۲۰

نام و نام خانوادگی ...دینا سادات نفیسی...... پاسخنامه تشریحی تکلیف شماره ..۲۴... کلاس ....یازدهم دهم.........

$y=x^2 \xrightarrow{x=1} (1,1) \to f(1)=1=3^{A+B} \to A+B=0 \to A=-B$ $\xrightarrow{x=3} (3,9) \to f(3)=9=3^{3A+B} \to 3A+B=2 \xrightarrow{B=-A} 2A=2 \to A=1 \to B=-1$ $f(x)=3^{x-1}$ $f(0)=3^{A\times 0+B},\ 3^{1\times 0-1}=3^{-1}=\boxed{\frac{1}{3}} \to (0,\frac{1}{3})$ ۲	۱
$\log_2(4^x+15)=x+3 \to 2^{x+3}=4^x+15 \to 4^x-2^x\times 8+15=0 \xrightarrow{2^x=t} t^2-8t+15=0$ $(t-3)(t-5)=0 \to 2^x=5 \to \log_2 5=x$ $2^x=3 \to \log_2 3=x \to \log_2 5+\log_2 3=\log_2 3\times 5=\log_2 15$ ۲	۲
$(\log_{21}3)^2+\log_{21}147\times\log_{21}1323=\log_{21}3\times\log_{21}3+\log_{21}21\times 7\times\log_{21}21\times 21\times 3=\log_{21}3\times\log_{21}3+((\log_{21}21$ $+\log_{21}7)\times(\log_{21}21+\log_{21}21+\log_{21}3))=\log_{21}3\times\log_{21}3+(1+\log_{21}\frac{21}{3})\times(2+\log_{21}3)=$ $\log_{21}3\times\log_{21}3+(2-\log_{21}3)(2+\log_{21}3)=\cancel{(\log_{21}3)^2}+4-\cancel{(\log_{21}3)^2}=4$ ۲	۳
$\log(x^2-2x+1)+3\log(1-x)=5 \to \log(x-1)^2+\log(1-x)^3=5 \to (x-1)^2(1-x)^3=10^5$ $\to (x-1)^2\times(-(x-1)^3)=10^5 \to -(x-1)^5=10^5 \to -(x-1)=10 \to -x+1=10 \to -9=x$ ۲ $\log_3(-x)=\log_3 9=2$	۴
$\log_2(x^2+2x+4)+\log_2(x-2)=3 \to (x^2+2x+4)(x-2)=2^3 \to x^3-\underbrace{2^3}_{8}=\underbrace{2^3}_{8}$ $\to x^3=16 \to x=\sqrt[3]{16}=\sqrt[3]{2^4}=2\sqrt[3]{2}$ ۲ $\log_{\sqrt[3]{2}}x=\log_{\sqrt[3]{2}}2\sqrt[3]{2}=\log_{2^{\frac{1}{3}}}2^{1+\frac{1}{3}}=\log_{2^{\frac{1}{3}}}2^{\frac{4}{3}}=4$ $\frac{\frac{4}{3}}{\frac{1}{3}}$	۵

Scanned with CamScanner

$\log(2-x)-\log\frac{1}{(x-2)^2}=3 \to \frac{2-x}{\frac{1}{(x-2)^2}}=10^3 \to \frac{-(x-2)}{\frac{1}{(x-2)^2}}=10^3 \to -(x-2)^3=10^3$

$-x+2=10 \to -8=x$

$\log_{\sqrt{2}}^{-x}=\log_{\sqrt{2}}^{8}=\log_{2^{\frac{1}{2}}}^{2^3}=\frac{3}{\frac{1}{2}}=6$ ۶

$3^{x^2-2}=81^{x} \to 3^{x^2-2}=3^{4x} \xrightarrow{x^2-2=4x} x^2-4x-2=0 \to x=\frac{4\pm\sqrt{16+8}}{2}=\frac{4\pm2\sqrt{6}}{2}$

$\xrightarrow{\text{جواب ق ا ق}} x=\frac{4+2\sqrt{6}}{2}=2+\sqrt{6}$

در $\log$

$2\sqrt{6}<$ $\log_6^{(x-2)}=\log_6^{(2+\sqrt{6}-2)}=\log_6^{\sqrt{6}}\xrightarrow{}\frac{1}{2}$ ۷

$\log_3^2=\frac{5}{8}$

$\log_{18}^{8}=\frac{\log_3^8}{\log_3^{18}}=\frac{3\log_3^2}{\log_3^9+\log_3^2}=\frac{3\times\frac{5}{8}}{2+\frac{5}{8}}=\frac{\frac{15}{8}}{\frac{5}{8}+\frac{16}{8}}=\frac{\frac{15}{8}}{\frac{21}{8}}=\frac{15}{21}=\frac{5}{7}$ ۸

$\log_4^3=0/8$

$\log_{12}^{6}=\frac{\log_4^6}{\log_4^{12}}=\frac{\log_4^2+\log_4^3}{\log_4^3+\log_4^4}=\frac{\frac{1}{2}+\frac{8}{10}}{1+\frac{8}{10}}=\frac{\frac{13}{10}}{\frac{18}{10}}=\frac{13}{18}$ ۹

$\frac{1}{2}\to\frac{5}{10}$

$(a\log 2)x^2+ax+b\log 2=0 \xrightarrow{x=-1} a\log 2-a+b\log 2=0 \to \log 2(a+b)-a=0$

$\log 2=\frac{a}{a+b} \sim \frac{1}{\log 2}=\frac{a+b}{a} \to \log_2^{10}=\frac{a}{a}+\frac{b}{a} \to \frac{b}{a}=\log_2^{10}-1$ ۱۰

$\frac{b}{a}=\log_2^{10}-\log_2^{2}=\log_2^{5}$

$(\sqrt{2})^{\frac{b}{a}}=(\sqrt{2})^{\log_2^5}=(5)^{\log_2^{\sqrt{2}}}=5^{\frac{1}{2}}=\sqrt{5}$

$\log_2^{\sqrt{2}}\to\frac{1}{2}$

Scanned with CamScanner