

الف) $(n+3) \mid R = -3$ $\Rightarrow D_f = \mathbb{R} - \left\{ \frac{1}{3} \right\}$ و $\frac{1}{3}$ $\frac{2}{3}$

$\frac{(n-1)(n^2 + \Delta n - 3)}{R=1} \Rightarrow R = \frac{1}{3}$ $\frac{1}{3}$

ب) $(n+3) \Rightarrow R = -3$ $\Rightarrow D_f = \mathbb{R} - \left\{ -1, \frac{1}{3}, -\frac{1}{3} \right\}$

$R = -1 \Rightarrow (n+1)(n^2 + \Delta n + 3) \Rightarrow R = -3, -\frac{1}{3}$ $\Rightarrow D_f = \mathbb{R} - \left\{ -1, \frac{1}{3}, -\frac{1}{3} \right\}$

الف) $n = 3$ $\Rightarrow D_f = \mathbb{R} - \left\{ 1 \right\}$

$R = 1 \Rightarrow (n-1)(n^2 - n + 1) \rightarrow R = \textcircled{X}$

ب) $\sqrt{n+3} \Rightarrow R = -3$ $\Rightarrow D_f = \mathbb{R} - (-3, 1]$

$R = 1 \Rightarrow \sqrt{(n-1)(n^2 - n + 1)}$ $\Rightarrow D_f = \mathbb{R} - (-3, 1]$

$n^2 - \Delta |n-1| - \Delta n + \Delta \neq 0$ If $n > 1 \Rightarrow n^2 - \Delta n + \Delta \neq \Delta n - \Delta$

$\Rightarrow n^2 - \Delta n + \Delta \neq \Delta |n-1| \Rightarrow (n-2)(n-\Delta) \neq 0 \Rightarrow n \neq 2, \Delta$

If $n < 1 \Rightarrow n^2 - \Delta n + \Delta \neq \Delta - \Delta n \Rightarrow n^2 + \Delta n \neq 0$

$\Rightarrow n(n+\Delta) \neq 0 \Rightarrow n \neq 0, -\Delta$

$\Rightarrow D_f = \mathbb{R} - \left\{ -3, 2, \Delta, 0 \right\}$

الف) $\left[\frac{n}{A} \right] \geq 1 \Rightarrow A \geq 1 \Rightarrow -n \geq 1 \Rightarrow n \leq -2$

$\Rightarrow D_f = (-\infty, -2]$

ب) $\left[\frac{n}{A} \right] - 1 \left[\frac{n}{A} \right] - 3 \neq 0 \Rightarrow \det \left[\frac{n}{A} \right] = 2$ $\Rightarrow \mathcal{E}^2 - 2\mathcal{E} - 3 \neq 0$

$\Rightarrow (\mathcal{E}-3)(\mathcal{E}+1) \neq 0 \Rightarrow \mathcal{E} \neq -1, 3 \Rightarrow$

$\Rightarrow D_f = \mathbb{R} - ([-1, 0) \cup [3, 4])$

الف) $\left[n - \frac{1}{n} \right] = \left[n + \frac{1}{n} \right] - 1 \Rightarrow 1 \left[n + \frac{1}{n} \right] \geq 1 \Rightarrow \left[n + \frac{1}{n} \right] \geq \frac{1}{n}$

$\Rightarrow A \geq 1 \Rightarrow n + \frac{1}{n} \geq 1 \Rightarrow n \geq \frac{1}{n} \Rightarrow \left[\frac{1}{n}, +\infty \right)$

١) Let $n - \frac{1}{r} = \epsilon \Rightarrow [\epsilon] + [-\epsilon] \geq 0 \Rightarrow \epsilon \in \mathbb{Z}$
 $\Rightarrow \frac{n-1}{r} \in \mathbb{Z} \Rightarrow n \in \frac{r\mathbb{Z}+1}{r} \Rightarrow D_f = \{n \mid n \in \frac{r\mathbb{Z}+1}{r}\}$

الف) $\cos n, \tan n = \text{Defined}, \tan n \neq -1 \Rightarrow \left[k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2} \right]$
 ب) $1 \geq \sin^2 n \Rightarrow \frac{1}{r} \geq \sin^2 n \Rightarrow \frac{1}{r} \leq \sin^2 n \leq \frac{1}{r}$

الف) $1 \geq \sin n \Rightarrow \sin n \geq \frac{1}{r} \Rightarrow \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$
 ب) $1 \geq \cos n \Rightarrow \frac{1}{r} \geq \cos n \Rightarrow \left[2k\pi + \frac{\pi}{r}, 2k\pi + \frac{2\pi}{r} \right]$

الف) $1 \geq \sqrt{a - 2n} \Rightarrow \sqrt{a - 2n} \geq 0 \Rightarrow a - 2n \geq 0 \Rightarrow n \leq \frac{a}{2}$
 $\Rightarrow \left[-\frac{a}{2}, \frac{a}{2} \right] \Rightarrow D_f = \left[-\frac{a}{2}, \frac{a}{2} \right]$
 ب) $1 \geq \sqrt{a - 2n} \Rightarrow \sqrt{a - 2n} \geq 0 \Rightarrow a - 2n \geq 0 \Rightarrow n \leq \frac{a}{2}$
 $\Rightarrow D_f = \left[\frac{a}{2}, \frac{a}{r} \right]$

الف) $n > 0, 1 - \log_2 n \geq 0 \Rightarrow 1 \geq \log_2 n \Rightarrow n \leq 2 \Rightarrow D_f = (0, 2]$
 ب) $n > 0, 1 - \log_2 \frac{n}{r} \geq 0 \Rightarrow 1 \geq \log_2 \frac{n}{r} \Rightarrow \frac{n}{r} \leq 2 \Rightarrow n \leq \frac{2r}{r} = 2$
 $\Rightarrow D_f = \left(\frac{1}{r}, 2 \right]$

الف) $r(f_{n-2r}) \geq 1 \Rightarrow r(f_{n-2r}) \geq r \Rightarrow f_{n-2r} \geq r$
 $\Rightarrow n^2 - 2rn + r \geq 0 \Rightarrow (n-r)(n-r) \geq 0 \Rightarrow n \geq r$
 ب) $\frac{r_{n+2}}{r_{n+1}} \in W \Rightarrow -\frac{r_{n+2}}{r_{n+1}} \in W \Rightarrow D_f = [1, r]$
 $\Rightarrow D_f = \{n \mid n \in \frac{a-rW}{rW-r}\}$