نام و نام خانوادگی ..سید آرین میرقنبری.. پاسخنامه تشریحی تکلیف شماره ..۲۴.. کلاس ..چهارشنبه‌ها یازدهم..

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$y=x^2 \longrightarrow \begin{cases} x=1 \to y=1 \to A(1,1) \\ x=2 \to y=4 \to B(2,4) \end{cases}$

$f(x)=2^{Ax+B} \longrightarrow \begin{cases} 2^{A+B}=1=2^0 \\ 2^{2A+B}=4=2^2 \end{cases} \longrightarrow \begin{cases} A+B=0 \\ 2A+B=2 \end{cases} \longrightarrow \begin{cases} A=1 \\ B=-1 \end{cases}$

$f(x)=2^{x-1} \xrightarrow{x=0} y=2^{-1}=\frac{1}{2}$

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$2^{2x}+15=2^x \times 8 \Rightarrow (2^x)^2-8\times 2^x+15=0 \xrightarrow{2^x=t} t^2-8t+15=0$

$\rightarrow t=3 \to 2^x=3 \Rightarrow x=\log_2^3$
$\rightarrow t=5 \to 2^x=5 \Rightarrow x=\log_2^5$
$\Big\}+ \Rightarrow \boxed{\log_2^{15}}$

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$(\log_{21}^3)^2+(1+\log_{21}^7)\times(2+\log_{21}^3)=(\log_{21}^3)^2+\log_{21}^{147}+\log_{21}^3\times\log_{21}^7+2$

$\Rightarrow \log_{21}^3(\log_{21}^3+\log_{21}^7)+\log_{21}^{147}+2=2+\log_{21}^3+\log_{21}^7=\boxed{4}$

۴

$\log(1-x)^2+2\log(1-x)=5 \Rightarrow 5\log(1-x)=5 \Rightarrow \log(1-x)=1$

$\Rightarrow 1-x=10 \longrightarrow x=-9$

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

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$\log_2^{(x^2+2x+4)(x-2)}=2 \Rightarrow x^3-2^3=2^3 \Rightarrow x^3=16$

$\Rightarrow x=\sqrt[3]{16}$

$\log_{\sqrt[3]{2}}^{\sqrt[3]{16}}=\log_2^{16}=\boxed{4}$

$\log(2-x) \Rightarrow 2-x>0 \Rightarrow x<2$

$\log(2-x) - \log \frac{1}{(x-2)^2} = \log \frac{2-x}{\frac{1}{(x-2)^2}} = \log(2-x)^3 = 3$

$\Rightarrow 10^3 = (2-x)^3 \Rightarrow x = -8$

$\log_{2\frac{1}{2}}^{8} = 2 \times 3 = 6$

۶

$3^{x^2-2} = 81^x \rightarrow 3^{x^2-2} = 3^{4x} \Rightarrow x^2 - 4x - 2 = 0 \rightarrow x = \frac{4 \pm \sqrt{24}}{2}$

$\log_{6}^{(x-2)} \Rightarrow x-2>0 \Rightarrow x = \frac{4+2\sqrt{6}}{2} = 2+\sqrt{6}$

$\log_{6}^{(2+\sqrt{6}-2)} = \log_{6}^{6^{\frac{1}{2}}} = \frac{1}{2}$

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$\log_{18}^{8} = \log_{18}^{2} + \log_{18}^{2} + \log_{18}^{2} = 3 \times \left(\frac{\log_3^2}{\log_3^{18}}\right) = 3 \times \left(\frac{\frac{1}{2}}{\log_3^9 + \log_3^2}\right) = \frac{\frac{1}{2}}{2+\frac{1}{2}}$

$\rightarrow \frac{1}{5}$

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$\log_{12}^{6} = \log_{12}^{3} + \log_{12}^{2} = \frac{\log_4^3}{\log_4^{12}} + \frac{\log_4^2}{\log_4^{12}} = \frac{0/8 + 0/5}{\log_4^4 + \log_4^3} = \frac{1/3}{1+0/8}$

$\rightarrow \frac{13}{18}$

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$x=-1 \Rightarrow \log_2 2^a - a + \log_2 5^b = 0 \Rightarrow \log_2 10^{(a+b)} = a \Rightarrow 10^a = 2^{(a+b)}$

$2^a \times 5^a = 2^{(a+b)} \Rightarrow 5^a = \frac{2^{(a+b)}}{2^a} = 2^b \Rightarrow b = \log_2^{5^a} \Rightarrow \frac{b}{a} = \log_2^5$

$\Rightarrow (\sqrt{2})^{\frac{b}{a}} = 2^{(\frac{1}{2})\frac{b}{a}} = \underbrace{2^{(\frac{1}{2})(\log_2^5)}}_{\Sigma 2} = 2^{5^{-1}} = 2^{\frac{1}{5}} = \sqrt[5]{2}$

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