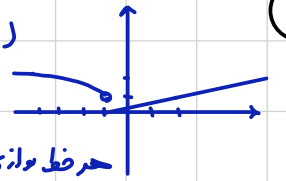


هستی / دوازدهم فصل A

$x = \begin{cases} 2y-1 & y \geq 0 \\ -y^2 & y < 0 \end{cases}$ رسم نمودار ① $y=0 \rightarrow 2(0)-1=-1$ ② $y=1 \rightarrow 2(1)-1=1$

③ $y=1 \rightarrow x=-(1)^2=-1$ ④ $y=2 \rightarrow x=-(2)^2=-4$

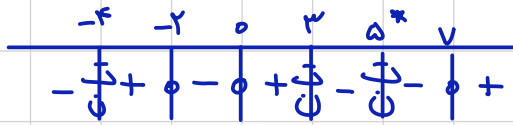


حرف اولی محور و محور را در آن یک نقطه قطع می کند

$x_0 f(x-x) \rightarrow -2, 5, 7$

$x \rightarrow 0$

$x_0 f(x) = -4, 3, 5$



$D_f = (-4, -2) \cup [0, 3) \cup [7, +\infty)$

$f(x) = \frac{2x^2 - 3x + 2}{x^2 - 4x}$

الف) $x^2 - 4x \neq 0 \rightarrow x(x-4) \neq 0 \rightarrow x \neq 0, 4 \rightarrow D_{f(m)} = \mathbb{R} - \{0, 4\}$

ب) $\frac{2x^2 - 3x + 2}{x^2 - 4x} \geq \frac{1}{x} \rightarrow \frac{2x^2 - 3x + 2}{x^2 - 4x} - \frac{1}{x} \geq 0 \rightarrow \frac{2x^2 - 3x + 2 - (x^2 - 4x)}{x^2 - 4x} \geq 0 \rightarrow \frac{x^2 + x + 2}{x^2 - 4x} \geq 0$

الف) $\frac{x-2}{x^2-2x-1} \geq 0 \rightarrow x = \pm 2 \rightarrow D = (-2, +\infty) - \{2\}$

ب) $4-2[-x] \neq 0 \rightarrow 2[-x] \neq 4 \rightarrow [-x] \neq 2 \rightarrow [-x] = 2 \rightarrow 2 \leq -x < 3 \rightarrow -2 \geq x > -3 \rightarrow D = \mathbb{R} - (-3, -2)$

الف) $x(x^2-1) \geq 0 \rightarrow [-1, 0] \cup [1, +\infty)$
 $|x|+x > 0 \rightarrow \begin{cases} x > 0 \rightarrow x > 0 \rightarrow x > 0 \checkmark \\ x < 0 \rightarrow 0 > 0 \times \end{cases} \Rightarrow [1, +\infty)$

ب) $\frac{\sqrt{|x-2|-x^2}}{|x|-1} \rightarrow |x-2|-x^2 \geq 0 \rightarrow x^2 - 2x + 2 \leq 0 \rightarrow (x-1)^2 \leq -1 \rightarrow \text{no solution}$
 $|x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1 \rightarrow D = [-2, 1] \cup [2, +\infty)$

الف) $y = \sqrt{(x-2)(x-3)} \rightarrow (x-2)(x-3) \geq 0 \rightarrow x \leq 2 \text{ or } x \geq 3 \Rightarrow D = \mathbb{R} - (2, 3)$
 ب) $y = \sqrt{|x-1|[x+3]} \rightarrow |x-1|[x+3] \geq 0 \Rightarrow D = \{1\} \cup [3, +\infty)$

$||x-2|-1|-k \neq 0 \rightarrow ||x-2|-1| \neq k \Rightarrow k=1$



$x^2 + 3x + 2 \neq 0 \rightarrow x \neq -1, -2$ $x-1 \neq 0 \rightarrow x \neq 1$ $\frac{x+1}{x-1} \neq 0 \rightarrow x \neq -1 \Rightarrow x=2 \rightarrow x^2 - 4x + 4 = 0 \rightarrow (x-2)^2 = 0 \rightarrow x=2$

$x+1 > 0 \rightarrow x > -1$, $x+1 \neq 1 \rightarrow x \neq 0$, $x > 0$, $\log \frac{1}{x} > 0 \rightarrow \log \frac{1}{x} > \log \frac{1}{x} \rightarrow \frac{1}{x} > 1 \rightarrow x < 1$
 $\Rightarrow D = (0, 1)$

$-5 \leq 3x^2 - 1 \leq 2 \Rightarrow \begin{cases} 3x^2 \leq 3 \rightarrow x^2 \leq 1 \\ 3x^2 \geq -2 \end{cases} \Rightarrow -\frac{1}{\sqrt{3}} \leq x \leq \frac{1}{\sqrt{3}}$