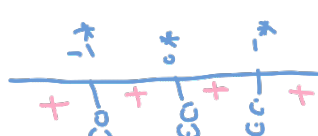


الف) $\frac{x^2-4x}{x^3-x} \geq 0 \rightarrow \frac{x(x-4)}{x(n-1)(n+1)} \geq 0$  $D_f = (-1, 0) \cup (0, 1) \cup [4, +\infty)$

$x^3-x \neq 0 \rightarrow x^3 \neq x \Rightarrow x \neq 1, 0, -1$

ب) $\frac{x^5-x^3}{x^3-x} > 0 \Rightarrow \frac{x^3(x^2-1)}{x(n-1)(n+1)} > 0$  $D_f = \mathbb{R} - \{-1, 0, 1\}$

الف) $x+|x| > 0$  $D_f = (0, +\infty)$

ب) $x|x| > 0$  $D_f = (0, +\infty)$

الف) $2-[x] \geq 0 \rightarrow [x] \leq 2 \rightarrow D_f = (-\infty, 3)$

ب) $2-[x] > 0$

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

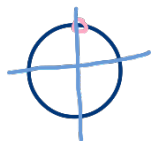
الف) $[x-\frac{1}{x}] + [x+\frac{x}{x}] \rightarrow 2[x-\frac{1}{x}] + 1 \geq 0$ $D_f = [\frac{1}{x}, +\infty)$

$[x-\frac{1}{x}] \geq -\frac{1}{x} \rightarrow [x-\frac{1}{x}] \geq 0 \Rightarrow x \geq \frac{1}{x}$

ب) $\sqrt{[x-\frac{1}{x}] + [- (x-\frac{1}{x})]}$ $\begin{cases} n \in \mathbb{Z} & [n] + [-n] = 0 \\ n \notin \mathbb{Z} & [n] + [-n] = -1 \end{cases} \Rightarrow x - \frac{1}{x} \in \mathbb{Z}$

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

الف) $\sin x - 1 \neq 0$
 $\sin x \neq 1$



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

ب) $2 \sin^2 x - 1 \neq 0$
 $\sin x \neq \pm \frac{\sqrt{2}}{2}$



$D_f = \mathbb{R} - \{k\frac{\pi}{2} + \frac{\pi}{4}\}$

$\frac{1}{x} + \frac{x}{x} \Rightarrow \sqrt{\frac{1}{x} + \frac{x}{x}} \Rightarrow \sqrt{\frac{1}{x} + \frac{x}{x}}$

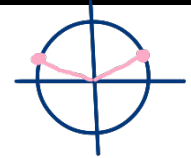
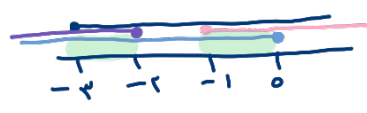
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الف) $x \sin x - 1 \geq 0$ $x \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{x}$ ب) $\cos x - 1 \geq 0$ $\cos x \geq 1$	 $D_f = [2k\pi + \frac{\pi}{2}, 2k\pi + \frac{5\pi}{2}]$  $D_f = \{2k\pi\}$	6
الف) $-1 \leq x - 3 \leq 1$ $2 \leq x \leq 4$ ب) $-1 \leq x^2 + 3x + 1 \leq 1$	$D_f = [-4, -2] \cup [2, 4]$  $D_f = [-4, -2] \cup [2, 4]$	7
الف) $x - 2 > 0 \Rightarrow x > 2$ ب) $x^3 - x > 0$ $x(x-1)(x+1) > 0$ $x \neq 0, 1, -1$	$D_f = (2, 11]$ $D_f = (-1, 0) \cup (1, +\infty)$	8
الف) $\epsilon^{n+1} \neq 0 \Rightarrow \epsilon^n \neq -1$ ب) $\epsilon^n - 1 \neq 0 \Rightarrow \epsilon^n \neq 1$ ج) $\epsilon^n - 2 \neq 0 \Rightarrow \epsilon^n \neq 2 \Rightarrow n = \log_{\epsilon} 2 = \frac{1}{r}$ د) $\epsilon^n - 3 \neq 0 \Rightarrow \epsilon^n \neq 3 \Rightarrow n = \log_{\epsilon} 3$	$D_f = \mathbb{R}$ $D_f = \mathbb{R} - \{0\}$ $D_f = \mathbb{R} - \{\frac{1}{r}\}$ $D_f = \mathbb{R} - \{\log_{\epsilon} 3\}$	9
الف) $\epsilon x + 1 \in W$ $\epsilon x \in W - 1 \Rightarrow$ $x \in \frac{W-1}{\epsilon}$ ب) $\frac{x^2 - y}{x - \omega} \in W \Rightarrow x^2 - y = W(x - \omega)$	$D_f = \{x \mid x = \frac{k-1}{\epsilon}, k \in W\}$ $D_f = \{x \mid x = \frac{y - \omega k}{x - yk}, k \in W\}$ $x^2 - y = W(x - \omega) \Rightarrow x^2 - yWx = y - \omega W$ $x(y - yW) = y - \omega W \Rightarrow x = \frac{(y - \omega W)}{(y - yW)}$	10