نام و نام خانوادگی علی حامیان ..... پاسخنامه تشریحی تکلیف شماره ۲۴ کلاس یازدهم بررسی A .....

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$f(x)=3^{Ax+B}$, $y=x^2$

$\begin{cases} x=1 \to 3^{A+B}=1 \to A+B=0 \\ x=2 \to 3^{2A+B}=9 \to 2A+B=2 \end{cases} \Rightarrow A=1 \quad B=-1$

$\Rightarrow f(x)=3^{x-1} \Rightarrow f(0)=3^{-1}=\frac{1}{3}$

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$\log_2^{4^x+10} = x+2 \to 2^{x+2} = 4^x+10 \to 4\times 2^x = 2^{2x}+10 \xrightarrow{2^x=t} t^2-4t+10=0$

$\Rightarrow (t-5)(t-2)=0 \begin{cases} t=2 \to 2^x=2 \to x=\log_2^2 \\ t=5 \to 2^x=5 \to x=\log_2^5 \end{cases}$

$\Rightarrow \log_2^2+\log_2^5=\log_2^{10}$

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$\log_{21}^{147}=\log_{21}^{7\times 21}=\log_{21}^{\frac{21^2}{3}}=2-\log_{21}^3$

$\log_{21}^{1323}=\log_{21}^{21\times 63}=\log_{21}^{21^2\times 3}=2+\log_{21}^3$

$\Rightarrow (\log_{21}^3)^2+(2-\log_{21}^3)(2+\log_{21}^3)=4-(\log_{21}^3)^2+(\log_{21}^3)^2=4$

۴

$\log_3^{(x-1)^2}+\log_3^{(1-x)^3}=\log_3^{10} \to (1-x)^5=10 \to 1-x=10 \to x=-9$

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

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$\log_2^{(x^2+2x+4)(x-2)}=\log_2^1 \to x^3+2x^2+4x-2x^2-4x-1=1$

$\to x^3-16=0 \to x=16^{\frac{1}{3}}$

$\Rightarrow \log_{2^{\frac{1}{3}}}^{16^{\frac{1}{3}}}=\log_{2^{\frac{1}{3}}}^{2^{\frac{4}{3}}}=\frac{\frac{4}{3}}{\frac{1}{3}}=4$

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$$\log^{x-2} - \log_{(x-2)^2}^{\frac{1}{2}} = \log^{1.2} \to (x-2)(x-2)^2 = 1.^3$$

$$\to (x-2)^3 = 1.^3 \to x-2 = 1. \to x = 12$$

$$\Rightarrow \log_{\sqrt{2}}^{(-x)} = \log_{2^{\frac{1}{2}}}^{2^4} = \frac{4}{2}$$

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$$3^{x^2-2x} = 3^{4x} \to x^2 - 6x - 20 = 0 \to \begin{cases} x = \frac{6+\sqrt{36+80}}{2} = 3+\sqrt{29} & \checkmark \\ x = \frac{6-\sqrt{36+80}}{2} = 3-\sqrt{29} & \times \end{cases}$$

$$\log_4^{(x-2)} = \log_4^{1+\sqrt{29}-2} = \log_4^{\sqrt{29}} = \frac{1}{2}$$

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$$\log_{12}^{8} = \frac{\log_3^8}{\log_3^{12}} = \frac{3\log_3^2}{\log_3^3 + \log_3^4} = \frac{3 \times \frac{7}{9}}{2 + \frac{7}{9}} = \frac{\frac{21}{9}}{\frac{25}{9}} = \frac{21}{25} = \frac{8}{9}$$

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$$\log_{12}^{6} = \frac{\log_2^6}{\log_2^{12}} = \frac{\log_2^3 + \log_2^2}{\log_2^2 + \log_2^3} = \frac{1 + 0.11}{0.11 + 0.5} = \frac{1.11}{0.61} = \frac{111}{61}$$

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$$\log_2^3 = a \to a+c=b \to a\log_2^2 + b\log_2^2 = 0 \to b\log_2^2 = a(-\log_2^3 - 1)$$

$$\Rightarrow \frac{b}{a} = \frac{-\log_2^3 - 1}{\log_2^2} = \frac{\log_2^5}{\log_2^2} = \log_2^5 \quad (2^{\sqrt{2}} = 5) \quad \log_{2^{\sqrt{2}}}^5 = \sqrt{2}\log_2^5 = \sqrt{2}$$