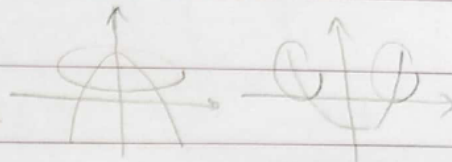


$$f(x) = \sqrt{(a-5)x^2 + ax + b} \geq 0 \quad D_f = [0, +\infty) \quad \text{آر ضابطه یک تابع باشد در این حالت}$$

$$a-5 \geq 0 \quad a \geq 5$$

$$4mb \geq 0$$

ضابطه مرتبه یک درجه یک است



$$x \geq -\frac{b}{a} = 0 \quad \boxed{b \geq 0}$$

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$$f(x) = \sqrt{x^2 + 2x + m} \geq 0 \quad D_f = \mathbb{R} \quad a > 0, \Delta \leq 0$$

همواره در این مسائل صفر

$$4 - 4 + 4m \leq 0$$

$$\boxed{1 - (-1) \leq 4}$$

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$$m \leq 1$$

$$-1 \leq m \leq 1$$

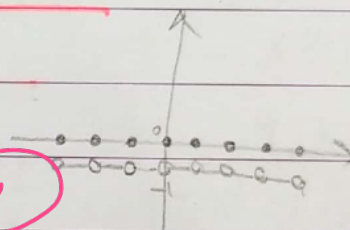
min max

$$f(x) = \sqrt{4 - x^2} \geq 0 \quad x \leq 2 \rightarrow -2 \leq x \leq 2$$

$$[x] + [-x] + 1 \neq 0 \quad [x] + [-x] \neq -1$$

$$-2 \leq x \leq 2 \cap x \in \mathbb{Z}$$

$$x = \{-2, -1, 0, 1, 2\} \rightarrow \boxed{x < 0}$$



$$\text{الف) } y = \sqrt{x^3 + 2x^2} \geq 0 \quad x^2(x+2) \geq 0 \quad \frac{-2}{-1} \leq x \leq \frac{0}{0} \quad \boxed{D_f = [-2, +\infty)}$$

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

$$D_g = (-\infty, -1] \cup [2, +\infty) \cup \{0\}$$

$$\text{الف) } y = \sqrt{|x-2| - 3} \geq 0 \quad |x-2| \geq 3 \quad x-2 \geq 3 \quad x-2 \leq -3$$

$$x \geq 5 \cup x \leq -1 \quad D_f = (-\infty, -1] \cup [5, +\infty)$$

$$\text{ب) } y = \sqrt{4 - |2-x|} \geq 0 \quad |2-x| \leq 4 \quad 2-x \leq 4 \quad 2-x \geq -4 \quad -2 \leq x \leq 6$$

$$\boxed{D_g = [2, 6]}$$

(الف) $y = \sqrt{1-x|x|} \geq 0$. $x|x| \leq 1 \Rightarrow x \leq 1$ $D_f = (-\infty, 1]$ (9)

(ب) $y = \frac{1}{\sqrt{3-|x-0|} - 1} \neq 0$. $\sqrt{3-|x-0|} \neq 1 \Rightarrow 3-|x-0| \neq 1 \Rightarrow |x-0| \neq 2 \Rightarrow x-0 \neq \pm 2 \Rightarrow x \neq \pm 2$
 $|x-0| \leq 3 \Rightarrow -3 \leq x-0 \leq 3 \Rightarrow -3 \leq x \leq 3$
 $D_f = [-3, 3] \setminus \{-2, 2\}$ (10)

(الف) $y = \frac{\sin x - 1}{\cos x} \neq 0$. $D_f = \mathbb{R} \setminus \{k\pi + \frac{\pi}{2}\}$ (11)

(ب) $y = \frac{\cos x}{2\cos x - 1} \neq 0$. $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} \setminus \{2k\pi + \frac{\pi}{3}\}$ (12)

(الف) $y = \frac{x+3}{|x+1| - |x+3|} \neq 0$. $|x+1| \neq |x+3| \Rightarrow x^2+2x+1 \neq x^2+6x+9 \Rightarrow 4x+8 \neq 0 \Rightarrow x \neq -2$
 $D_f = \mathbb{R} \setminus \{-2\}$ (13)

(ب) $y = \sqrt{|2x+1| - |x+3|} \geq 0$. $|2x+1| \geq |x+3| \Rightarrow (2x+1)^2 \geq (x+3)^2 \Rightarrow 4x^2+4x+1 \geq x^2+6x+9 \Rightarrow 3x^2-2x-8 \geq 0 \Rightarrow (x-2)(3x+4) \geq 0$
 $D_f = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$ (14)

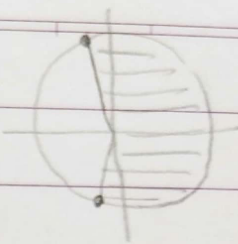
$f(x) = \sqrt{\log_{10} \log_{10} (x-1)} \geq 0$. $x > \frac{1}{f} \Rightarrow \log_{10} (x-1) \geq 0 \Rightarrow x-1 \geq 1 \Rightarrow x \geq 2$
 $\log_{10} \log_{10} (x-1) \geq 0 \Rightarrow \log_{10} (x-1) \geq 1 \Rightarrow x-1 \geq 10 \Rightarrow x \geq 11$
 $D_f = [11, +\infty)$ (15)

Subject:

Date:

الف) $y = \log(x \cos x + 1) > 0 \Rightarrow \cos x > \frac{1}{x}$

$$Df = \left(2K\pi - \frac{\pi}{\mu}, 2K\pi + \frac{\pi}{\mu} \right)$$



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ب) $y = \log \frac{x-1}{x+1} > 0 \Rightarrow \frac{x-1}{x+1} > 0$

$$(-\infty, -1) \cup [1, +\infty)$$

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

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