آیاز زهنگ

(-ba-b)

$x=-\frac{b}{a} \to 1=\log c$

$x=0 \to 2=\log_c c^{-b} \Rightarrow c^2=-b \to b=-c^2$

$c=-\frac{2}{a}-b$

$\Rightarrow c=-\frac{2}{a}+c^2 \to c^2-c-\frac{2}{a}=0$

$\Rightarrow b+c=-\frac{3}{2} \to -c^2+c=-\frac{3}{2}$

$\to b=-\frac{3}{2}-c \to \frac{3}{2}+c=-b$

$(a+c)b=(1+c)\frac{3}{2}+c \to \frac{3}{2}+\frac{3}{2}c+c+c^2 \to c^2+\frac{5}{2}c+\frac{3}{2}$

$\to \frac{3}{2}-\frac{3}{2}a=1$

$\Rightarrow a=1$

$x=1 \to -1=c\times 3^{a+b} \to -\frac{1}{c}=3^{a+b}$

$x=0 \to \frac{1}{3}=c\times 3^{a} \to -\frac{1}{3c}=3^{a} \to$

$\Rightarrow \frac{-\frac{1}{c}}{-\frac{1}{3c}}=\frac{3^{a+b}}{3^{a}} \to 3=3^{b} \to b=1$

$x=-1 \Rightarrow 1+\frac{c\times 3^{a}}{3^{a}}=? \to -\frac{1}{3}=c\times 3^{a}$

$\to f(-1)=-\frac{1}{9}+1=\frac{8}{9}$

$\to \frac{c\times 3^{a}}{3}=-\frac{1}{9}$

$2=\log_a^b+c \Rightarrow \log_a^{(2,4a+b)}-\log_a^b=-2$

$0=c+\log_a^{(2,4a+b)}$

$\Rightarrow \log_a \frac{2,4a+b}{b}=-2$

$\Rightarrow \frac{2,4a+b}{b}=\frac{1}{25} \Rightarrow \frac{1}{25}=\frac{2,4a}{b}+1$

$\frac{2,4a}{b}=-\frac{24}{25} \to \frac{a}{b}=-\frac{2}{5}$

$(x^2-|x|-2)>0 \to |x^2-|x||>2$

$x^2-|x|>2 \to x^2-x-2>0 \to$ (-2, 4) + − + → $(-\infty,-2)\cup(4,+\infty)$

$-x^2+|x|<2 \to x^2+x-2<0 \to$ (-2, 1) + − + → $(-2,1)$

$1\cap 2=\emptyset$

$x=1 \to 2+\frac{3^b}{3^a}=4 \Rightarrow \frac{3^b}{3^a}=2 \to 2(2^a)=2^b$

$\to x=-1 \to 2+2^b\times 2^a=10 \to 2^b\times 2^a=8$

$\to 2\times 2^a\times 2^a=8 \to 2^{2a}=4$

$\Rightarrow a=1$

$2(2^a)=2^b \to 2(2)=4=2^b \to b=2$

$\Rightarrow 2b-a=2(2)-1=3$

$x=1 \to 0 = -2 + \left(\frac{1}{2}\right)^{B} \to 2 = \left(\frac{1}{2}\right)^{B} \to B=-1$

$x=2 \to 2 = -2 + \left(\frac{1}{2}\right)^{2A+B} \to 4 = \left(\frac{1}{2}\right)^{2A+1} \Rightarrow 2A+1 = -2$

$\Rightarrow 2A = -3 \Rightarrow A = -\frac{3}{2}$

$f(x) = -2 + \left(\frac{1}{2}\right)^{-\frac{3}{2}(x)-1} \to -2 + \left(\frac{1}{2}\right)^{-11} \to -2 + \sqrt{2^{11}} \to -2 + 2^{5}\sqrt{2}$

۵)

۶) جرم عنصر به نیمه خود می‌رسد $\frac{8}{9}$ برابر می‌شود

$\left(\frac{8}{9}\right)^{t} = \frac{1}{2} \to \log_{\frac{8}{9}}^{\left(\frac{8}{9}\right)^{t}} = \log_{\frac{8}{9}}^{\frac{1}{2}}$

