

$$\begin{aligned} y^r + ry + \underline{1} &= (y+r)^r \\ rx^r - rx + \underline{1} &= r(x-1)^r \end{aligned} \quad \} \rightarrow (y+r)^r + r(x-1)^r = 0 \quad \text{für } (1, -r) \}$$

$$K_2q + r = 11$$

1

$$a^r + fa = \underbrace{ra + a + r}_{ra} \rightarrow \underbrace{a^r + a - rs}_{{1+1-rs}} \rightarrow a \begin{cases} 1 \\ -rs \end{cases}$$

$$f(1) = 1^2 + f(1), \Delta$$

$$f(n) = \begin{cases} n^2 + 1 & n \geq 1 \\ 2n + 1 & n \leq 1 \end{cases}$$

3

$$\begin{array}{c} |n+1\rangle \gamma \rightarrow n+1 \gamma \rightarrow n \gamma \\ \downarrow \\ \hookrightarrow n+1 \beta \rightarrow n \beta \end{array}$$

$$f(-3) = r(-3)^2 - b = a + r(-3) \rightarrow 11 - b = a - 9 \rightarrow a + b = 20$$

3

$$y = \sqrt{1x - a} + \sqrt{b - 9}$$

$$b \sim \gamma \rightarrow r \sim b \rightarrow r \sim \frac{b}{r} \rightarrow \frac{b}{r} = \frac{a}{r} \rightarrow a \cdot r \rightarrow \frac{b}{a} = \frac{1}{r}$$

$$9 \times 9 \times 9 \rightarrow 9 \times 9 \times 9 \rightarrow 9 \times 9 \times 9$$

$$x = 2 \rightarrow \begin{cases} 12 - 2b \geq 0 \rightarrow 2b \leq 12 \rightarrow b \leq 6 \\ b - 9 \geq 0 \rightarrow b \geq 9 \end{cases} \rightarrow \begin{cases} b \leq 6 \\ a = 12 \end{cases} \rightarrow \frac{b}{a} = \frac{1}{6}$$

C

(الف) $y = \sqrt{\frac{x+1}{|x-3|}}$ $\frac{-1}{-4} + \frac{3}{4} +$ $y = \sqrt{\frac{4-x}{x^2+2x+4}}$ $\frac{4}{+} \frac{4}{-}$
 (1) $D = [-1, 3) \cup (3, +\infty)$ $\leftarrow$ مجال مثبت $(2) D = (-\infty, 4]$
 (1) (2) $\Delta = b^2 - 4ac = 4 - 16 = -12 < 0$

$$\textcircled{1} \cap \textcircled{2} = [-1, 4] - \{3\}$$

$$\Rightarrow \int_{\gamma} \sqrt{[m] - x} + \sqrt{x - [n]} \rightarrow 102 = \emptyset$$

$$\begin{array}{c} \downarrow \\ \frac{x}{-d \quad 0 \quad 1} + \end{array}$$

$$\textcircled{1} D = [x, +\infty)$$

2

الف) $y = \sqrt{\frac{(x-3)(x+2)}{(x-1)(x+2)(x+3)(x-3)}}$ $D = (-\infty, -3) \cup (2, 3) \cup (3, +\infty)$ ب) $y = \sqrt{\frac{(x-1)(x-3)(x+2)}{(x-2)(x+3)(x+1)}}$ علامت صورت $1-2x+4x^2=0 \rightarrow x = \frac{1}{2}$ $D = (-\infty, -3) \cup [-2, -1] \cup [1, 2] \cup [3, +\infty)$ علامت مخرج $1+x=0 \rightarrow x = -1$	۶
الف) $\frac{-x}{+} \frac{-1}{0} \frac{-}{-} D = (-\infty, -1)$ ب) $5x^2 + 4 < 0 \rightarrow 5x^2 = -4$ ریشه ندارد و همواره مثبت است $D = (-\infty, -1) \cup [0, 3) \cup [4, +\infty)$ خیز: $([x]-3)([x]+1)$	۷
الف) $\tan x = \frac{\sin x}{\cos x} \rightarrow \cos x \neq 0 \rightarrow \tan x + 1 \neq 0 \rightarrow \tan x \neq -1$ $\cot x = \frac{\cos x}{\sin x} \rightarrow \sin x \neq 0$ $D = \mathbb{R} - \{ \frac{k\pi}{2}, k\pi - \frac{\pi}{2} \}$ ب) $1 - 4 \sin^2 x \geq 0 \rightarrow 4 \sin^2 x \leq 1 \rightarrow \sin^2 x \leq \frac{1}{4} \rightarrow -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$ $D = [k\pi - \frac{\pi}{6}, k\pi + \frac{\pi}{6}]$	۸
الف) $x-1 > 0 \rightarrow x > 1$ ① $1 - \log_{\frac{1}{2}} x-1 \geq 0 \rightarrow \log_{\frac{1}{2}} x-1 \leq 1 \rightarrow x-1 \leq \frac{1}{2} \rightarrow x \leq \frac{3}{2}$ ② $D = (1, \frac{3}{2}]$ ب) $x^2 - x \geq 0 \rightarrow x(x-1) \geq 0$ $D = (-\infty, 0] \cup [1, +\infty)$ ① $x^2 - 3x \geq 0 \rightarrow x(x-3) \geq 0$ $D = (-\infty, 0) \cup (3, +\infty)$ ② $1 - \log_{\frac{1}{2}} x^2 - 3x \neq 0 \rightarrow \log_{\frac{1}{2}} x^2 - 3x \neq 1 \rightarrow x^2 - 3x \neq \frac{1}{2} \rightarrow x^2 - 3x - \frac{1}{2} \neq 0$ $(x+1)(x-\frac{1}{2}) \neq 0$	۹
$D = 1 \cap 2 \cap 3 = (-\infty, 0) \cup (3, +\infty) - \{-1, \frac{1}{2}\}$ الف) $y^{\frac{x^2-2x}{-1}} \geq 0 \rightarrow y^{x^2-2x} \geq y^2 \rightarrow x^2-2x \geq 2 \rightarrow x^2-2x-2 \geq 0$ $\rightarrow (x-1)(x-3) \leq 0$ $D = (-\infty, 1] \cup [3, +\infty)$ ب) $\frac{3x+5}{2x+4} \in \mathbb{W} \rightarrow x \in -\frac{5w-5}{2w-3} \rightarrow D = \{x \mid x = -\frac{5k+5}{2k-3}, k \in \mathbb{W}, k \neq \frac{3}{2}\}$	۱۰