

1410

نام و نام خانوادگی: نام پدر: نام مادر:
پاسخنامه تشریحی تکلیف شماره ۲ کلاس: ازدهم A

$$2x^2 - 4x + y^2 + 4y + k = 0$$

$$2(x-1)^2 + (y+2)^2 \rightarrow 2x^2 - 4x + \frac{2}{2} + y^2 + 4y + \frac{4}{2} \Rightarrow k = 9 + 2 = 11$$

✓ (5)

1

$$x=a \Rightarrow a^2 + fa = 2a + a + 2, a^2 + a - 2 = 0, \Delta = 1 + 8 = 9 \Rightarrow a = \frac{-1 \pm 3}{2} \Rightarrow a = 1, -2$$

اگر $a > 0$ و $a < 0$

$$f(x) = \begin{cases} x^2 + 4x; & x \geq 1 \\ 2x + a + 2; & x \leq 1 \end{cases} \rightarrow f(1) = (1)^2 + 4(1) = 5$$

✓ (6)

2

$$|x+1| \geq 2 \rightarrow x+1 \geq 2, x \geq 1 / x+1 \leq -2, x \leq -3$$

مشتربا

✓ (7)

$$\begin{cases} 2(-3)^2 - b = 11 - b \\ a + 2(-3) = a - 6 \end{cases} \Rightarrow 11 - b = a - 4, a + b \leq 11 + 2 = 13$$

3

$$y = \sqrt{4x-a} + \sqrt{b-3x} \xrightarrow{x=2} \sqrt{12-a} + \sqrt{b-6} = y$$

$$\begin{cases} 12-a \geq 0, a \leq 12 \\ b-6 \geq 0, b \geq 6 \end{cases} \Rightarrow \frac{b}{a} = \frac{4}{12} = \frac{1}{3}$$

✓

(8)

4

$$\frac{x+1}{|x-3|} > 0, x = -1, 3 \quad \frac{x-1}{-1+3} \rightarrow [-1, +\infty) - \{3\}$$

$$\frac{4-x}{x^2+2x+2} \geq 0$$

$$4 \geq x \rightarrow \frac{x}{1+1} \rightarrow (-\infty, 4]$$

$$\Rightarrow \mathbb{R} \cap \mathbb{R} = [1, 2] - \{3\}$$

(9)

5

$$[x] \leq 0, [x] \geq 1 \rightarrow [1, +\infty) \cap \mathbb{R}$$

$$\Rightarrow \mathbb{R} \cap \mathbb{R} = \emptyset$$

$$2 - [x] \geq 0, [x] \leq 2 \rightarrow (-\infty, 2) \cap \mathbb{R}$$

✓

$$x^2 - x - 4 > 0 \rightarrow x = 3, -2 \quad x \begin{array}{c|ccccc} & -3 & -2 & -1 & 0 & 1 & 2 & 3 \\ \hline & + & - & - & + & + & - & + \end{array} \quad D_f = (-\infty, -3) \cup (2, +\infty)$$

$$x^2 = a \rightarrow a^2 - 13a + 42, \Delta = 149 - 168 = -19, a = \frac{13 \pm \sqrt{-19}}{2}, x = 9, f \Rightarrow x = -3, -2, 2, 3$$

$$\begin{aligned} \text{ب) } x^3 - 2x^2 - 5x + 4 &\div (x-1) \rightarrow x^2 - x - 4 \Rightarrow (x-1)(x-4)(x+1) \Rightarrow x = 1, 4, -1 \\ x^3 - 2x^2 - 5x + 4 &\div (x+1) \rightarrow x^2 - 3x - 4 \Rightarrow (x+1)(x-4)(x+1) \Rightarrow x = -1, 4, -1 \\ D_f &= (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty) \end{aligned}$$

$$\text{الف) } [-x] - 2 > 0 \Rightarrow [-x] > 2 \Rightarrow D_f = [-\infty, -2]$$

$$\text{ب) } \frac{\Delta x^2 + 4}{[x]^2 - 2[x] - 3} \geq 0 \rightarrow \Delta = f + 1 \leq 1, [x] = \frac{y \pm f}{2} \Rightarrow [x] \leq 3, -1$$

$$x \neq [3, f), x \neq [-1, 0) \Rightarrow D_f = \mathbb{R} - \{[3, f), [-1, 0)\}$$

$$\text{الف) } \cot x + 1 \rightarrow \frac{\cos x}{\sin x}, \sin x \neq 0 \Rightarrow x \neq K\pi$$

$$\tan x + 1 \rightarrow \tan x \neq -1 \Rightarrow x \neq \{K\pi + \frac{3\pi}{4}, K\pi + \frac{5\pi}{4}\} \Rightarrow D_f = \mathbb{R} - \{K\pi + \frac{3\pi}{4}, K\pi + \frac{5\pi}{4}\}$$

$$\text{ب) } 1 - \sin^2 x \geq 0, \sin^2 x \leq 1, \sin^2 x \leq \frac{1}{4}, -\frac{1}{2} \leq \sin x \leq \frac{1}{2}$$

$$D_f = \{K\pi, K\pi + \frac{\pi}{4}, K\pi - \frac{\pi}{4}\}$$

$$\text{الف) } 1 - \log_{\frac{1}{4}} x^{-1} > 0 \rightarrow \log_{\frac{1}{4}} x^{-1} < 1 \rightarrow x^{-1} < \frac{1}{4}, x < \frac{4}{x} \rightarrow D_f = (-\infty, \frac{4}{x}]$$

$$\text{ب) } x^2 - x \geq 0, x(x-1) \geq 0, x = 1, 0 \quad x \begin{array}{c|cc} & 0 & 1 \\ \hline & + & - \end{array} \quad D_f = (-\infty, 0] \cup [1, +\infty)$$

$$1 - \log_{\frac{1}{4}} x^2 \neq 0 \rightarrow \log_{\frac{1}{4}} x^2 \neq 1, x^2 - 2x \neq 4, \Delta = 4, x = \frac{2 \pm 2}{2} \Rightarrow x \neq 4, -1$$

$$D_f = (-\infty, 0] \cup [1, +\infty) - \{4, -1\}$$

$$\text{الف) } x^2 - x^2 - 1 > 0, x^2 - x^2 > 1 \Rightarrow x^2 - x^2 > 1, x^2 - x^2 > 1 \Rightarrow \Delta = 4, x = 1, 3$$

$$x \begin{array}{c|cc} & 1 & 3 \\ \hline & - & + \end{array} \rightarrow D_f = [1, 3]$$

$$\text{ب) } \frac{x^2 + \omega}{x + f} \in \mathbb{W} \rightarrow x^2 + \omega = x^2 + f^2 \rightarrow x^2 - x^2 = f^2 - \omega, x(\frac{x^2 + \omega}{x + f}) = f^2 - \omega$$

$$x = \frac{f^2 - \omega}{x - f} \rightarrow \{x | x = \frac{f^2 - \omega}{x - f}, x \in \mathbb{W}\}$$