

الف) $2\sin u - 1 \geq 0$ $\sin u \geq \frac{1}{2}$ $D_f = \{2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\}$	$\rightarrow) \cos u - 1 \geq 0$ $\cos u \geq 1$ $D_f = \{2k\pi\}$ * ملاحظة: $\cos$ يتراوح بين -1 و 1 * $2k\pi$ فقط هي الحلول	6
الف) $-1 \leq 2u - 3 \leq 1$ $2 \leq 2u \leq 4 \rightarrow \begin{cases} 2 \leq u \leq 4 \\ -2 \leq u \leq -4 \end{cases}$ $D_f = [-4, -2] \cup [2, 4]$	$\rightarrow) -1 \leq u^2 + 3u + 1 \leq 1$ $-1 \leq u^2 + 3u + 1$ $0 \leq u^2 + 3u + 2$ $0 \leq (u+1)(u+2)$ $\begin{array}{c c c} -2 & -1 & \\ \hline + & - & + \end{array}$ $u^2 + 3u + 1 \leq 1$ $u^2 + 3u \leq 0$ $u(u+3) \leq 0$ $\begin{array}{c c c} -3 & 0 & \\ \hline + & - & + \end{array}$ $D_f = [-3, -2] \cup [-1, 0]$	7
الف) $u - 2 > 0$ $u > 2$ $2 - \log_3 u > 0$ $\log_3 u < 2$ $u - 2 \leq 9 \rightarrow u \leq 11$ $D_f = (2, 11]$	$\rightarrow) u^3 - u > 0 \rightarrow u(u^2 - 1) > 0$ $u(u-1)(u+1) > 0$ $\begin{array}{c c c c} -1 & 0 & 1 & \\ \hline - & + & - & + \end{array}$ $D_f = (-1, 0) \cup (1, +\infty)$	8
الف) $\varepsilon^u + 1 \neq 0$ $\varepsilon^u \neq -1$ لا يمكن تقديره $D_f = \mathbb{R}$	$\rightarrow) \varepsilon^u - 1 \neq 0$ $\varepsilon^u \neq 1$ $u \neq 0$ $D_f = \mathbb{R} - \{0\}$	9
الف) $\varepsilon u + 1 \in W$ $\varepsilon u \in W - 1$ $u \in \frac{W-1}{\varepsilon}$ $D_f = \{u \mid u = \frac{k-1}{\varepsilon}, k \in W\}$	$\rightarrow) \frac{3u-2}{2u-5} \in W$ $3u-2 \in -5W + 2uW$ $3u-2uW \in -5W+2$ $u(3-2W) \in 2-5W$ $u \in \frac{2-5W}{3-2W}$	10

$$D_f = \{u \mid u = \frac{5k-2}{2k-3}, k \in W\} \subseteq D_f = \{u \mid u = \frac{2-5k}{3-2k}, k \in W\}$$

الف) $\frac{u^2 - 4u}{u^3 - u} \geq 0$ $\frac{u(u-4)}{u(u-1)(u+1)} \geq 0$ $\frac{-1}{-} \frac{0}{+} \frac{+1}{+} \frac{4}{-} \frac{+}{+}$ $D_f = [0, +1] \cup [4, +\infty)$	ب) $\frac{u^3(u+1)(u-1)}{u(u+1)(u-1)} \geq 0$ $\frac{-1}{+} \frac{0}{+} \frac{+1}{+} \frac{+}{+}$ $D_f = \mathbb{R}$	1
الف) $u + u > 0$ $u > -u$ $D_f = \mathbb{R}$	ب) $u u > 0$ $D_f = \mathbb{R} - \{0\}$ $D_f = \mathbb{R} - \{0\}$	2
الف) $2 - [u] \geq 0$ $[u] \leq 2$ $u < 3$ $D_f = (-\infty, 3)$	ب) $2 - [u] > 0$ $[u] < 2$ $u < 2$ $D_f = (-\infty, 2)$	3
الف) $[u - \frac{1}{3}] + [u + \frac{2}{3}] \geq 0$ $[u - \frac{1}{3} + 1] \geq 0$ $[u - \frac{1}{3}] \geq -\frac{1}{3} \rightarrow u - \frac{1}{3} \geq 0 \rightarrow u \geq \frac{1}{3}$ $D_f = [\frac{1}{3}, +\infty)$	ب) $\sqrt{[u - \frac{1}{3}] + [-(u - \frac{1}{3})]}$ $u \in \mathbb{Z} \rightarrow [u] + [-u] = 0$ $D_f = \{u \mid u = k + \frac{1}{3}, k \in \mathbb{Z}\}$	4
الف) $\sin u - 1 \neq 0$ $\sin u \neq 1$ $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$	ب) $2\sin^2 u - 1 \neq 0$ $2\sin^2 u \neq 1$ $\sin^2 u \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$ $D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$	5