

$$\frac{(a-2)x^2+ax+b}{a=2} > 0 \Rightarrow 2x+b > 0$$

$$2\left(\frac{1}{2}\right)+b=0 \Rightarrow \boxed{b=-1}$$

چون عبارت تنه‌ای عدد در دایره و علامت عبارت در بیرون از دایره می‌شود پس عبارت در بیرون از دایره مثبت است

$$f(x) = \sqrt{x^2+2x+1-m^2} \quad x^2+2x+1-m^2 > 0 \xrightarrow{\Delta < 0} 4-4(1-m^2) < 0 \quad 4m^2-4 < 0 \quad m^2-1 < 0$$

$$\boxed{-1 < m < 1}$$

$$\boxed{1-(-1)=2}$$

چون عبارت زیر رادیکال به ازای تمام مقادیر حقیقی مثبت است $\Delta < 0$

$$f(x) = \frac{\sqrt{4-x^2}-x}{[x]+[-x]+1} \xrightarrow{\begin{matrix} -2 & 2 \\ -1 & 1 \end{matrix}} D_f = \{x | x \in \mathbb{Z}, -2 \leq x \leq 2\}$$

$$D_f = \{-2, -1, 0, 1, 2\} \quad \boxed{n(D_f) = 5}$$

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$$f(x) = \sqrt{x^2+2x+1} \quad x^2+2x+1 > 0 \quad x^2+2x+1 > 0 \quad x^2+2x+1 > 0 \quad \Rightarrow D_f = [-2, \infty)$$

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$$\sqrt{\frac{(x^2-1)(x^2-2x^2)}{x^2-1}} \quad \frac{(x^2-1)(x^2-2x^2)}{(x^2-1)} > 0 \quad \frac{-1}{+} \frac{+}{+} \frac{+}{-} \frac{+}{+} \Rightarrow D_f = (-\infty, -1) \cup \{0\} \cup [2, \infty)$$

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$$\sqrt{|x-2|-2} \quad |x-2|-2 > 0 \quad |x-2| > 2 \quad x-2 > 2 \quad x-2 < -2 \quad \boxed{x \geq 0} \quad \boxed{x \leq -1} \quad D_f = (-\infty, -1) \cup [0, \infty)$$

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$$\sqrt{4-|2-x|} \quad 4-|2-x| > 0 \quad |2-x| < 4 \quad -4 < 2-x < 4 \quad \boxed{5, x > 6} \quad \boxed{-6 \leq x \leq 2}$$

$y = \sqrt{1-x/|x|}$ $1 - x/|x| > 0$ $x/|x| < 1$ $\frac{x}{|x|} > 1 \Rightarrow x' \leq 1 \Rightarrow x \leq 1$
 $\frac{x}{|x|} < -1 \Rightarrow -x' \leq 1 \Rightarrow x' \geq -1 \Rightarrow x \geq -1$
 $D_f = (-\infty, 1]$

$\frac{1}{\sqrt{1-x/|x|}} = 1$ $\sqrt{1-x/|x|} \neq 1 \Rightarrow 1-x/|x| \neq 1 \Rightarrow -x/|x| \neq 0 \Rightarrow x \neq 0$
 $\frac{1}{\cos x} = 1$ $\cos x \neq 0$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$

$\frac{\cos x}{1 - \cos x} = 1$ $1 - \cos x \neq 0$ $\cos x \neq 1$ $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$

$\frac{x+1}{|x+1| - |x+2|} = 1$ $|x+1| \neq |x+2|$ $(x+1)^2 \neq (x+2)^2$
 $D_f = \mathbb{R} - \{1, -\frac{3}{2}\}$

$D_f = (-\infty, -\frac{1}{2}) \cup [\frac{1}{2}, \infty) = \mathbb{R} - (-\frac{1}{2}, \frac{1}{2})$
 $\sqrt{|x+1| - |x+2|} = 1$ $|x+1| - |x+2| > 0$ $|x+1| > |x+2|$

$|x-1| > 0 \Rightarrow |x| > 1 \Rightarrow x > \frac{1}{2} \Rightarrow \log_{10} x > 0 \Rightarrow |x-1| > 1 \Rightarrow x > 1$
 $\sqrt{\log_{10} \log_{10} x} = f(x)$ $\log_{10} \log_{10} x > 0$ $\log_{10} x > 1$ $x > 10$
 $D_f = (10, \infty)$

$\log(\cos x + 1)$ $\cos x + 1 > 0$ $\cos x > -1$ $\cos x > -\frac{1}{2}$
 $D_f = \mathbb{R} - [\frac{2\pi}{3} + 2k\pi, 2k\pi + \frac{4\pi}{3}]$

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