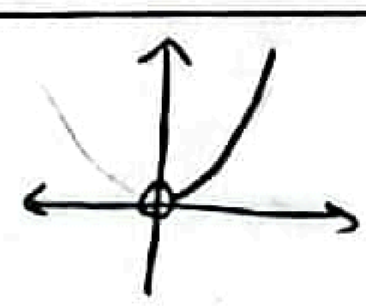
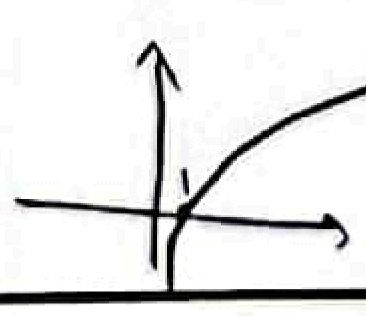
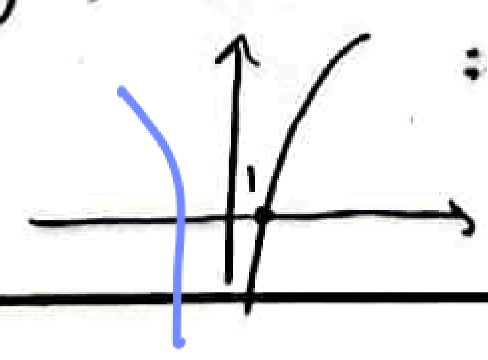
$f(x) = -2 + (\frac{1}{2})^{Ax+B}$, $y = x^2 - x \to x = 1, 2$ $f(3) = ?$ $\to x=1 : -2 + 2^{-(A+B)} = \underbrace{(1)^2 - 1}_{0} \to 2^{-(A+B)} = 2 : -(A+B) = 1 \to \boxed{A+B=-1}$ $\to x=2 : -2 + 2^{-(2A+B)} = \underbrace{(2)^2 - 2}_{2} \to 2^{-(2A+B)} = 4 : -(2A+B) = 2 \to \boxed{2A+B=-2}$ $\Rightarrow A=-1 , B=0$ $\Rightarrow f(x) = -2 + 2^{x}$: $f(3) = -2 + 2^3 = \underline{6}$ ۲	۶
جرم باقیمانده: $\Rightarrow \frac{8}{9}$ برابر : $\cancel{m} \times (\frac{8}{9})^t = \cancel{m} \times \frac{1}{2} \to t \underbrace{\log_5 \frac{8}{9}}_{3\log_5 2 - 2\log_5 3} = \underbrace{-\log_5 2}_{-(\log_5 3 + \log_5 2)}$: $t \times (\frac{2\times 5}{24} - \frac{2\times 5}{7}) = -(\frac{5}{12} + \frac{5}{7})$ $\log_2 5 = 2.4 = \frac{1}{\log_5 2} \Rightarrow \log_5 2 = \frac{5}{12}$ $\log_3 5 = 1.4 = \frac{1}{\log_5 3} \Rightarrow \log_5 3 = \frac{5}{7}$ $\Rightarrow t \times (\frac{35-40}{28}) = -5 \times (\frac{7+12}{84}) \to t = \frac{19}{3}$ ساعت $\to \frac{19}{3} \times 60 = \underline{380}$ دقیقه ۲	۷
$\Rightarrow$ هر هفته (۷ روز) $= \frac{7}{8}$ برابر : $\cancel{m} \times (\frac{7}{8})^{\frac{t}{7}} = \cancel{m} \times \frac{1}{7} \to \frac{t}{7} \underbrace{\log_3 \frac{7}{8}}_{\log_3 7 - \underbrace{\log_3 8}_{-3\log_3 2}} = -\log_3 7$ $\Rightarrow \frac{t}{7} \times (\frac{5}{3} - \frac{3\times 5}{8}) = -\frac{5}{3}$ $\log_7 3 = 0.6 = \frac{1}{\log_3 7} \Rightarrow \log_3 7 = \frac{5}{3}$ $\log_2 3 = 1.6 = \frac{1}{\log_3 2} \Rightarrow \log_3 2 = \frac{5}{8}$ $\Big\} \Rightarrow \frac{t}{7} \times (\frac{40-45}{24}) = -\frac{5}{3} \to \underline{t = 56}$ روز ۲	۸
غلظت پس از یک روز $= \frac{100-4}{100} = \frac{96}{100}$ $\Rightarrow \cancel{1} \times (\frac{96}{100})^t = \frac{1}{2} \times \cancel{1} \to t(\underbrace{\log \frac{96}{100}}) = -\log 2$ $\log 96 - 2$; $96 = 2^5 \times 3 \to 5\log 2 + \log 3 - 2$ $\Rightarrow t \times (5 \times 0.3 + 0.48 - 2) = -0.48 \to -0.02\, t = -0.48 \to \underline{t = +24}$ روز ۲	۹
الف) $y = 9^{\log_3 x} = x^{\log_3 9} = x^2$:  $\hookrightarrow D_f = (0, +\infty) \Rightarrow$ ب) $y = \log x^2 = 2\log x$ $D = \mathbb{R} - \{0\}$  : $\log x$ $\to$  : $2\log x$ ۱٫۷۵	۱۰

نام و نام خانوادگی ......[illegible]...... پاسخنامه تشریحی تکلیف شماره ..۲۱.. کلاس ..[illegible]..........

