

قسم B

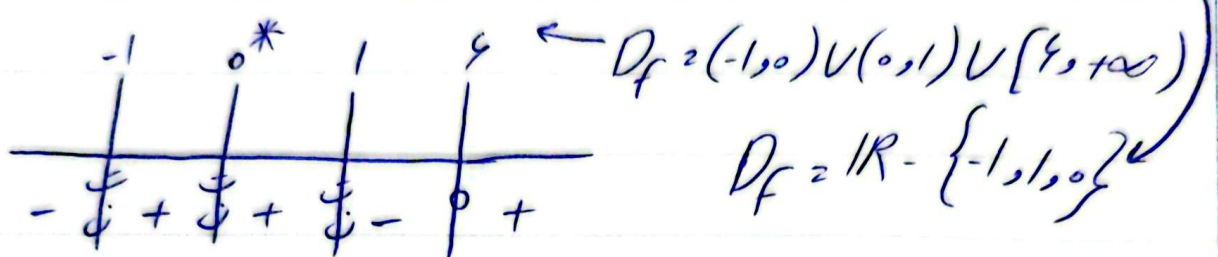
المسألة 1

المسألة 2

الف) $x^2 - x > 0$ $x^2 - 4x \geq 0$ $x^2 - x > 0$ $x^2 - x^2 \geq 0$ 1

$x(x-1) > 0$ $x(x-4) \geq 0$ $x(x-1) > 0$ $x^2(x^2-1) \geq 0$

$x > 0$ $x \geq 1$ $x > 0$ $x \geq 4$ $x > 0$ $x \geq 1$ $x > 0$ $x \geq 1$



الف) $x + |x| > 0$

ب) $x/|x| > 0$

2

$x > 0 \Rightarrow x + |x| = 2x > 0$

$D_f = (0, +\infty)$

$x < 0 \Rightarrow x + |x| = 0$

$D_f = (0, +\infty)$

الف) $2 - [x] \geq 0$

ب) $2 - [x] > 0$

3

$2 \geq [x]$

$2 > [x]$

$D_f = (-\infty, 3)$

$D_f = (-\infty, 2)$

الف) $[x + \frac{1}{2}] - 1 + [x + \frac{1}{2}] \geq 0 \rightarrow 2[x + \frac{1}{2}] \geq 1 \rightarrow [x + \frac{1}{2}] \geq \frac{1}{2}$ 4

$x + \frac{1}{2} \geq 1 \rightarrow x \geq \frac{1}{2} \quad [\frac{1}{2}, +\infty)$

ب) $\sqrt{[x - \frac{1}{2}] + [-(x - \frac{1}{2})]} \geq 0 \quad x - \frac{1}{2} \in \mathbb{Z}$

$D_f = \{x \mid x = k - \frac{1}{2}, k \in \mathbb{Z}\}$

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الف) $\sin x - 1 \neq 0$

$\sin x \neq 1$

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

ب) $2\sin^2 x - 1 \neq 0$

$\sin^2 x \neq \frac{1}{2}$

$\sin x \neq \pm \frac{\sqrt{2}}{2}$

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

الف) $2\sin x - 1 \geq 0$

$\sin x \geq \frac{1}{2}$

$D_f = \left\{ 2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right\}$

ب) $\cos x \geq 1$

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

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) $-1 \leq x^2 + 3x + 1 \leq 1$

$x^2 + 3x \leq 0$

$x(x+3) \leq 0$

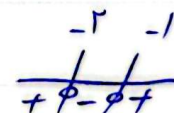
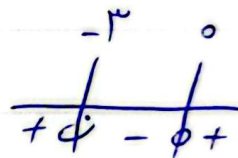
$x \geq 0 \quad x \leq -3$

$x^2 + 3x + 2 \geq 0$

$(x+1)(x+2) \geq 0$

$x \geq -1 \quad x \leq -2$

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



الف) $2 - \log_2 \frac{(x-2)}{(x+2)} \geq 0$

$2 \geq \log_2$

$4 \geq x-2$

$11 \geq x \quad D_f = (2, 11]$

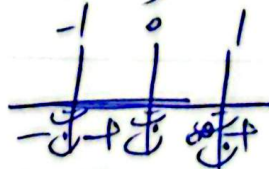
$x-2 > 0$
 $x > 2$

ب) $x^2 - x > 0$

$x(x-1) > 0$

$x < 0 \quad x > 1$

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



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الف) $5^x + 1 \neq 0$

$5^x \neq -1$

$D_f = \mathbb{R}$

ب) $5^x \neq 1$

$x \neq 0$

~~$D_f = \mathbb{R} - \{0\}$~~

ج) $5^x \neq 5$

$x \neq \frac{1}{5}$

$D_f = \mathbb{R} - \left\{\frac{1}{5}\right\}$

د) $5^x \neq 5^3$ $D_f = \mathbb{R} - \left\{\log_5 5^3\right\}$

الف) $5^{x+1} \in W$

$5^x \in W-1$

$x \in \frac{W-1}{5}$

$D_f = \left\{x/x = \frac{K-1}{5}, K \in W\right\}$

ب) $D_f = \left\{x/x = \frac{-\Delta K + 5}{-5W + 5}, K \in W\right\}$ 10