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الف) $\frac{x(x-1)(x+1)}{x(x-1)(x+1)} \geq 0$

ب) $\frac{x^3(x-1)(x+1)}{x(x-1)(x+1)} \geq 0$

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$D_f = (-1, 0) \cup (0, 1) \cup [1, +\infty)$

$D_f = \mathbb{R} - \{0, \pm 1\}$

الف) $x+|x| > 0 \rightarrow |x| > -x$

ب) $|x| > 0 \rightarrow$

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$D_f = (0, +\infty)$

الف) $2-[x] > 0 \Rightarrow [x] < 2 \Rightarrow x < 3 \Rightarrow D_f = (-\infty, 3)$

ب) $2-[x] > 0 \Rightarrow [x] < 2 \Rightarrow x < 2 \Rightarrow D_f = (-\infty, 2)$

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الف) $[x-\frac{1}{p}] + [x+\frac{p}{p}] \geq 0 \Rightarrow 1 + [x-\frac{1}{p}] + [x+\frac{p}{p}] \geq 1 \Rightarrow [x+\frac{p}{p}] + [x+\frac{p}{p}] \geq 1 \Rightarrow \frac{1}{p} \Rightarrow$

ب) $[x-\frac{1}{p}] + [-x-\frac{1}{p}] \rightarrow \begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \end{cases} \Rightarrow x - \frac{1}{p} \in \mathbb{Z} \Rightarrow D_f = \{x | x = k + \frac{1}{p}, k \in \mathbb{Z}\}$

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الف) $\sin x - 1 \neq 0$

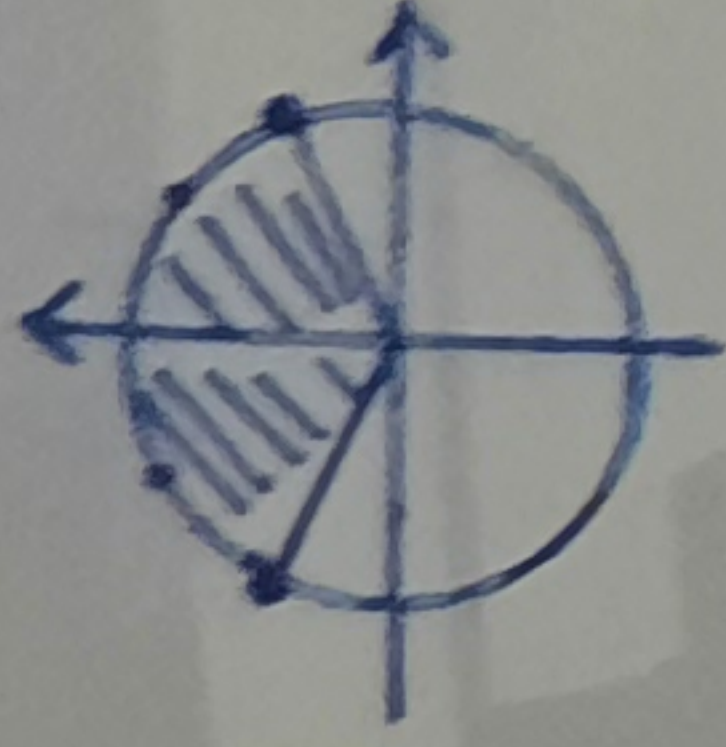
ب) $\sin x - 1 \neq 0$

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$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$

$D_f = \mathbb{R} - \{k\frac{\pi}{p} + \frac{\pi}{p}\}$

الف) $\begin{cases} \frac{1}{p} \sin u - 1 \geq 0 \\ \frac{1}{p} \sin u \geq 1 \\ \sin u \geq \frac{1}{p} \end{cases}$

