نام و نام خانوادگی .... دنیا اسدیار پاسخنامه تشریحی تکلیف شماره .... کلاس ....

$f(x) = 3^{Ax+B} \to$ عرض = ?

$y = x^2 = \begin{cases} x=1 \to y=1 \\ x=3 \to y=9 \end{cases} \to \begin{cases} 3^{A+B} = 1 \\ 3^{3A+B} = 3^2 \end{cases} \to \begin{cases} A+B=0 \\ 3A+B=2 \end{cases} \to 2A=2 \to A=1,\ B=-1$ 1

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

$\log_2^{4^x+15} = x+3 \to 2^{x+3} = 2^{2x} + 15 \xrightarrow{2^x = t} t^2 + 15 = 8t$ 2

$t^2 - 8t + 15 = 0$

$(t-5)(t-3) = 0$

$t = 5 \to 2^x, \quad t = 3 \to 2^x$

$2^{\cancel{x+3}} - 2^{\cancel{2x}} = 15$

جمع = 8

$\log_{21}^3 \times \log_{21}^3 + \log_{21}^{147} \log_{21}^{1323}$

$21 \times 7 \qquad 21 \times 21 \times 3$

$3 \times 3 \times 147 \times 1323$

$\log_{21}$

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

$(1 + \log_{21}^7)(2 + \log_{21}^3)$

$2 + \log_{21}^3 + 2\log_{21}^7 + \log_{21}^7 \times \log_{21}^3$

$\log_{21}^3 (\log_{21}^3 + 4 \times \log_{21}^7) = 4 \log_{21}^3$

4

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

$\underbrace{x^2-2x+1}_{(1-x)^2} \qquad 10 \qquad x = -9$ 4

$\log_3(-x) = ?\ 2$

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

$\log_2 = 3$ 5

$\log_{\sqrt{2}}^{(x)} \quad 2^{\frac{4}{3}} = 4 \qquad x^3 = 2 \times 2^3 \to x^3 - 8 = 8$

$x = \sqrt[3]{2^4}$

$2^{\frac{1}{2}}$

$\log(2-x) - \log\frac{1}{(x-2)^2} = 3 \rightarrow -\cancel{\log}(2-x) = 3$ 6

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

$-3\log(2-x) = 3$

$2-x = 10$

$x = -8$

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

$3^{x^2-2} = 3^{4x} \rightarrow x^2 - 4x - 2 = 0$ 7

$16 + (-4)(-2) = 24$

$\frac{4 \pm 2\sqrt{6}}{2} \rightarrow 2 + \sqrt{6}$

$\log_6(\sqrt{6}) = \frac{1}{2}$

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

$\log_{18} 8 \rightarrow \frac{\log_3 8}{\log_3 18} = \frac{3\log_3 2}{\log_3 \cancel{9} + \log_3 \cancel{2}} \rightarrow \frac{3 \times \frac{5}{8}}{\frac{21}{8}} = \frac{15}{21}$

$\log_4 3 = 0.8$ 9

$\log_{12} 9 \rightarrow \frac{\log_4 9}{\log_4 12} = \frac{\log_4 3 + \cancel{\log_4 2}}{\log_4 3 + \cancel{\log_4 4}} = \frac{1.3}{1.8} = \frac{13}{18}$

$\frac{2}{4} = 0.5$

$(a\log 2)x^2 + ax + b\log 2 = 0$ 10

$a\log 2 - a + b\log 2 = 0 \rightarrow \cancel{\log 2(a+b) = a} \rightarrow \cancel{\log 2 = \frac{a}{a+b}}$

$a(\log 2 - \log 10) = -b\log 2 \rightarrow a(\log_{10}\frac{1}{5}) = -b\log_{10} 2$

$\frac{a}{-b} = \frac{\log_{10} 2}{\log_{10}\frac{1}{5}} = \log_{\frac{1}{5}} 2 =$

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

$\log_{\frac{1}{5}} 10 + \cancel{\log}(1)$ $a(\log 2 - \log 10)$ $a(\log_{10}\frac{1}{5}) = -b\log 2$ $\log 2^a \times 2^b$ $\log_{10} 2^{a+b} = a$ $\frac{a}{-b} = \log_{1/5} 2$