

$$a=2$$

$$y = \sqrt{(a-2)x^2 + ax + b} \rightarrow \sqrt{2x+b}$$

$$2x+b \geq 0$$

$$2x \geq -b$$

$$x \geq \frac{-b}{2}$$

$$\frac{-b}{2} = 2$$

$$b = -4$$

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

$$\Delta \leq 0 \rightarrow \epsilon - 1 + \epsilon m^2 \leq 0$$

$$\epsilon m^2 - \epsilon \leq 0$$

$$\epsilon(m+1)(m-1) \leq 0$$

$$\frac{-1}{+1-1+}$$

$$m \in (-1, 1)$$

$$\epsilon - 1 + \epsilon m^2 = 0$$

$$\epsilon m^2 - \epsilon = 0$$

$$\epsilon(m-1)(m+1) = 0$$

$$m = 1$$

$$m = -1$$

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

$$f(x) = \sqrt{4-x^2}$$

$$\frac{[x] + [-x] + 1}{[x] + [-x] + 1}$$

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

$$x^2 \leq \epsilon \rightarrow -\sqrt{\epsilon} \leq x \leq \sqrt{\epsilon} \rightarrow I \in \{-2, -1, 0, 1, 2\}$$

$$I \cap II$$

$$x \in \mathbb{Z} \quad [x] + [-x] + 1 = 1 \text{ قابل قبول}$$

$$x \notin \mathbb{Z} \quad [x] + [-x] + 1 = 0 \text{ غیر قابل قبول} \rightarrow II$$

$$y = \sqrt{x^3 + 3x}$$

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

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

$$\frac{-3}{-\phi + \phi +}$$

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

$$y = \sqrt{\frac{(x^2-1)(x^3-3x^2)}{x^3-1}}$$

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

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

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

$$y = \sqrt{|x-2|-3}$$

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

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

$$-1 \geq x \geq 5$$

$$-3 \geq x-2 \geq 3$$

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

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

$$|x-2| \leq \epsilon$$

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

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

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

$الف) y = \sqrt{1-x^2}$ $1-x^2 \geq 0 \quad x \geq 0 \quad 1-x^2 \geq 0$ $\rightarrow [0, 1] \quad (1-x)(1+x)$ $x \leq 0 \quad 1+x^2 \geq 0 \quad (-\infty, 0]$ $\frac{-1}{-1+1} = \frac{1}{-1+1} = \frac{1}{0}$ $[(-\infty, 1)]$	6
$ب) y = \frac{1}{\sqrt{3- x-1 }-1}$ $\sqrt{3- x-1 } \neq 1$ $3- x-1 \neq 1$ $- x-1 \neq -2$ $ x-1 \neq 2 \quad x \neq 3$ $x-1 \neq 2 \quad x \neq 3$ $x-1 \neq -2 \quad x \neq -1$ $3- x-1 \geq 0$ $ x-1 \leq 3$ $-3 \leq x-1 \leq 3$ $-2 \leq x \leq 4$ $[2, 4] - \{3, -1\}$	7
$الف) y = \frac{\sin x - 1}{\cos x}$ $\cos x \neq 0$ $R - \left\{ k\pi + \frac{\pi}{2} \right\}$	8
$ب) y = \frac{\cos x}{x \cos x - 1}$ $x \cos x \neq 1$ $\cos x \neq \frac{1}{x}$ $R - \left\{ xk\pi + \frac{\pi}{x}, xk\pi - \frac{\pi}{x} \right\}$	9
$الف) y = \frac{x+3}{ 2x+1 - x+3 }$ $ 2x+1 \neq x+3 $ $x^2 + 4x + 1 \neq x^2 + 6x + 9$ $2x^2 - 2x - 8 \neq 0$ $(2x+4)(x-2) \neq 0$ $x \neq -2 \quad x \neq 2$ $x \neq -\frac{2}{3}$ $R - \left\{ -\frac{2}{3}, 2 \right\}$	10
$ب) y = \sqrt{ 2x+1 - x+3 }$ $ 2x+1 - x+3 \geq 0$ $ 2x+1 \geq x+3 $ $x^2 + 4x + 1 \geq x^2 + 6x + 9$ $2x^2 - 2x - 8 \geq 0$ $(2x+4)(x-2) \geq 0$ $x \leq -2 \quad x \geq 2$ $(-\infty, -2] \cup [2, +\infty)$	11
$f(x) = \sqrt{\log_{\frac{1}{4}} \log_{\frac{1}{4}} (4x-1)}$ $\log_{\frac{1}{4}} (4x-1) \geq 0$ $\log_{\frac{1}{4}} (4x-1) \leq 1$ $4x-1 \leq 4$ $4x \leq 5$ $x \leq \frac{5}{4}$ $4x-1 > 0$ $4x > 1$ $x > \frac{1}{4}$ $(1, \frac{5}{4}]$	12
$الف) y = \log(x \cos + 1)$ $x \cos + 1 > 0$ $x \cos > -1$ $\cos > -\frac{1}{x}$ $(-\infty, -1)$	13
$ب) y = \sqrt{\log \frac{x-1}{x+1}}$ $\frac{x-1}{x+1} > 0$ $\frac{-1}{+1-1+} = \frac{-1}{x+1} \geq 0$ $\log \frac{x-1}{x+1} \geq 0$ $\frac{x-1}{x+1} \geq 1$ $\frac{x-1}{x+1} - 1 \geq 0$ $\frac{x-1-x-1}{x+1} \geq 0$ $\frac{-2}{x+1} \geq 0$ $x < -1$	14