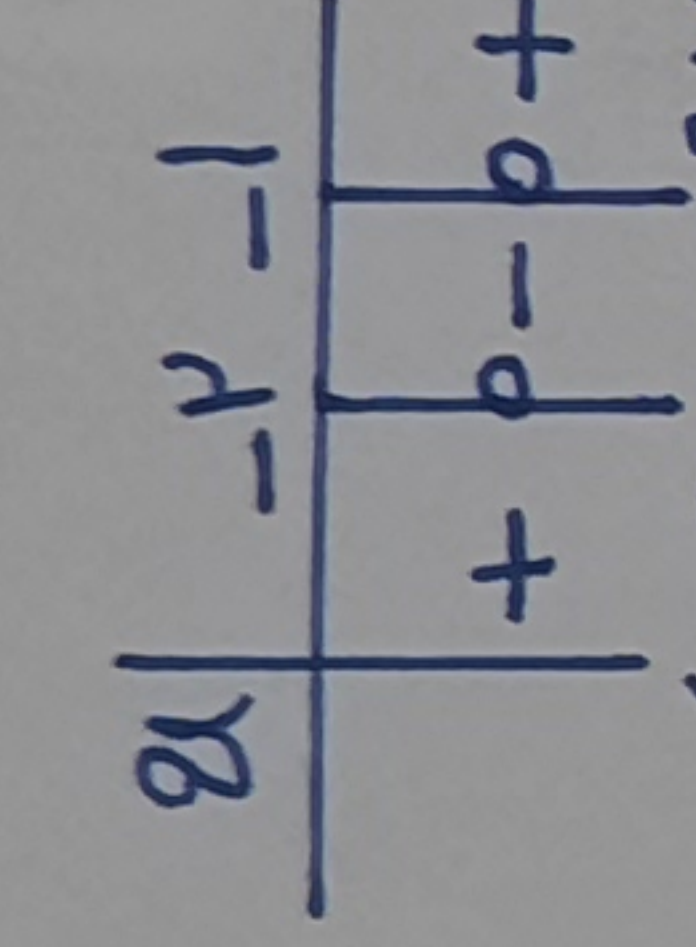


$$D_f = \left[\frac{1}{p} \pi + \frac{\pi}{2}, \frac{1}{p} \pi + \frac{3\pi}{2} \right]$$

الف) $\begin{cases} -1 \leq |u| - \frac{1}{p} \\ \frac{1}{p} \leq |u| \leq \frac{1}{p} \Rightarrow -\frac{1}{p} \leq u \leq \frac{1}{p} \\ \rightarrow -\frac{1}{p} \leq u \leq \frac{1}{p} \end{cases}$

$$u \rightarrow D_f = \left[-\frac{1}{p}, \frac{1}{p} \right] \cup \left[\frac{1}{p}, \frac{1}{p} \right]$$

ب) $\begin{cases} -1 \leq u^2 + \frac{1}{p} u + 1 \\ -1 \leq u^2 + \frac{1}{p} u + 1 \\ 0 \leq u^2 + \frac{1}{p} u + 1 \\ 0 \leq (u + \frac{1}{2p})(u + \frac{1}{2p}) \end{cases}$



$$D_f = \left[-\frac{1}{p}, -\frac{1}{p} \right] \cup \left[-\frac{1}{p}, -\frac{1}{p} \right]$$

الف) $\begin{cases} u - \frac{1}{p} > 0 \\ u > \frac{1}{p} \end{cases}$

$\begin{cases} \frac{1}{p} \log_p(u - \frac{1}{p}) \geq 0 \\ -\log_p(u - \frac{1}{p}) > -\frac{1}{p} \\ \log_p(u - \frac{1}{p}) < \frac{1}{p} \\ u - \frac{1}{p} < \frac{1}{p} \\ u < \frac{1}{p} \end{cases}$

$$\Rightarrow u > \frac{1}{p} \cap u < \frac{1}{p} \Rightarrow \frac{1}{p} < u < \frac{1}{p} \quad D_f = \left(\frac{1}{p}, \frac{1}{p} \right)$$

الف) $\frac{1}{p} u \neq -1 \quad D_f = \mathbb{R}$

ب) $\frac{1}{p} u \neq 1 \Rightarrow u \neq \frac{1}{p} \quad D_f = \mathbb{R} - \left\{ \frac{1}{p} \right\}$

ج) $\frac{1}{p} u \neq \frac{1}{p} \Rightarrow u \neq \frac{1}{p} \quad D_f = \mathbb{R} - \left\{ \frac{1}{p} \right\}$

د) $\frac{1}{p} u \neq \frac{1}{p} \Rightarrow \log_p \frac{1}{p} \neq u \Rightarrow D_f = \mathbb{R} - \left\{ \log_p \frac{1}{p} \right\}$

الف) $g = (f(u+1))$

$f(u+1) \in \mathbb{W}$

$f(u) \in \mathbb{W} - 1$

$u \in \mathbb{W} - \frac{1}{f}$

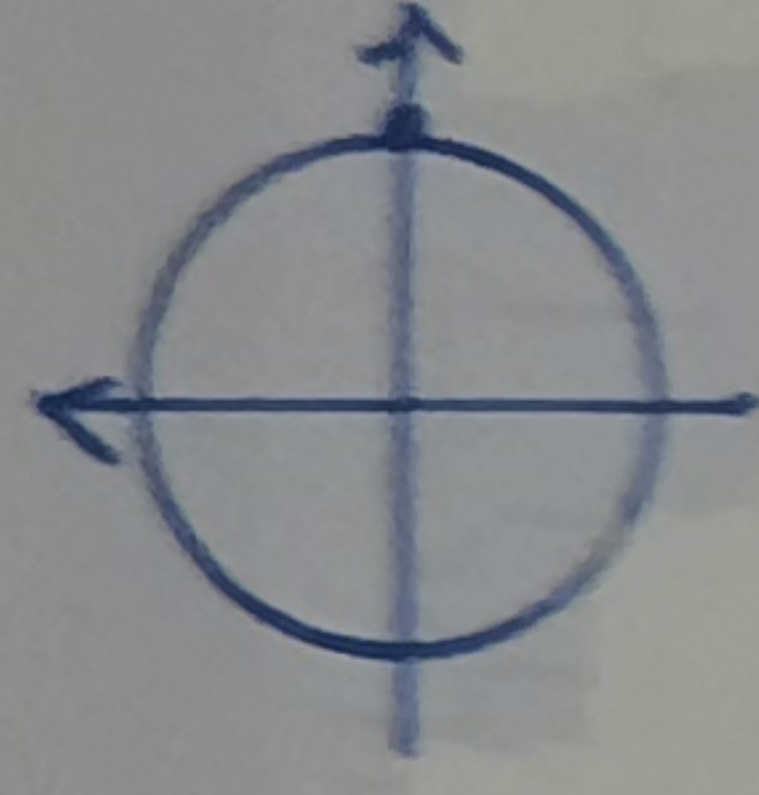
$D_f = \{u \mid u = \frac{k-1}{f}, k \in \mathbb{W}\}$

