نام و نام خانوادگی ......صبا ادهم...... پاسخنامه تشریحی تکلیف شماره ..۲۵.. کلاس ..یازدهم B......

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$(0,2) \xrightarrow{\text{صدق}} 2 = 1 - \log_c^{-b} \rightarrow 1 = -\log_c^{-b} \rightarrow \log_c^{-\frac{1}{b}} = 1$

$(-\frac{3}{2}, 0) \xrightarrow{\text{صدق}} 0 = 1 - \log_c^{-\frac{3}{2}a - b} \rightarrow -1 = -\log_c^{-\frac{3}{2}a-b} \rightarrow \log_c^{-\frac{3}{2}a-b} = 1$

$\rightarrow \log_c^{-\frac{1}{b}} = \log_c^{-\frac{3}{2}a-b} \rightarrow -\frac{1}{b} = -\frac{3}{2}a - b \rightarrow \boxed{-\frac{3}{2}a = -\frac{1}{b} + b}$

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

$\rightarrow b^2 + 3b - 4 = 0$ ⟨ $b = -\frac{4}{2} = -2$ ✓ ; $b = \frac{1}{2}$ چون c منفی می‌شود غ ق ق $c = -\frac{1}{b}$

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

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

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$(0, \frac{2}{3}) \xrightarrow{\text{صدق}} f(0) = \frac{2}{3} \rightarrow 1 + c \times 3^a = +\frac{2}{3} \rightarrow c \times 3^a = -\frac{1}{3}$

$(1, 0) \xrightarrow{\text{صدق}} f(1) = 0 \rightarrow 1 + c \times 3^{a+b} = 0 \rightarrow 1 + 3^a \times 3^b \times c = 0 \xrightarrow{c \times 3^a = -\frac{1}{3}} 1 + \frac{-1}{3} \times 3^b = 0$

$\rightarrow 3^b = 3 \rightarrow b = 1$ $\quad f(-1) = 1 + c \times 3^{a-1} = 1 + c \times 3^a \times 3^{-1} = 1 - \frac{1}{3} \times 3^{-1} =$

$\rightarrow 1 - \frac{1}{9} = \frac{8}{9}$

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$(0, 2) \rightarrow 2 = c + \log_5^b \rightarrow \log_5^{2.4a+b} - \log_5^b = -2 \rightarrow \log_5 \frac{2.4a+b}{b} = -2$

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

$\rightarrow \frac{2.4a+b}{b} = \frac{1}{25} \rightarrow \frac{24}{10} \times \frac{a}{b} = \frac{-24}{25} \rightarrow \frac{a}{b} = \frac{-2}{5}$

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$|x^2 - 2| - x > 0 \rightarrow |x^2 - 2| > x \xrightarrow{x > 0} \begin{cases} x^2 - 2 > x \rightarrow x^2 - x - 2 > 0 \rightarrow x \in (2, +\infty) \ ① \\ x^2 - 2 < -x \rightarrow x^2 + x - 2 < 0 \end{cases}$

$|x^2 - 2| > x \xrightarrow{x \le 0} x \in (-\infty, 0]$ ③ $\qquad x \in (0, 1)$ ②

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$① \cup ② \cup ③ = (-\infty, 1) \cup (2, +\infty)$

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$x = 1 \rightarrow g(x) = f(x) \qquad f(1) = g(1) \rightarrow 2 + 2^{b-a} = -1 - 3 + 8 \rightarrow 2^{b-a} = 2$

$\rightarrow b - a = 1 \qquad f^{-1}(10) = -1 \rightarrow f(-1) = 10 \rightarrow 2 + 2^{b+a} = 10 \rightarrow 2^{b+a} = 8$

$b + a = 3$

$\begin{cases} b + a = 3 \\ b - a = 1 \end{cases}$

$2b = 4 \rightarrow b = 2 \quad a = 1 \qquad 2b - a = \boxed{3}$

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$$f(x) = -2 + \left(\frac{1}{2}\right)^{Ax+B} \rightarrow f(1)=0 ,\ f(2)=2$$
$$g(x) = x^2 - x \rightarrow g(1)=0 \qquad g(2)=2$$
$$f(1) = -2 + \left(\frac{1}{2}\right)^{A+B} = 0 \rightarrow 2^{-A-B} = 2 \qquad -A-B=1 \rightarrow A+B=-1$$
$$f(2) = -2 + \left(\frac{1}{2}\right)^{2A+B} = 2 \rightarrow 2^{-2A-B} = 4 \rightarrow 2A+B=-2$$
$$\begin{cases} A=-1 \\ B=0 \end{cases}$$ ۶
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$$f(x) = -2 + \left(\frac{1}{2}\right)^{-x} \rightarrow f(3) = -2 + \left(\frac{1}{2}\right)^{-3} = \boxed{6}$$