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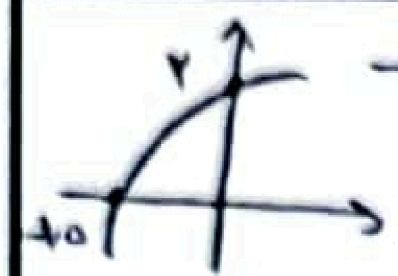

$\to y = 1-\log_c^{ax-b} \quad , b+c=-\frac{3}{2} \Rightarrow (a+c)b = ?$

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

$\Rightarrow \frac{-1}{c}+c=\frac{-3}{2} : 2c^2+3c-2=0 \longrightarrow \Delta = 9+16=25 \ , c=\frac{-3\pm5}{4} \to c>0 : \frac{-3+5}{4} = \frac{1}{2} \ , b=\frac{-1}{2}$

$\Rightarrow (\frac{-3}{2},0) : 1-\log_{\frac{1}{2}}^{\frac{-3}{2}a+\frac{1}{2}} = 0 \to \frac{1}{2} = \frac{-3}{2}a+\frac{1}{2} \to \underline{a=0} \quad : (0+\frac{1}{2})\times\frac{-1}{2} = \underline{\frac{-1}{4}}$

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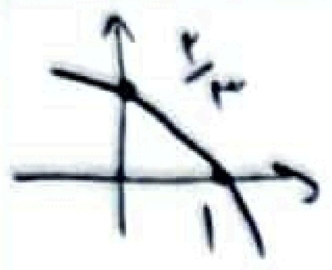

$f(x) = 1+c\times3^{a+bx} \to f(-1) = ?$

$\to (0,\frac{2}{3}) : 1+c\times3^a = \frac{2}{3} \longrightarrow c\times3^a = \frac{-1}{3} = -1\times3^{-1} \longrightarrow \underline{a, c=-1}$

$\to (1,0) : 1-3^{-1+b} = 0 \longrightarrow 3^{b-1} = 1 : b-1=0 \to \underline{b=1}$

$\to f(x) = 1-3^{x-1} : f(-1) = 1-\underset{\frac{-1}{9}}{\underline{3^{-2}}} = \underline{\frac{8}{9}}$

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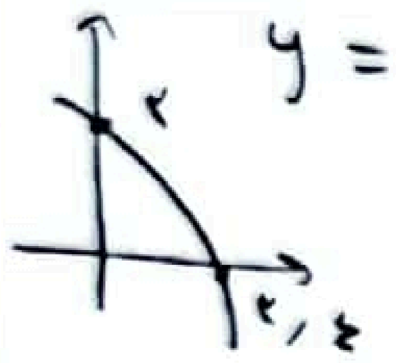

$y = c+\log_5^{ax+b} \to \frac{a}{b} = ?$

$\to (0,2) : c+\log_5^b = 2 \to c = 2-\log_5^b$

$\to (2.4,0) : c+\log_5^{2.4a+b} = 0 \to c = -\log_5^{2.4a+b} \Rightarrow 2 = \log_5^b - \log_5^{2.4a+b}$

$\Rightarrow 25 = \frac{b}{2.4a+b} \to 60a = -24b \Rightarrow 5a = -2b : \frac{a}{b} = \underline{\frac{-2}{5}} = -0.4$

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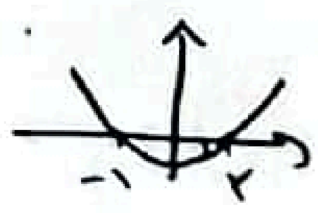
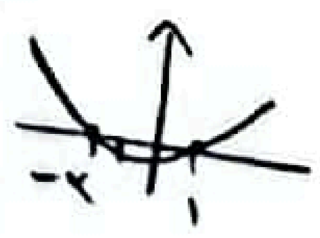
$f(x) = \log_4^{(|x^2-2|-x)} \to D_f = ? \to |x^2-2|-x>0 \to |x^2-2|>x : x^2-2>x \ , x^2-2<-x$

$\Rightarrow 1)\ x^2-x-2>0 : x=-1, 2 :$



$\to (-\infty,-1)\cup(2,+\infty)$

$\Rightarrow 2)\ x^2+x-2<0 : x=1,-2 :$



$\to (-2,1)$

$1\cap2 \Rightarrow (-2,-1)$

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

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$f(x) = 2+2^{b-ax} \ , g(x) = -x^2-3x+8 \to x=1 \ , f^{-1}(10) = -1 \to 2b-a = ?$

$\to x=1 : 2+2^{b-a} = \underset{-4}{\underline{-(1)^2-3(1)+8}} = 4 : 2^{b-a} = 2 \to \underline{b-a=1}$

$\to f(-1) = 10 : 2+2^{b+a} = 10 \to 2^{b+a} = 2^3 : \underline{b+a=3} \quad \Rightarrow 2b=4 \to \underline{b=2} \ , \underline{a=1}$

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

۴

1) $x=0 \rightarrow y = 1 - \log_{c}^{-b} = 2 \rightarrow bc = -1$

$$\begin{cases} b+c = -\frac{3}{2} \\ bc = -1 \end{cases} \rightarrow \begin{cases} b = -2 \checkmark \\ b = \frac{1}{2} \times \end{cases}$$

b نمی‌تواند (+) باشد چون در این صورت c منفی می‌شود

$x = -1{,}5 = -\frac{3}{2} \rightarrow 1 - \log_{-\frac{1}{2}}^{-\frac{3}{2}a+2} = 0 \longrightarrow a = 1 \qquad (a+c)b = -3$