ب) $\frac{1}{p} u - \frac{1}{p} \in \mathbb{W}$

$u = -\frac{\omega W + \frac{1}{p}}{\frac{1}{p} W - \frac{1}{p}}$

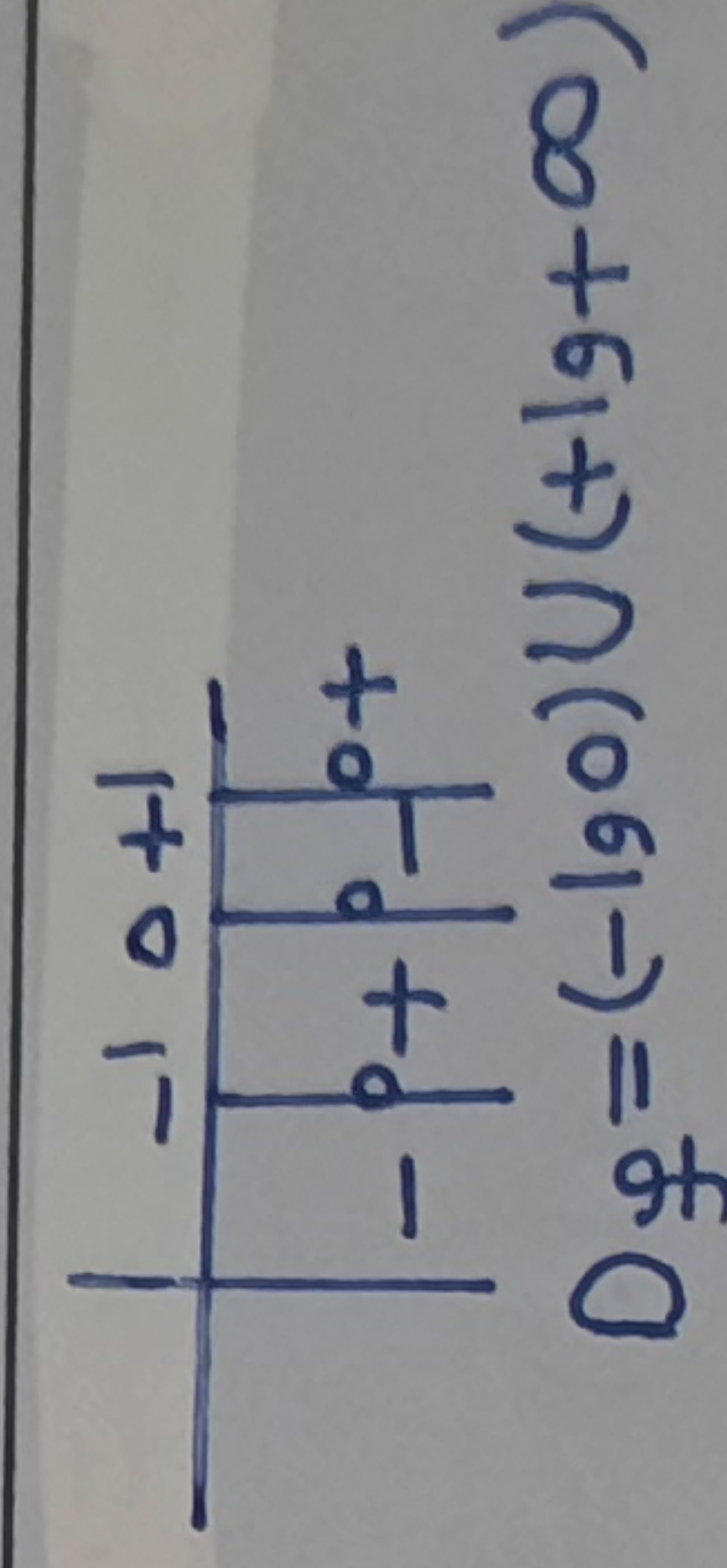
$D_f = \{u \mid u = \frac{\omega k - \frac{1}{p}}{\frac{1}{p} k - \frac{1}{p}}, k \in \mathbb{W}\}$

ب) $\begin{cases} \cos u - 1 \geq 0 \\ \cos u \geq 1 \end{cases}$



$$D_f = \{2k\pi\}$$

این خامسوی همواره برقرار است.



$$D_f = (-1/p, 1/p) \cup (1/p, \infty)$$