$\to t \log_{\frac{8}{9}}^{\frac{8}{9}} = -\log_{\frac{8}{9}}^{a}$

$\log_{2^3}^{a} = 1.2 \to \log_{a}^{2^3} = \frac{a}{12}$

$\log_{2}^{a} = 2.4 \to \log_{a}^{2} = \frac{a}{24}$

$t\log_{\frac{8}{9}}^{\frac{8}{9}} = -\log_{\frac{8}{9}}^{a} \to t(\log_{\frac{8}{9}}^{8} - \log_{\frac{8}{9}}^{9}) = -\log_{\frac{8}{9}}^{a} \to t\left(\frac{3}{2} - 2\times\frac{2}{3}\right) = -\left(\frac{3}{12} + \frac{a}{12}\right)$

$\Rightarrow t = \frac{19}{3}$ $\quad \frac{19}{3} \times 450 = 2850$

۵)

۷) جرم عنصر در هر هفته $\frac{7}{8}$ برابر می‌شود

$m\left(\frac{7}{8}\right)^{\frac{t}{7}} = \frac{1}{7}m_0 \Rightarrow \left(\frac{7}{8}\right)^{\frac{t}{7}} = \frac{1}{7} \to \log_{\frac{7}{8}}^{\left(\frac{7}{8}\right)^{\frac{t}{7}}} = \log_{\frac{7}{8}}^{\frac{1}{7}} \to \frac{t}{7}\log_{\frac{7}{8}}^{\frac{7}{8}} = \log_{\frac{7}{8}}^{\frac{1}{7}} \to \frac{t}{7}(\log_{2^3}^{7} - \log_{2^3}^{8}) = -\log_{2^3}^{7}$

$\to \log_{7}^{2^3} = \frac{6}{15} \to \log_{2^3}^{7} = \frac{15}{6}$ $\left(\log_{2}^{3} = \frac{19}{15} \to \log_{3}^{2} = \frac{15}{19}\right)$

۵)

$\to \frac{t}{7}\left(\frac{3}{2} - 3\times\frac{3}{8}\right) = -\frac{3}{3} \to t = 84$

۹) غلظت محلول هر روز $\frac{96}{100}$ برابر می‌شود

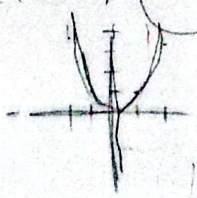
$\left(\frac{96}{100}\right)^{t} = \frac{1}{2} \to \log\left(\frac{96}{100}\right)^{t} = \log\frac{1}{2}$

$t(\log 96 - \log 100) = -\log 2 \to t(\log 2^5 + \log 3 - 2) = -\log 2$

۵)

$\Rightarrow t\left[(5\times 0.3) + 0.48 - 2\right] = -0.48 \Rightarrow t = 24$

$x^{\log_3^9 \log_2^8} \Rightarrow x^{\log_3^2} = x^{\log_3^9} \to$



۱۰/

۵)

ب) $y = \log x^2 \to 2\log x$

۱) $x=0 \rightarrow y=1-\log_c^{-b}=2 \rightarrow bc=-1$ $\quad \begin{cases} b+c=\frac{-3}{2} \\ bc=-1 \end{cases} \rightarrow \begin{cases} b=-2 \checkmark \\ b=\frac{1}{2} \times \end{cases}$

b نمی‌تواند (+) باشد چون در این صورت c صفر می‌شود

$x=-1, a=\frac{-3}{2} \rightarrow 1-\log_{\frac{-1}{2}}^{\frac{-3}{2}a+2}=0 \rightarrow a=1 \quad (a+c)b=-3$

۶) $x^2-2=x \rightarrow \begin{cases} x=-1 \times \\ x=2 \checkmark \end{cases}$

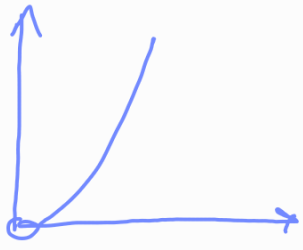
$D_f=(\infty,1)\cup(2,+\infty)$

$x^2+x-2=0 \rightarrow \begin{cases} x=-2 \times \\ x=1 \checkmark \end{cases}$

۷) $g(x)=x^2-x \begin{cases} g(1)=0 \\ g(2)=2 \end{cases} \rightarrow \begin{cases} f(1)=0 \rightarrow A+B=-1 \\ f(2)=2 \rightarrow 2A+B=-2 \end{cases} \rightarrow A=-1, \ B=0$

$f(x)=x-2=y$

۱۰) الف: $D=(0,+\infty)$ $\quad x^2 \rightarrow$



ب: $D=\mathbb{R}-\{0\}$ $\quad 2\log^x \rightarrow$