نام و نام خانوادگی ...... پاسخنامه تشریحی تکلیف شماره ۲٤ کلاس یازدهم تجربی

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$f(x) = 3^{Ax+B}$

$y = x^2$

$f(1) = 3^{A+B} = 1$

$f(3) = 3^{3A+B} = 9$

$\begin{cases} A+B=0 \\ 3A+B=2 \end{cases}$

$A = 1$

$B = -1$

$f(x) = 3^{x-1} \longrightarrow 3^{x-1} = 0$

$x = 1$

$\begin{vmatrix} 1 \\ 0 \end{vmatrix}$ طول از مبدا

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$\log_2(4^x+15) = x+3$

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

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

$2^x = t$

$t^2 - 8t + 15 = 0 \quad (t-3)(t-5) = 0$

$t=5 \quad 2^x = 5 \quad x_1 = \log_2 5$

$t=3 \quad 2^x = 3 \quad x_2 = \log_2 3$

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

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

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

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

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

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

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

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

$\log_3^{-x} = \log_3 9 = ②$

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

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

$x^3 - 8 = 8 \quad x = \sqrt[3]{16}$

$\log_{2^{\frac{1}{4}}} x = \log_{2^{\frac{1}{4}}} 2^{\frac{4}{3}} = \frac{\frac{4}{3}}{\frac{1}{4}} \log_2 2 = ④$

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

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

$$|x-2| = 10 \qquad x \to 12 \text{ غ ق ق} \quad ; \quad -8 \text{ ق ق}$$ ۶

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

$$3^{x^2-2} = 81^x \qquad 3^{x^2-2} = 3^{4x}$$

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

$$x = \frac{+4+\sqrt{24}}{2} = 2 + \sqrt{6}$$ ۷

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

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

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

$$\log_4^3 = 0/8$$

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

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

$$(a+b)\log 2 = a \qquad \log 2^{(a+b)} = a$$

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

$$a\log_2^{10} = a+b$$

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

$$10 = 2^{(1+\frac{b}{a})} = 2 \times 2^{\frac{b}{a}} \longleftarrow \log_2^{10} = \frac{a+b}{a} = 1 + \frac{b}{a}$$