

۲. انصاف

لاکھ

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$$(a-r)x^r + ax + b \geq 0 \rightarrow x \in [r, +\infty)$$

$$a=r \rightarrow \text{سینکیشن} \rightarrow \frac{r}{-1} +$$

$$2x + b \geq 0$$

$$x = r \Rightarrow 2 + b = 0$$

$$b = -2$$

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$$\sqrt{x^2 + 2x + 2 - m^2}$$

$$x^2 + 2x + 2 - m^2 \geq 0 \rightarrow \Delta \leq 0$$

$$\rightarrow 4 - 4(2 - m^2) \leq 0$$

$$4m^2 \leq 4$$

$$m^2 \leq 1$$

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

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

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$$\frac{\sqrt{2-x^2}}{[x] + [-x] + 1}$$

$$\rightarrow \begin{cases} 2-x^2 \geq 0 \\ -1 \leq x \leq 1 \end{cases} \quad (1)$$

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

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

$$\rightarrow x \notin \mathbb{Z} \quad (2)$$

$$(1) \cap (2) \rightarrow x \in \{ \sqrt{2}, -\sqrt{2}, 1, -1 \}$$

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ع)

$$الف) y = \sqrt{x^3 + 3x^2}$$

$$x^3 + 3x^2 \geq 0 \rightarrow x^2(x+3) \geq 0$$

$$\frac{-3}{\phi + \phi +} \rightarrow x \geq -3$$

$$ب) y = \frac{(x^2-1)(x^2-2x^2)}{x^2-1}$$

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

فاقد البنية

$$\begin{array}{c} -1 \quad * \quad * \quad 2 \\ \hline + \quad - \quad - \quad - \quad + \end{array}$$

$$x \in [-1, 1] \cup [2, +\infty)$$

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

$$د) y = \sqrt{|x-2| - 3}$$

$$|x-2| - 3 \geq 0$$

$$|x-2| \geq 3 \rightarrow \begin{cases} x-2 \geq 3 \\ x-2 \leq -3 \end{cases}$$

$$x \leq -1$$

$$\rightarrow \textcircled{1} \cup \textcircled{2} = \mathbb{R} - (-1, 2)$$

$$y = \sqrt{8 - |2-x|}$$

$$8 - |2-x| \geq 0$$

$$|2-x| \leq 8$$

$$-8 \leq 2-x \leq 8$$

$$\begin{cases} x \leq 10 \\ x \geq -6 \end{cases} \rightarrow x \in [-6, 10]$$

4)

$$y = \sqrt{1 - |x|}$$

$$1 - |x| \geq 0$$

$$|x| \leq 1$$

$$\begin{cases} x \geq 0 \rightarrow x \leq 1 \rightarrow x \leq 1 \quad (1) \end{cases}$$

$$\begin{cases} x \leq 0 \rightarrow -x \leq 1 \rightarrow x \geq -1 \quad (2) \end{cases}$$

$$(1) \cup (2) \Rightarrow x \in [-1, 1]$$

$$b) y = \frac{1}{\sqrt{e - |x - a|} - 1}$$

$$e - |x - a| \geq 0$$

$$|x - a| \leq e$$

$$-e \leq x - a \leq e$$

$$a - e \leq x \leq a + e \quad (1)$$

$$\sqrt{e - |x - a|} \neq 1$$

$$e - |x - a| \neq 1$$

$$|x - a| \neq e$$

$$x \neq a + e, x \neq a - e \quad (2)$$

$$(1) \cap (2) \Rightarrow x \in [a - e, a + e] - \{a - e, a + e\}$$

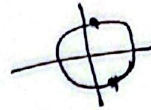
ص 1

$$y = \frac{\sin x - 1}{\cos x}$$

$$\cos x \neq 0$$

$$x \neq \{ \pi/2, 3\pi/2 \}$$

$$y = \frac{c \cdot 5x}{c \cdot 5x - 1}$$



$$c \cdot 5x \neq 1$$

$$c \cdot 5x \neq \frac{1}{c} \rightarrow x \in \mathbb{R} - \left\{ \frac{1}{5c} \right\}$$

Λ)

$$y = \frac{x+2}{|x+1| - |x+2|}$$

$$|x+1| - |x+2|$$

$$|x+1| \neq |x+2|$$

$$\rightarrow x+1 \neq x+2$$

$$x \neq +1$$

$$x+1 \neq -x-2$$

$$2x \neq -3$$

$$x \neq -\frac{3}{2}$$

$$D_f = \mathbb{R} - \left\{ +1, -\frac{3}{2} \right\}$$

$$y = \sqrt{|x+1| - |x+2|}$$

$$|x+1| \geq |x+2|$$

كذلك

$$x^2 + 2x + 1 \geq x^2 + 4x + 4$$

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

$$x^2 - x - \frac{3}{2} \geq 0$$

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

$$\frac{-1/2}{-} \quad \frac{2}{+}$$

$$x \in \mathbb{R} - \left( -\frac{1}{2}, 2 \right)$$

9)

$$f(x) = \sqrt{\log_{10} \frac{x+1}{x}}$$

$$x-1 > 0$$

$$x > 1$$

$$\log_{10} x-1 > 0$$

$$x-1 > 1$$

$$x > 2$$

$$\log_{10} \frac{x+1}{x} \geq 0$$

$$\log_{10} x-1 \leq 0$$

$$x-1 \leq 0$$

$$x \leq 1$$

$$\textcircled{1} \cap \textcircled{2} \cap \textcircled{3} =$$

$$(0, 1]$$

1.)

$$y = \log_{10} (x^2 + 1)$$

$$x^2 + 1 > 0$$

$$x^2 > -1$$

$$D_f = \left( -\infty, -\frac{1}{e} \right) \cup \left( \frac{1}{e}, \infty \right)$$

$$y = \sqrt{\log_{10} \frac{x-1}{x+1}}$$

$$\frac{x-1}{x+1} > 0$$

$$\frac{-1}{x+1} > 0$$

$$\log_{10} \frac{x-1}{x+1} \geq 0$$

$$\textcircled{1} \cap \textcircled{2} \Rightarrow x \in (-\infty, -1) \cup (1, \infty)$$

$$\frac{x-1}{x+1} \geq 1 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow x \leq -1$$

$$x+1 \leq 0 \rightarrow x \leq -1$$