نام و نام خانوادگی ......شادی ترابی...... پاسخنامه تشریحی تکلیف شماره ...۲۵... کلاس ...یازدهم دختر B...

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$f(x)=1-\log_c^{(ax-b)} \Rightarrow f(0)=2 \Rightarrow 1-\log_c^{(-b)}=2 \Rightarrow \log_c^{(-b)}=-1 \Rightarrow -b=\frac{1}{c} \Rightarrow b=-\frac{1}{c}$

$f(-\frac{3}{2})=0 \Rightarrow 1-\log_c^{(-\frac{3}{2}a-b)}=0 \Rightarrow \log_c^{(-\frac{3}{2}a-b)}=1 \Rightarrow c=-\frac{3}{2}a-b$

$\Rightarrow c+b=-\frac{3}{2}a \xrightarrow[c+b=-\frac{3}{2}]{} \boxed{a=1} \Rightarrow b+c=-\frac{1}{c}+c=\frac{c^2-1}{c}=-\frac{3}{2} \Rightarrow c^2-1=-\frac{3}{2}c$

$\Rightarrow c^2+\frac{3}{2}c-1=0 \xrightarrow[\Delta=\frac{9}{4}+4=\frac{25}{4}]{} c_1=\frac{\frac{5}{2}-\frac{3}{2}}{2}=\boxed{\frac{1}{2}}$ ق ق $\Rightarrow b=-\frac{1}{c}=-\frac{1}{\frac{1}{2}}=\boxed{-2}$

$c_2=\frac{-\frac{5}{2}-\frac{3}{2}}{2}=-2$ غ ق ق $(c>0, c\neq 1)$ $\quad (a+c)b=(1+\frac{1}{2})(-2)=\boxed{-3}$

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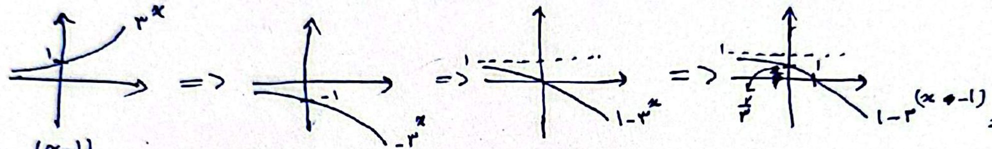
$f(0)=\frac{2}{3} \Rightarrow 1+c\times 3^a=\frac{2}{3} \Rightarrow c\times 3^a=-\frac{1}{3}$

$f(1)=0 \Rightarrow 1+c\times 3^{a+b}=0 \Rightarrow 1+\underbrace{c\times 3^a}_{-\frac{1}{3}}\times 3^b=0 \Rightarrow 3^b=3 \Rightarrow b=1$

$3>1 \Rightarrow$



$\Rightarrow c=-1$, $a=-1$

$f(x)=1-3^{(x-1)} \Rightarrow f(-1)=1-3^{(-1-1)}=1-\frac{1}{9}=\boxed{\frac{8}{9}}$

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$f(x)=c+\log_5^{(ax+b)}$

$f(0)=2 \Rightarrow 2=c+\log_5^{b}$

$f(2/4)=0 \Rightarrow 0=c+\log_5^{(2/4a+b)}$

$\Rightarrow \begin{cases} \cancel{c}+\log_5^{b}=2 \\ \cancel{-c}-\log_5^{(2/4a+b)}=0 \end{cases}$

$\log_5^{b}-\log_5^{(2/4a+b)}=2 \Rightarrow \log_5^{(\frac{b}{2/4a+b})}=2$

$25=\frac{b}{2/4a+b} \Rightarrow 60a+25b=b$

$60a=-24b \Rightarrow \frac{a}{b}=-\frac{24}{60}=\boxed{-\frac{2}{5}}$

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$|x^2-2|-x>0 \Rightarrow$ ① $\underbrace{x>\sqrt{2} \text{ یا } x<-\sqrt{2}}_{\text{فرض اولیه}}$ اگر : $x^2-2-x>0 \Rightarrow (x-2)(x+1)>0$

$\Rightarrow x>2$ یا $x<-1 \xrightarrow[\text{اشتراک با فرض اولیه}]{} x>2$ یا $x<-1$

② $\underbrace{-\sqrt{2}<x<\sqrt{2}}_{\text{فرض اولیه}}$ اگر $\Rightarrow x^2-2-x<0 \Rightarrow (x-2)(x+1)<0 \Rightarrow -1<x<2 \xrightarrow[\text{اشتراک با فرض اولیه}]{} \cancel{-\sqrt{2}<x<\sqrt{2}}$

$(-\infty,1)$

$D=[(-\infty,-1)\cup(2,+\infty)]\cup\{(-\sqrt{2},\sqrt{2})\}=\boxed{(-\infty,\sqrt{2})\cup(2,+\infty)}$

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$g(1)=-1+3+8=10 \xrightarrow[f(1)=g(1)]{} f(1)=10 \Rightarrow 2+2^{b-a}=10 \Rightarrow \begin{cases} b-a=3 \\ b+a=3 \end{cases}$

