

$$2x'' + y'' - 4x + 4y + K = 0$$

$$2x'' - 4x + C_x = 0 \rightarrow \Delta = 0 \rightarrow b^2 - 4ac_x = 0 \rightarrow 16 - 16C_x = 0 \rightarrow C_x = 2$$

$$y'' + 4y + C_y = 0 \rightarrow \Delta = 0 \rightarrow 16 - 4C_y = 0 \rightarrow C_y = 4$$

$$K = C_x + C_y = 2 + 4 = 11$$

$$\text{if } x = a \rightarrow a'' + 4a = 3a + 2 \rightarrow a'' + a - 2 = 0 \rightarrow (a+2)(a-1) = 0$$

$$f(1) = x'' + 4x = 3x + 2 = 5$$

$$\text{if } x = -3 \rightarrow 2x'' - b = a + 2x \rightarrow 18 - b = a - 4 \rightarrow a + b = 22$$

$$\text{if } x = 2 \rightarrow y = \sqrt{4x-a} + \sqrt{b-3x} = \sqrt{11-a} + \sqrt{b-6}$$

$$(-\infty, 11] \quad [4, +\infty)$$

$$a = 11, \quad b = 6 \rightarrow \text{از این دامنه نتوان یک عددی پیدا کرد}$$

$$\frac{b}{a} = \frac{6}{11} = \frac{1}{2}$$

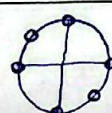
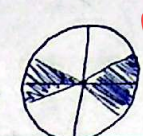
$$\text{الف, } \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{4-x}{x^2+2x+4}}$$

$$D = [-1, +\infty) - \{3\} \quad D = [0, 4]$$

$$D = [-1, 4] - \{3\}$$

$$\text{ب, } \sqrt{[x]-4} + \sqrt{2-[x]}$$

$$[4, +\infty) \cap (-\infty, 2] = \emptyset$$

الف) $y = \sqrt{\frac{x^2 - x - 6}{x^2 - 13x^2 + 124}} = \sqrt{\frac{(x-3)(x+2)}{(x+2)(x-2)(x+3)(x-3)}} \rightarrow \begin{array}{c} \star \quad \star \\ -3 \quad -2 \quad 2 \quad 3 \\ + \quad - \quad - \quad + \end{array}$ $D = (-\infty, -3) \cup (-2, 2) \cup (3, +\infty)$ ب) $\sqrt{\frac{x^2 - 2x^2 - 5x + 6}{x^2 + 2x^2 - 5x - 6}} = \sqrt{\frac{(x-1)(x-2)(x+3)}{(x+1)(x+2)(x-3)}} \rightarrow \begin{array}{c} -3 \quad -2 \quad -1 \quad 1 \quad 2 \quad 3 \\ + \quad - \quad + \quad - \quad + \quad - \\ \circ \quad \circ \quad \circ \quad \circ \quad \circ \quad \circ \end{array}$ $D = (-\infty, -3) \cup [-2, -1) \cup (1, 2) \cup [3, +\infty)$	٤
الف) $\sqrt{[-x] - 2} \rightarrow [-x] \geq 2 \rightarrow x \leq -2 \rightarrow D = (-\infty, -2]$ ب) $\frac{5x^2 + 4}{[x]^2 - 2[x] - 3} \rightarrow ([x] - 3)([x] + 1) \rightarrow \begin{array}{c} -1 \quad 0 \quad 3 \quad 4 \\ + \quad \circ \quad + \quad \circ \quad + \\ \vdots \quad \vdots \quad \vdots \quad \vdots \quad \vdots \end{array}$ $D = (-\infty, 1) \cup [0, 3) \cup [4, +\infty)$	٧
الف) $\frac{\cot x + 1}{\tan x + 1} \rightarrow \tan, \cot \neq \text{محددات}$, $\tan \neq -1$  $D = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{4}\}$ ب) $\sqrt{1 - \sin^2 x} \geq 0 \rightarrow \sin^2 x \leq 1 \rightarrow \sin^2 x \leq \frac{1}{4} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$  $D = [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$	٨
الف) $\sqrt{1 - \log_{\frac{1}{2}} x} \rightarrow \log_{\frac{1}{2}} x \leq 1 \quad x - 1 \geq \frac{1}{2} \rightarrow x \geq \frac{3}{2} \rightarrow D = [\frac{3}{2}, +\infty)$ ب) $\sqrt{x^2 - x} \rightarrow \begin{array}{c} \textcircled{D} \\ + \quad - \quad - \quad + \\ 0 \quad 1 \quad 1 \quad 2 \end{array}$ $1 - \log_{\frac{1}{2}} x^{2-3x} \rightarrow \log_{\frac{1}{2}} x^{2-3x} \neq 1 \rightarrow x^{2-3x} - 1 \neq 0 \rightarrow x^{2-3x} > 0 \rightarrow \begin{array}{c} \circ \quad 2 \\ + \quad - \quad - \quad + \\ 1 \quad 1 \quad 2 \end{array}$ $\textcircled{D} (x-1)(x+1)$ $\textcircled{D} (x-1)(x+1)$ $\textcircled{D} (x-1)(x+1)$ $D = (-\infty, -1) \cup (-1, 0) \cup (2, 3) \cup (3, +\infty)$	٩
الف) $\sqrt{f(x) - x^2} \geq 0 \rightarrow f(x) - x^2 \geq 0 \rightarrow x^2 - f(x) + 3 < 0$ $\frac{1}{x-1} - \frac{2}{x+1}$ $D = [1, 3]$ ب) $\frac{ax+b}{cx+d} = y \rightarrow x = \frac{-dy+b}{cy-a} \rightarrow y = (\frac{rx+d}{rx+e})! \rightarrow x = \frac{-fk+d}{rk-3} \rightarrow$ $\{x x = \frac{-fk+d}{rk-3}, k \in \mathbb{N}\}$	١٠