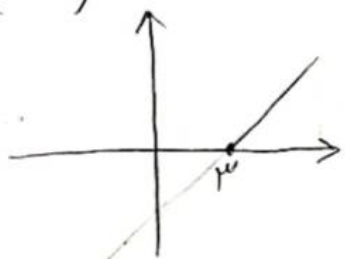


۲۰. آفرین عالی نوشتی ماشاء

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



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

و من سهوی نمی توانم باشد!

$$a-2=0$$

$$a=2$$

$$y = 2x + b$$

$$2(3) + b = 0$$

$$b = -6$$

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

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

در واقع $\Delta \leq 0$ شرط سوال است

چون زیر اسکال منفرد مرتب شده است

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

$$4m^2 \leq 4$$

$$m^2 \leq 1$$

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

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$$m \leq 1 \Rightarrow \text{خود ا را هم صحت می کند}$$

۲

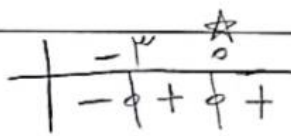
$$4 - x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2$$

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

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

۳

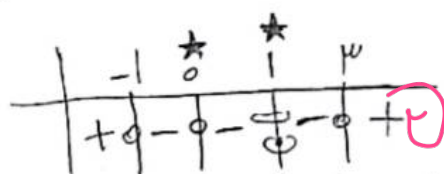
$$\text{الف) } x^3 + 3x^2 \geq 0 \Rightarrow x^2(x+3) \geq 0$$



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

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

$\Delta < 0$ موجب ندارد



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

۴

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

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

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

۵

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

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

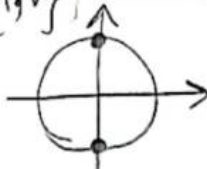
$$-2 \leq x \leq 6$$

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

۵

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

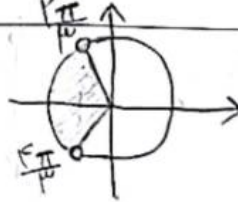
ب) $\sqrt{3-|x-a|} \geq 0 \Rightarrow |x-a| \leq 3 \Rightarrow -3 \leq x-a \leq 3 \Rightarrow a-3 \leq x \leq a+3$
 $\sqrt{3-|x-a|} - 1 \neq 0 \Rightarrow \sqrt{3-|x-a|} \neq 1 \Rightarrow 3-|x-a| \neq 1 \Rightarrow |x-a| \neq 2 \Rightarrow x-a \neq \pm 2 \Rightarrow x \neq a \pm 2$
 $D_f = (-\infty, a-2) \cup (a-2, a) \cup (a, a+2) \cup (a+2, \infty)$

الف) $\frac{\sin^2 x - 1}{\cos x}$ $\cos x \neq 0$  $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$

ب) $\frac{\cos x}{\sqrt{\cos x} - 1}$ $\sqrt{\cos x} - 1 \neq 0 \Rightarrow \sqrt{\cos x} \neq 1 \Rightarrow \cos x \neq 1$
 $D_f = \mathbb{R} - \{2k\pi, 2k\pi + \frac{2\pi}{3}\}$

الف) $|x+1| - |x+3| = 0 \Rightarrow (x+1)^2 - (x+3)^2 = 0 \Rightarrow x^2 + 2x + 1 - x^2 - 6x - 9 = 0 \Rightarrow -4x - 8 = 0 \Rightarrow x = -2$
 $x^2 - 2x - 1 = 0 \Rightarrow x = 1 \pm \sqrt{2}$
 $D_f = (-\infty, -2) \cup (1 - \sqrt{2}, 1 + \sqrt{2}) \cup (2, \infty)$

$x-1 > 0 \Rightarrow x > 1 \Rightarrow x > \frac{1}{x}$
 $\log_a^{x-1} > 0 \Rightarrow x-1 > 1 \Rightarrow x > 2 \Rightarrow x > 1$
 $\log_{\frac{1}{a}}^{\log_a^{x-1}} \geq 0 \Rightarrow \log_a^{x-1} \leq 1 \Rightarrow x-1 \leq a \Rightarrow x \leq a+1 \Rightarrow x \leq 3$
 $D_f = (1, 3]$

الف) $\sqrt{\cos x} + 1 > 0 \Rightarrow \sqrt{\cos x} > -1 \Rightarrow \cos x > -\frac{1}{4}$ 
 $D_f = \mathbb{R} - [2k\pi + \arccos(-\frac{1}{4}), 2k\pi + \frac{7\pi}{4}]$
 ب) $\frac{x-1}{x+1} > 0 \Rightarrow \frac{x-1}{x+1} > 0 \Rightarrow x \in (-\infty, -1) \cup (1, \infty)$

$\log_{\frac{1}{a}}^{\frac{x-1}{x+1}} \geq 0 \Rightarrow \frac{x-1}{x+1} \geq 1 \Rightarrow \frac{x-1}{x+1} - \frac{x+1}{x+1} \geq 0 \Rightarrow \frac{x-1-x-1}{x+1} \geq 0 \Rightarrow \frac{-2}{x+1} \geq 0 \Rightarrow x+1 < 0 \Rightarrow x < -1$
 $D_f = (-\infty, -1)$