

آرین اسلامی یازدهم پیر

$$\left. \begin{array}{l} 2(x-1)^2 + (y+3)^2 \\ 2(x^2 - 2x + 1) + (y^2 + 6y + 9) \end{array} \right\} + 2 + 9 = 11 \Rightarrow \boxed{x=1} \quad \text{②}^{-1}$$

$$x=a \rightarrow \left. \begin{array}{l} a^2 + 2a = a(a+2) \\ 2a + a + 2 = 3a + 2 \end{array} \right\} \begin{array}{l} a^2 + a - 2 = 0 \\ (a+2)(a-1) \end{array} \rightarrow \begin{array}{l} -2 \\ 1 \end{array}$$

$x \geq 1$
 $x < 1$

$$f(1) = x^2 + 2x - (1)^2 + 2(1) = 2 \quad \checkmark$$

$$x+1 \leq -2 \rightarrow x \leq -3 \quad x+1 \geq 2 \rightarrow 1 \leq x \quad \text{②}^{-3}$$

$$x=-3 \rightarrow \begin{cases} 2(-3)^2 - b = 11 - b \\ a + 2(-3) = a - 6 \end{cases} \rightarrow 11 - b = a - 6 \rightarrow a + b = 11 + 6 = 17 \quad \text{②}^{-4}$$

$$x=2 \rightarrow 12 - a \geq 0 \rightarrow a \leq 12 \quad (-\infty, 12]$$

$$y=2 \rightarrow b - 4 \geq 0 \rightarrow 4 \leq b \quad [4, +\infty)$$

$\frac{12}{4} = 3$
 $\frac{b}{4} = 2 \rightarrow b = 8$
 ②^{-5}

$$\begin{aligned} x+1 \geq 0 \rightarrow x \geq -1 \rightarrow D_f &= [-b+\infty) - \{3\} \\ y-x \geq 0 \rightarrow y \geq x \quad (-\infty, y] \end{aligned} \rightarrow D_f = \boxed{[-1, y] - \{3\}} \quad \checkmark \quad \text{②}^{-6}$$

$$\begin{aligned} [x] - 4 \geq 0 \rightarrow [x] \geq 4 \rightarrow x \geq 4 \rightarrow [4, +\infty) \\ 2 - [x] \geq 0 \rightarrow [x] \leq 2 \rightarrow x \leq 2 \rightarrow (-\infty, 2] \end{aligned} \rightarrow D_f = \emptyset \quad \checkmark \quad \text{②}^{-7}$$

$$\sqrt{\frac{(x-3)(x+2)}{(x-4)(x-9)}} = \frac{-2}{+} \frac{3}{-} \frac{4}{+} \frac{9}{-} \quad \text{①}^{-8}$$

$$D_f = (-\infty, -2] \cup [3, 4) \cup (9, +\infty)$$



$$\sqrt{\frac{(x-1)(x-2)(x+2)}{(x+1)(x+3)(x-4)}} \quad \begin{array}{ccccccc} 1 & 2 & -2 \\ + & - & + & - & + & - & + \end{array} \quad \begin{array}{ccccccc} -2 & -1 & -1 & 1 & 2 & 3 \\ + & - & + & - & + & - & + \end{array} \quad \left(\begin{array}{c} - \\ - \end{array} \right)$$

$$D_f = (-\infty, -2) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty) \quad \checkmark$$

$$[-x] - 2 \geq 0 \rightarrow [-x] \geq 2 \rightarrow D_f = [-\infty, -2] \quad \checkmark \quad \text{الف) } \left(\begin{array}{c} - \\ - \end{array} \right)$$

$$[x] = t \rightarrow t^2 - 2t - 3 = 0 \rightarrow (t-3)(t+1) = 0 \rightarrow \begin{array}{c} -1 \\ 3 \end{array} \quad \left(\begin{array}{c} - \\ - \end{array} \right)$$

$$[x] \neq -1 \quad x \neq [-1, 0)$$

$$[x] \neq 3 \quad x \neq [3, 4)$$

$$D_f = \mathbb{R} - [-1, 0) \cup [3, 4) \quad \checkmark$$

$$\cot = \frac{\cos}{\sin} \rightarrow \sin \neq 0$$

$$\tan \neq -1$$

$$\tan = \frac{\sin}{\cos} \rightarrow \cos \neq 0$$

$$D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{4} \right\} \quad \checkmark \quad \text{الف) } \left(\begin{array}{c} - \\ - \end{array} \right)$$

$$1 - \sqrt{\sin^2 x} \geq 0 \rightarrow 1 \geq \sqrt{\sin^2 x} \rightarrow \frac{1}{\sqrt{x}} \geq \sin^2 x$$

$$D_f = \left[2k\pi - \frac{\pi}{2}, 2k\pi + \frac{\pi}{2} \right] \cup \left[2k\pi + \frac{3\pi}{2}, 2k\pi + \frac{5\pi}{2} \right] \quad \checkmark$$

$$1 - \log_{\frac{1}{x}} x^{-1} \geq 0 \rightarrow 1 \geq \log_{\frac{1}{x}} x^{-1} \rightarrow x-1 \leq \frac{1}{x} \rightarrow x \leq \frac{x}{x-1}$$

$$x-1 > 0 \rightarrow x > 1$$

$$D_f = \left(1, \frac{x}{x-1} \right] \quad \left(\frac{x}{x-1}, +\infty \right) \quad \text{الف) } \left(\begin{array}{c} - \\ - \end{array} \right)$$

$$x^2 - x \geq 0 \rightarrow x(x-1) \geq 0 \quad \begin{array}{c} 0 \\ + \end{array} \quad \begin{array}{c} 1 \\ - \end{array} \quad (-\infty, 0] \cup [1, +\infty)$$

$$x^2 - 3x > 0 \rightarrow x(x-3) > 0 \quad \begin{array}{c} 0 \\ + \end{array} \quad \begin{array}{c} 3 \\ - \end{array} \quad (-\infty, 0) \cup (3, +\infty)$$

$$\log_{\frac{x^2-3x}{x}} \neq 1 \rightarrow x^2 - 3x \neq x \rightarrow x^2 - 3x - x \neq 0 \rightarrow \frac{-1 \pm \sqrt{1+4}}{2} \quad x \neq \{-1, 2\}$$

$$D_f = (-\infty, 0) \cup (3, +\infty) - \{-1, 2\} \quad \checkmark$$

$$\mu(r^2x - x^2) - 1 \geq 0$$

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$$\mu(r^2x - x^2) \geq 1 \rightarrow \mu(r^2x - x^2) \geq \mu^2$$

$$r^2x - x^2 \geq \mu \rightarrow x(r^2 - x) \geq \mu$$

$$-x^2 + r^2x - \mu \geq 0 \xrightarrow{\times(-1)} x^2 - r^2x + \mu \leq 0$$

$$\begin{array}{c} 1 \quad \mu \\ \hline + \phi - \phi + \end{array}$$

$$(x-1)(x-\mu)$$

$$D_f = [1, \mu] \checkmark$$

$$\frac{\mu x + d}{\mu x + r} \in W$$

$$\frac{rW - d}{rW - r}$$

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$$\mu x + d = rWx + rW \rightarrow \mu x - rWx = rW - d$$

$$\frac{rW - d}{\mu - rW} \Rightarrow D_f = \left\{ x \mid x = \frac{rk - d}{\mu - rW}, k \in W \right\} \checkmark$$