آیناز فرهنگ

۱)

$(-\frac{3}{2}a-b)$

$x=-\frac{3}{2} \to 1=\log_c$

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

$c=-\frac{3}{2}a-b$

$\Rightarrow c=-\frac{3}{2}a+c^2 \to c^2-c-\frac{3}{2}a=0$

$\frac{3}{2}$

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

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

$\Rightarrow \boxed{a=1}$

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

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

۲)

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

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

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

$x=-1 \Rightarrow 1+\frac{c\times 3^a}{3}? \to -\frac{1}{3}=c\times 3^a \to f(-1)=-\frac{1}{9}+1=\frac{8}{9}$

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

۳)

$2=\log_5^b+c \Rightarrow \log_5^{(2.4a+b)}-\log_5^b=-2$

$0=c+\log_5^{(2.4a+b)}$

$\Rightarrow \log_5\frac{2.4a+b}{b}=-2$

$\Rightarrow \frac{2.4a+b}{b}=\frac{1}{25} \Rightarrow \frac{1}{25}=\frac{2.4a}{b}+1$

$\frac{2.4a}{b}=\frac{-24}{25} \to \frac{a}{b}=-\frac{2}{5}$

۴)

$(|x^2-2|-x)>0 \to |x^2-2|-x>0$, $x^2-2>x \to x^2-x-2>0 \to$ -2, 4: $+ \mid - \mid +$ $\to (-\infty,-2)\cup(4,+\infty)$ ①

$|x^2-2|>x$, $-x^2-2<-x \to x^2+x-2<0 \to$ -2, 2: $+ \mid - \mid +$ $(-2,4)$ ②

$1 \cap 2=\emptyset$

۵)

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

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

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

$\Rightarrow \boxed{a=1}$

$2(2^a)=2^b \to 2(2)=4=2^b \to \boxed{b=2}$

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

(۶

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

$x=2 \to 2 = -2 + \left(\frac{1}{2}\right)^{2A+B} \to 4 = \left(\frac{1}{2}\right)^{2A+1} \Rightarrow 2A+1 = -2 \Rightarrow 2A = -3 \Rightarrow \boxed{A = -\frac{3}{2}}$

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

۷) جرم عنصر هر ساعت $\frac{8}{9}$ برابر می‌شود

$\left(\frac{8}{9}\right)^{t} = \frac{1}{6} \to \log_5 \left(\frac{8}{9}\right)^{t} = \log_5 \frac{1}{6}$

$\Rightarrow t \log_5 \frac{8}{9} = -\log_5 6$

$\log_3 5 = 1.4 \to \log_5 3 = \frac{5}{7}$

$\log_2 5 = 2.4 \to \log_5 2 = \frac{5}{12}$

$t \log_5 \frac{8}{9} = -\log_5 6 \to t(\log_5 8 - \log_5 9) = -\log_5 6 \to t\left(\frac{5}{4} - 2 \times \frac{5}{7}\right) = -\left(\frac{5}{12} + \frac{5}{7}\right)$

$\Rightarrow t = \frac{19}{3} \qquad \frac{19}{3} \times 60 = 380$

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

$m\left(\frac{7}{8}\right)^{\frac{t}{7}} = \frac{1}{7} m_0 \Rightarrow \left(\frac{7}{8}\right)^{\frac{t}{7}} = \frac{1}{7} \to \log_2 \left(\frac{7}{8}\right)^{\frac{t}{7}} = \log_2 \frac{1}{7} \to \frac{t}{7} \log_2 \frac{7}{8} = \log_2 \frac{1}{7} \to \frac{t}{7}(\log_2 7 - \log_2 8) = -\log_2 7$

$\to \log_7 3 = \frac{6}{10} \to \log_3 7 = \frac{10}{6} \quad \log_2 3 = \frac{16}{10} \to \log_3 2 = \frac{10}{16}$

$\Rightarrow \frac{t}{7}\left(\frac{5}{3} - 3 \times \frac{5}{8}\right) = -\frac{5}{3} \Rightarrow t = 56$

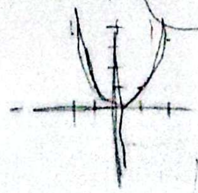
۹) غلظت حلال هر روز $\frac{96}{100}$ برابر می‌شود

$\left(\frac{96}{100}\right)^{t} = \frac{1}{3} \to \log \left(\frac{96}{100}\right)^{t} = \log \frac{1}{3}$

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

$\Rightarrow t\left((5 \times 0.3) + 0.48 - 2\right) = -0.48 \Rightarrow \boxed{t = 24}$

۱۰) الف) $9^{\log_3 x} \Rightarrow x^{\log_3 9} = x^{2} \longrightarrow$



ب) $= y = \log x^{2} \to 2\log x$