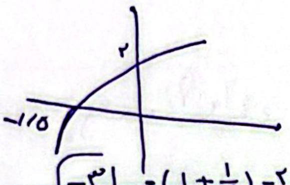
نیوشا [illegible]　　　　تکلیف: ۲۵　　　　یازدهم دختر

۱

$y = 1 - \log_c^{(ax-b)}$ ، $b + c = -\frac{3}{2}$ ← $? = (a+c)b$



$\circ \to 1 - \log_c^{-b} = 2 \to -\log_c^{-b} = 1 \to \log_c^{-b} = -1 \to -b = \frac{1}{c} \to c + (-\frac{1}{c}) = -\frac{3}{2}$ ← $c = -2$ ✗ غ‌ق‌ق ، $c = \frac{1}{2}$ ق‌ق

معادله درجه ۲ ساختم با طرفین وسطین و در ادامه $2c^2 + 3c - 2 = 0$

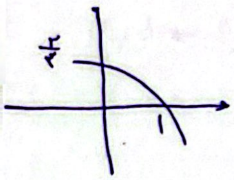
$\boxed{c = \frac{1}{2}}$ ، $\boxed{b = -2}$

$1 - \log_{\frac{1}{2}}^{-\frac{3}{2}a+2} = 0$ ← $\log_{\frac{1}{2}}^{-\frac{3}{2}a+2} = 1$ ← $-\frac{3}{2}a + 2 = \frac{1}{2}$

$a = 1$ ← $(1 + \frac{1}{2}) - 2 = \boxed{-3}$

۲

$f(x) = 1 + c \times 3^{a+bx}$ ، $f(-1) = ?$



$(1, 0)$ ، $(0, \frac{2}{3})$

$1 + c \times 3^{a+b} = 0$ ، $1 + c \times 3^a = \frac{2}{3}$

$c \times 3^{a+b} = -1 \to 3^b = 3$ ، $c \times 3^a = -\frac{1}{3}$

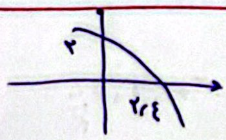
$\boxed{b = 1}$

$-1 \to 1 + c \times 3^{a-b} = ?$

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

۳

$y = c + \log_a^{(ax+b)}$ نمودار به صورت زیر است. حاصل $\frac{a}{b}$ ←



$c + \log_a^b = 2 \to c + \log_a^{2/4a+b} = 0 \to c = -\log_a^{2/4a+b} \to \log_a^b - \log_a^{2/4a+b} = 2$

$\log_a^{\frac{b}{2/4a+b}} = 2 \to \frac{b}{2/4a+b} = 25 \to 60a + 25b = b \to 60a = -24b \to \boxed{\frac{a}{b} = -\frac{2}{5}}$

۴

برای $f(x) = \log_4^{(|x^2-2|-x)}$ ، D_f را بیابید.

$|x^2 - 2| - x > 0 \to |x^2 - 2| > x$

از اشتراک ۱ و ۳ ، ۲ و ۴

۱ $x^2 - 2 \geq 0 \to x \geq \sqrt{2}$ یا $x \leq -\sqrt{2}$

$x^2 - 2 > x$

$x^2 - x - 2 > 0$ ، $(x-2)(x+1)$

-1		2	
+	۰ −	۰	+

$(-\infty, -1) \cup (2, +\infty)$ **۲**

$-x^2 + 2 > x$

$x^2 + x - 2 < 0$ ، $(x+2)(x-1)$

-2		1	
+	۰ −	۰	+

$(-2, 1)$ **۴**

$x^2 - 2 \leq 0 \to -\sqrt{2} \leq x \leq \sqrt{2}$ **۳**

۱ $\cap$ **۲** $\to x \leq -\sqrt{2}$ یا $x > 2$

۳ $\cap$ **۴** $\to -\sqrt{2} \leq x < 1$ $\to D_f = (-\infty, 1) \cup (2, +\infty)$

۵

$f(x) = 2 + 2^{b-ax}$ ، $g(x) = -x^2 - 3x + 8$ ← نقطه مشترک در طول ۱

$f^{-1}(10) = -1 \to f(-1) = 10 \to 2b - a = ?$

$2 + 2^{b-a} = -1 - 3 + 8 = 4 \to 2^{b-a} = 4$

$2 + 2^{b+a} = 10 \to 2^{b+a} = 8 \to \boxed{b + a = 3}$

$\begin{cases} \boxed{b - a = 1} \\ b + a = 3 \end{cases} \to 2b = 5$

$\boxed{b = 2}$ ، $\boxed{a = 1}$

$2b - a \to 4 - 1 = \boxed{3}$

۶) نمودار یک تابع نمایی به صورت $f(x)=-2+\left(\frac{1}{2}\right)^{Ax+B}$ است.

