

نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ... V ... کلاس چهارم ...

$$xf(x) \geq 0 \quad \begin{cases} x \geq 0 \\ f(x) \geq 0 \end{cases} \rightarrow [r, \Delta]$$

$$\begin{cases} x \leq 0 \\ f(n) \leq 0 \end{cases} \rightarrow [-\Delta, 0]$$

$$D_f = [-\omega, 0] \cup [r, \omega]$$

Q ✓

$$\left\{ \begin{array}{l} \frac{-x}{f(x)} \gg 0 \\ f(x) > 0 \\ f(x) \neq 0 \end{array} \right\} \rightarrow (-\infty, 0)$$

$$D_f = (-\tilde{r}, 0) \cup (0, r)$$

$$\left. \begin{array}{l} -x \leq 0 \rightarrow x \geq 0 \\ f(x) \leq 0 \end{array} \right\} \rightarrow (0, 2)$$

$$x = \gamma \rightarrow f_{(\gamma)} - \gamma f_{(\gamma)} = \gamma - \gamma + \gamma \rightarrow f_{(\gamma)} = -\gamma$$

$$x = -r \rightarrow f_{(-r)} - r f(r) = 1 + 4 + 1 \rightarrow f_{(-r)} + 1 = 1$$

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

Q ✓

$$f(\overbrace{f(\Delta)}) + f(\overbrace{f(1)}) \rightarrow = f(r) + f(\Delta) = V + r = \textcircled{9}$$

$$x = \omega \rightarrow \omega - \nu = \nu$$

$$x=1 \rightarrow \gamma + \gamma = \omega$$

$$X = Y \rightarrow Y, Y = V$$

① ✓

$$f(n-1) = a(n-1)^r - b(n-1) + r \Rightarrow \underbrace{a(n^r - r n + 1) - b n + b + r - (a n^r - b n + r)}$$

$$= \cancel{ax^r} - \cancel{yax} + \cancel{a-bx} + \cancel{b+y-ax^r} + \cancel{bx-r} \quad f_{(n-1)} - f_{(n)}$$

$$\Rightarrow a+b-2ax = 4x+1 \rightarrow -2a=4 \rightarrow a=-2 \rightarrow a-b = -2-0 = -2$$

$$\rightarrow \underset{-1^w}{a+b} = 2 \rightarrow b = \omega$$

$$x = 1 \rightarrow f(1) = 9 - 9 + 1 = 1$$

$$x = 2 \rightarrow f(2) = 4 - 9 + 1 = -4$$

$$x = -1 \rightarrow f(-1) = 1 + 9 + 1 = 10$$

$$\frac{f(1) + 5}{(-1)^2} = 6$$

(2) ✓

$$x = 1 \rightarrow f(1) = 1 + 1 = 2$$

$$x = 2 \rightarrow f(2) = 4 + 1 = 5$$

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

$$\frac{f(1) - f(2)}{1 - 2} = \frac{2 - 5}{-1} = 3$$

(2) ✓

$$\frac{f(f(1)) - f(f(2))}{f(1) - 2} = \frac{f(2) - f(5)}{1 - 2} = \frac{5 - 26}{-1} = 21$$

(2) ✓

$$x = \sqrt{2} - 2 \rightarrow \frac{(\sqrt{2} - 2)^2 + f(\sqrt{2} - 2) + 9}{(\sqrt{2} - 2)^2 + f(\sqrt{2} - 2) + 5} = \frac{2 + 2 - 2\sqrt{2} + \sqrt{2} - 2 + 9}{2 + 2 - 2\sqrt{2} + \sqrt{2} - 2 + 5} = \frac{7 - \sqrt{2}}{5 - \sqrt{2}}$$

$$f(2) = \frac{4 + 1 + 9}{4 + 1 + 5} = \frac{14}{10} = \frac{7}{5}$$

(2) ✓

$$f(\sqrt{x}) = \sqrt{x}^2 + \frac{1}{\sqrt{x}^2} = x + \frac{1}{x} \rightarrow \left(x + \frac{1}{x}\right)^2 = x^2 + \frac{1}{x^2} + 2$$

$$(f(\sqrt{x}))^2 - f(x) = x^2 + \frac{1}{x^2} + 2 - x^2 - \frac{1}{x^2} = 2$$

(2) ✓