تالیف هستم — جوابها — ۱۰۰٪ آمادگی - درایه پیام B

۱) $f(x)=\sqrt{\log_2^{x-1}}$ $\quad g(x)=\sqrt{-x^2+4x-4} \to g(x)=\sqrt{-(x-2)^2} \to D_g=\{2\}$

$g(f(x))=\sqrt{-(\sqrt{\log_2^{x-1}}-2)^2} \to (\sqrt{\log_2^{x-1}}-2)^2 \leq 0 \quad \log_2^{x-1}=4 \to x-1=16 \to x=17$

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

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۲) $f(x)=2x-5 \quad g(x)=x^2-3x+8 \quad fog=3(x^2-3x+8)-5 \to gof \to g(2x-5)=(2x-5)^2-3(2x-5)+8$

$\to 4x^2-26x+48 \to gof \to fog(x)=gof(x) \Rightarrow 4x^2-26x+48=3x^2-9x+11$

$\to \alpha^2+\beta^2 \to S^2-2P=100-39=61$

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۳) $gof(x)=g(2x)=5x^2+11 \quad 2x=t \to t=\frac{x}{2} \quad 5x^2+11=\frac{5t^2}{4}+11 \to g(t) \to g(x)=\frac{5x^2}{4}+11$

$g(x-7)=\frac{5(x-7)^2}{4}+11=\frac{5x^2-70x+289}{4} \xrightarrow{-\frac{b}{2a}} 7 \xrightarrow{x=7} min=\frac{44}{4}=11$

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

$gof(x)=(3x-4)^2-2(3x-4)+1=9x^2-30x+25$

$9x^2-24x+16-6x+8$

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۵) $f(x)-g(x)=-x+5 \to 2f(x)-2g(x)=-2x+10 \quad 3f(x)-2g(x)=14$

$f(x)=2x+4 \;,\; g(x)=3x-1 \to fog(x) \xrightarrow{-\frac{2}{a}x+2} 6x+2 \to -\frac{2}{a}=6 \to a=-\frac{1}{3}$

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۶) $f(x)=9^x \quad g(x)=\log_3^x \to fog(x)=9^{\log_3^x}=x^2 \to gof(x)=\log_3^{9^x}=2x$

$\to gof(x) \geq fog \to x(2-x) \geq 0$

	0		2	
-	0	+	0	-

$\to [0,2]$

۱۰٪ ستاری

۱۷) $f(x^2-\frac{2}{x}) = x^2+x-x-\frac{2}{x} \quad (x^2-\frac{2}{x})^2 = (x-\frac{2}{x})^2+x$

$f(t) = t^2+t \to f(x) = x^2+x$

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۱۸) $f(x) = \log_2 x \quad g(x) = 8x-x^2 \quad fog(x) = f(8x-x^2) = \log_2^{8x-x^2} \to 8x-x^2 > 0$

$$\begin{array}{ccc} & 0 & & 8 & \\ - & | & + & | & - \end{array}$$

$D_{fog} = (0,8) \to -\frac{b}{2a} = 4 \to \log_x^{16} = 4 \to \max \to x_{fog}$

$\to (-\infty, 4] \to x_{fog} \cap D_{fog} = (0,4] \to$ ۴ عدد صحیح حاصل سوال

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۱۹) $f(h(x)) = 1-2f^2(x) \to f(x) = 1-2x^2 \quad h(g(x)) = (x-1)^2+2x-1 = 1-2x^2$

$x^2-2x^2+2x-1+2x-1 \to 1-2x^2 \to x^2+4x-3=0 \to 1$

یک جواب

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۲۰) $\log_2^x = \log_a^{b} = \log_a^{\frac{a \cdot b}{x}} = \log_2^a \to x-\frac{4}{x}-3 \quad x^2-3x-4 \to (x-4)(x+1)$

دو حالت
$x=-1 \to a=-1$
$x=4 \to x=0$