

$$0 + \boxed{7} = k$$

$$\downarrow \quad \downarrow$$
$$9 + Y = 11 = k$$

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$$f(x) = \begin{cases} x^2 + 5x, & x \geq a \rightarrow a = x \rightarrow a^2 + 5a \\ 2x + a + 7, & x \leq a \rightarrow a = x \rightarrow 2a + a + 7 \end{cases}$$

$$f(x) = \begin{cases} x^r + \epsilon x, & x \geq 1 \rightarrow x=1 \rightarrow 1^r + \epsilon \cdot 1 = d = f(1) \\ \epsilon x + \gamma, & x \leq 1 \rightarrow x=1 \rightarrow \epsilon \cdot 1 + \gamma = d = f(1) \end{cases}$$

$$f(x) = \begin{cases} 2x^2 - b, & |x+1| \geq 2 \rightarrow x = -3 \rightarrow 2 \times 9 - b = 11 - b \\ a + 2x, & -2 \leq x \leq 1 \rightarrow x = -1 \rightarrow a + 2 \times -1 = -4 + a \end{cases}$$

$$11 - b = -4 + a$$

$$11 + 4 = a + b \rightarrow a + b = \boxed{15}$$

$$y = \sqrt{4x+a} + \sqrt{b-3x}$$

$$\frac{b}{a} = \frac{a}{1r} = \frac{1}{r}$$

$$4x - a \geq 0 \rightarrow 4x \geq a \rightarrow x \geq \frac{a}{4} \} \text{a.}$$

$$b - \sqrt[n]{n} \geq 0 \rightarrow b \geq \sqrt[n]{n} \rightarrow \frac{b}{\sqrt[n]{n}} \geq 1$$

$$\boxed{y=b, a=12} \leftarrow r = \frac{a}{c} = \frac{b}{x}$$

$$\text{Ans) } y = \sqrt{\frac{x+1}{x-4}} + \sqrt{\frac{y-x}{y^2+2x+5}}$$

$$|x - \sqrt{2}| \neq 0 \rightarrow x \neq \sqrt{2} \rightarrow D_1 = \mathbb{R} - \{\sqrt{2}\}$$

$$x+1 \rightarrow x \rightarrow -1 \rightarrow D_\psi = [-1, +\infty)$$

$$\frac{4-x}{x} \geq 0 \rightarrow \frac{4}{x-4} \quad D_f = (-\infty, 4]$$

$$\pi^r + r\lambda + \epsilon \rightarrow \Delta = b^r - \epsilon a \epsilon \rightarrow r - \epsilon(\epsilon) = -1r \rightarrow \text{B. 2. 3}$$

$$0 = 0 \wedge 0 \vee 0 \wedge 0 = [-1, 4] - \{3\}$$

$$\therefore y = \sqrt{x} - k + \sqrt{2-x}$$

$$[x]^r \geq 0 \rightarrow [x] \geq r \rightarrow x \geq r$$

$$y - [x] \geq 0 \rightarrow y \geq [x] \rightarrow x < y$$

$$D = \emptyset$$

الف) $y = \frac{x^2 - x - 4}{x^2 - 13x^2 + 34} \rightarrow x^2 = 6$ $\frac{x^2 - x - 4}{x^2 - 13x^2 + 34} \geq 0 \rightarrow \frac{(x-2)(x+2)}{(x^2-6)(x^2-9)} \geq 0$ $\rightarrow \frac{(x-2)(x+2)}{(x-2)(x+2)(x^2-6)(x+3)(x-3)} \geq 0 \rightarrow \frac{1}{(x^2-6)(x+3)(x-3)} \geq 0$ $D = (-\infty, -3) \cup (2, +\infty) \cup \{2\}$	ب) $y = \frac{x^2 - 2x - 4}{x^2 + 2x - 4} \rightarrow x^2 - x - 4$ $\frac{(x-1)(x-3)(x+1)}{(x+1)(x+3)(x-2)} \geq 0 \rightarrow \frac{-1-2-1}{+3-1+3-2} \geq 0$ $x^2 - x - 4 = 0 \rightarrow (x-3)(x+1) = 0$ $x^2 + x - 4 = 0 \rightarrow (x+3)(x-2) = 0$ $D = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$
الف) $y = \sqrt{[-x] - 2}$ $[-x] - 2 \geq 0 \rightarrow [-x] \geq 2$ $\rightarrow -x \geq 2 \rightarrow x \leq -2$ $D = (-\infty, -2]$	ب) $y = \frac{a x^2 + 4}{[x]^2 - 2[x] - 3}$ $[x]^2 - 2[x] - 3 \neq 0$ $a^2 - 2a - 3 \neq 0 \rightarrow (a-3)(a+1) \neq 0$ $[x] \neq 3 \rightarrow x = [3, 4)$ $[x] \neq -1 \rightarrow x = [-1, 0)$ $D = \mathbb{R} \setminus [3, 4) \cup [-1, 0)$
الف) $y = \frac{\cot x + 1}{\tan x + 1}$ $\cot x \neq 0 \rightarrow 0^\circ, 180^\circ$ $\tan x \neq \infty \rightarrow 90^\circ, 270^\circ$ $\tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow 135^\circ, 225^\circ$ $D = \mathbb{R} \setminus \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{4} \right\}$	ب) $y = \sqrt{1 - 4 \sin^2 x}$ $1 - 4 \sin^2 x \geq 0 \rightarrow 1 \geq 4 \sin^2 x \rightarrow \frac{1}{2} \geq \sin^2 x$ $\rightarrow \frac{1}{2} \geq \sin x \geq -\frac{1}{2}$ $D = \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right]$
الف) $y = \sqrt{1 - \log \frac{x-1}{x}}$ $x-1 > 0 \rightarrow x > 1$ (I) $1 - \log \frac{x-1}{x} \geq 0 \rightarrow 1 \geq \log \frac{x-1}{x} \rightarrow \frac{1}{x} \leq x-1$ $\rightarrow \frac{1}{x} + 1 \leq x \rightarrow \frac{x+1}{x} \leq x$ (II) $D = \text{I} \cap \text{II} = \left[\frac{2}{3}, +\infty \right)$	ب) $y = \frac{\sqrt{x^2 - x}}{1 - \log \frac{x-1}{x}}$ $x^2 - x \geq 0 \rightarrow x(x-1) \geq 0$ $x^2 - 3x \geq 0 \rightarrow x(x-3) \geq 0$ $1 - \log \frac{x-1}{x} \neq 0 \rightarrow \log \frac{x-1}{x} \neq 1 \rightarrow \frac{x-1}{x} \neq 10$ $\rightarrow x^2 - 2x - 10 \neq 0 \rightarrow (x-1)(x+1) \neq 0 \rightarrow x \neq 1$ $D_T = D_1 \cap D_2 \cap D_3 = (-\infty, 0) \cup (1, 10) \cup (10, +\infty)$
الف) $y = \sqrt{x - x^2}$ $x - x^2 \geq 0 \rightarrow x \geq x^2 \rightarrow x - x^2 \geq 0$ $x^2 - x \leq 0 \rightarrow x(x-1) \leq 0 \rightarrow (x-0)(x-1) \leq 0$ $D = [0, 1]$	ب) $y = \left(\frac{x^2 + d}{x^2 + e} \right)!$ $\frac{x^2 + d}{x^2 + e} \in \mathbb{W} \rightarrow -\frac{x^2 + d}{x^2 + e} = x$ $\rightarrow x = \frac{-x^2 + d}{x^2 + e}$ $D = \left\{ x \mid x = \frac{-x^2 + d}{x^2 + e}, x \in \mathbb{W} \right\}$