۲۰ آفرین !!

نام و نام خانوادگی ...رها یداللهی... پاسخنامه تشریحی تکلیف شماره ...8... کلاس ...دهم ریاضی B...

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$gof(x) = \sqrt{-\log_2^{x-1} + 4\sqrt{\log_2^{x-1}} - 4}$ → I) $x-1>0 \to x>1$

II) $-\log_2^{x-1} + 4\sqrt{\log_2^{x-1}} - 4 \geq 0$

$\sqrt{\log_2^{x-1}} = t \to -t^2 + 4t - 4 \geq 0 \xrightarrow{\Delta=0} t = \frac{-4}{-2} = 2 \to$ (sign table: 2; − 0 −) $\to \{2\}$

$\sqrt{\log_2^{x-1}} = 2 \to \log_2^{x-1} = 4 \to x-1 = 16 \to x = 17$

$D_{gof} = \{17\}$

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$fog(x) = 2(x^2-3x+8) - 5 \Rightarrow 2x^2 - 6x + 11$

$gof(x) = (2x-5)^2 - 3(2x-5) + 8 = 4x^2 - 20x + 25 - 6x + 15 + 8 = 4x^2 - 26x + 48$

$2x^2 - 6x + 11 = 4x^2 - 26x + 48 \to 2x^2 - 20x + 37$

$\alpha^2 + \beta^2 = S^2 - 2P \to S = 10,\ P = \frac{37}{2} \to 100 - 37 = 63$

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$g(2x) = 5x^2 + 11 \to g(x) = \frac{5}{4}x^2 + 11 \xrightarrow{g(x-7)} \frac{5}{4}(x^2 - 14x + 49) + 11$

$\frac{5}{4}x^2 - \frac{35}{2}x + \frac{289}{4} \xrightarrow{max} \frac{\frac{35}{2}}{\frac{5}{2}} = \frac{35}{5} = 7 \xrightarrow{x=7} \frac{49 \times 5}{4} - \frac{70 \times 7}{4} + \frac{289}{4} = \frac{44}{4} = 11$

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$fog(x) = 3x^2 - 6x - 1 = 3(g(x)) - 4 \to 3(g(x)) = 3x^2 - 6x + 3$

$g(x) = x^2 - 2x + 1$

$g(f(x)) = (3x-4)^2 - 2(3x-4) + 1 \to 9x^2 - 24x + 16 - 6x + 8 + 1 =$

$gof(x) = 9x^2 - 30x + 25$

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$f - g(x) = \begin{vmatrix} 0 \\ 5 \end{vmatrix} \begin{vmatrix} 5 \\ 0 \end{vmatrix} \to m = -1 \quad f - g(x) = -x + 5$

$2g(x) - 3f(x) = -14$

$+ (f(x) - g(x) = -x + 5) \times 3 = 3f(x) - 3g(x) = -3x + 15$

$-g(x) = -3x + 1$

$\left.\begin{array}{l} g(x) = 3x - 1 \\ f(x) = 2x + 4 \end{array}\right\}$ $fog(x) = 2(3x-1) + 4 \to 6x - 2 + 4 = 6x + 2 = 0$

$x = -\frac{1}{3} = a$

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$fog(x) \Rightarrow g^{\log_3 x} = x^{\log_3 g} = x^2$

$gof(x) \Rightarrow \log_3^{9x} \Rightarrow \log_3^{3^{2x}} = 2x$

$x^2 < 2x \rightarrow x^2 - 2x < 0 \rightarrow x(x-2) < 0$

	0		2	
	+	−		+

$[0,2] \rightarrow$ صعودی

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$x^2 + x - 4 - \frac{2}{x} + \frac{4}{x^2} \rightarrow \frac{x^4 - 4x^2 + 4}{x^2} + \frac{x^2 - 2}{x} = \frac{(x^2-2)^2}{x^2} + \frac{x^2-2}{x}$

$f\left(\frac{x^2-2}{x}\right)$

$f(x) = x^2 + x$

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$fog(x) = \log_2^{8x - x^2}$ باید: $8x - x^2 > 0 \rightarrow x(8-x) > 0$

	0		8	
	−	+		−

$D_{fog} = (0,8)$

$0 < x < 8 \rightarrow 0 < 8x - x^2 \leq 16 \rightarrow \log_2^{8x-x^2} = y \Rightarrow 2^y = 8x - x^2$

$A = (0,8)$

$B = (-\infty, 4]$

$A \cap B = (0,4]$ ← بیشترین مقدار

$0 < 2^y \leq 16 \rightarrow -\infty < y \leq 4$

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$f(f(x)) = 1 - 3f^2(x) \rightarrow f(\hat{x}) = 1 - 3x^2$

$h(g(x)) = (x-1)^3 + 2(x-1) + 1 = x^3 - 3x^2 + 3x - 1 + 2x - 2 + 1 = 1 - 3x^2$

$x^3 + 5x - 3 = 0 \rightarrow$ معادله دو ریشه دارد

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$g(3) = 8$

$f(x): \frac{x^2-4}{x} \rightarrow f(x) = 3 \quad \frac{x^2-4}{x} = 3 \rightarrow \frac{x^2 - 4 - 3x}{x} = 0 \rightarrow x^2 - 3x - 4 = 0$

$\Delta = 25 \quad x = \frac{3 \pm 5}{2} \begin{cases} \nearrow 4 \\ \searrow -1 \end{cases}$

$x = 4 \rightarrow 64a + 8 = 8 \rightarrow a = 0$

$x = -1 \rightarrow -a - 2 = 8 \rightarrow a = -b$

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