Rightarrow x(x+3) \leq 0$

$Df = ① \cap ② \Rightarrow Df = [-2, -1] \cup [0, 1]$

الف) $y = \log_r(x^2 - 4)$

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$x^2 - 4 > 0$

$x < -2$

$Df = (-\infty, -2) \cup (2, \infty)$

$(-\infty, -2) \cup (2, \infty)$

سوال ۵

ب) $y = \log_r(2 - |x|)$

$2 - |x| > 0$

$|x| < 2$

$Df = (-2, 2)$

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$$y = \log_{a-3} a-n \quad a-n > 0 \rightarrow n < a$$

$$a-3 > 0 \rightarrow a > 3$$

$$a-3 \neq 1 \rightarrow a \neq 4$$

$$Df = (3, a) - \{4\}$$

سوال ٩
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ب) $y = \log_{a+3} a^2-1$ $a^2-1 > 0 \rightarrow a^2 > 1$ $a > 1$ $a < -1$ $Df = (-3, +\infty) - \{-1\}$

$a+3 > 0 \rightarrow a > -3$

$a+3 \neq 1 \rightarrow a \neq -2$

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

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

$a-3 \neq 0 \rightarrow a \neq 3$

$a > 1$

$Df = (1, +\infty) - \{3\}$

ب) $y = \log \frac{a+3}{a+5}$ $\frac{a+3}{a+5} > 0$ $+\frac{-3}{a-5} +$ $Df = (-\infty, -3) \cup (5, +\infty) - \{-5\}$

$a+5 > 0 \rightarrow a > -5$

$a+5 \neq 1 \rightarrow a \neq -4$

$(-5, -3) \cup (5, +\infty) - \{-4\}$

الف) $y = \sqrt{3 - \log_2^{(a-2)}}$ $a-2 > 0 \rightarrow a > 2$

$3 - \log_2^{(a-2)} \geq 0 \rightarrow \log_2^{(a-2)} \leq 3 \rightarrow a-2 \leq 8$

$a \leq 10$

$Df = (2, 10]$

ب) $y = \log(2 \log_3^a - 1)$

$a > 0$ $2 \log_3^a - 1 > 0 \rightarrow \log_3^a > \frac{1}{2} \rightarrow a > \sqrt{3}$ $Df = (\sqrt{3}, +\infty)$

الف) $y = \frac{3}{f^{a+1}}$ $f^{a+1} \neq 0 \rightarrow f^a = -1 \rightarrow$ صوابه
مقدار است $Df = \mathbb{R}$

ب) $y = \frac{3}{f^{a-1}}$ $f^{a-1} \neq 0 \rightarrow f^a \neq 1 \rightarrow a \neq 0$ $Df = \mathbb{R} - \{0\}$

ج) $y = \frac{3}{f^a - 2}$ $f^a - 2 \neq 0 \rightarrow f^a \neq 2 \rightarrow a \neq \frac{1}{f}$ $Df = \mathbb{R} - \{\frac{1}{f}\}$

د) $y = \frac{3}{f^a - 3}$ $f^a - 3 \neq 0 \rightarrow f^a \neq 3 \rightarrow a \neq \log_f 3$ $Df = \mathbb{R} - \{\log_f 3\}$

حوايد بياي زان
(سعال ١٥)

$$y = (f_{n+1})!$$

$$f_{n+1} \in W$$

$$f_n \in W-1 \quad n \in W-1$$

$$Df = \{n \mid n = \frac{k-1}{f}, k \in W\}$$

ب) $y = \left(\frac{f_n - 2}{f_n - a} \right)!$

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$$\frac{f_n - 2}{f_n - a} \in W \quad f_n - 2 = f_w n - a_w$$

$$f_n - f_w n = 2 - a_w$$

$$n(f - f_w) = 2 - a_w$$

$$n = \frac{2 - a_w}{f - f_w}$$

$$Df = \{n \mid n = \frac{2 - a_k}{f - f_k}, k \in W\}$$