

$f(x) = \sqrt{\log_{\frac{1}{4}} \log_{\omega}^{(x-1)}}$	$\begin{aligned} (x-1) > 0 &\Rightarrow x > \frac{1}{2} \quad (I) \\ \Rightarrow \log_{\omega}^{(x-1)} > 0 &\Rightarrow (x-1) > 1 \Rightarrow x > 2 \\ x > 1 &\quad (II) \\ \log_{\frac{1}{4}} \log_{\omega}^{(x-1)} > 0 &\Rightarrow \log_{\omega}^{(x-1)} \leq 1 \\ x-1 &\leq \omega \quad (I) \wedge (II) \wedge (III) \\ x &\leq 2 \quad (III) \end{aligned}$ $D_f = (1, 2]$	6
$(الف) y = \log^{(\cos x + 1)}$ $\Rightarrow (\cos x + 1) > 0$ $\cos x > -\frac{1}{2}$	$\begin{aligned} (ب) \sqrt{\log \frac{x-1}{x+1}} &\Rightarrow x+1 \neq 0 \Rightarrow x \neq -1 \quad (I) \\ \frac{x-1}{x+1} > 0 &\Rightarrow \frac{-1}{x+1} > 0 \Rightarrow x < -1 \quad (II) \\ \log \frac{x-1}{x+1} > 0 &\Rightarrow \frac{x-1}{x+1} > 1 \Rightarrow \frac{-x}{x+1} > 0 \\ x &< -1 \quad (III) \end{aligned}$ $D_f = \left[2\pi - \frac{2\pi}{3}, 2\pi + \frac{2\pi}{3} \right]$ $D_f = (I) \wedge (II) \wedge (III) = (-\infty, -1)$	7
معادله را بر حسب x داریم فرض کنیم $x > 0$ $\Rightarrow x + c > 0$ $x < -c \Rightarrow \sqrt{-cx + b}$	$f(x) \xrightarrow{x \rightarrow c} \sqrt{-4 + b} = 0 \Rightarrow b = 4$	8
یعنی فاقد کرانه باریک $\Delta \leq 0 \Rightarrow b^2 - 4ac \leq 0$	$\begin{aligned} 4m^2 - 4 &\leq 0 \\ 4m^2 &\leq 4 \\ m^2 &\leq 1 \\ -1 &\leq m \leq 1 \end{aligned}$ $\hookrightarrow \min_{\min} \max_{\max} \Rightarrow 1 - (-1) \leq 2$	9
$f(x) = \frac{\sqrt{\varepsilon - x^2}}{[x] + [-x] + 1}$ فقط در اعداد صحیح برابر 1 است	$\begin{aligned} \varepsilon - x^2 &\geq 0 \\ \varepsilon &\geq x^2 \\ -\varepsilon &\leq x \leq \varepsilon \end{aligned}$ $D_f = \{-\varepsilon, -1, 0, 1, \varepsilon\}$	10