

$$\sqrt{(a-2)x^2+ax+b} \geq 0 \rightarrow (a-2)=0 \rightarrow a=2$$

$$\rightarrow 2x+b=0 \xrightarrow{x=2} 4+b=0 \rightarrow b=-4$$

۱

$$\sqrt{x^2+2x+2-m^2} \geq 0 \rightarrow (x+1)^2+1-m^2 \geq 0 \rightarrow 1-m^2 \geq 0 \rightarrow m^2 \leq 1$$

$$\rightarrow \geq 0 \rightarrow x=-1$$

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

بیشترین کمترین

۲

$$\sqrt{4-x^2} \geq 0 \rightarrow -2 \leq x \leq 2 \rightarrow 2 \text{ و } -2 \text{ و } 0 \rightarrow \boxed{\text{همیشه مثبت}}$$

$$[x] + [-x] + 1 \rightarrow$$

۳

الف) $\sqrt{x^3+3x^2} \geq 0 \rightarrow x^2(x+3) \geq 0 \xrightarrow{x=0} x=0 \rightarrow D=[-3, +\infty)$

ب) $\sqrt{(x^2-1)(x^3-3x^2)} \geq 0 \rightarrow x=\pm 1, x^2(x-3)=0 \xrightarrow{x=0} x=0$

$$\frac{x^2-1}{x^2-1} \geq 0 \rightarrow x \neq 1$$

-1	0	1	2
+	-	-	+

$$D=(-\infty, -1] \cup [3, +\infty) \cup \{0\}$$

۴

الف) $\sqrt{|x-2|-3} \geq 0 \rightarrow \begin{cases} x-2 \geq 3 \rightarrow x \geq 5 \\ x-2 \leq -3 \rightarrow x \leq -1 \end{cases} \rightarrow D=(-\infty, -1] \cup [5, +\infty)$

ب) $\sqrt{4-|2-x|} \geq 0 \rightarrow \begin{cases} 2-x \leq 4 \rightarrow -2 \leq 2-x \leq 6 \\ 2-x \geq -4 \end{cases} \rightarrow -2 \leq 2-x \leq 6$

$$(-4 \leq -x \leq 2) \xrightarrow{x \leq -1} x \geq -2 \rightarrow D=[-2, -1]$$

۵

الف) $\sqrt{1-x}|x| \geq 0 \rightarrow x=0 \text{ یا } x=1 \rightarrow D = (-\infty, 1]$

ب) $\frac{1}{\sqrt{1-x}-1} \neq 0 \rightarrow \sqrt{1-x}-1 \neq 0 \rightarrow \sqrt{1-x} \neq 1 \rightarrow 1-x \neq 1 \rightarrow x \neq 0$
 $\sqrt{1-x} \geq 0 \rightarrow 1-x \geq 0 \rightarrow x \leq 1$

$D = [2, 1] - \{0\} \text{ یا } [2, 3) \cup (3, 4) \cup (4, 1]$

$\frac{\sin^2 x - 1}{\cos x} \neq 0 \rightarrow R - \{ \frac{\pi}{2} + k\pi \mid k \in \mathbb{Z} \}$

$\cos x$

$\cos x \neq 0 \rightarrow x \neq \frac{\pi}{2} + k\pi \rightarrow R - \{ \frac{\pi}{2} + k\pi \mid k \in \mathbb{Z} \}$

الف) $\frac{x+3}{|2x+1| - |x+3|} \geq 0 \rightarrow |2x+1| = |x+3| \rightarrow 2x+1 = x+3 \text{ یا } 2x+1 = -(x+3)$
 $x=2$

$D = R - \{ \frac{1}{2}, 2 \}$

$x = \frac{1}{2} \leftarrow 2x+1 = 2 \leftarrow 2x+1 = -x \leftarrow x = -2$

ب) $\frac{|x+1| - |x+3|}{|x+1|} \geq 0 \rightarrow |x+1| \geq |x+3| \rightarrow x \geq 2$
 $|x+1| \leq -x-3 \rightarrow x \leq -\frac{4}{2}$
 $D = (-\infty, -2] \cup [2, +\infty)$

$\sqrt{\log_{\frac{1}{2}}(2x-1)} \geq 0 \rightarrow 2x-1 \geq 1 \rightarrow x \geq 1$

$\log_{\frac{1}{2}}(2x-1) \geq 1 \rightarrow 2x-1 \leq \frac{1}{2} \rightarrow x \leq \frac{3}{4}$

$2x-1 \geq \frac{1}{2} \rightarrow 2x \geq \frac{3}{2} \rightarrow x \geq \frac{3}{4}$

$D = (1, +\infty)$

الف) $\log_2(\cos x + 1) \geq 0 \rightarrow \cos x + 1 \geq 1 \rightarrow \cos x \geq 0 \rightarrow R - \{ \frac{\pi}{2} + k\pi \mid k \in \mathbb{Z} \}$

ب) $x+1 \neq 0 \rightarrow x \neq -1$, $\sqrt{\log \frac{x-1}{x+1}} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \frac{x-1}{x+1} - 1 \geq 0$

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

$$9) \log_{\frac{1}{\Delta}} \log_{\Delta}^{x_{n-1}} \rightarrow x_{n-1} > 0 \rightarrow \boxed{n > \frac{1}{\Delta}}$$

$$\log_{\Delta}^{x_{n-1}} > 0 \rightarrow x_{n-1} > \Delta \rightarrow x_{n-1} > 1 \rightarrow \boxed{n > 1}$$

$$\log_{\frac{1}{\Delta}} \log_{\Delta}^{x_{n-1}} \geq 0 \xrightarrow{\text{من بابين هـ و ا
حبب عوض
منشود!}} \log_{\Delta}^{x_{n-1}} \leq \Delta \rightarrow \log_{\Delta}^{x_{n-1}} \leq 1 \rightarrow x_{n-1} \leq \Delta \rightarrow x_n \leq \Delta \rightarrow \boxed{n \leq 3}$$

$$\hookrightarrow Df = (1, 3]$$

$$10 - \text{ب}) \frac{n-1}{n+1} > 0 \rightarrow \boxed{n > 1 \leq n < -1}$$

$$\log_{\frac{n+1}{1}} \frac{n-1}{n+1} \geq 0 \rightarrow \frac{n-1}{n+1} \geq (1) \rightarrow \frac{n-1}{n+1} \geq 1 \rightarrow \frac{n-1}{n+1} - 1 \geq 0 \rightarrow \frac{n-1-n-1}{n+1} \geq 0 \rightarrow \frac{-2}{n+1} \geq 0$$

$$n+1 < 0 \rightarrow \boxed{n < -1} \rightarrow Df = (-\infty, -1)$$