نام و نام خانوادگی ....رها ادهم.......... پاسخنامه تشریحی تکلیف شماره ..۲۴.... کلاس ..یازدهم B ریاضی..........

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$$y=x^2\begin{cases}x=3\rightarrow y=9 & (3,9)\\ x=1\rightarrow y=1 & (1,1)\end{cases}$$

$$f(x)=3^{Ax+B}\begin{cases}3^{A+B}=1=3^0\rightarrow A+B=0 \rightarrow \boxed{A=1}\\ 3^{3A+B}=9=3^2\rightarrow 3A+B=2 \quad \boxed{B=-1}\end{cases}$$

$$f(x)=3^{Ax+B}=3^{x-1}\xrightarrow{x=0}\boxed{y=\frac{1}{3}}$$

نقطهٔ برخورد با محور y

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$$2^{x+3}=4^x+15\rightarrow 2^x\times 2^3=(2^x)^2+15\xrightarrow{2^x=t}8t=t^2+15\rightarrow t^2-8t+15=0$$

$$\left.\begin{cases}t=3\rightarrow 2^x=3\rightarrow x=\log_2 3\\ t=5\rightarrow 2^x=5\rightarrow x=\log_2 5\end{cases}\right\}\xrightarrow{+}\log_2 3+\log_2 5=\boxed{\log_2 15}$$

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

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

$$(\log_{21}3)^2+\log_{21}147\times\log_{21}1323=(\log_{21}3)^2+\underbrace{(2-\log_{21}3)\times(2+\log_{21}3)}_{4-(\log_{21}3)^2}=\boxed{4}$$

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$$\log(x^2-2x+1)+3\log(1-x)=5\xrightarrow{1-x=t}\log(t)^2+3\log t=5\rightarrow 2\log t+3\log t=5\rightarrow \log t=1$$

$$\log_{10}^{1-x}=1 \quad 1-x=10 \quad x=-9 \qquad \boxed{\log_3 9=2}$$

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$$\log_2(x^2+2x+4)+\log_2(x-2)=\log_2 8\rightarrow (x^2+2x+4)(x-2)=8\rightarrow x^3-\cancel{2x^2}+\cancel{2x^2}-\cancel{4x}+\cancel{4x}-8=8\rightarrow x^3=16$$

$$\boxed{x=2\sqrt[3]{2}}$$

$$\log_{\sqrt[3]{4}}x=\log_{\sqrt[3]{4}}2\sqrt[3]{2}=\log_{\sqrt[3]{4}}2+\log_{\sqrt[3]{4}}\sqrt[3]{4}=3+1=\boxed{4}$$

$\log(2-x) = t \longrightarrow 3+\log\frac{1}{(x-2)^2} - \log(2-x) = 0 \longrightarrow 3+\log(x-2)^{-2} - \log(2-x) = 0$ $\longrightarrow 3+(-2t)-t=0 \longrightarrow -3t=-3 \longrightarrow t=1 \longrightarrow \log_{10}^{2-x}=1 \longrightarrow 2-x=10 \longrightarrow \boxed{x=-8}$ $\log_{\sqrt{2}}^{8} = 6\log_2^2 = \boxed{6}$	۶
$3^{x^2-2} = 81^x \longrightarrow 3^{x^2-2} = 3^{4x} \longrightarrow x^2-2=4x \longrightarrow x^2-4x-2=0 \begin{cases} \boxed{x=2+\sqrt{6}} \\ x=2-\sqrt{6} \times \end{cases}$ $\log_6^{x-2} = \log_6^{(2+\sqrt{6}-2)} = \log_6^{\sqrt{6}} = \boxed{\frac{1}{2}}$	۷
$\log_{18}^{8} = \frac{\log_3^8}{\log_3^{18}} = \frac{3\log_3^2}{\log_3^2+2\log_3^3} = \frac{3(\frac{5}{8})}{\frac{5}{8}+2} = \frac{15}{21} = \boxed{\frac{5}{7}}$	۸
$\log_4^3 = 0.8 \longrightarrow \frac{\log 3}{\log 4} = 0.8 \longrightarrow \frac{1}{2}\frac{\log 3}{\log 2} = 0.8 \longrightarrow \frac{\log 3}{\log 2} = 1.6 \longrightarrow \log 3 = 1.6\log 2$ $\log_{12}^{6} = \frac{\log 6}{\log 12} = \frac{\log 2\times 3}{\log 2^2\times 3} = \frac{\log 2+\log 3}{2\log 2+\log 3} = \frac{\log 2+1.6\log 2}{2\log 2+1.6\log 2} = \boxed{\frac{2.6}{3.6}}$	۹
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