

سؤال 6 ←

الف) $\frac{\cot m + 1}{\tan m + 1} \Rightarrow \begin{matrix} \cos m \neq 0 \\ \tan m \neq -1 \\ \sin m \neq 0 \end{matrix} \Rightarrow \mathbb{R} - \left\{ \frac{k\pi}{2} \cup k\pi - \frac{\pi}{4} \right\} = D_f$

ب) $1 - \varepsilon \sin^2 \alpha \geq 0 \rightarrow \sin^2 \alpha \leq \frac{1}{\varepsilon} \rightarrow -\frac{1}{\sqrt{\varepsilon}} \leq \sin \alpha \leq \frac{1}{\sqrt{\varepsilon}} \rightarrow D_f = \mathbb{R} - \left\{ (2k\pi - \frac{\pi}{4}, 2k\pi + \frac{\pi}{4}) \cup (2k\pi + \frac{3\pi}{4}, 2k\pi + \frac{5\pi}{4}) \right\}$

الف) $r \sin m - 1 \geq 0 \rightarrow \sin m \geq \frac{1}{r} \rightarrow D_f = \left\{ (2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4}) \right\}$
 ب) $1 - r \cos m \geq 0 \rightarrow \frac{1}{r} \geq \cos m = \cos m \leq \frac{1}{r} \rightarrow D_f = (2k\pi + \frac{\pi}{r}, 2k\pi - \frac{\pi}{r})$

ب-الف) $1 - r \cos m \geq 0 \rightarrow \cos m \leq \frac{1}{r} \rightarrow D_f = [2k\pi + \frac{\pi}{r}, 2k\pi + \frac{3\pi}{r}]$

الف) $-1 \leq m^2 + 2m + 1 \leq 1$

$m^2 + 2m + 2 \rightarrow (m+1)(m+2) \xrightarrow{+ \phi - \phi +} (-\infty, -2] \cup [-1, \infty)$
 $m^2 + 2m \leq 0 \rightarrow m(m+2) \leq 0 \xrightarrow{+ \phi - \phi +} [-2, 0]$

$D_f = [-2, -1] \cup [-1, 0]$

ب) $0 \leq 2 - 2m \leq 1 \rightarrow -5 \leq -2m \leq -1 \rightarrow \frac{5}{2} \geq m \geq \frac{1}{2} \rightarrow D_f = [\frac{1}{2}, \frac{5}{2}]$

الف) $x > 0 / 1 - \log_2 x > 0 \rightarrow x < 2 \Rightarrow D_f = (0, 2)$

ب) $x > 0 / 1 + \log_2 \frac{1}{x} > 0 \rightarrow 1 + \log_2 x > 0 \rightarrow \log_2 x > -1 \rightarrow x > \frac{1}{2} \rightarrow D_f = (\frac{1}{2}, \infty)$

الف) $m - m^2 - 2 \geq 0 \rightarrow m^2 - m + 2 \leq 0 \rightarrow (m-1)(m-2) \leq 0$

$D_f = [1, 2]$

ب) $\frac{m+5}{m+2} \in \mathbb{W} \rightarrow -\frac{m+5}{m+2} \in \mathbb{W} \rightarrow D_f = \left\{ n \mid n \in \frac{-k+5}{k-2}, k \in \mathbb{W} \right\}$

حل المسألة

$$\begin{array}{r} r n^3 + r n^2 - \Lambda n + r \\ - r n^2 + r n^2 \\ \hline \delta n^2 - \Lambda n + r \\ - \delta n^2 + \delta n \\ \hline - \Lambda n + r \end{array} \quad \begin{array}{l} \underline{n-1} \\ r n^2 + \delta n - r \\ \hline n^2 + \delta n - r \\ (n-1)(n+r) \end{array}$$

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$$\begin{array}{r} r n^3 + r n^2 + \Lambda n + r \\ - r n^3 - r n^2 \\ \hline \Lambda n^2 + \Lambda n + r \\ - \Lambda n^2 - \Lambda n \\ \hline r n + r \end{array} \quad \begin{array}{l} \underline{n+1} \\ r n^2 + \Lambda n + r \\ \hline n^2 + \Lambda n + r \\ (n+1)(n+r) \end{array}$$

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$$\begin{array}{r} \frac{1}{2} n^3 - r n^2 + r n - 1 \\ - \frac{1}{2} n^3 + n^2 \\ \hline - \frac{1}{2} n^2 + r n - 1 \\ + \frac{1}{2} n^2 + n \\ \hline n - 1 \end{array} \quad \begin{array}{l} \underline{n-1} \\ n^2 - \frac{1}{2} n + 1 \end{array}$$

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