

الف) $2\sin u - 1 \geq 0$ $\sin u \geq \frac{1}{2}$ $D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$ باید به صورت بازه بی <u>ل. ص. ب.</u> ✓	ب) $\cos u - 1 \geq 0$ $\cos u \geq 1$ $D_f = \{2k\pi\}$ * حداکثر $\cos$ می تواند برابر یک باشد * و فقط $2k\pi$ می باشد *	6
الف) $-1 \leq 2u - 3 \leq 1$ $2 \leq 2u \leq 4 \rightarrow \begin{cases} 1 \leq u \leq 2 \\ -2 \leq u \leq -1 \end{cases}$ $D_f = [-2, -1] \cup [1, 2]$ <u>ص. ب.</u> ✓	ب) $-1 \leq u^2 + 3u + 1 \leq 1$ $-1 \leq u^2 + 3u + 1$ $0 \leq u^2 + 3u + 2$ $0 \leq (u+1)(u+2)$ $\begin{array}{c} -2 \quad -1 \\ \quad \\ + \quad - \quad + \end{array}$ $u^2 + 3u + 1 \leq 1$ $u^2 + 3u \leq 0$ $u(u+3) \leq 0$ $\begin{array}{c} -3 \quad 0 \\ \quad \\ + \quad - \quad + \end{array}$	7
الف) $u - 2 > 0$ $u > 2$ $2 - \log_3 u - 2 > 0$ $\log_3 u - 2 < 0$ <u>ل. ص. ب.</u> ✓ $u - 2 \leq 9 \rightarrow u \leq 11$ $D_f = (2, 11]$	ب) $u^3 - u > 0 \rightarrow u(u^2 - 1) > 0$ $u(u-1)(u+1) > 0$ $\begin{array}{c} -1 \quad 0 \quad 1 \\ \quad \quad \\ - \quad + \quad - \quad + \end{array}$ $D_f = (-1, 0) \cup (1, +\infty)$	8
الف) $\varepsilon^u + 1 \neq 0$ $\varepsilon^u \neq -1$ هر چه بزرگتر است $D_f = \mathbb{R}$ <u>ص. ب.</u> ✓	ب) $\varepsilon^u - 1 \neq 0$ $\varepsilon^u \neq 1$ $u \neq 0$ $D_f = \mathbb{R} - \{0\}$	9
الف) $\varepsilon u + 1 \in W$ $\varepsilon u \in W - 1$ $u \in \frac{W-1}{\varepsilon}$ <u>ص. ب.</u> ✓ $D_f = \{u \mid u = \frac{k-1}{\varepsilon}, k \in W\}$	ب) $\frac{3u-2}{2u-\omega} \in W$ $3u-2 \in -\omega W + 2uW$ $3u-2uW \in -\omega W + 2$ $u(3-2W) \in 2-\omega W$ $u \in \frac{2-\omega W}{3-2W}$	10

$$D_f = \left\{ u \mid u = \frac{\omega k - 2}{2k - 3}, k \in W \right\} \subseteq D_f = \left\{ u \mid u = \frac{2 - \omega k}{3 - 2k}, k \in W \right\}$$

الف) $\frac{u^2 - 4u}{u^3 - u} \geq 0$ ب) $\frac{u(u+1)(u-1)}{u(u+1)(u-1)} \geq 0$

$\frac{u(u-4)}{u(u-1)(u+1)} \geq 0$

$D_f = \mathbb{R} - \{-1, 0, 4\}$

$D_f = (-1, 0) \cup (0, 4) \cup (4, +\infty)$

الف) $u + |u| > 0$
 $|u| \geq u$
 $D_f = \mathbb{R}$
 $D_f = (0, +\infty)$

ب) $u|u| > 0$
 $D_f = \mathbb{R} - \{0\}$
 $D_f = (0, +\infty)$

$\begin{matrix} \checkmark & + \\ \times & 0 \\ \times & - \end{matrix}$

الف) $2 - \{u\} \geq 0$
 $\{u\} \leq 2$
 $u < 3$
 $D_f = (-\infty, 3)$

ب) $2 - \{u\} > 0$
 $\{u\} < 2$
 $u < 2$
 $D_f = (-\infty, 2)$

الف) $\{u - \frac{1}{\sqrt{2}}\} + \{u + \frac{1}{\sqrt{2}}\} \geq 0$
 $\{u - \frac{1}{\sqrt{2}} + 1\}$
 $2\{u - \frac{1}{\sqrt{2}}\} + 1 \geq 0$
 $\{u - \frac{1}{\sqrt{2}}\} \geq -\frac{1}{2}$
 $D_f = [\frac{1}{\sqrt{2}}, +\infty)$

ب) $\sqrt{\{u - \frac{1}{\sqrt{2}}\} + \{-(u - \frac{1}{\sqrt{2}})\}}$
 $u \in \mathbb{Z} \rightarrow \{u\} + \{-u\} = 0$
 $D_f = \{u \mid u = k + \frac{1}{\sqrt{2}}, k \in \mathbb{Z}\}$

الف) $\sin u - 1 \neq 0$
 $\sin u \neq 1$
 $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$

ب) $2\sin^2 u - 1 \neq 0$
 $2\sin^2 u \neq 1$
 $\sin^2 u \neq \frac{1}{2}$
 $D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$