نام و نام خانوادگی محسن جلال [illegible] پاسخنامه تشریحی تکلیف شماره ۲۴ کلاس یازدهم تجربی B [illegible]

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

$y = x^2$ $\quad f(2) = 3^{2A+B} = 9$

$A=1$

$B=-1$

$f(x) = 3^{x-1} \longrightarrow 3^{x-1} = 0$ $\quad \left|\begin{matrix}1\\0\end{matrix}\right.$ طول برخورد

$x=1$

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

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$\log_2(4^x+15) = x+3$ $\quad 2^{(x+3)} = 4^x + 15$

$2^x \times 8 = 2^{2x} + 15$

$2^x = t$ $\quad t^2 - 8t + 15 = 0$ $\quad (t-3)(t-5) = 0$ $\quad \begin{cases} t=5 & 2^x = 5 & x_1 = \log_2 5 \\ t=3 & 2^x = 3 & x_2 = \log_2 3 \end{cases}$

$\log_2 5 + \log_2 3 = \boxed{\log_2 15}$

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$(\log_{21} 3)^2 + \log_{21}(147) \log_{21}(1323) =$

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

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

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

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$\log(x^2-2x+1) + 3\log(1-x) = 5$

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

$1-x = 10 \quad x = -9$

$\log_3^{-x} = \log_3 9 = 2$

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$\log_2(x^2+2x+4) + \log_2(x-2) = 3$

$\log_2 (x^2+2x+4)(x-2) = 3 \longrightarrow \log_2 x^3-8 = 3$

$x^3 - 8 = 8 \quad x = \sqrt[3]{16} \quad \log_{2^{\frac{1}{3}}} x = \log_{2^{\frac{1}{3}}} 2^{\frac{4}{3}} = \frac{\frac{4}{3}}{\frac{1}{3}} \log_2 2 = 4$

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

$\log\frac{2-x}{\frac{1}{(x-2)^2}} = \log(x-2)^3 = 3 \qquad (x-2)^3 = 1000$

$|x-2| = 10 \qquad x \to \begin{cases} 12 & \text{غ ق ق} \\ -8 & \text{ق ق} \end{cases}$ ۶

$\log_{\sqrt2}^{-x} = \log_{\sqrt2}^{8} = \log_{2^{\frac12}}^{2^3} = \frac{3}{\frac12} = 6$

$3^{x^2-2} = 81^x \qquad x^2-2 = 4x \qquad x^2-4x-2=0 \qquad \Delta: 16+8 = 24$

$3^{x^2-2} = 3^{4x} \qquad x = \frac{+4+\sqrt{24}}{2} = 2+\sqrt6$ ۷

$\log_6^{x-2} = \log_6^{\sqrt6} = \frac12$

$\log_3^2 = \frac58$

$\log_{18}^{8} = \frac{\log_3^8}{\log_3^{18}} = \frac{3\log_3^2}{\log_3^2+\log_3^9} = \frac{(3\times\frac58)}{\frac58+2} = \frac{\cancel{15}\,\frac{5}{\cancel{8}}}{\cancel{21}\,\frac{7}{\cancel{8}}} = \frac57$ ۸

$\log_4^3 = 0/8$

$\log_{12}^{6} = \frac{\log_4^6}{\log_4^{12}} = \frac{\log_4^2+\log_4^3}{\log_4^3+\log_4^4} = \frac{\frac12+\frac{8}{10}}{\frac{8}{10}+1} = \frac{\frac{13}{\cancel{10}}}{\frac{18}{\cancel{10}}} = \boxed{\frac{13}{18}}$ ۹

$(a\log2)x^2 + ax + b\log2 = 0 \qquad x=-1 \qquad a\log2 - a + b\log2 = 0$

$(a+b)\log2 = a \qquad \log2^{(a+b)} = a$

$(\sqrt2)^{\frac ba} = ? \qquad 2^{\frac ba} = 5 \qquad 2^{(a+b)} = 10^a \to \log_2^{10^a} = a+b$ ۱۰

$(\sqrt2)^{\frac ba} = \sqrt5 \qquad a\log_2^{10} = a+b$

$10 = 2^{(1+\frac ba)} = 2\times2^{\frac ba} \leftarrow \log_2^{10} = \frac{a+b}{a} = 1+\frac ba$