

(الف)

$$\frac{n+1}{n^3+n^2-n+1}$$

$$n-1 \Rightarrow n=1$$

n	n^2	n	1
1	1	-1	1
2	4	-2	1
3	9	-3	1

(1)

$$\rightarrow (n-1)(n^3+n^2-n+1) \neq 0$$

$$n \neq 1$$

$$\hookrightarrow 1 \quad n^3+n^2-n+1 = 1$$

$$\Rightarrow n = \{-1, 0, 1\}$$

$$n^3+n^2-n+1 = (n-1)(n^3+n^2-n+1) \neq 0$$

$$n \neq 1 \quad \hookrightarrow n \neq -1$$

(ب)

$$\frac{n+1}{n^3+n^2-n+1}$$

$$n+1 \Rightarrow n=-1$$

n	n^2	n	1
1	1	1	1
2	4	-2	1
3	9	-3	1

$$\rightarrow (n+1)(n^3+n^2-n+1) \neq 0$$

$$n \neq -1$$

$$\hookrightarrow A = n^3+n^2-n+1$$

$$n^3+n^2-n+1 = (n+1)(n^2-n+1)$$

$$n \neq -1 \quad \hookrightarrow n(n+1) \neq 0$$

$$n \neq -1$$

$$D = R - \{-1, 0, 1\}$$

(الف)

$$\frac{n+1}{n^3-n^2+n-1}$$

$$n-1 \Rightarrow n=1$$

n	n^2	n	1
1	1	-1	1
2	4	-2	1
3	9	-3	1

$$\rightarrow (n-1)(n^3-n^2+n-1) \neq 0$$

$$n \neq 1$$

$$\hookrightarrow (n^3-n^2+n-1) \neq 0$$

$$D = R - \{1\}$$

$$\Delta = 1 - \frac{5}{4} = -\frac{3}{4} < 0$$

$$\Delta$$

(ب)

$$\frac{n+1}{n^3-n^2+n-1}$$

$$\rightarrow n=-1$$

n	n^2	n	1
1	1	-1	1
2	4	-2	1
3	9	-3	1

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

$$\hookrightarrow n=1 \Rightarrow n=1$$

n	n^2	n	1
1	1	-1	1
2	4	-2	1
3	9	-3	1

$$\rightarrow (n-1)(n^3-n^2+n-1) \neq 0$$

$$n \neq 1$$

$$\hookrightarrow (n^3-n^2+n-1) \neq 0$$

$$\hookrightarrow \Delta < 0$$

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$$n^2 - \omega |n-1| - 2n + \omega \neq 0$$

$$n > 1 \quad n^2 - \omega n + 1 - 2n + \omega \neq 0$$

$$n^2 - 2n + \omega \neq 0$$

$$(n-1)(n-\omega) \neq 0$$

$$s \quad (n=1) \quad \hookrightarrow (n=\omega)$$

$$n < 1$$

$$\rightarrow n^2 + \omega n - \omega - 2n + \omega \neq 0 \quad (*)$$

$$n^2 + \omega n \neq 0 \rightarrow n(n+\omega) \neq 0$$

$$n \neq 0 \quad \hookrightarrow n \neq -\omega$$

$$\Rightarrow D = \{-\omega, 0, 1, \omega\}$$

$$الف) [-n] - 2 \geq 0 \rightarrow [-n] \geq 2$$

$$\hookrightarrow n \leq -2 \quad D = (-\infty, -2] \quad (*)$$

$$ب) [n]^2 - 2[n] - 3 \neq 0$$

$$10 \quad [n]^2 + 1 \neq 0 \rightarrow [n] \neq -1$$

$$([n] - 3)([n] + 1) \neq 0$$

$$\hookrightarrow n \notin [-1, 0)$$

$$\hookrightarrow [n] - 3 \neq 0 \rightarrow [n] \neq 3$$

$$\hookrightarrow n \notin [3, 4)$$

$$\Rightarrow D = [4, 5) \cup [-1, 0)$$

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$$الف) [n - 1/4] + [n + 1/4] \geq 0 \rightarrow [n - 1/4] + [n - 1/4] \geq -1 \quad (*)$$

$$[n - 1/4] + [n + 1 - 1/4] \geq 0 \rightarrow 2[n - 1/4] \geq -1$$

بشرط

$$[n - 1/4] \geq -1/4$$

$$D = [-1/4, \infty) \quad n \geq -1/4 \quad \leftarrow \quad n - 1/4 \geq -1 \quad \leftarrow \quad (-1)$$

