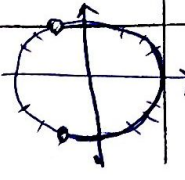


$$f(x) = \sqrt{\log_{\frac{1}{8}} \log_8 (x-1)} \rightarrow \begin{cases} x-1 > 0 \rightarrow x > 1 \rightarrow x > \frac{1}{8} \\ \log_8 (x-1) > 0 \rightarrow x-1 > 1 \rightarrow x > 2 \rightarrow x > 1 \\ \log_{\frac{1}{8}} \log_8 (x-1) \geq 0 \rightarrow \log_8 (x-1) \leq 1 \rightarrow x-1 \leq 8 \rightarrow x \leq 9 \end{cases}$$

$$\rightarrow D_f = (1, 9] \quad \checkmark$$

الف) $y = \log(x \cos x + 1) \rightarrow x \cos x + 1 > 0 \rightarrow x \cos x > -1 \rightarrow \cos x > -\frac{1}{x}$



$$\rightarrow D_f = \left(k\pi - \frac{\pi}{x}, k\pi + \frac{\pi}{x} \right) \quad \checkmark \quad \mathbb{R} - \left[k\pi + \frac{\pi}{x}, k\pi + \frac{\pi}{x} \right]$$

$$\Rightarrow y = \sqrt{\log \frac{x-1}{x+1}} \rightarrow \begin{cases} \frac{x-1}{x+1} > 0 \rightarrow \frac{-1}{x+1} > 0 \\ \log \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \frac{x-1-x-1}{x+1} \geq 0 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow x \leq -1 \end{cases}$$

$$\rightarrow D_f = (-\infty, -1] \quad \checkmark$$

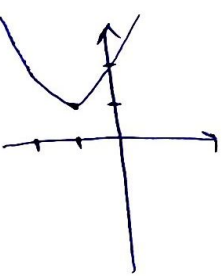
$$f(x) = \sqrt{(a+x)x^2 + ax + b} \rightarrow D_f = (-\infty, 9]$$

با توجه دانسته‌های عبارت زیر را بنویسید
نمی‌تواند درجه دوم باشد زیرا x^2 منفی است

$$\rightarrow a+x=0 \rightarrow a=-x$$

$$\rightarrow f(x) = \sqrt{-x^2 + b} \rightarrow -x^2 + b \geq 0 \rightarrow -x^2 \geq -b \rightarrow x^2 \leq b \rightarrow x \leq \frac{b}{x}$$

$$x \leq 9 \rightarrow \frac{b}{x} = 9 \rightarrow b = 9 \quad \checkmark$$

$$f(x) = \sqrt{x^2 + x + 1 - m^2}$$


$$\rightarrow m^2 \leq 1 \rightarrow -1 \leq m \leq 1$$

$$\rightarrow 1 - (-1) = 2$$

$$\begin{cases} x^2 + x + 1 - m^2 \geq 0 \xrightarrow{\Delta \leq 0} 1 - 4(1 - m^2) \leq 0 \\ 1 - 4 + 4m^2 \leq 0 \rightarrow 4m^2 \leq 3 \rightarrow m^2 \leq \frac{3}{4} \rightarrow -\frac{\sqrt{3}}{2} \leq m \leq \frac{\sqrt{3}}{2} \end{cases}$$

$$\rightarrow m^2 \leq 1 \rightarrow -1 \leq m \leq 1$$

$$\rightarrow (2) \quad \checkmark$$

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

بازای اعداد صحیح ۱
بازای اعداد غیر صحیح ۰

$$\rightarrow D_f = \{-2, -1, 0, 1, 2\} \quad \checkmark$$

۵ عدد صحیح