۱۹٫۵

نام و نام خانوادگی: ... / ... / کلاس: یازدهم تجربی B

(۱)

$\begin{vmatrix}0\\2\end{vmatrix}$, $\begin{vmatrix}-1.5\\0\end{vmatrix}$ $\rightarrow 2 = 1 - \log_c^{-b} \rightarrow \frac{1}{c} = -b \rightarrow b = -\frac{1}{c}$

$0 = 1 - \log_c^{-1.5a-b} \rightarrow c = -1.5a - b\} \quad b + c = -\frac{3}{2} \rightarrow -\frac{1}{c} + c = -\frac{3}{2}$

$c^2 + \frac{3}{2}c - 1 = 0 \rightarrow c = \frac{-\frac{3}{2} + \sqrt{\frac{25}{4}}}{2} \rightarrow c = \frac{-1.5 + 2.5}{2} = \frac{1}{2}\} = c$

$b = -2\} \rightarrow \frac{1}{2} = -\frac{3}{2}a + 2 \rightarrow a = 1\} \rightarrow (a + c)b = (1 + \frac{1}{2})(-2)$

$= -3$

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(۲)

$\begin{vmatrix}0\\2/3\end{vmatrix}$ $\begin{vmatrix}1\\0\end{vmatrix}$ $\begin{vmatrix}-1\\?\end{vmatrix}$

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$f(0) = 1 + c \times 3^a \times \cancel{\text{کسر}} = \frac{2}{3}$ و $c \times 3^a = -\frac{1}{3}$

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

$f(-1) = 1 + c \times 3^a \times 3^{-1} = 1 + (-\frac{1}{3} \times \frac{1}{3}) = \boxed{\frac{8}{9}}$

(۳)

$\begin{vmatrix}0\\2\end{vmatrix}$ $\begin{vmatrix}2.4\\0\end{vmatrix}$ $\rightarrow \frac{a}{b} = ?$

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$2 = c + \log_5^b \rightarrow 5^{2-c} = b \rightarrow 5^{-c} = \frac{b}{25}$

$0 = c + \log_5^{2.4a+b} \rightarrow 5^{-c} = 2.4a + b = \frac{b}{25}$

$\frac{b - 25b}{25} = 2.4a \rightarrow -\frac{\cancel{24}b}{\cancel{25}_5} = \frac{\cancel{24}}{\cancel{10}_2}a \rightarrow \boxed{\frac{a}{b} = -\frac{2}{5}}$

(۴)

$|x^2 - 2| - x \geq 0$

$x = -1, 2$

۱) $x^2 - 2 \geq 0 \rightarrow x^2 \geq 2 \rightarrow x \geq \sqrt{2} \cup x \leq -\sqrt{2} \rightarrow x^2 - x - 2 \geq 0 \rightarrow$ $\begin{matrix} & -1 & 2 & \\ + & - & + \end{matrix}$

$D_1 = (-\infty, -\sqrt{2}]$

۲) $x^2 - 2 < 0 \rightarrow x^2 < 2 \rightarrow -\sqrt{2} < x < \sqrt{2} \rightarrow -x^2 - x + 2 \geq 0$ $\begin{matrix} -2 & 1 \\ - + - \end{matrix}$ $\cup [2, +\infty)$

$x = -2, 1 \rightarrow D_2 = (-\sqrt{2}, 1]$

$D = D_1 \cup D_2 = \mathbb{R} - \{-\sqrt{2}, 2\} - [1, 2]$

۱٫۷۵

۵)

$\left|\begin{matrix}1\\4\end{matrix}\right. \leftarrow \underbrace{-x^2-3x+8}_{g(x)} = -1-3+8=4 \Big\}\; f(-1)=10$

$f(x)\to 2+2^{b-a}=4\to \boxed{b-a=1}$

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

$2b-a=4-1=3$

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۶)

$\left|\begin{matrix}1\\0\end{matrix}\right.\ \left|\begin{matrix}2\\2\end{matrix}\right. \to f(1)=-2+2^{-A-B}=0\to \boxed{-A-B=1}$

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

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$f(3)=-2+2^3=\boxed{6}$

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۷)

$P=P_0\left(\frac{8}{9}\right)^t \to \frac14 P_0=P_0\times\left(\frac89\right)^t\to \frac14=\left(\frac89\right)^t$

$\log\frac14=\log\left(\frac89\right)^t\to -\log 4=t\log\frac89\to -(\log 2+\log 2)=t(3\log 2-2\log 3)$

$-\left(\frac{10}{14}+\frac{10}{24}\right)=t\left(3\times\frac{10}{34}-2\times\frac{10}{14}\right)\to t=\frac{19}{3}=$ ۳۸۰ دقیقه

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۸)

$P=P_0\left(1-\frac{125}{1000}\right)^t\to\frac17P_0=P_0\times\left(\frac78\right)^t\to\log\frac17=\log\left(\frac78\right)^t$

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$t=\dfrac{\log\frac17}{\log\frac78}=\dfrac{-\log 7}{\log 7-\log 8}=\dfrac{-\frac{10}{6}}{\frac{10}{6}-\frac{30}{16}}=8$ هفته $\to 8\times7=56$ روز

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۹)

$\left(\frac{100-4}{100}\right)^t=\frac13\to\left(\frac{24}{25}\right)^t=\frac13\rightsquigarrow\left(\frac{25}{24}\right)^t=3\Rightarrow\log\left(\frac{25}{24}\right)^t=\log 3$

$t\log\frac{25}{24}=\log3\to t=\dfrac{\log 3}{\log 25-\log 24}=\dfrac{0.48}{\underbrace{2(1-0.3)}_{1.4}-(\underbrace{0.48+0.9}_{1.38})}=24$ روز

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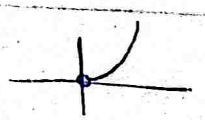
الف) $\to x>0\to x^2\to$



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ب) $2\log_{10}x$

x	1	10	100
y	0	2	4

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

مجانب $x=0$