

محیا خسرویان گروه ۷ تعجب‌ناخ دختانه تکلیف ۱۹, ۲۵

① $x f(x) \geq 0 \rightarrow$ باید منفی $D_f = [-4, 0] \cup [2, 4]$ باید مثبت
 حالت اول: $f(x) < 0$ و $x > 0$

حالت دوم: $f(x) > 0$ و $x < 0$
 $D_f = (-\infty, -2) \cup (0, 2)$ ۱۹, ۲۵

③ $x \rightarrow 2 \quad f(2) - 2f(2) = f(-2) = 2^2 - 3 \times 2 + 4 = -2$

④ $f(f(\omega)) + f(f(1)) \quad \vee + 2 = 9$

$1 \leq 3 \rightarrow 2 \times 1 + 3 = 5 \rightarrow f(1)$

$\omega > 3 \rightarrow \omega - \sqrt{\omega + 4} = \omega - |3| = 2 \rightarrow f(\omega)$

$2 \leq 3 \rightarrow 2 \times 2 + 3 = 7 \rightarrow f(2)$

⑤ $x \rightarrow 3 \quad f(2) - f(3) = 2 \quad f(2) = 4a - 2b + 2$

$f(1) - f(2) = 14 \quad f(1) = a - b + 1 \quad f(3) = 9a - 3b + 2$

$f(1) - f(2) = a - b + 1 - (4a - 2b + 2) = 14$
 $-3a + b = 15$

$-3a + b = 15$
 $-3a + b = 15 \Rightarrow -2a = 6 \Rightarrow a = -3$

$a = -3 \quad b = 4$
 $a - b = -3 - 4 = -7$

$f(2) - 2f(2) = 2 \rightarrow f(2) = -2 \rightarrow f(x) = x^2 - 3x$

$$f(-2) \rightarrow f(-2) = (-2)^2 - 3(-2) = 10$$

$$f(x) = x^2 - 3x + 1$$

$$f(3) = 9 - 9 + 1 = 1$$

⑨

$$\frac{1 + 0}{(-1)^2} = \frac{1 + 0}{1} = 1 \quad \checkmark$$

$$f(-1) = 1 + 3 + 1 = 5$$

$$f(2) = 4 - 6 + 1 = -1$$

$$x \geq 2$$

$$3x + 1 = 13 \rightarrow f(x)$$

$$-x < 2$$

$$-x^2 = 4 \rightarrow f(-x)$$

$$\frac{3 \times 13 - 1}{1} = \frac{38}{1}$$

$$x \geq 2$$

$$3x + 1 = 13 \rightarrow f(x)$$

$$13 \checkmark$$

$$\frac{f(1) - f(2)}{1 - 2} = \frac{9 - 4}{1 - 2} = \frac{5}{-1} = -5$$

$$\frac{9 - 4}{1 - 2} = \frac{5}{-1} = -5$$

$$13 \checkmark$$

⑩

$$\frac{(\sqrt{x} - 2)^2 + 4(\sqrt{x} - 2) + 9}{(\sqrt{x} - 2) + 4(\sqrt{x} - 2) + 9}$$

$$= \frac{\cancel{4} + \cancel{4} - \cancel{4\sqrt{x}} + \cancel{4\sqrt{x}} - \cancel{4} + 9}{\cancel{4} + \cancel{4} - \cancel{4\sqrt{x}} + \cancel{4\sqrt{x}} - \cancel{4} + 9} = \frac{1}{1} = 1$$

$$\frac{4 + 4 + 9}{4 + 4 + 9} = \frac{17}{17}$$

$$13 \checkmark$$

$$x \rightarrow 1$$

$$f(1) = 1 + \frac{1}{1} = 2$$

$$\sqrt{1} = 1$$

⑪

$$f(1) = 2$$

$$x^2 = 1$$

$$x - 2 = 1$$

$$13 \checkmark$$