$\begin{bmatrix}۱\\۱\end{bmatrix}$ $\begin{bmatrix}۳\\۹\end{bmatrix}$ ۱

$۳^{A+B}=۱$

$A+B=۰$

$۳^{۳A+B}=۹$

$۳A+B=۲$

$۲A=۲$

$A=۱$

$B=-۱$

$f(۰)=۳^{(A\times ۰)+B}=۳^{-۱}=\boxed{\frac{۱}{۳}}$

$۲^{x+۳}=۴^{x}+۱۵$ ۲

$۸\cdot ۲^{x}=۲^{۲x}+۱۵$

$t^{۲}-۸t+۱۵=۰$

$t=۵$ $t=۳$

$۲^{x}=۵$ $x=\log_{۲}^{۵}$

$۲^{x}=۳$ $x=\log_{۲}^{۳}$

$\log_{۲}^{۳}+\log_{۲}^{۵}=\log_{۲}^{۱۵}$

$\log_{۲۱}^{۳}+\log_{۲۱}^{۷}=۱$ ۳

$\log_{۲۱}^{۷}=۱-\log_{۲۱}^{۳}$

$\log_{۲۱}^{۱۴۷}=\log_{۲۱}^{۳}+۲\log_{۲۱}^{۷}=a+۲b$

$b=۱-a$

$\log_{۲۱}^{۱۳۲۳}=\log_{۲۱}^{۳}+۲=a+۲$

$a^{۲}+(\underbrace{a+۲b}_{۲-a})(a+۲)$

$a^{۲}+(۲-a)(a+۲)=a^{۲}+۴-a^{۲}=۴$

$\log_{۱۰}^{(x-۱)^{۲}(۱-x)^{۳}}=۵$ ۴

$۱۰^{۵}=(x-۱)^{۲}(۱-x)^{۳}$

$x=-۹$

$\log_{۳}^{۹}=۲$

$\log_{۲}^{(x^{۲}+۲x+۴)(x-۲)}=۳$ ۵

$۸=(x^{۲}+۲x+۴)(x-۲)$

$x^{۳}-۸=۸$

$x^{۳}=۱۶$

$x=\sqrt[۳]{۱۶}$

$\log_{\sqrt[۳]{۲}}^{\sqrt[۳]{۱۶}}=۴$

$\log_{10}^{\frac{(2-x)}{\frac{1}{(x-2)^2}}} = \log_{10}^{(2-x)(x-2)^2} = 3 \qquad 10^3 = (2-x)(x-2)^2 \qquad x = -8$

$\log_{\sqrt{2}}^{8} = 6$ 6

$3^{4x} = 3^{x^2-2} \qquad x^2 - 4x - 2 = 0 \qquad x = \frac{4 \pm \sqrt{24}}{2} = 2+\sqrt{6} \ , \ 2-\sqrt{6} \ \times$

$\log_{6}^{2+\sqrt{6}-2} = \log_{6}^{\sqrt{6}} = \frac{1}{2}$ 7

$3\log_{3}^{2} = \log_{3}^{8} = \frac{15}{8} \qquad \log_{8}^{3} = \frac{8}{15} \qquad 2\log_{8}^{3} = \log_{8}^{9} = \frac{16}{15}$

$\log_{8}^{2} + \log_{8}^{9} = \log_{8}^{18} = \frac{21}{15} \qquad \log_{18}^{8} = \frac{15}{21}$ 8

$\log_{8}^{2} \to \frac{1}{3}$

$\log_{4}^{3} = \log_{2^2}^{3} = \frac{1}{2}\log_{2}^{3} = 0.8 \qquad \log_{2}^{3} = 1.6$

$\log_{12}^{6} = \frac{\log_{2}^{6}}{\log_{2}^{12}} = \frac{\log_{2}^{2} + \log_{2}^{3}}{\log_{2}^{4} + \log_{2}^{3}} = \frac{\frac{7}{6}}{\frac{13}{6}} = \frac{7}{13}$ 9

$x_1 x_2 = \frac{b}{a} \qquad -1 + x_2 = \frac{-1}{\log^2} \qquad x_2 = 1 - \frac{1}{\log^2}$

$x_2 = \frac{-b}{a}$

$x_1 + x_2 = \frac{-1}{\log^2} \qquad \frac{-b}{a} = 1 - \frac{1}{\log^2} \qquad \frac{b}{a} = \frac{1}{\log^2} - 1$

$\sqrt{2}^{\frac{b}{a}} = 2^{\frac{1}{2} \times \left(\frac{1}{\log^2} - 1\right)} \qquad \log_{2}^{10} - \log_{2}^{2} = \log_{2}^{5}$ 10

$2^{\log_{4}^{5}} = 5^{\log_{4}^{2}} = 5^{\frac{1}{2}} = \boxed{\sqrt{5}} \qquad \frac{1}{2} \times \log_{2}^{5} = \log_{4}^{5}$