

$$f(x) = \sqrt{(a-2)x^2 + 9x + b} \Rightarrow [3, +\infty) \Rightarrow \begin{matrix} \text{عبارت زیر رادیکال} \\ \text{درجه دوم باشد} \end{matrix} \Rightarrow a-2=0 \Rightarrow a=2 \Rightarrow -1$$

$$2x+b \Rightarrow 2(3)+b=0 \Rightarrow b=-6$$

$$f(x) = \sqrt{x^2 + 2x + 2 - m^2} \Rightarrow D_f = \mathbb{R} \Rightarrow \Delta = 0 \Rightarrow 4 - 4(1)(2-m^2) = 0 \Rightarrow -1$$

$$4 - 4 + 4m^2 = 0 \Rightarrow m^2 - 1 = 0 \Rightarrow m = \pm 1 \Rightarrow 2 - (-1) = 3$$

$$f(x) = \frac{\sqrt{4-x^2}}{[x] + [-x] + 1} \quad 4-x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2$$

$$D_f = \{-2, -1, 0, 1, 2\}$$

$$[x] + [-x] + 1 \xrightarrow{x=2} 0 + 1 = 1$$

$$\xrightarrow{\text{محقق}} -1 + 1 = 0$$

$$y = \sqrt{x^3 + 2x^2} \Rightarrow x^2(x+2) \Rightarrow \begin{matrix} \text{مقدار مثبت} \\ x+2 \geq 0 \end{matrix} \Rightarrow D_f = [-2, +\infty)$$

$$y = \sqrt{\frac{(x^2-1)(x^3-2x^2)}{x^3-1}} \quad \begin{matrix} x^3-1 \neq 0 \Rightarrow x^3 \neq 1 \Rightarrow x \neq 1 \\ x^3-2x^2 = x^2(x-2) \end{matrix}$$

$$D_f = [-1, 0] \cup [2, +\infty)$$

$$y = \sqrt{|x-2| - 3} \Rightarrow |x-2| - 3 \geq 0 \Rightarrow |x-2| \geq 3 \Rightarrow \begin{matrix} x-2 \geq 3 \Rightarrow x \geq 5 \\ 2-x \geq 3 \Rightarrow -x \geq 1 \Rightarrow x \leq -1 \end{matrix}$$

$$D_f = (-\infty, -1] \cup [5, +\infty)$$

$$y = \sqrt{4 - |2-x|} \Rightarrow 4 - |2-x| \geq 0 \Rightarrow 4 \geq |2-x| \Rightarrow \begin{matrix} 4 \geq x-2 \Rightarrow x \leq 6 \\ 4 \geq 2-x \Rightarrow 2 \geq -x \Rightarrow -2 \leq x \end{matrix}$$

$$D_f = [-2, 6]$$

$$y = \sqrt{1 - x|x|} \Rightarrow 1 - x|x| \geq 0 \Rightarrow 1 \geq x|x| \Rightarrow \begin{matrix} 1 \geq x^2 \Rightarrow -1 \leq x \leq 1 \\ 1 \geq -x^2 \Rightarrow -\infty \leq x \leq \infty \end{matrix}$$

$$D_f = (-\infty, 1]$$

$$y = \frac{1}{\sqrt{3 - |x-a|} - 1} \Rightarrow 3 - |x-a| - 1 \geq 0 \Rightarrow 2 - |x-a| \geq 0 \Rightarrow 2 \geq |x-a| \Rightarrow$$

$$\begin{matrix} x > a & 2 > x-a \Rightarrow x < a+2 \\ x < a & 2 > a-x \Rightarrow x > a-2 \end{matrix} \Rightarrow D_f = (a-2, a+2)$$

$$y = \frac{\sin^2 x - 1}{\cos x} \Rightarrow \cos x \neq 0 \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$$

$$y = \frac{\cos x}{2\cos x - 1} \Rightarrow 2\cos x - 1 \neq 0 \Rightarrow \cos x \neq \frac{1}{2} \Rightarrow D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi - \frac{\pi}{3}\}$$

$$y = \frac{x+r}{|x+1| - |x+r|} \Rightarrow ||x+1| - |x+r|| \neq 0$$

$$\left. \begin{aligned} x > -\frac{1}{r} &\Rightarrow r(x+1) - x - r \Rightarrow x - r \neq 0 \Rightarrow x \neq r \\ \frac{1}{r} > x > -r &\Rightarrow -r(x-1) - x - r \Rightarrow -rx - r \neq 0 \Rightarrow x \neq -\frac{r}{r} \\ -r > x &\Rightarrow -r(x-1) + x + r \Rightarrow -x + r \neq 0 \Rightarrow x \neq r \end{aligned} \right\} D_f = \mathbb{R} - \left\{-\frac{r}{r}, r\right\}$$

$$y = \sqrt{|x+1| - |x+r|}$$

	$-r$	$-\frac{1}{r}$	
$ x+1 $	-	-	+
$ x+r $	-	+	+

$$D_f = \mathbb{R} - \left(-\frac{r}{r}, r\right)$$

$$\begin{aligned} x \leq -r &\Rightarrow -r(x-1) + x + r \Rightarrow -x + r \geq 0 \Rightarrow x \leq r \\ -r < x \leq -\frac{1}{r} &\Rightarrow -r(x-1) - x - r \Rightarrow -rx - r \geq 0 \Rightarrow x \leq -\frac{r}{r} \\ -\frac{1}{r} < x &\Rightarrow r(x+1) - x - r \Rightarrow x - r \geq 0 \Rightarrow x \geq r \end{aligned}$$

$$f(x) = \sqrt{\log_{\frac{1}{a}}(\log_a(x-1))} \Rightarrow x-1 > 0 \Rightarrow x > 1 \Rightarrow x > \frac{1}{r}$$

$$D_f = \left(\frac{1}{r}, +\infty\right)$$

$$\log(r \cos x + 1)$$

$$2 \cos x + 1 > 0 \Rightarrow 2 \cos x > -1 \Rightarrow \cos x > -\frac{1}{2}$$

$$\Rightarrow D_f = \left(2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}\right)$$

$$y = \sqrt{\log\left(\frac{x-1}{x+1}\right)}$$

$$\Rightarrow \frac{x-1}{x+1} > 0 \Rightarrow \frac{-1}{+} \frac{1}{-} \frac{1}{+}$$

$$\frac{x-1}{x+1} \geq 1 \Rightarrow \frac{x-1}{x+1} - 1 \geq 0 \Rightarrow \frac{x-1-(x+1)}{x+1} \geq 0 \Rightarrow$$

$$\frac{-2}{x+1} \geq 0 \Rightarrow x+1 < 0 \Rightarrow x < -1 \Rightarrow D_f = (-\infty, -1)$$