نام و نام خانوادگی ....مها مهدوی....................   پاسخنامه تشریحی تکلیف شماره ....۲۴.... کلاس ....یازدهم تجربی..........

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

$\log^{(4-x)} - \log^{\frac{1}{(2-x)^2}} = 3 \to \log^{(2-x)^3} = 3$ $(2-x)^3 = 10^3 \xrightarrow{\text{اندازه‌ها}} 2-x = 10 \to x = -8$ $\log_{\sqrt{2}}^{(-x)} = \log_{2^{\frac{1}{2}}}^{8} = 6\log_{2}^{2} = 6$	۶
$\log_{x}^{(x-2)} = ? \xrightarrow{x=2+\sqrt{6}} \log_{x}^{\sqrt{6}} = \frac{1}{2}$ $\begin{cases} 3^{x^2-2} = 81^{x} \\ \to 3^{x^2-2} = 3^{4x} \end{cases}$ $\to x^2-4x-2=0$ $\to \Delta = 16+8 = 24$ $\leadsto x = \frac{4 \pm 2\sqrt{6}}{2} \to x = 2 \pm \sqrt{6} \to$ قق	۷
$\log_{18}^{8} = \frac{3\log_{3}^{2}}{\log_{3}^{18=9\times 2}} = \frac{3\log_{3}^{2}}{2\log_{3}^{3} + \log_{3}^{2}} = \frac{\frac{15}{8}}{2+\frac{5}{8}} = \frac{5}{7}$	۸
$\log_{12}^{6} = \frac{\log_{2}^{3} + \log_{2}^{2}}{2\log_{2}^{2} + \log_{2}^{3}} = \frac{1.6+1}{2+1.6} = \frac{2.6}{3.6} = \frac{13}{18}$ $* \log_{4}^{3} = 0.8$ $\log_{2}^{3} = 1.6$	۹
$a(\log 2)x^2 + ax + b\log^{2} = 0 \xrightarrow{x=-1} a\log^{2} - a + b\log 2 = 0$ $\to b\log 2 = a - a\log 2 = a(1-\log 2) \to \frac{b}{a} = \frac{1-\log^{2}}{\log} = \frac{\log^{5}}{\log^{2}}$ $= \log_{2}^{5} \qquad (\sqrt{2})^{\frac{b}{a}} = 2^{\frac{1}{2}\log_{2}^{5}} = 2^{\log_{4}^{5}} = 5^{\frac{1}{2}\log_{2}^{2}} = \sqrt{5}$	۱۰