

۱) $\sin x \neq \cos x$ $\tan x + 1 \neq 0 \rightarrow \tan x \neq -1$ $D = \mathbb{R} - \left\{ \frac{k\pi}{2} - \frac{\pi}{4} + k\pi \mid k \in \mathbb{Z} \right\}$ $ \sin x \leq \frac{1}{2}$ $\rightarrow 1 - \cos x \geq 0 \rightarrow \sin x \leq \frac{1}{2} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$ $D = \left[-\frac{\pi}{2}, \frac{\pi}{2} \right] \cup \left[\frac{3\pi}{2}, \frac{5\pi}{2} \right] \sim D = \left[k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2} \right]$	۶
۲) $\sin x \neq \frac{1}{2}$ $D = \left[\frac{\pi}{6} + k\pi, \frac{5\pi}{6} + k\pi \right]$ $\rightarrow 1 - \cos x \geq 0 \rightarrow \cos x \leq \frac{1}{2}$ $D = \left[\frac{\pi}{3} + k\pi, \frac{5\pi}{3} + k\pi \right]$	۷
۳) $-1 \leq x^2 + 2x + 1 \leq 1$ ۱) $x^2 + 2x + 1 \geq -1 \rightarrow x^2 + 2x + 2 \geq 0$ $(x+1)(x+2) \geq 0 \rightarrow x \leq -2 \text{ یا } x \geq -1$ ۲) $x^2 + 2x + 1 \leq 1 \rightarrow x^2 + 2x \leq 0 \rightarrow x(x+2) \leq 0 \rightarrow x \in [-2, 0]$ $D = (-\infty, -2] \cup [-1, +\infty) \cap [-2, 0] = [-2, -1] \cup [0, +\infty)$ ۳) $x \in [-2, 0] \rightarrow x \leq \frac{0}{2} \rightarrow x \leq 0$ $D = [-2, 0]$	۸
۴) $\log_p x = 1 \rightarrow \log_p x = 1 \rightarrow x = p$ $\rightarrow D = (0, p)$ ۵) $\log_p \frac{1}{x} \leq 1 \rightarrow \log_p \frac{1}{x} \leq 1 \rightarrow \frac{1}{x} \leq p \rightarrow x \geq \frac{1}{p}$ $\rightarrow D = \left(\frac{1}{p}, +\infty \right)$	۹
۶) $x^2 - 2x - 1 > 0 \rightarrow x^2 - 2x - 1 > 0$ $\Delta = 4 + 4 = 8 \rightarrow \sqrt{\Delta} = 2\sqrt{2}$ $x = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$ $D = [1, +\infty)$ ۷) $\frac{x^2 + 2}{x^2 + 1} \geq 0 \rightarrow x^2 + 2 \geq 0$ $D = \mathbb{R}$	۱۰

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