نام و نام خانوادگی ....[illegible]........ پاسخنامه تشریحی تکلیف شماره ..۲(۵).. کلاس ......یازدهم [illegible]......

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

$(-\frac{3}{4},0) \rightarrow 0 = 1 - \log_c^{-\frac{3}{4}a-b} \rightarrow -1 = -\log_c^{-\frac{3}{4}a-b} \rightarrow \log_c^{-\frac{3}{4}a-b} = 1$

$\log_c^{\frac{-1}{b}} = \log_c^{\frac{-3}{4}a-b}$

$\frac{-1}{b} = \frac{-3}{4}a - b$

$-\frac{3}{4}a = \frac{1}{b} + b$

$\log_c^{\frac{-1}{b}} = 1 \rightarrow c = \frac{-1}{b} \rightarrow b + c = \frac{3}{2} \rightarrow b - \frac{1}{b} = \frac{3}{2} \rightarrow b^2 - 1 - \frac{3b}{2} = 0$ $\begin{cases} b = -2 ✓ \\ b = \frac{1}{2} × \end{cases}$

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

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

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

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

$b = 1$

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

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$(0,2) \rightarrow 2 = c + \log_5^b$

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

$\rightarrow \log_5^{2.4a+b} - \log_5^b = -2 \rightarrow \log_5^{\frac{2.4a+b}{b}} = -2 \rightarrow \frac{2.4a+b}{b} = \frac{1}{25}$

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

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$|x^2-2| - x > 0 \rightarrow |x^2-2| > x$ اگر x مثبت

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

$|x^2-2| > x$ اگر x منفی باشد $\quad x \in (-\infty,0]$ ③

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

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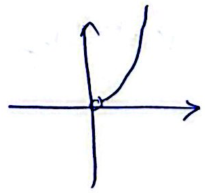
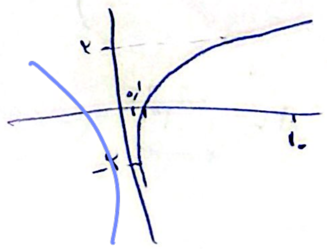
$x = 1 \rightarrow g(x) = f(x)$ $\quad f(1) = g(1) \rightarrow 2 + 2^{b-a} = -1 - 3 + 8 \rightarrow 2^{b-a} = 2 \rightarrow b - a = 1$

$f^{-1}(10) = -1 \rightarrow f(-1) = 10 \rightarrow 2 + 2^{b+a} = 10 \rightarrow 2^{b+a} = 8 \rightarrow b + a = 3$

$\begin{cases} a = 1 \\ b = 2 \end{cases}$

$2b - a = 3$

$f(x) = -2 + \left(\frac{1}{2}\right)^{Ax+B} \to f(1) = 0 \;,\; f(2) = 2$ $g(x) = x^2 - x \to g(1) = 0 \quad g(2) = 2$ $f(1) = -2 + \left(\frac{1}{2}\right)^{A+B} = 0 \to 2^{-A-B} = 2 \to -A-B = 1 \to A+B = -1$ $f(2) = -2 + \left(\frac{1}{2}\right)^{2A+B} = 2 \to 2^{-2A-B} = 4 \to 2A+B = -2$ $\begin{cases} A = -1 \\ B = 0 \end{cases}$ $f(x) = -2 + \left(\frac{1}{2}\right)^{-x} \to f(3) = -2 + \left(\frac{1}{2}\right)^{-3} = \boxed{6}$	۵	۶
$m(t) = m_0\left(\frac{8}{9}\right)^{\frac{t}{1}} \to \frac{1}{6}m_0 = m_0\left(\frac{8}{9}\right)^t \to \left(\frac{8}{9}\right)^t = \frac{1}{6} \to \log_5\left(\frac{8}{9}\right)^t = \log_5 \frac{1}{6} \to t\log_5^{\frac{8}{9}} = -\log_5^6$ $\log_3^5 = \frac{1}{\log_5^3} \to \log_5^3 = \frac{5}{7}$ $\log_2^5 = \frac{1}{\log_5^2} \to \log_5^2 = \frac{5}{12}$ $\to t(\log_5^8 - \log_5^9) = -(\log_5^2 + \log_5^3)$ $t\left(3 \times \frac{5}{12} - 2 \times \frac{5}{7}\right) = -\left(\frac{5}{12} + \frac{5}{7}\right)$ $t = \frac{19}{3}h \times 60 = \boxed{380\,min}$	۵	۷
$m(t) = m_0\left(\frac{7}{8}\right)^{\frac{t}{7}} \Rightarrow \frac{1}{7}m_0 = m_0\left(\frac{7}{8}\right)^{\frac{t}{7}} \to \left(\frac{7}{8}\right)^{\frac{t}{7}} = \frac{1}{7} \to \log_3\left(\frac{7}{8}\right)^{\frac{t}{7}} = \log_3 \frac{1}{7}$ $\to \frac{t}{7}(\log_3^7 - \log_3^8) = -\log_3^7 \to \frac{t}{7}\left(\frac{5}{3} - 3 \times \frac{5}{8}\right) = -\frac{5}{3} \to t = \boxed{56}$ $\log_7^3 = \frac{6}{10} = \frac{3}{5} = \frac{1}{\log_3^7} \to \log_3^7 = \frac{5}{3}$ $\log_2^3 = \frac{16}{10} = \frac{8}{5} = \frac{1}{\log_3^2} \to \log_3^2 = \frac{5}{8}$	۵	۸
$100\left(1 - \frac{4}{100}\right)^n = \frac{1}{3} \times 100 \Rightarrow \left(\frac{24}{25}\right)^n = \frac{1}{3}$ $n = \log_{\frac{24}{25}} \frac{1}{3} = \frac{-\log 3}{\log \frac{24}{25}} = \frac{-\log 3}{\log 24 - \log 25}$ $= \frac{-\log 3}{3\log 2 + \log 3 - \log 100 + 2\log 2} = \frac{-\log 3}{5\log 2 + \log 3 - 2} = \frac{-0{,}48}{0{,}3 \times 5 + 0{,}48 - 2} = \boxed{24}$	۶	۹
الف) $f(x) = 9^{\log_3^x} = (3^2)^{\log_3^x} = (3^{\log_3^x})^2 = x^2$  ب) $y = \log x^2 = 2\log x \quad D = \mathbb{R} - \{0\}$  	۱,۲۵	۱۰