

$$\begin{array}{r} x^2 + 12x - 12x + 12 \mid x-1 \\ \hline x^2 + 0x - 12 \Rightarrow x^2 + 0x - 12 = 0 \\ (x+4)(x-1) = 0 \end{array} \quad \begin{array}{l} \alpha = -4 \\ \alpha = 1 \end{array} \quad \begin{array}{l} \text{الف)} \\ \text{ب)} \end{array}$$

$$D_f = \mathbb{R} - \{-4, 1\}$$

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$$D_f = \mathbb{R} - \{-4, 1\}$$

$$\begin{array}{r} x^2 - 2x^2 + 2x - 1 \mid x-1 \\ \hline -x^2 + 2x - 1 \\ \hline -x^2 + 2x - 1 \\ \hline 0 \end{array} \quad \begin{array}{l} \Delta = 1 - 4 = -3 < 0 \\ \alpha = 1 \end{array} \quad \begin{array}{l} \text{الف)} \\ \text{ب)} \end{array}$$

$$D_f = \mathbb{R} - \{1\}$$

$$x^2 - 0 \mid x-1 - 2x + 0 \neq 0 \quad \begin{array}{l} \alpha > 1 \rightarrow x^2 - 0x + 0 - 2x + 0 \neq 0 \rightarrow x^2 - 2x \neq 0 \rightarrow x(x-2) \neq 0 \\ \alpha < 1 \rightarrow x^2 + 0x - 0 - 2x + 0 \neq 0 \rightarrow x^2 - 2x \neq 0 \rightarrow x(x-2) \neq 0 \end{array}$$

$$D_f = \mathbb{R} - \{-2, 0, 2\}$$

$$[-x] - 2 \geq 0 \rightarrow [-x] \geq 2 \rightarrow -x \geq 2 \rightarrow x \leq -2 \quad \begin{array}{l} \text{الف)} \\ \text{ب)} \end{array}$$

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

$$[x]^2 - 2[x] - 3 \neq 0 \quad \begin{array}{l} [x] = t \rightarrow t^2 - 2t - 3 = 0 \\ (t-3)(t+1) = 0 \end{array} \quad \begin{array}{l} t = 3 \\ t = -1 \end{array}$$

$$[x] \neq 3 \rightarrow x \notin [3, 4)$$

$$[x] \neq -1 \rightarrow x \notin [-1, 0)$$

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

$$\left[x - \frac{1}{p} \right] + \left[x + \frac{1}{p} \right] \geq 0 \rightarrow \left[x + \frac{1}{p} \right] + \left[x + \frac{1}{p} \right] - 1 \geq 0$$

$$2 \left[x + \frac{1}{p} \right] \geq 1$$

(الف) (ب)

$$x + \frac{1}{p} \geq \frac{1}{2}$$

$$x \geq \frac{1}{p} - \frac{1}{2}$$

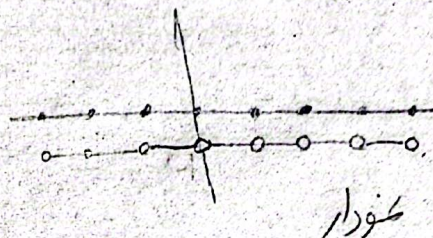
$$\leftarrow \left[x + \frac{1}{p} \right] \geq \frac{1}{2}$$

$$D_f = \left[\frac{1}{p} - \frac{1}{2}, +\infty \right)$$

$$\left[x - \frac{1}{p} \right] + \left[\frac{1}{p} - x \right] \geq 0$$

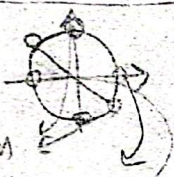
$$x - \frac{1}{p} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{p}$$

$$D_f = \left\{ x \mid x = k + \frac{1}{p}, k \in \mathbb{Z} \right\}$$



(ب) $[x] + [-x]$

$$\tan x \neq 1$$



$$D_f = \mathbb{R} - \left\{ \frac{k\pi}{p}, k\pi - \frac{\pi}{p} \right\}$$

(الف) (ب)

$$1 - \sqrt{\sin^2 x} \geq 0$$

$$\sqrt{\sin^2 x} \leq 1$$

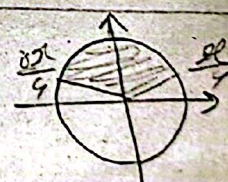
$$\sin^2 x \leq \frac{1}{p^2} \rightarrow \frac{1}{p} \leq \sin x \leq \frac{1}{p}$$

$$D_f = \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right]$$



$$\sqrt{\sin^2 x} - 1 \geq 0 \rightarrow \sqrt{\sin^2 x} \geq 1 \rightarrow \sin x \geq \frac{1}{p}$$

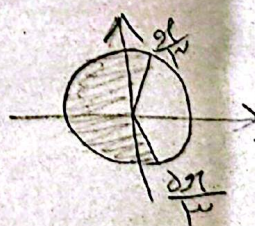
$$D_f = \left[2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4} \right]$$



(الف) (ب)

$$1 - \sqrt{\cos^2 x} \geq 0 \rightarrow \sqrt{\cos^2 x} \leq 1 \rightarrow \cos x \leq \frac{1}{p}$$

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



(ب)

$$-1 < x^2 + 3x + 1 < 1 \quad (الف)$$

$$x^2 + 3x + 1 \geq 0 \quad x^2 + 3x < 0$$

$$(x+1)(x+1) \geq 0 \quad x(x+3) < 0$$

$$\begin{array}{c|c|c|c} - & + & + & + \\ \hline + & + & + & + \end{array} \quad \begin{array}{c|c|c|c} - & + & + & + \\ \hline + & + & + & + \end{array}$$

$$\begin{array}{c} - \\ + \end{array} \quad \begin{array}{c} - \\ + \end{array}$$

$$\sum x_i = 0$$

$$(-\infty, -1] \cup [-1, +\infty) \cap$$

$$D_f = [-1, 0]$$



$$1 - \log_w x > 0 \rightarrow \log_w x < 1 \rightarrow x < w \quad \} \cap \quad D_f = (0, w) \quad (الف) 14$$

$$x > 0$$

$$1 - \log_{\frac{1}{p}} x > 0 \rightarrow \log_{\frac{1}{p}} x < 1 \rightarrow x < \frac{1}{p} \quad \} \cap$$

$$x > 0$$

$$D_f = (0, \frac{1}{p})$$

$$x^{(x-1)} - 1 \geq 0 \rightarrow x^{(x-1)} \geq x^2$$

$$x^{(x-1)} \geq x^2 \rightarrow x^2 + (x-3) \geq 0$$

$$(x-1)(x-3)$$

$$D_f = [1, 3]$$

$$\frac{w}{x+0} = w \rightarrow xw + 1 = x + 0$$

$$xw - x = 1 - 0$$

$$x(w-1) = 1$$

$$x = \frac{1}{w-1}$$

$$D_f = \{x \mid x = \frac{1}{w-1}, w \in \mathbb{R}\}$$

$$D_f = \{x \mid x = \frac{1}{w-1}, w \in \mathbb{R}\}$$