

٢٥

تکلیف سب سے

✓ سوال حل کرنا

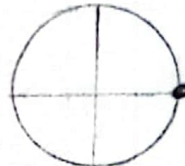
الف) $P \cos \alpha + 1 \neq 0 \Rightarrow P \cos \alpha \neq -1 \Rightarrow \cos \alpha \neq -\frac{1}{P}$



سوال اول: ٢

$$D_f = \mathbb{R} - \left\{ 2k\pi + \frac{2\pi}{P}, 2k\pi - \frac{2\pi}{P} \right\}$$

ب) $\cos \alpha - 1 \neq 0 \Rightarrow \cos \alpha \neq 1 \Rightarrow D_f = \mathbb{R} - \{ 2k\pi \}$



الف: $\left\{ \begin{array}{l} \text{I: } \tan \alpha + 1 \neq 0 \Rightarrow \tan \alpha \neq -1 \\ \text{II: } \cos \alpha \neq 0 \end{array} \right\} \Rightarrow D_f = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right\}$

ب: $\left\{ \begin{array}{l} \text{I: } \cot \alpha - 1 \neq 0 \Rightarrow \cot \alpha \neq 1 \\ \text{II: } \sin \alpha \neq 0 \end{array} \right\} \Rightarrow D_f = \mathbb{R} - \left\{ k\pi, k\pi + \frac{\pi}{4} \right\}$

الف) $-1 \leq \alpha^2 - 2 \leq 1 \Rightarrow 1 \leq \alpha^2 \leq 3 \Rightarrow \left\{ \begin{array}{l} 1 \leq \alpha \leq \sqrt{3} \\ -1 \leq \alpha \leq -\sqrt{3} \end{array} \right\}$

$\Rightarrow D_f = [1, \sqrt{3}] \cup [-\sqrt{3}, -1]$

ب) $-1 \leq \sqrt{\alpha} - 2 \leq 1 \Rightarrow 1 \leq \sqrt{\alpha} \leq 3 \Rightarrow 1 \leq \alpha \leq 9 \Rightarrow D_f = [1, 9]$

الف) $-1 \leq |\alpha| - 2 \leq 1 \Rightarrow 1 \leq |\alpha| \leq 3 \Rightarrow \left\{ \begin{array}{l} 1 \leq \alpha \leq 3 \\ -3 \leq \alpha \leq -1 \end{array} \right\} \Rightarrow D_f = [1, 3] \cup [-3, -1]$

ب) $-1 \leq \alpha^2 + 3\alpha + 1 \leq 1 \Rightarrow \left\{ \begin{array}{l} \alpha^2 + 3\alpha + 1 \leq 1 \Rightarrow \alpha^2 + 3\alpha \leq 0 \Rightarrow \alpha(\alpha + 3) \leq 0 \\ \alpha^2 + 3\alpha + 1 \geq -1 \Rightarrow \alpha^2 + 3\alpha + 2 \geq 0 \Rightarrow (\alpha + 1)(\alpha + 2) \geq 0 \end{array} \right.$

① $\frac{-3}{+} \frac{0}{-} \frac{+}{+} \quad \frac{-2}{+} \frac{-1}{-} \frac{+}{+}$

$\Rightarrow D_f = [-3, -2] \cup [-1, 0]$

الف) $\alpha^2 - 4 > 0 \Rightarrow \alpha^2 > 4 \Rightarrow -2 < \alpha < 2 \Rightarrow D_f = (-\infty, -2) \cup (2, +\infty)$

ب) $P - |\alpha| > 0 \Rightarrow |\alpha| < P \Rightarrow -P < \alpha < P \Rightarrow D_f = (-P, P)$

الف) $\begin{cases} x - 1 > 0 \Rightarrow x < \infty \\ x - 1 > 0 \Rightarrow x > 1 \\ x - 1 \neq 1 \Rightarrow x \neq 2 \end{cases} \Rightarrow D_f = (1, \infty) - \{2\}$

سؤال ٤ (٥)

ب) $\begin{cases} x^2 - 1 > 0 \Rightarrow x^2 > 1 \Rightarrow -1 < x < 1 \\ x + 1 > 0 \Rightarrow x > -1 \\ x + 1 \neq 1 \Rightarrow x \neq 0 \end{cases} \Rightarrow D_f = (-1, 0) \cup (0, 1) - \{-1\}$

الف) $\frac{x^2 - 1}{x - 1} > 0 \Rightarrow \frac{(x-1)(x+1)}{(x-1)} > 0 \Rightarrow \frac{1}{-1} + \frac{1}{0} + \frac{1}{1} \Rightarrow D_f = (1, \infty) - \{1\}$ سؤال ٥ (٥)

$\Rightarrow D_f = (1, \infty) - \{1\}$

ب) $\begin{cases} \frac{x+1}{x-1} > 0 \Rightarrow \frac{-1}{+1} - \frac{1}{-1} \pm \Rightarrow (1, \infty) \cup (-\infty, -1) \\ x + \infty > 0 \Rightarrow x > -\infty \\ x + \infty \neq 1 \Rightarrow x \neq -1 \end{cases} \Rightarrow D_f = (-\infty, -1) \cup (1, \infty) - \{-1\}$

الف) $x \log_r^{(n-1)} > 0 \Rightarrow \log_r^{(n-1)} < 1 \Rightarrow n-1 < r^1 \Rightarrow I: n < 10$ سؤال ٦ (٥)
 $I \cap II: (1, 10] = D_f \leftarrow II: n-1 > 0 \Rightarrow n > 1$

ب) $\begin{cases} I: n > 0 \\ II: x \log_r^n - 1 > 0 \Rightarrow x \log_r^n > 1 \Rightarrow \log_r^n > \frac{1}{x} \Rightarrow x > \sqrt[n]{r} \Rightarrow n > \sqrt[n]{r} \end{cases}$

$I \cap II: D_f = (\sqrt[n]{r}, \infty)$

الف) $x^n + 1 \neq 0 \Rightarrow x^n \neq -1 \Rightarrow D_f = \mathbb{R}$ سؤال ٧ (٥)

ب) $x^n - 1 \neq 0 \Rightarrow x^n \neq 1 \Rightarrow x \neq 0 \Rightarrow D_f = \mathbb{R} - \{0\}$

ج) $x^n - 2 \neq 0 \Rightarrow x^n \neq 2 \Rightarrow x \neq \log_r^2 \Rightarrow D_f = \mathbb{R} - \{\log_r^2\}$

د) $x^n - r \neq 0 \Rightarrow x^n \neq r \Rightarrow x \neq \log_r^r \Rightarrow D_f = \mathbb{R} - \{\log_r^r\}$

الف) $km+1 \in \omega \Rightarrow km \in \omega-1 \Rightarrow m \in \frac{\omega-1}{k} \Rightarrow D_f = \{m | m = \frac{k-1}{k} \omega, k \in \omega\}$ سؤال ٨ (٥)

ب) $\frac{km-1}{km-\omega} \in \omega \Rightarrow km-1 \in k\omega - \omega \Rightarrow km-1 \in k\omega - \omega \Rightarrow m \Rightarrow m = \frac{1-\omega}{k-\omega}$

$$Q: \left\{ n \mid n = \frac{1-\omega^k}{1-\omega} \cdot k \in \omega \right\}$$

بہت سے سوال