نام و نام خانوادگی پانی محمداله .... پاسخنامه تشریحی تکلیف شماره .... کلاس دوازدهم تجربی B ....

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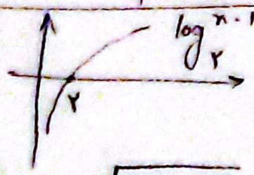

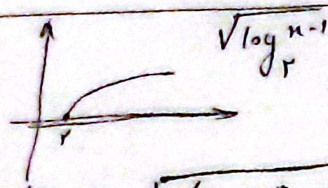

$\Rightarrow D_f = [2, +\infty)$

$g(x) = \sqrt{-(x-2)^2} \Rightarrow g(f(x)) = \sqrt{-(\log_2^{x-2}-2)^2} \Rightarrow -\overset{\text{همیشه مثبت}}{(\log_2^{x-1}-2)^2} \geq 0$

$\Rightarrow \log_2^{x-1} - 2 = 0 \Rightarrow \log_2^{x-1} = 2 \Rightarrow x-1 = 4 \Rightarrow x = 5$ $\quad D_{gof} = \{5\}$

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$fog(x) = gof(x) \Rightarrow 2x^2 - 6x + 16 - 5 = (2x-5)^2 - 3(2x-5) + 8$

$\Rightarrow 2x^2 - 20x + 37 = 0 \Rightarrow \alpha^2 + \beta^2 = S^2 - 2P = 100 - 37 = 63$

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$g(2x) = 5x^2 + 11 \Rightarrow g(x) = \frac{5}{4}x^2 + 11 \Rightarrow g(x-7) = \frac{5}{4}(x-7)^2 + 11$

$\Rightarrow \frac{5}{4}x^2 + \frac{5\times(-14)}{4}x + c \Rightarrow \frac{-b}{2a} = x_S = \frac{\frac{14\times 5}{4}}{\frac{10}{4}} = 7$

$\Rightarrow g(7-7) = g(0) = 5(0)^2 + 11 = 11$

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$f(g(x)) = 3(g(x)) - 4 = 3x^2 - 6x - 1 \Rightarrow 3x^2 - 6x + 3 = 3(g(x))$

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

$\Rightarrow gof(x) = (3x-5)^2 = 9x^2 + 25 - 30x$

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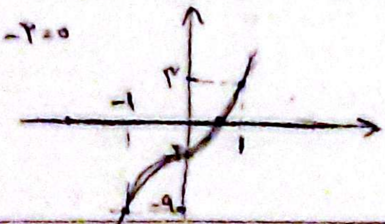
$(f-g)(x) = -x+5 \quad fog(x) = \frac{2}{a}x + 2 \ , \ 3f(x) - 2g(x) = 14$

$\Rightarrow \cancel{f-g}\ f(x) + 2(-x+5) = 14 \Rightarrow f(x) = 2x+4 \Rightarrow \begin{cases} (f-g)(x) = -x+5 \\ f(x) = 2x+4 \end{cases}$

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

$\Rightarrow \frac{2}{a}x + 2 = 6x + 2 \Rightarrow a = \frac{1}{3}$

$f(x)=3^{2x} \quad g(x)=\log_3^{x} \Rightarrow \begin{cases} fog(x)=3^{2\log_3^{x}}=x^2 \\ gof(x)=\log_3^{3^{2x}}=2x \end{cases}$ $\Rightarrow x^2 \geq 2x \Rightarrow x^2-2x\geq 0 \Rightarrow$ $\begin{array}{ccccc} & 0 & & 2 & \\ - & \vert & + & \vert & - \end{array}$ $\Rightarrow x\in(-\infty,0]\cup[2,+\infty)$	۶
$(x-\frac{2}{x})^2 = x^2+\frac{4}{x^2}-4 \Rightarrow f(x-\frac{2}{x}) = (x-\frac{2}{x})^2+(x-\frac{2}{x})$ $\Rightarrow \boxed{f(x)=x^2+x}$	۷
$D_{fog}(x)=A \Rightarrow fog=\log_2^{-x^2+8x} \Rightarrow -x^2+8x>0$ $\begin{array}{ccccc} & 0 & & 8 & \\ - & \vert & + & \vert & - \end{array}$ $x\in(0,8)=A$ $R_{fog}=B \Rightarrow$  $\max=16 \Rightarrow \log_2^{16}=4$, $\min=0 \Rightarrow \log_2^{0}=-\infty \Rightarrow (-\infty,4]=B$ $A\cap B=(0,4] \Rightarrow \boxed{1,2,3,4}$ ۴ عضو صحیح دارد	۸
$f(f(x))=1-3f^2(x) \Rightarrow f(x)=1-3x^2$ $h(g(x))=(x-1)^3+3(x-1)+1 = x^3-1-3x^2+3x+3x-\cancel{3}+\cancel{1} = \cancel{1-3x^2}$ $\Rightarrow x^3+5x-2=0$  ۱ جواب دارد	۹
$f(x)=3 \Rightarrow \frac{x^2-4}{x}=3 \Rightarrow x^2-3x-4=0 \Rightarrow (x-4)(x+1) \Rightarrow \begin{cases} x=-1 \\ x=4 \end{cases}$ $g(3)=gof(4)=gof(-1)=8=ax^3+3x$ $gof(-1)=-a-2=8 \Rightarrow -a=10 \Rightarrow a=-10$ $gof(4)=64a+8=8 \Rightarrow 64a=0 \Rightarrow a=0$ تناقض $\longrightarrow$ کدوم غلط کردیم میرزا!	۱۰