نام و نام خانوادگی: رزا محمدی　　شماره تکلیف: ۲۴　　کلاس: سه‌شنبه‌ها گروه B دفتر یازدهم

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$f(x) = 3^{Ax+B}$ ، $y=x^2$ ، $x_2=1$ و $x_1=3$

$x=1 \to y=1 \to x=1 \to f(1)=1 = 3^{A+B} \to A+B=0$] $2A=2 \to A=1$

$x=3 \to y=9 \to x=3 \to f(3)=9 = 3^{3A+B} \to 3A+B=2$] $B=-1$

$f(x) = 3^{x-1} \to x=0 \to 3^{-1} = \boxed{\frac{1}{3}} \leftarrow$ نقطه تلاقی

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

$2^x = t \to t^2+15 = t \times 8 \to t^2-8t+15=0 \to (t-3)(t-5)=0 \to t=5 ,\ t=3$

$\to 2^x=5 \to x_1 = \log_2^5$　　مجموع جواب‌ها $= \log_2^3 + \log_2^5 = \boxed{\log_2^{15}}$

$\to 2^x=3 \to x_2 = \log_2^3$

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$(\log_x^3)^2 + \log_{21}^{147} + \log_{11}^{1323}$

① $\to \log_{21}^{147} = \log_{21}^{21} + \log_{21}^{7} = 1+(\log_{21}^{21} - \log_{21}^{3}) = 2 - \log_{21}^{3}$

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

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

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$\log^{(x^2-2x+1)} = 3^{\log(1-x)} = \log_{10}^5$

$(x^2-2x+1) \times (1-x)^3 = 10^5 \to (x-1)^2 \times (x-1)^3 \times -1 = 10^5 \to -(x-1)=10 \to x-1=-10$

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

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

$\to (x^2+2x+4)(x-2) = 8 \to (x+2)^2 (x-2) = 8 \to x^3-8=8 \to x^3=16 \to x=\sqrt[3]{16}$

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

$\log^{(1-x)} - \log^{\frac{1}{(x-2)^2}} = 3 \to \frac{2-x}{\frac{1}{(x-2)^2}} = 10^3 \to (x-2)^2 \times (2-x) = 10^3 \to (x-2) \times -1 = 10$

$x - 2 = -10 \to x = -8$ 6

$\log_{\sqrt{2}}^{-x} \to \log_{\sqrt{2}}^{8} = 2\log_2^8 = 2\times 3 = \boxed{6}$

$3^{x^2-2} = 81^x \to 3^{x^2-2} = 3^{4x} \to x^2 - 2 = 4x \to x^2 - 4x - 2 = 0$

$x = 2 \pm \sqrt{6}$

$\log_6^{(x-2)} = \log_6^{(2+\sqrt{6}-2)} = \log_6^{\sqrt{6}} = \frac{1}{2}$ ✓ $2+\sqrt{6}$, ✗ $2-\sqrt{6}$) $x>2$ 7

$\log_3^2 = \frac{5}{8} \to \frac{1}{\log_2^3} = \frac{5}{8} \to \log_2^3 = \frac{8}{5}$

$\log_{18}^{8} = \frac{\log_2^8}{\log_2^{18}} = \frac{3}{\log_2^2 + \log_2^9} = \frac{3}{1+2\log_2^3} = \frac{3}{1+\frac{8}{5}\times 2} = \frac{3}{1+\frac{16}{5}} = \boxed{\frac{5}{7}}$ 8

$\log_4^3 = \frac{8}{10} \to \log_3^4 = \frac{10}{8} \to 2\log_3^2 = \frac{10}{8} \to \log_3^2 = \frac{10}{16} = \frac{5}{8}$

$\log_{12}^{6} = \frac{\log_3^6}{\log_3^{12}} = \frac{\log_3^3 + \log_3^2}{\log_3^3 + 2\log_3^2} = \frac{1+\frac{5}{8}}{1+\frac{10}{8}} = \boxed{\frac{13}{18}}$ 9

$(a\log^2)x^2 + ax + b\log^2 = 0 \xrightarrow{x=-1} a\log^2 - a + b\log^2 = 0 \to (a+b)\log^2 = a$

$\to \left(1+\frac{b}{a}\right)\log^2 = 1 \to 1 + \frac{b}{a} = \frac{1}{\log 2} \to \frac{b}{a} = \log_2^{10} - 1$

$\frac{b}{a} = \log_2^5 - \log_2^2 + 1 = \log_2^5 - 1 + 1 \to \frac{b}{a} = \log_2^5 \Rightarrow \sqrt{2}^{\frac{b}{a}} = \sqrt{2}^{\log_2^5}$ 10

$\to 5^{\log_2^{\sqrt{2}}} = 5^{\frac{1}{2}} = \boxed{\sqrt{5}}$