۱.

$$\frac{x+3}{2x^3+3x^2-8x+3} \longrightarrow 2x^3+3x^2-8x+3 \neq 0 \longrightarrow (x-1)(2x^2+5x-3) \neq 0$$

$$(x-1)(2x-1)(x+3)$$

$$\mathbb{R}-\left\{1, \frac{1}{2}, -3\right\}$$

$$\frac{x+3}{2x^3+9x^2+10x+3} \longrightarrow 2x^3+9x^2+10x+3 \neq 0 \longrightarrow (x+1)(2x^2+7x+3) \neq 0$$

	-3		-1		-0.5	
$-$	0	$+$	0	$-$	0	$+$

$$\longrightarrow \mathbb{R}-\{-3, -1, -0.5\}$$

۲.

$$\frac{x+3}{x^3-2x^2+2x-1} \longrightarrow x^3-2x^2+2x-1 \neq 0 \longrightarrow (x-1)(x^2-x+1) \neq 0$$

$(x-1) \downarrow 1$ ، $(x^2-x+1) \downarrow \Delta<0$ همواره مثبت

$$D_f = \mathbb{R}-\{1\}$$

$$\sqrt{\frac{x+3}{x^3-2x^2+2x-1}} \longrightarrow \frac{x+3}{x^3-2x^2+2x-1} \geq 0 \longrightarrow \frac{x+3}{(x-1)(x^2-x+1)}$$

$x+3 \to -3$ ، $(x-1) \to 1$ ، $(x^2-x+1) \to \Delta<0$

		-3		1	
$x+3$	$-$	0	$+$	0	$+$
$(x-1)(x^2-x+1)$	$-$	0	$-$	0	$+$
	$+$	0	$-$	ت‌ن	$+$

$$D_f = (-\infty, -3] \cup (1, +\infty)$$

۳.۱

$$\frac{2}{x^2-5|x-1|-2x+5} \longrightarrow$$

$x<1$	$x>1$
$\frac{2}{x^2+3x} = \frac{2}{x(x+3)}$	$\frac{2}{(x-2)(x-5)}$
ریشه $\leftarrow 0, -3$	$2, 5 \longrightarrow$ ریشه

$\frac{1}{2}$

$$D_f = \mathbb{R}-\{-3, 0, 5, 2\}$$

$$\frac{x+3}{|2x+1|-|x+3|} \rightarrow |2x+1|-|x+3| \neq 0 \rightarrow x \neq -3, \frac{-1}{2}$$

$x < -3 \rightarrow -x+2 \rightarrow \varnothing$

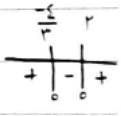
$-3 < x < \frac{-1}{2} \rightarrow -3x-4 \rightarrow x \neq \frac{-4}{3}$

$x > \frac{-1}{2} \rightarrow x-2 \neq 0 \rightarrow x \neq 2$

$Df = R - \{\frac{-4}{3}, 2\}$

$$\sqrt{|2x+1|-|x+3|} \rightarrow |2x+1|-|x+3| \geq 0 \rightarrow |2x+1| \geq |x+3|$$

$$4x^2+1-4x \geq x^2+9-6x \rightarrow 3x^2+2x-8 \geq 0 \rightarrow (x-2)(3x+4) \geq 0$$



$\Rightarrow Df = R - (\frac{-4}{3}, 2)$

-5

$$\log_2^{(1-\log_3^x)} \rightarrow \underset{I}{x>0}, \quad 1-\log_3^x > 0 \rightarrow \log_3^x < 1 \rightarrow \underset{II}{x<3} \rightarrow 0<x<3$$

$$\log_2^{(1-\log_{\frac{1}{2}}^x)} \rightarrow \underset{I}{x>0}, \quad 1-\log_{\frac{1}{2}}^x > 0 \rightarrow \log_{\frac{1}{2}}^x < 1 \rightarrow \underset{II}{x > \frac{1}{2}}$$

$Df = (\frac{1}{2}, +\infty)$

-6

$$\sqrt{\log_{0/5}^{\log_5^{(2x-1)}}} \rightarrow 2x-1 > 0 \rightarrow 2x > 1 \rightarrow x > 0/5 \quad I$$

$$\log_5^{2x-1} > 0 \rightarrow 2x-1 > 1 \rightarrow x > 1 \quad II$$

$$\log_{0/5}^{\log_5^{2x-1}} \geq 0 \rightarrow \log_5^{2x-1} \geq 1 \rightarrow 2x-1 \leq 5$$

$$2x \leq 6$$

$$x \leq 3 \quad III$$

$Df = I \cap II \cap III = (1, 3]$

Parsian

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۷- $\log(2\cos x + 1) \rightarrow 2\cos x + 1 > 0 \rightarrow \cos x > \frac{-1}{2}$

$Df = (2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3})$

I

$\sqrt{\log \frac{x-1}{x+1}} \rightarrow \frac{x-1}{x+1} > 0 \rightarrow R_1 - [-1,1]$, $\log \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1$

$\frac{x-1-x-1}{x+1} \geq 0$

$I \cap II = (-\infty, -1)$

$\rightarrow (-\infty, -1)$ II

۸- $\sqrt{(a+2)x^2 + ax + b} \rightarrow a = -2 \rightarrow -2x + b \geq 0 \rightarrow x \leq \frac{+b}{2} \rightarrow \frac{+b}{2} = 3$

$\Rightarrow b = +6$

۹- $\sqrt{x^2 + 2x + 2 - m^2} \rightarrow x^2 + 2x + 2 - m^2 \geq 0 \rightarrow \Delta \leq 0 \rightarrow 4 - 8 + 4m^2 \leq 0$

$m^2 - 1 \leq 0$

$(m-1)(m+1) \leq 0$

$|1 - (-1)| = 2$

۱۰- $\frac{\sqrt{4 - x^2}}{[x] + [-x] + 1} \rightarrow 4 - x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$ I

$[x] + [-x] + 1 \neq 0 \rightarrow 1$ II

داخل جزء

-1

$I \cap II = \{-2, -1, 0, 1, 2\}$

۵ عدد صحیح