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

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$1-\log_c^{a(c)+b}=2 \to -\log_c^{b}=1 \to \log_c^{-b}=-1 \to -b=\frac{1}{c} \to b=-\frac{1}{c}$

$-\frac{1}{c}+c=-\frac{1+c^2}{c}=-\frac{5}{2} \to -2+2c^2=-5c \to 2c^2+5c-2=0 \quad \Delta=9-4(2)(-2)=25$

$-\frac{5\pm 9}{4}\begin{cases}\frac{1}{2}\checkmark \to c=\frac{1}{2} \to b=-2 \\ -2\times\end{cases} \quad 1-\log_c^{-1,0a-b}=0 \to 1=\log_c^{-1,0a-b}$

$c=-1,0a-b \to c+b=-1,0a \to -\frac{3}{2}=-1,0a \to a=1 \quad (a+c)b=(1+\frac{1}{2})\times -2=-3$

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$1\times c\times c^{a+b}=0 \to c\times c^{a+b}=-1 \quad 1+c\times c^{a}=\frac{1}{2} \to c\times c^{a}=-\frac{1}{2}$

$\frac{c\times c^{a+b}}{c\times c^{a}}=\frac{-1}{-\frac{1}{2}}=2=2^b \to b=1 \quad f_{(-1)}=1+c\times c^{a-1}=-\frac{1}{9}+1=\frac{1}{9}$

$c\times c^{a-1}=\frac{c\times c^{a}}{2}=\frac{-\frac{1}{2}}{2}=-\frac{1}{9}$

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$c+\log_2^{b}=2 \;,\; c+\log_2^{2,4a+b}=0 \to c=-\log_2^{2,4a+b}$

$\log_2^{b}-\log_2^{2,4a+b}=2 \to \log_2^{\frac{b}{2,4a+b}}=2 \to \frac{b}{2,4a+b}=2^2 \to \frac{2,4a+b}{b}=\frac{1}{4}$

$\frac{2,4a}{b}+\frac{b}{b}=\frac{1}{4} \to \frac{2,4a}{b}=-\frac{3}{4} \to \frac{a}{b}=-\frac{10}{24}$

۴

$|x^2-2|-x>0 \begin{cases} x^2-2\geq 0 \to x\leq -\sqrt{2} \cup \sqrt{2}\leq x \quad I \\ x^2-2-x>0 \to (x-2)(x+1)\geq 0 \to x<-1 \cup x>2 \quad II \end{cases}$

$I,II \to (-\infty,-\sqrt{2}]\cup(2,\infty) \quad III$

$|x^2-2|-x>0 \quad x^2-2<0 \to -\sqrt{2}<x<\sqrt{2} \quad IV \to -x^2+2-x>0$

$(x+2)(x-1)<0 \to -2<x<1 \quad V \qquad (V,IV) \to -\sqrt{2}<x<1 \quad VI$

$V,III \to (-\infty,-\sqrt{2}]\cup(-\sqrt{2},1)\cup(2,\infty) \Rightarrow$

$\Rightarrow (-\infty,1)\cup(2,\infty)$

۵

$2(1)=-(1)^2-2(1)+\lambda=4 \quad f_{(1)}=2+2^{b-a}=4 \to 2^{b-a}=2 \to b-a=1$

$f_{(-1)}=2+2^{b+a}=10 \to 2^{b+a}=8 \to b+a=3$

$b-a=1$

$b+a=3 \to 2+a=3 \to a=1 \qquad 2b-a=4-1=3$

$2b=4 \to b=2$

۶

$1 \to x^2 - x = 1 - 1 = 0 \qquad -2 + (\frac{1}{2})^{\alpha+\beta} = 0 \to (\frac{1}{2})^{\alpha+\beta} = 2 \to -\alpha-\beta = 1 \to \alpha+\beta = -1$

$2 \to x^2 - x = 4 - 2 = 2 \qquad -2 + (\frac{1}{2})^{2\alpha+\beta} = 2 \to (\frac{1}{2})^{2\alpha+\beta} = 4 \to -2\alpha-\beta = 2$

$\alpha+\beta = -1 \to -1+\beta = -1 \to \beta = 0 \qquad 2\alpha+\beta = -2$

$2\alpha+\beta = -2$

$\alpha = -1$

$f(3) = -2 + (\frac{1}{2})^{-1(3)+0} = -2 + (\frac{1}{2})^{-3} = -2 + 8 = 6$

۷

$(\frac{1}{9})^t = \frac{1}{6} \to \log_{\frac{1}{9}} (\frac{1}{9})^t = \log_{\frac{1}{9}} \frac{1}{6} \to t = \frac{1}{2}\log_3 6 \to t = \frac{1}{2}(\frac{19}{12}) = \frac{19}{24}$

$\log_3 6 = \log_3 (3\times 2) = \log_3 3 + \log_3 2 = 1 + \frac{7}{12} = \frac{19}{12} = \log_3 6$

$\frac{\log_5 2}{\log_5 3} = \log_3 2 = \frac{\frac{10}{24}}{\frac{10}{14}} = \frac{7}{12}$

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$\frac{12.5}{100} = \frac{1}{8} \qquad (\frac{1}{8})^t = \frac{1}{7} \to \log_{\frac{1}{8}} (\frac{1}{8})^t = \log_{\frac{1}{8}} \frac{1}{7} \to t = \log_8 7 = t = \frac{1}{3}\log_2 7$

$\log_2 7 = \frac{\log_3 7}{\log_3 2} = \frac{\frac{1}{6}}{\frac{1}{16}} = \frac{8}{3} \qquad t = \frac{1}{3}(\frac{8}{3}) = \frac{8}{9}$ دقیقه

$\frac{8}{9} \times 7 = \frac{56}{9} = 6.2$

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$\frac{96}{100} =$ غلظت جدید $\qquad (\frac{96}{100})^t = \frac{1}{3} \qquad \log_{\frac{96}{100}} (\frac{96}{100})^t = \log_{\frac{96}{100}} \frac{1}{3} \Rightarrow t = \frac{-\log 3}{\log \frac{96}{100}}$

$\log \frac{96}{100} = \log 96 - 2 \to 1.98 - 2 = -0.02 \qquad t = -\frac{0.48}{-0.02} = 24$

$\log 96 = \log 3 \times 32 = \log 3 + 5\log 2 = 0.48 + 5(0.3) = 1.98$

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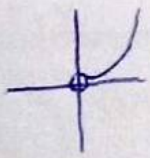
الف) $9^{\log_3 x} = x^{\log_3 9} = x^2$, $x > 0$



ب) $\log x^2 = 2\log|x|$