$A(1,0)\quad B(2,2)$

$-2+\left(\frac{1}{2}\right)^{A+B}=0 \rightarrow \left(\frac{1}{2}\right)^{A+B}=2 \rightarrow A+B=-1$

$-2+\left(\frac{1}{2}\right)^{2A+B}=2 \rightarrow \left(\frac{1}{2}\right)^{2A+B}=4 \rightarrow 2A+B=-2$ $\rightarrow A=-1,\ B=0$

$f(3)=-2+\left(\frac{1}{2}\right)^{-3}=-2+8=\boxed{6}$

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۷) $m(t)=m_0\left(\frac{8}{9}\right)^{t} \rightarrow \frac{1}{6}m_0=m_0\left(\frac{8}{9}\right)^{t} \rightarrow \left(\frac{8}{9}\right)^{t}=\frac{1}{6}$ $\quad \log_5\left(\frac{8}{9}\right)^{t}=\log_5\frac{1}{6} \rightarrow t\log_5\left(\frac{8}{9}\right)=-\log_5 6$

$\log_3 5=1.4 \rightarrow \frac{14}{10}=\frac{7}{5} \rightarrow \log_5 3=\frac{5}{7} \rightarrow \log_2 5=2.4=\frac{24}{10}=\frac{12}{5} \rightarrow \log_5 2=\frac{5}{12}$

$t\log_5\left(\frac{8}{9}\right)=-\log_5 6 \rightarrow t(\log_5 8-\log_5 9)=-(\log_5 2+\log_5 3)$

$t\left(3\times\frac{5}{12}-2\times\frac{5}{7}\right)=-\left(\frac{5}{12}+\frac{5}{7}\right) \rightarrow t\left(\frac{35-40}{28}\right)=-\left(\frac{35+60}{84}\right) \rightarrow -5t=-\frac{95}{3} \rightarrow t=\frac{19}{3}$

$\frac{19}{3}\times 60=\boxed{380}$

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۸) $m(t)=m_0\left(\frac{7}{8}\right)^{\frac{t}{7}} \rightarrow \frac{1}{7}m_0=m_0\left(\frac{7}{8}\right)^{\frac{t}{7}} \rightarrow \left(\frac{7}{8}\right)^{\frac{t}{7}}=\frac{1}{7}$

$\log_3\left(\frac{7}{8}\right)^{\frac{t}{7}}=\log_3\left(\frac{1}{7}\right) \rightarrow \frac{t}{7}\log_3\left(\frac{7}{8}\right)=\log_3\left(\frac{1}{7}\right) \rightarrow \frac{t}{7}(\log_3 7-\log_3 8)=-\log_3 7$

$\log_7 3=0.6=\frac{3}{5} \rightarrow \log_3 7=\frac{5}{3}$ $\quad \log_2 3=1.6=\frac{8}{5} \rightarrow \log_3 2=\frac{5}{8}$ $\quad \frac{t}{7}\left(\frac{5}{3}-3\times\frac{5}{8}\right)=-\frac{5}{3}$

$\rightarrow \frac{t}{7}\left(\frac{40-45}{24}\right)=-\frac{5}{3} \rightarrow \underline{t=56}$

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۹) $f(t)=A\left(\frac{96}{100}\right)^{t} \rightarrow \frac{A}{3}=A\left(\frac{96}{100}\right)^{t} \rightarrow \left(\frac{96}{100}\right)^{t}=\frac{1}{3} \rightarrow \log\left(\frac{96}{100}\right)^{t}=\log\frac{1}{3} \rightarrow t(\log 96-\log 100)=-\log 3$

$\xrightarrow{96=2^5\times 3} t(\log 2^5+\log 3-2)=-\log 3 \rightarrow t(5(0.3)+0.48-2)=-0.48$

$=t(1.5+0.48-2)=-0.48 \rightarrow -0.02t=-0.48 \rightarrow \boxed{t=24}$

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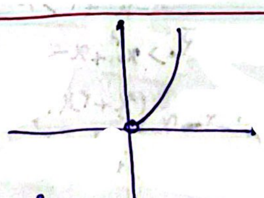
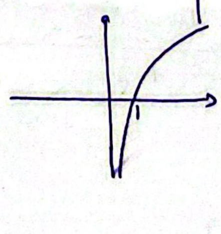
۱۰) الف) $y=9^{\log_3 x} \rightarrow y=x^{\log_3 3^2}=x^2$



$D_f=(0,+\infty)$

ب) $y=\log_a x^2 \rightarrow 2\log_a x \rightarrow$

$a>1$



$D_f=(0,+\infty)$

$R_f=\mathbb{R}$