$$m(t) = m_0 \left(\frac{8}{9}\right)^{\frac{t}{1}} \rightarrow \frac{1}{4} m_0 = m_0 \left(\frac{8}{9}\right)^t \rightarrow \left(\frac{8}{9}\right)^t = \frac{1}{4} \rightarrow \log_5 \left(\frac{8}{9}\right)^t = \log_5 \frac{1}{4}$$ ۲
$$\rightarrow t \log_5 \frac{8}{9} = -\log_5 4 \rightarrow t(\log_5 8 - \log_5 9) = -(\log_5 2 + \log_5 3)$$
$$\rightarrow t\left(3\times\frac{5}{12} - 2\times\frac{5}{7}\right) = -\left(\frac{5}{12} + \frac{5}{7}\right) \rightarrow t = \frac{19}{3} h = \frac{19}{3}\times 60 = \boxed{380 \ min}$$ ۷
$$\log_3 5 = \frac{1}{\log_5 3} \rightarrow \log_5 3 = \frac{5}{7} \qquad \log_2 5 = \frac{1}{\log_5 2} \rightarrow \log_5 2 = \frac{5}{12}$$

$$m(t) = m_0 \left(\frac{7}{8}\right)^{\frac{t}{7}} \rightarrow \frac{1}{7} m_0 = m_0 \left(\frac{7}{8}\right)^{\frac{t}{7}} \rightarrow \left(\frac{7}{8}\right)^{\frac{t}{7}} = \frac{1}{7} \rightarrow \log_3 \left(\frac{7}{8}\right)^{\frac{t}{7}} = \log_3 \frac{1}{7}$$
$$\rightarrow \frac{t}{7}(\log_3 7 - \log_3 8) = -\log_3 7 \rightarrow \frac{t}{7}\left(\frac{5}{3} - 3\times\frac{5}{8}\right) = -\frac{5}{3} \rightarrow \boxed{t = 56 \text{ روز}}$$ ۸
$$\log_7 3 = \frac{6}{10} = \frac{3}{5} = \frac{1}{\log_3 7} \rightarrow \log_3 7 = \frac{5}{3} \qquad \log_2 3 = \frac{16}{10} = \frac{8}{5} = \frac{1}{\log_3 2} \rightarrow \log_3 2 = \frac{5}{8}$$
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$$100\left(1 - \frac{4}{100}\right)^n = \frac{1}{3}\times 100 \rightarrow \left(\frac{24}{25}\right)^n = \frac{1}{3} \qquad n = \log_{\frac{24}{25}} \frac{1}{3} = \frac{-\log 3}{\log \frac{24}{25}} = \frac{-\log 3}{\log 24 - \log 25}$$
$$= \frac{-\log 3}{3\log 2 + \log 3 - \log 100 + 2\log 2} = \frac{-\log 3}{5\log 2 + \log 3 - 2} = \frac{0/48}{0/3\times 5 + 0/48 - 2} = \boxed{24}$$ ۹
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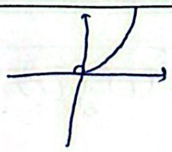
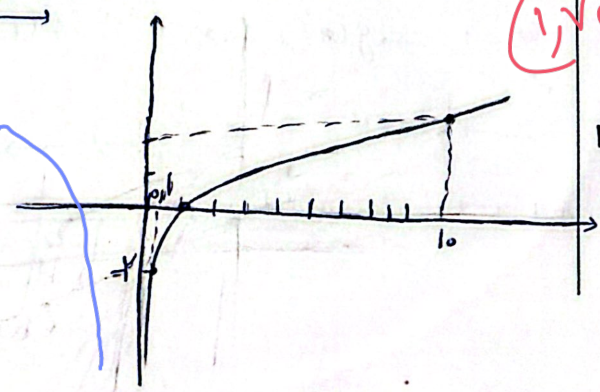
الف) $f(x) = x^{\log_2 4} = x^2$

$D: x>0$



ب) $y = \log x^2 = 2\log x$

x	1	10	0/1
y	0	2	-2



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