

$$(a-2)x^2 + ax + b \geq 0$$



$$D_f = [2, +\infty)$$

و می توان نوشت!

$$a-2=0$$

$$a=2$$

$$y = 2x + b$$

$$2(2) + b = 0$$

$$b = -4$$

1

$$x^2 + 2x + 2 - m^2 \geq 0$$

$$D_f = \mathbb{R} \Rightarrow \Delta < 0$$

$$\Delta = 4 - 4(1)(2 - m^2) < 0 \Rightarrow 4 - 8 + 4m^2 < 0 \Rightarrow -4 + 4m^2 < 0$$

$$4m^2 < 4$$

$$m^2 < 1$$

$$1 - (-1) = 2$$

$$-1 \leq m \leq 1 \leftarrow \text{خود را هم در نظر بگیرید}$$

2

$$4 - x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2$$

$$[x] + [-x] + 1 \neq 0 \Rightarrow [x] + [-x] \neq -1 \Rightarrow D_f = \mathbb{Z}$$

$$D_f = [-2, 2] \Rightarrow \{-2, -1, 0, 1, 2\} \Rightarrow \text{عدد}$$

3

الف)  $x^3 + 3x^2 \geq 0 \Rightarrow x^2(x+3) \geq 0$

|    |   |   |
|----|---|---|
| -3 | 0 | + |
| -  | + | + |

$$D_f = [-3, +\infty)$$

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

|    |   |   |   |
|----|---|---|---|
| -1 | 0 | 1 | 3 |
| +  | - | - | + |

$$D_f = (-\infty, -1] \cup [3, +\infty) \cup \{0\}$$

$\Delta < 0$  موجب ندارد

4

الف)  $|x-2| - 3 \geq 0 \Rightarrow |x-2| \geq 3$

$$x-2 \geq 3 \Rightarrow x \geq 5$$

$$x-2 \leq -3 \Rightarrow x \leq -1$$

ب)  $4 - |2-x| \geq 0 \Rightarrow |2-x| \leq 4$

$$-4 \leq 2-x \leq 4$$

$$-6 \leq -x \leq 2$$

$$-2 \leq x \leq 6$$

$$D_f = [-2, 6]$$

5

$$\text{الف) } 1 - x|x| \geq 0 \begin{cases} x > 0 \Rightarrow 1 - x^2 \geq 0 \Rightarrow x^2 \leq 1 \Rightarrow -1 \leq x \leq 1 \\ x \leq 0 \Rightarrow 1 + x^2 \geq 0 \Rightarrow x^2 \geq -1 \Rightarrow \mathbb{R} \Rightarrow x \leq 0 \end{cases}$$

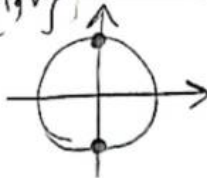
$$\text{ب) } \sqrt{3-|x-a|} \geq 0 \Rightarrow |x-a| \leq 3 \Rightarrow -3 \leq x-a \leq 3 \Rightarrow -2 \leq x \leq 4$$

$$\sqrt{3-|x-a|} - 1 \neq 0 \Rightarrow \sqrt{3-|x-a|} \neq 1 \Rightarrow 3-|x-a| \neq 1 \Rightarrow \begin{matrix} x-a \neq 2 & x \neq 5 \\ x-a \neq -2 & x \neq -1 \end{matrix}$$

$$D_f = (0, 1] \cup (-\infty, -1] = (-\infty, 1]$$

$$D_f = [1, 4] - \{2, -1\}$$

$$\text{الف) } \frac{\sin^2 x - 1}{\cos x}$$

$$\cos x \neq 0$$


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

$$\text{ب) } \frac{\cos x}{\sqrt{\cos x} - 1}$$

$$\sqrt{\cos x} - 1 \neq 0$$

$$\sqrt{\cos x} \neq 1$$

$$\cos x \neq 1$$

$$D_f = \mathbb{R} - \left\{2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2}\right\}$$

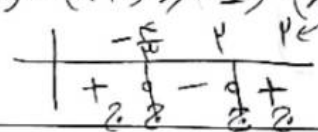
$$\text{الف) } |x+1| - |x+3| = 0 \Rightarrow (x+1)^2 - (x+3)^2 = 0$$

$$x^2 + 2x + 1 - x^2 - 6x - 9 = 0$$

$$-4x - 8 = 0 \Rightarrow x = -2$$

$$D_f = \mathbb{R} - \left\{-2, \frac{5}{2}\right\}$$

$$\text{ب) } |x+1| - |x+3| \geq 0 \Rightarrow (x+1)^2 - (x+3)^2 \geq 0 \Rightarrow (x-1)(x+5) \geq 0$$

$$D_f = (-\infty, -5] \cup [1, +\infty)$$


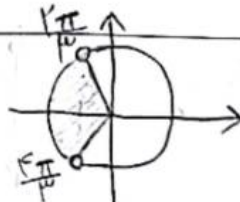
$$x-1 > 0 \Rightarrow x > 1 \Rightarrow x > \frac{1}{p}$$

$$\log_a^{x-1} > 0 \Rightarrow x-1 > 1 \Rightarrow x > 2 \Rightarrow x > 1$$

$$\log_{\frac{1}{a}}^{\log_a^{x-1}} \geq 0 \Rightarrow \log_a^{x-1} \leq 1 \Rightarrow x-1 \leq a \Rightarrow x \leq 3 \Rightarrow x \leq 3$$

$$D_f = (1, 3]$$

$$\text{الف) } \sqrt{\cos x} + 1 > 0 \Rightarrow \sqrt{\cos x} > -1 \Rightarrow \cos x > -\frac{1}{4}$$

$$D_f = \mathbb{R} - \left[2k\pi + \frac{3\pi}{2}, 2k\pi + \frac{5\pi}{2}\right]$$


$$\text{ب) } \frac{x-1}{x+1} > 0 \Rightarrow \frac{x-1}{x+1} > 0 \Rightarrow x \in (-\infty, -1) \cup (1, +\infty)$$

$$\log_{\frac{1}{a}}^{\frac{x-1}{x+1}} \geq 0 \Rightarrow \frac{x-1}{x+1} \geq 1 \Rightarrow \frac{x-1}{x+1} - \frac{x+1}{x+1} \geq 0 \Rightarrow \frac{x-1-x-1}{x+1} \geq 0$$

$$\frac{-2}{x+1} \geq 0 \Rightarrow x+1 < 0 \Rightarrow x < -1$$

$$D_f = (-\infty, -1)$$