

نام و نام خانوادگی: نام: شماره: کلاس: ۱۱.A.....

الف) $\frac{x-1}{x} - \frac{x}{x-1} \geq 0 \rightarrow \frac{(x-1)^2 - x^2}{x^2 - x} \geq 0 \rightarrow \frac{-2x+1}{x(x-1)} \geq 0 \rightarrow x \leq \frac{1}{2}, 0, 1$

$D_f \leq (-\infty, 0) \cup [\frac{1}{2}, 1)$

ب) $x \neq -1, x \neq 0, \frac{w}{x-1} + \frac{1}{x+2} \neq 0 \rightarrow \frac{w}{x-1} \neq -\frac{1}{x+2} \rightarrow wx+4 \neq -x+1 \rightarrow x \neq -\infty, x \neq -\frac{5}{5}$

$x \neq 1, x \neq -2 \Rightarrow D_f \leq \mathbb{R} - \{-2, -\frac{5}{5}, -1, 0, 1\}$

الف) $(\frac{1}{w})^x - 9 \geq 0 \rightarrow (\frac{1}{w})^x \geq 9 \rightarrow (\frac{1}{w})^x = (\frac{1}{w})^2, x = -2$

$w^2 = 9 \rightarrow w = 3, w = -3, \omega = 2x, x = \frac{\omega}{2} \rightarrow D_f \leq (-\infty, -2] \cup [\frac{\omega}{2}, +\infty)$

ب) $\sqrt{y+1} = 3 - \sqrt{x-1} \xrightarrow{\text{بهاره}} y+1 = (3 - \sqrt{x-1})^2 \rightarrow y = (3 - \sqrt{x-1})^2 - 1 \rightarrow x-1 \geq 0, x \geq 1$

$D_f \leq [1, +\infty)$

$\log_f(x^2 - x - 2) \rightarrow x^2 - x - 2 > 0, \Delta = 9, x = -1, 2, \frac{x-1}{x+2} \rightarrow (-\infty, -1) \cup (2, +\infty) \textcircled{1}$

$\sqrt{x^2-1} + 1 \neq 0 \rightarrow \sqrt{x^2-1} \neq -1 \rightarrow R \textcircled{2} \Rightarrow D_f = \textcircled{1} \cap \textcircled{2} \leq (-\infty, -1) \cup (2, +\infty) \textcircled{3}$

$w + ax - x^2 \geq 0 \xrightarrow{x=-2} -f - 2a + 3 = 0, -2a = 1, a = -\frac{1}{2}$

$a = -\frac{1}{2} \rightarrow -x^2 - \frac{1}{2}x + 3 \geq 0, \Delta \leq \frac{49}{4}, x = -2, \frac{w}{x} \Rightarrow b = \frac{w}{x}$

$a+b = -\frac{1}{2} + \frac{w}{x} = \frac{w}{x} \leq 1$

$f(x) - x \geq 0 \rightarrow f(x) \geq x \xrightarrow{x \geq 1} wx - 2 \geq x, 2x \geq 2, x \geq 1 \textcircled{1}$

$x < 1 \xrightarrow{\text{بهاره}} wx + 3 \geq x, x \geq -3 \textcircled{2} \quad D_g \leq \textcircled{1} \cup \textcircled{2} = [-3, +\infty)$

$$\left. \begin{aligned} f(\omega) &= (a+1)(\omega+2) = Va+V \\ f(-2) &= 3a-4 \end{aligned} \right\} \begin{aligned} V(Va+V) &= 3a-4+a \rightarrow 1fa-fa = -4-1f \\ f(-2) &= 3a-4 \end{aligned}$$

$$10a = -11, a = -1/10$$

$$\begin{aligned} (2-\sqrt{3})(2+\sqrt{3}) &= 1 \rightarrow 2-\sqrt{3} = \frac{1}{2+\sqrt{3}} \\ \sqrt{2-\sqrt{3}} &+ \frac{1}{\sqrt{2-\sqrt{3}}} + \sqrt{2+\sqrt{3}} + \frac{1}{\sqrt{2+\sqrt{3}}} + 4 \leq V(\sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}}) + 4 \\ &= \sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}} \leq \sqrt{4} \Rightarrow f(2-\sqrt{3}) + f(2+\sqrt{3}) = 2\sqrt{4} + 4 \end{aligned}$$

$$\begin{aligned} f(x) &\rightarrow Vf(x) - Vf(-x) = (x^V - x) \frac{x^V}{x^V} \rightarrow (f(x) - 4f(-x)) = \lambda x^V - Vx \\ f(-x) &\rightarrow Vf(-x) - Vf(x) = (-x^V + x) \frac{x^V}{x^V} \rightarrow 4f(x) - f(-x) = 14x^V + Vx \\ \Rightarrow -\Delta f(x) &\leq V_0 x^V + x \rightarrow f(x) \leq \frac{V_0 x^V + x}{-\Delta} \end{aligned}$$

$$\begin{aligned} f(-2) &\Rightarrow (-2+1)f(-2) - 2(-2) f(0) = 14 + Vm + 2m - 1 \rightarrow 4f(0) \leq 1\Delta + \Delta m \\ f(0) &\leq \frac{1\Delta + \Delta m}{4} \end{aligned}$$

$$f(0) \Rightarrow Vf(0) = 2m - 1 \rightarrow \frac{f(0)}{V} = \frac{2m-1}{V} \Rightarrow \frac{1\Delta + \Delta m}{4} = \frac{2m-1}{V}, \lambda m = 2V, m = 4\Delta$$

$$f(0) \leq \frac{V(f(0)) - 1}{V} = \frac{1V\Delta}{V} = 4V\Delta$$

$$f(-1) \rightarrow f(-1) + f(-1) = \frac{3+1V+V}{-1} = -1\lambda$$

$$Vf(-1) = -1\lambda, f(-1) \leq -9$$