Subject: تمرین تشریحی ۲۴ تألیف: Date:

$y=3^{Ax+B}$ $x=1, y=1 \rightarrow 1=3^{A+B}$ $x=2, y=9 \rightarrow 9=3^{2A+B}$

$\begin{cases} A+B=0 \\ 2A+B=2 \end{cases}$ ①

$-A=-2 \rightarrow A=2, B=-2 \rightarrow x=0 \rightarrow f(0)=3^{B}=\frac{1}{9}$

$\log_2(4^x+12)=x+3 \rightarrow 2^{x+3}=4^x+12 \rightarrow 4^x-8(2^x)+12=0 \rightarrow t=2^x$ ②

$t^2-8t+12=0 \rightarrow (t-2)(t-6)=0 \rightarrow 2^x=2 \rightarrow x=\log_2^2$

$2^x=6 \rightarrow x=\log_2^6 \rightarrow \log_2^3+\log_2^6=\log_2^{18}$

$\underbrace{\left(\log_{21}^{3}\right)^2}_{t}+\left(\log_{21}^{21}+\underbrace{\log_{21}^{7}}_{\log_{441}^{21}-\log_{21}^{3}}\right)\left(\log_{21}^{21^2}+\log_{21}^{3}\right)=t^2+(2-t)(2+t)=t^2+4-t^2=4$ ③

$\log_{(1-x)^2}+3\log_{(1-x)^3}=2 \rightarrow 2\log^{1-x}=2 \rightarrow 1-x=10 \rightarrow x=-9$ ④

$\rightarrow \log_3^{(1-x)}=\log_3^9=2$

$\log_2^{(x^2+2x+4)(x-2)}=\log_2^8 \rightarrow x^3-8=8 \rightarrow x^3=16 \rightarrow$ ⑤

$x=\sqrt[3]{16} \rightarrow \log_{\sqrt{2}}^{\sqrt[3]{2^4}}=\log_{2^{\frac{1}{2}}}^{2^{\frac{4}{3}}}=4$

$\log(2-x)(2-x)^2=3 \rightarrow (2-x)^3=10^3 \rightarrow 2-x=10 \rightarrow x=-8$ ⑥

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

$3^{x^2-2}=3^{4x} \rightarrow x^2-4x-2=0 \rightarrow x=\frac{-b\pm\sqrt{\Delta}}{2a}$ ⑦

$x=\frac{4\pm\sqrt{24}}{2}=2\pm\sqrt{6}$ $\rightarrow 2-\sqrt{6}$ غیق

$\rightarrow 2+\sqrt{6}$ ✓

$\rightarrow \log_9^{x-2}=\log_4^{\sqrt{4}}=\frac{1}{2}$

s.a.m

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$$\log_{18}^{1} = \frac{\log_{3}^{8}}{\log_{3}^{18}} = \frac{\log_{3}^{2} + \log_{3}^{4}}{\log_{3}^{9} + \log_{3}^{2}} = \frac{\frac{3}{8} + \frac{1}{8}}{2 + \frac{3}{8}} = \frac{\frac{4}{8}}{\frac{19}{8}} = \frac{4}{19} \quad (1)$$

(9)

$$\log_{12}^{4} = \frac{\log_{3}^{4}}{\log_{3}^{12}} = \frac{\log_{3}^{3} + \log_{3}^{1}}{\log_{3}^{4} + \log_{3}^{3}} = \frac{0,8 + 0,3}{1 + 0,8} = \frac{13}{18}$$

$$n=-1 \rightarrow a\log^{2} - a + b\log^{2} = 0 \rightarrow b\log^{2} = a(1 - \log^{2}) \rightarrow \quad (10)$$

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

$$(\sqrt{2})^{\frac{b}{a}} = (\sqrt{2})^{\log_{2}^{5}} = 5^{\log_{2}^{\sqrt{2}}} = 5^{\frac{1}{2}} = \sqrt{5}$$