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$$ب) [n - 1/4] + [1/4 - n] \geq 0$$

$$\frac{[n - 1/4] + [-(n - 1/4)] \geq 0 \rightarrow \left\{ \begin{array}{l} [n] + [-n] = -1 \quad n \in \mathbb{R} \\ [n] + [-n] = 0 \quad n \in \mathbb{Z} \\ [n] + [-n] \geq 0 \end{array} \right.$$

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$$D = \{n \mid n - 1/4 \in \mathbb{Z}\}$$

الف) $\tan \theta + 1 \neq 0 \rightarrow \tan \theta \neq -1$

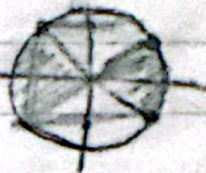
$$D = \mathbb{R} - \left\{ k\pi + \frac{3\pi}{4} \right\}$$



(4)

ب) $1 - \sqrt{\sin \theta} > 0 \rightarrow 1 > \sqrt{\sin \theta} \rightarrow \frac{1}{4} > \sin \theta$

$$D = \left[2k\pi + \frac{\pi}{2}, 2k\pi - \frac{\pi}{2} \right]$$



$$\frac{1}{4} > \sin \theta \rightarrow -\frac{1}{4} < \sin \theta < \frac{1}{4}$$

الف) $\sqrt{\sin \theta} - 1 > 0 \rightarrow \sqrt{\sin \theta} > 1 \rightarrow \sin \theta > \frac{1}{4}$

$$D = \left[2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4} \right]$$



(5)

ب) $1 - \sqrt{\cos \theta} > 0 \rightarrow 1 > \sqrt{\cos \theta} \rightarrow \frac{1}{4} > \cos \theta$

$$D = \left[2k\pi - \frac{\pi}{4}, 2k\pi \right]$$



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$$U(2k\pi, 2k\pi + \frac{\pi}{4})$$

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الف) $-1 < n^2 + 2n + 1 < 1 \rightarrow n^2 + 2n + 1 < 1$

$$\text{II} \rightarrow -1 < n^2 + 2n + 1$$

$$\text{I} \rightarrow n^2 + 2n + 1 < 1$$

$$n(n+2) < 0$$

$$n < 0 \rightarrow n = -2$$

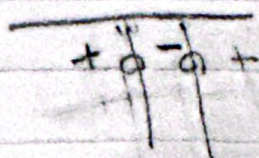


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$$\text{II} \rightarrow -1 < n^2 + 2n + 1 \rightarrow n^2 + 2n + 2 > 0$$

$$(n+1)(n+2) > 0$$

$$-2 < n < -1$$



$$\rightarrow (-\infty, -2) \cup (-1, +\infty)$$

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$$\rightarrow (-\infty, -2) \cup (-1, +\infty)$$

$$\text{ب) } \rightarrow \Delta - 2n > 0 \rightarrow \Delta > 2n \rightarrow \Delta/2 > n$$

$$\text{الف) } 1 - \log_r^n > 0 \rightarrow 1 > \log_r^n \rightarrow \log_r^n > \log_r^n \quad n > 0 \quad D = (0, 1) \quad (9)$$

$$\text{ب) } 1 - \log_{1/r}^n > 0 \rightarrow 1 > \log_{1/r}^n \quad n > 1/r \quad n > 0 \rightarrow (1/r, +\infty)$$

$$\text{الف) } r^{kn-n} - \Delta > 0 \rightarrow r^{kn-n} > \Delta \rightarrow \log_r \Delta > kn - n \quad (10)$$

$$\rightarrow r^{\Delta} > kn - n \rightarrow r^{\Delta} > n(k - 1)$$

$$\text{ب) } \frac{rn + \Delta}{rn + k} \leftarrow w \rightarrow n = -\frac{rw - \Delta}{rw - r} \rightarrow n = \frac{-rw + \Delta}{-rw + r}$$

$$D = \left\{ n \mid n \in \frac{-rk + \Delta}{-rk + r}, k \in w \right\}$$

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