$f^{-1}(10)=-1 \Rightarrow f(-1)=10 \Rightarrow 2+2^{b+a}=10 \Rightarrow$

$b=3 \Rightarrow a=0 \Rightarrow$ تابع ثابت ۱۰

$\Rightarrow 2b-a=2(3)-0=\boxed{6}$

$f(1)=g(1) \to b-a=1$

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

$\to a=1, b=2$

$2b-a=3$

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$g(x)=x^2-x \Rightarrow g(1)=0 \overset{f(1)=g(1)}{\Longrightarrow} f(1)=0 \Rightarrow -2+2^{-A-B}=0 \Rightarrow \begin{cases}\cancel{-A}-B=1\\ +\\ 2A+\cancel{B}=-2\end{cases}$

$g(2)=2 \overset{\prime\prime}{\Longrightarrow} f(2)=2 \Rightarrow -2+\left(\frac{1}{2}\right)^{2A+B}=2$

$A=-1 \Rightarrow B=0$

$\Rightarrow f(x)=-2+\left(\frac{1}{2}\right)^{-x+0}=-2+2^x \Rightarrow f(3)=-2+2^3=-2+8=\boxed{6}$

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$\frac{1}{6}\cancel{m_0}=\cancel{m_0}\left(1-\frac{1}{9}\right)^{\frac{t}{60}} \Rightarrow \frac{1}{6}=\left(\frac{8}{9}\right)^{\frac{t}{60}} \Rightarrow \frac{t}{60}=\log_{\frac{8}{9}}\frac{1}{6}$

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

$\log_{\frac{8}{9}}\frac{1}{6}=\underbrace{\cancel{\log_{\frac{8}{9}}1}}_{0}-\left(\log_{\frac{8}{9}}^2+\log_{\frac{8}{9}}^3\right)=-\left(\frac{1}{\log_2^8-\log_2^9}+\frac{1}{\log_3^8-\log_3^9}\right)$

$=-\left(\frac{1}{3-2\times\frac{12}{7}}+\frac{1}{3\times\frac{7}{12}-2}\right)=-\left(\frac{1}{-\frac{3}{7}}+\frac{1}{-\frac{1}{4}}\right)=\frac{7}{3}+4=\frac{19}{3} \Rightarrow \frac{t}{\cancel{60}_{20}}=\frac{19}{\cancel{3}}$

$\Rightarrow t=20\times19=\boxed{380\ \text{min}}$

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$\frac{1}{7}\cancel{m_0}=\cancel{m_0}\left(1-\frac{12/5}{100}\right)^{\frac{t}{7}} \Rightarrow \frac{1}{7}=\left(1-\frac{1}{8}\right)^{\frac{t}{7}}=\left(\frac{7}{8}\right)^{\frac{t}{7}} \Rightarrow \frac{t}{7}=\log_{\frac{7}{8}}\frac{1}{7}$

$\log_7^2=\frac{\log_3^2}{\log_3^7}=\frac{\frac{10}{16}}{\frac{10}{6}}=\frac{3}{8}$

$\log_{\frac{7}{8}}\frac{1}{7}=\underbrace{\cancel{\log_{\frac{7}{8}}1}}_{0}-\log_{\frac{7}{8}}^7=-\frac{1}{\log_7^7-\log_7^8}=-\frac{1}{1-3\log_7^2}$

$=-\frac{1}{1-3\times\frac{3}{8}}=-\frac{1}{-\frac{1}{8}}=8 \Rightarrow \frac{t}{7}=8 \Rightarrow \boxed{t=56\ \text{روز}}$

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$\frac{1}{3}\cancel{M_0}=\cancel{M_0}\left(1-\frac{4}{100}\right)^{t} \Rightarrow \frac{1}{3}=\left(\frac{24}{25}\right)^{t} \Rightarrow t=\log_{\frac{24}{25}}\frac{1}{3}$

$\log_3^2=\frac{\log 2}{\log 3}=\frac{0/3}{0/48}=\frac{5}{8}$

$\log_3^5=\log_3^{10}-\log_3^2=\frac{1}{\log 3}-\log_3^2=\frac{100}{48}-\frac{5}{8}=\frac{35}{24}$

$t=\log_{\frac{24}{25}}\frac{1}{3}=\underbrace{\cancel{\log_{\frac{24}{25}}1}}_{0}-\log_{\frac{24}{25}}^3=\frac{-1}{\log_3^{24}-\log_3^{25}}=\frac{-1}{1+3\log_3^2-2\log_3^5}$

$=\frac{-1}{1+3\times\frac{5}{8}-2\times\frac{35}{24}}=\frac{-1}{\frac{23}{8}-\frac{35}{12}}=\frac{-1}{\frac{69-70}{24}}=\frac{-1}{\frac{-1}{24}}=\boxed{24}$ روز

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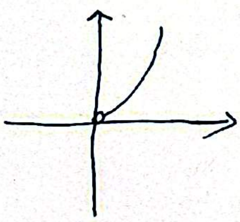
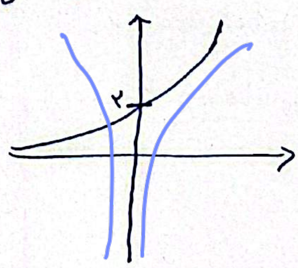
الف) $y=9^{\log_3^x}=x^{\log_3^9}=x^2$

$D=(0,+\infty) \Rightarrow$



ب) $y=\log x^2=2\log x$

$D=\mathbb{R}-\{0\}$



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