(۱) $\left|\begin{matrix}0\\2\end{matrix}\right|\left|\begin{matrix}-\frac{3}{2}\\0\end{matrix}\right.$ $\to 2=1-\log_c^{-b} \to \boxed{c^{-1}=-b} \to b=\frac{-1}{c} \to c-\frac{1}{c}=\frac{-3}{2}=\frac{c^2-1}{c} \to 2c^2+3c-2=0$

طبق شکل $0<c<1$

(۲) $\to \frac{-3\pm\sqrt{9+16}}{4} \to -2$ غ ق ق ، $\boxed{\frac{1}{2}=c} \to \boxed{b=-2}$

$0=1-\log_c^{(-\frac{3}{2}a+b)} \to c=-\frac{3}{2}a-b \to c+b=-\frac{3}{2}=-\frac{3}{2}a \to \boxed{a=1}$

$\Rightarrow (a+c)b=(\frac{3}{2})-2=-3$

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(۲) $\left|\begin{matrix}1\\0\end{matrix}\right|\left|\begin{matrix}0\\\frac{2}{3}\end{matrix}\right.$ $\to 0=1+c\times 3^{a+b} \to 3^{(a+b)}=\frac{-1}{c} \to \log_3^{-c^{-1}}=a+b \to \frac{1}{-c}>0$

$\to \frac{2}{3}=1+c\times 3^a \to -3^{-1}=c\times 3^a \to \boxed{c=-1}, \boxed{a=-1} \Rightarrow b+a=0 \Rightarrow \boxed{b=1}$

(۲) $f(-1)=1+(-3^{-1-1})=1-\frac{1}{9}=\frac{8}{9}$

---

(۳) $\left|\begin{matrix}2.4\\0\end{matrix}\right|\left|\begin{matrix}0\\2\end{matrix}\right.$ $\to -c=\log_5^{(2.4a+b)} \to 5^{-c}=2.4a+b \to 5^{-c}-5^2\times 5^{-c}=5^{-c}(1-25)=2.4a \to 5^{-c}=-0.1a$

-24

$2=c+\log_5^b \to 5^{(2-c)}=b \to 25\times 5^{-c}=b \to 5^{-c}=\frac{b}{25}$

$b>0$

$\Rightarrow \frac{b}{25}=\frac{-1}{10}a \to \frac{a}{b}=\frac{-10}{25}=\frac{-2}{5}=-0.4$

---

(۴) $|x^2-2|-x>0 \to |x^2-2|>x$

$x^2-2>x \to x^2-x-2>0 \to (x-2)(x+1)>0 \to \frac{-1\ \ 2}{+\ |\ -\ |\ +} \to (-\infty,-1)\cup(2,+\infty)$ I

$x^2-2<-x \to x^2+x-2<0 \to (x+2)(x-1)<0 \to \frac{-2\ \ 1}{+\ |\ -\ |\ +} \to (-2,1)$ II

(۲) $\Rightarrow I\cup II=D_f=(-\infty,1)\cup(2,+\infty)$ یا $\mathbb{R}-[1,2]$

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(۵) $g(-1)=f(1) \to -1-2+8=2+2^{b-a} \to 2^1=2^{b-a} \to 1=b-a$

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

$2b=4 \to \boxed{b=2} \to \boxed{a=1} \Rightarrow 2b-a=3$

(۲)

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(۶) $f(1)=g(1) \to 0=-2+2^{-A-B} \to A-B=1$

$f(2)=g(2) \to 2=-2+2^{-2A-B} \to 2^2=2^{-2A-B} \to 2A+B=-2$

$\boxed{A=-1} \to \boxed{B=0} \Rightarrow f(3)=-2+2^{3+0}=6$

(۲)

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(۷) $t=$ ساعت ، $M=$ جرم اولیه $\to \frac{M}{6}=M(\frac{8}{9})^t \to \log_{\frac{8}{9}}\frac{1}{6}=t \to t=-\log_{\frac{8}{9}}6=-\frac{\log_5 6}{\log_5\frac{8}{9}}=-\frac{\log_5 2+\log_5 3}{3\log_5 2-2\log_5 3}=-\frac{\frac{5}{12}+\frac{5}{7}}{\frac{15}{12}-\frac{10}{7}}=-\frac{\frac{35+60}{84}}{\frac{105-120}{84}}=\frac{-95}{-15}h$

$\log_5 2=\frac{5}{12}$ / $\log_5 3=\frac{5}{7}$

$\Rightarrow =\frac{95}{15}\times 60=380\,min$

(۲)

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(۸) $t=$ هفته ، $M=$ جرم اولیه $\frac{M}{7}=M(\frac{7}{8})^t \to \log_{\frac{7}{8}}\frac{1}{7}=t \to -\log_{\frac{7}{8}}7=t=-\frac{\log_3 7}{\log_3\frac{7}{8}}=-\frac{\log_3 7}{\log_3 7-3\log_3 2}=-\frac{\frac{5}{3}}{\frac{5}{3}-\frac{15}{8}}=\frac{\frac{5}{3}}{\frac{400-45}{24}}=\frac{-40}{-5}=8$ هفته

$100-12.5=87.5 \to \frac{875}{1000}=\frac{7}{8}$ / $\log_3 2=\frac{5}{8}$ / $\log_3 7=\frac{5}{3}$

$=8\times 7=56$ روز

(۲)

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(۹) $t=$ روز ، $M=$ غلظت اولیه $\frac{M}{3}=M(\frac{96}{100})^t \to t=\log_{\frac{96}{100}}3^{-1}=\frac{-\log 3}{\log 96-\log 100}=\frac{-0.48}{5\log 2+\log 3-2}=\frac{-0.48}{1.5+0.48-2}=\frac{-0.48}{-0.02}=24$ روز

در هر مرحله غلظت $\frac{96}{100}$ می‌شود.

(۲)

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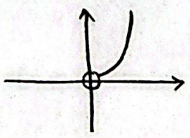
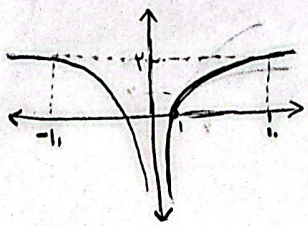
(۱۰) $y=x^{\log_3 9}=x^2 \quad x>0$



$x^2>0$

$x\in\mathbb{R}-\{0\}$



(۲)