نام و نام خانوادگی ......یازدهم...... پاسخنامه تشریحی تکلیف شماره ..۵.. کلاس ......یازدهم ریاضی......

۱

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

$(-\frac{3}{4}, 0) \rightarrow 0 = 1 - \log_c^{-\frac{3}{2}a - b} \rightarrow -1 = -\log_c^{-\frac{3}{2}a-b} \rightarrow \log_c^{-\frac{3}{2}a-b} = 1$

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

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

$\frac{-1}{b} = -\frac{3}{2}a - b \qquad -\frac{3}{2}a = \frac{1}{b} + b$

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

۲

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

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

$b = 1$

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

۳

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

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

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

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

۴

$|x^2 - 2| - x > 0 \rightarrow |x^2 - 2| > x$ 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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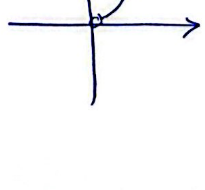
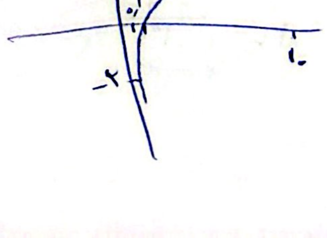
$x = 1 \rightarrow g(x) = f(x) \qquad f(1) = g(1) \rightarrow 2 + 2^{b-a} = -1 - 3 + 8 = 4 \rightarrow 2^{b-a} = 2 \rightarrow b - a = 1$

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

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

$2b - a = 3$

$f(x) = -2 + \left(\frac{1}{2}\right)^{Ax+B} \rightarrow f(1) = 0 \;,\; f(2) = 2$ $g(x) = x^2 - x \rightarrow g(1) = 0 \quad g(2) = 2$ $f(1) = -2 + \left(\frac{1}{2}\right)^{A+B} = 0 \rightarrow 2^{-A-B} = 2 \rightarrow -A-B = 1 \rightarrow A+B = -1$ $f(2) = -2 + \left(\frac{1}{2}\right)^{2A+B} = 2 \rightarrow 2^{-2A-B} = 4 \rightarrow 2A+B = -2$ $\Rightarrow A = -1 \;,\; B = 0$ $f(x) = -2 + \left(\frac{1}{2}\right)^{-x} \rightarrow f(3) = -2 + \left(\frac{1}{2}\right)^{-3} = \boxed{6}$	۶
$m(t) = m_0\left(\frac{8}{9}\right)^{\frac{t}{1}} \rightarrow \frac{1}{6}m_0 = m_0\left(\frac{8}{9}\right)^t \rightarrow \left(\frac{8}{9}\right)^t = \frac{1}{6} \rightarrow \log_5\left(\frac{8}{9}\right)^t = \log_5\frac{1}{6} \rightarrow t\log_5\frac{8}{9} = -\log_5 6$ $\log_3 5 = \frac{1}{\log_5 3} \rightarrow \log_5 3 = \frac{5}{7}$ $\log_2 5 = \frac{1}{\log_5 2} \rightarrow \log_5 2 = \frac{5}{12}$ $\rightarrow t(\log_5 8 - \log_5 9) = -(\log_5 2 + \log_5 3)$ $t\left(3\times\frac{5}{12} - 2\times\frac{5}{7}\right) = -\left(\frac{5}{12} + \frac{5}{7}\right)$ $t = \frac{19}{3}h \times 60 = \boxed{380\,min}$	۷
$m(t) = m_0\left(\frac{7}{8}\right)^{\frac{t}{7}} \Rightarrow \frac{1}{7}m_0 = m_0\left(\frac{7}{8}\right)^{\frac{t}{7}} \rightarrow \left(\frac{7}{8}\right)^{\frac{t}{7}} = \frac{1}{7} \rightarrow \log_3\left(\frac{7}{8}\right)^{\frac{t}{7}} = \log_3\frac{1}{7}$ $\rightarrow \frac{t}{7}(\log_3 7 - \log_3 8) = -\log_3 7 \rightarrow \frac{t}{7}\left(\frac{5}{3} - 3\times\frac{5}{8}\right) = -\frac{5}{3} \rightarrow t = \boxed{56}$ $\log_7 3 = \frac{6}{10} = \frac{3}{5} = \frac{1}{\log_3 7} \rightarrow \log_3 7 = \frac{5}{3}$ $\log_2 3 = \frac{16}{10} = \frac{8}{5} = \frac{1}{\log_3 2} \rightarrow \log_3 2 = \frac{5}{8}$	۸
$100\left(1 - \frac{4}{100}\right)^n = \frac{1}{3}\times 100 \Rightarrow \left(\frac{24}{25}\right)^n = \frac{1}{3}$ $n = \log_{\frac{24}{25}}\frac{1}{3} = \frac{-\log 3}{-\log\frac{24}{25}} = \frac{-\log 3}{\log 24 - \log 25}$ $= \frac{-\log 3}{3\log 2 + \log 3 - \log 100 + 2\log 2} = \frac{-\log 3}{5\log 2 + \log 3 - 2} = \frac{-0.48}{0.3\times 5 + 0.48 - 2} = \boxed{24}$	۹
الف) $f(x) = 9^{\log_3 x} = (3^2)^{\log_3 x} = (3^{\log_3 x})^2 = x^2$  ب) $y = \log x^2 = 2\log x$  	۱۰