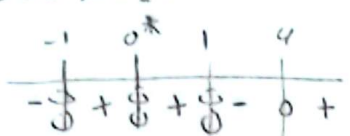


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الف) $x^3 - x > 0$ $x^3 - 4x \geq 0$ $\rightarrow$ $x^3 - x > 0$ $x^3 - x^3 \geq 0$
 $x(x^2 - 1) > 0$ $x(x - 4) \geq 0$ $x(x^2 - 1) > 0$ $x^3(x^2 - 1) \geq 0$
 $x = 0$ $x = \pm 1$ $x = 0$ $x = 4$ $x = 0$ $x = \pm 1$ $x = 0$ $x = \pm 1$

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

الف) $x + |x| > 0$ $\rightarrow$ $x > 0 \Rightarrow x + |x| = 2x > 0$
 $x < 0 \Rightarrow x + |x| = 0$
 $D_f = (0, +\infty)$
 ب) $x|x| > 0$
 $D_f = (0, +\infty)$

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

الف) $[x + \frac{1}{3}] - 1 + [x + \frac{2}{3}] \geq 0 \rightarrow 2[x + \frac{1}{3}] \geq 1 \rightarrow [x + \frac{1}{3}] \geq \frac{1}{2}$
 $x + \frac{1}{3} \geq 1 \rightarrow x \geq \frac{2}{3} \rightarrow [\frac{2}{3}, +\infty)$
 ب) $\sqrt{[x - \frac{1}{3}] + [-(x - \frac{1}{3})]} \geq 0$ $x - \frac{1}{3} \in \mathbb{Z}$
 $D_f = \{x \mid x = k + \frac{1}{3}, k \in \mathbb{Z}\}$

الف) $\sin x - 1 \neq 0$ $\rightarrow$ $\sin x \neq 1$ 
 $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$
 ب) $\sqrt{\sin^2 x - 1} \neq 0$ $\rightarrow$ $\sin^2 x \neq 1$
 $\sin x \neq \pm \frac{\sqrt{1}}{\sqrt{1} \pm \sqrt{1}} = \frac{\sqrt{2}}{2}$
 $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4}\}$

الف) $2 \sin x - 1 \geq 0$ $\sin x \geq \frac{1}{2}$ $D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$ <u>1, ٧٥</u>	ب) $\cos x \geq 1$ $D_f = \{2k\pi\}$ ✓	٦
الف) $-1 \leq x - 3 \leq 1$ $2 \leq x \leq 4$ $2 \leq x \leq 4$ $-2 \geq x \geq -4$ $D_f = [-4, -2] \cup [2, 4]$ ✓	ب) $-1 \leq x^2 + 3x + 1 \leq 1$ $x^2 + 3x + 2 \geq 0$ $(x+1)(x+2) \geq 0$ $x = -1, x = -2$ $x = 0, x = -3$ $D_f = [-3, -2] \cup [-1, 0]$ ✓	٧
الف) $2 - \log_3(x-2) \geq 0$ $2 \geq \log_3(x-2)$ $9 \geq (x-2)$ $11 \geq x$ $D_f = (2, 11]$ ✓	ب) $x^3 - x > 0$ $x(x^2 - 1) > 0$ $x = 0, x = \pm 1$ $D_f = (-1, 0) \cup (1, +\infty)$ ✓	٨
الف) $4^x + 1 \neq 0$ $4^x \neq -1$ $D_f = \mathbb{R}$ ب) $4^x \neq 1$ $x \neq 0$ $D_f = \mathbb{R} - \{0\}$ ج) $4^x \neq 2$ $x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \left\{ \frac{1}{2} \right\}$ د) $4^x \neq 3$ $D_f = \mathbb{R} - \left\{ \log_4 3 \right\}$ ✓		٩
الف) $4x+1 \in \mathbb{W}$ $4x \in \mathbb{W}-1$ $x \in \frac{\mathbb{W}-1}{4}$ $D_f = \left\{ x \mid x = \frac{k-1}{4}, k \in \mathbb{W} \right\}$ ✓	ب) $D_f = \left\{ x \mid x = \frac{-2k+2}{-x\mathbb{W}+3}, k \in \mathbb{W} \right\}$ ✓	١٠