

الف) $x(x-4)$
 $x=4, 0$
 $x(x^2-1)$
 $(x-1)(x+1)$
 $(-\infty, -1) \cup (0, 1) \cup (4, +\infty)$

ب) $x^3(x^2-1)$
 $(x^2-1)(x+1)$
 $(-1, 0) \cup (0, 1) \cup (1, +\infty)$

الف) $x+1 > 0$
 $x > -1$
 $D_f = (0, +\infty)$
 $x > 0$

ب) $\frac{1}{\sqrt{x|x|}} > 0$
 $x|x| > 0$
 $|x| > 0$
 $x > 0$
 $x^2 > 0$
 $(0, +\infty)$

الف) $x-2 > 0$
 $x > 2$
 $(-\infty, 2)$

ب) $x-2 > 0$
 $x > 2$
 $(-\infty, 2)$

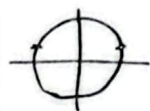
الف) $\frac{1}{x} + \frac{1}{x+1} > 0$
 $x < -1$
 $x > 0$
 $(-\infty, -1) \cup (0, +\infty)$

ب) $\frac{1}{x} + \frac{1}{x+1} > 0$
 $A + (-A) = 0$
 $D_2 = \{x \in \mathbb{R} \mid x - \frac{1}{x} \in \mathbb{Z}\}$

الف) $\sin x = 1$
 $\sin x = 1 \neq 0$
 $\sin x \neq 1$
 $D_2 = \mathbb{R} \setminus \{2k\pi + \frac{\pi}{2} \mid k \in \mathbb{Z}\}$

ب) $\sin^2 x \neq 1$
 $\sin^2 x \neq 1$
 $\sin x \neq \pm 1$
 $\sin x \neq \pm \frac{\sqrt{2}}{2}$
 $D_2 = \mathbb{R} \setminus \{\frac{\pi}{4} + k\frac{\pi}{2} \mid k \in \mathbb{Z}\}$

الف) $\sqrt{y} \sin x - 1 \geq 0$
 $\sin x \geq \frac{1}{\sqrt{y}}$



$D \subset \mathbb{R} \left\{ \frac{\pi}{2} + 2k\pi, \frac{3\pi}{2} + 2k\pi \mid k \in \mathbb{Z} \right\}$

ب) $\cos 2x - 1 \geq 0$
 $\cos 2x \geq 1$



$D \subset \mathbb{R} \{ x \mid x = k\pi, k \in \mathbb{Z} \}$

الف)

$\frac{1}{\sqrt{2}} \sqrt{m} - \sqrt{2} \leq 1$
 $-\sqrt{2} \leq \sqrt{m} \leq \sqrt{2}$
 $\sqrt{2} \leq |m| \leq 2$
 $[-2, -\sqrt{2}] \cup [\sqrt{2}, 2]$

$\frac{1}{\sqrt{2}} \sqrt{m} + \sqrt{2} \leq 1$
 $-\sqrt{2} \leq \sqrt{m} \leq -\sqrt{2}$

$-2 \leq m \leq 2$
 $m \geq 2$
 $m \leq -2$
 $D = [-2, -\sqrt{2}] \cup [\sqrt{2}, 2]$

الف) $x - \log_2(m-2) \geq 0$

$\log_2(m-2) \leq x$

$m-2 \geq 2^x$
 $m \geq 2^x + 2$
 $D = (2, 11]$

ب) $\log_2(m-2)$
 $m(m-1) > 0$
 $m > 1$

$-1 \quad 0 \quad 1$
 $- \quad + \quad - \quad +$

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

الف)

$\frac{w}{\varepsilon^n + 1}$
 $\varepsilon^n + 1$
 $\varepsilon^n \neq -1$
 $D \subset \mathbb{R}$

ب) $\varepsilon^n - 1 \neq 0$
 $\varepsilon^n \neq 1$
 $n \neq 0$
 $(-\infty, 0) \cup (0, +\infty)$

ج)

$\varepsilon^n - w \neq 0$
 $\varepsilon^n \neq w$
 $n \neq \log_\varepsilon w$
 $n \neq \log_\varepsilon \frac{1}{\varepsilon} \Rightarrow n \neq -1$
 $D = (-\infty, -1) \cup (-1, +\infty)$

الف)

$\varepsilon_{n+1} \in \{0, 1, 2, \dots\}$
 $\varepsilon_n \in \{-1, 0, 1, \dots\}$
 $a \in \{-\frac{1}{2}, 0, \frac{1}{2}, \dots\}$
 $D = \{ \frac{a-1}{\varepsilon} \mid a \in \mathbb{W} \}$

ب)

$\frac{r_{n-1}}{r_{n-2}} \in \mathbb{W}$
 $r_{n-1} \in r_{n-2} \mathbb{W}$
 $r_n - r_{n-1} = -\alpha r_{n-1} + r_n$
 $\alpha = \frac{-\alpha r_{n-1} + r_n}{r_{n-1}}$
 $D = \{ \alpha \mid \alpha = \frac{-\alpha k + r}{r - rk} \}$