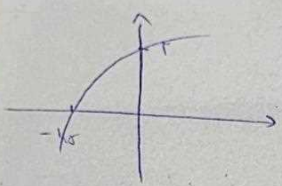
رُزانو عبدالعلی   یازدهم دختر C   تکلیف ۲۵

۱-



$y = 1 - \log_c^{(ax-b)}$ ، $c > 0 , c \neq 1$ ، $(a+c)b = ?$

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

$x = 0 \rightarrow y = 1 - \log_c^{-b} = 2$ ، $\log_c^{-b} = -1$ ، $\frac{1}{c} = -b$

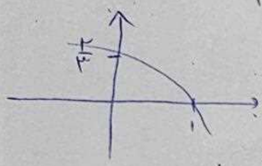
$\frac{-\frac{3}{2} \pm \sqrt{\frac{9}{4} + 4}}{2} = \frac{-\frac{3}{2} \pm \frac{5}{2}}{2}$ ↗ $\frac{1}{2} = c$ ↘ $-2 =$ غ ق ق

$c = \frac{1}{2} \rightarrow b = -2$

$0 = 1 - \log_{\frac{1}{2}}^{ax+2} = \log_{\frac{1}{2}}^{-1.5a+2} = 1$ ، $-1.5a + 2 = 0.5 \rightarrow a = 1 \rightarrow (a+c)b =$

$\underbrace{(1 + \frac{1}{2})}_{\frac{3}{2}} - 2 = -3$ جواب

۲-



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

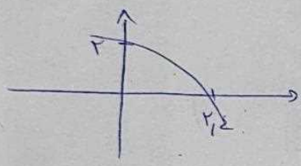
$f(-1) = ?$

$0 = 1 + c \times 3^{a+b} = -1 = c \times 3^{a+b}$

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

$-1 = \underbrace{c \times 3^a}_{-\frac{1}{3}} \times 3^b \rightarrow 3 \rightarrow b = 1$

۳-



$y = c + \log_a^{(ax+b)}$ ، $\frac{a}{b} = ?$

$2 = c + \log_a^b \rightarrow 2 - c = \log_a^b$ ، $a^{2-c} = b$

$-c = \log_a^{2.4a+b}$

$a^{-c} = 2.4a + b$

$a^2 \times a^{-c} = b$

$\leftarrow 25(2.4a + b) = b$

$25 \times 2.4a = -24b$

$-2.5a = b$

$\frac{a}{b} = \frac{1}{-2.5} = -\frac{2}{5}$

۴-

$f(x) = \log_4^{(|x^2-2|-x)} > 0$

$|x^2 - 2| > x \rightarrow x^2 - 2 > x$ ، $x^2 - x - 2 > 0$

$(x-2)(x+1) > 0$

	-1		2	
+		-		+

$x^2 - 2 < -x$

$x^2 + x - 2 < 0$

$(x+2)(x-1) < 0$

	-2		1	
+		-		+

$D_f = (-2, -1)$

۵-

$g(x) = -x^2 - 3x + 8 \rightarrow x = 1$ ، $y = -1 - 3 + 8 = 4$

$f(x) = 2 + 2^{b-ax} \rightarrow \frac{4-2}{2} = 2^{b-a}$ ، $b - a = 1$

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

$b + a = 3$

$b - a = 1$

$b = 2$

$a = 1$

$2b - a = ?$ ، $2 \times 2 - 1 = 3$

$f(x) = -2 + \left(\frac{1}{2}\right)^{Ax+B}$ ۶-

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

$y = x^2 - x \xrightarrow{x=1} y = 0$, $\xrightarrow{x=2} y = 2$

$2 = -2 + 2^{-2A-B} = 2^2 = 2^{-2A-B}$

$A + B = -1$

$2A + B = -2$

$A = -1$

$B = 0$

$f(3) = ?$ $\quad -2 + \underbrace{\left(\frac{1}{2}\right)^{-3}}_{2^3 = 8} = 6$

$\cancel{m_2} = \cancel{m_1}\left(\frac{8}{9}\right)^t$ $\quad \frac{1}{4} = \left(\frac{8}{9}\right)^t$ $\quad \log_5 4^{-1} = \log_5 \left(\frac{8}{9}\right)^t$ ۷-

$\frac{1}{4}$

$-(\log_5 2^2 + \log_5 3^2) = t(\log_5 2^3 - \log_5 3^2) \Rightarrow -\left(\frac{5}{12} + \frac{5}{7}\right) = t\left(3 \times \frac{5}{12} - 2 \times \frac{5}{7}\right)$

$-\frac{35 + 60}{84} = t\left(\frac{15}{12} - \frac{10}{7}\right) = t\left(\frac{105 - 120}{84}\right) \longrightarrow \frac{95}{\cancel{84}} = t\left(\frac{15}{\cancel{84}}\right) = \frac{95}{15} = t$

$\frac{95}{\cancel{15}} \times \cancel{60}^{4} = 380$ دقیقه

$\frac{125}{1000} = \frac{1}{8} \longrightarrow$ از بین رفته $\Rightarrow \frac{7}{8}$ مانده ۸-

$m_2 = m_1 \left(\frac{7}{8}\right)^t$

$\frac{1}{7} = \left(\frac{7}{8}\right)^t \rightarrow \log_3 7^{-1} = t\left(\log_3 \frac{7}{8}\right) = -\left(\frac{1}{3}\right) = t\left(\underbrace{\log_3 7 - \log_3 2^3}_{\frac{1}{3} - 3 \times \frac{5}{8}}\right)$

$-\frac{5}{3} = t\left(\frac{5}{3} - \frac{15}{8}\right) = t\left(\frac{\overset{-5}{40 - 45}}{24}\right) \Rightarrow \frac{\cancel{5}}{3} = t\left(\frac{\cancel{5}}{24}\right) \rightarrow t = 8$ هفته $\rightarrow$ روز ۵۶

غلط

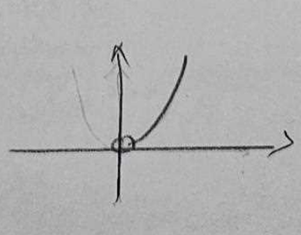
$P_2 = P_1 \times \left(\frac{96}{100}\right)^D$ $\quad = \frac{1}{3} = \left(\frac{24}{25}\right)^D$ $\quad \log_{10} 3^{-1} = \log_{10} \left(\frac{24}{25}\right)^D$ ۹-

$-1(0.48) = D(\log_{10} 24 - \log_{10} 25) = -0.48 = D(\underbrace{1.38 - 1.4}_{-0.02})$

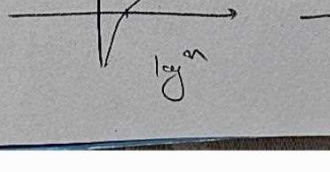
$\log_{10} 10 - \log_{10} 2 = \log_{10} 5$ $\quad \log_{10} 3 + \log_{10} 8$ $\quad D \times 0.02 = 0.48$

$1 - 0.3 = 0.7$ $\quad 0.48 + \underbrace{3 \times 0.3}_{0.9}$ $-$ $\underbrace{2 \times 0.7}_{1.4}$ $\quad D = 24$ روز

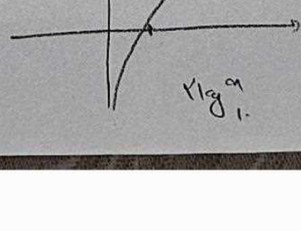
الف) $9^{\log_3 x}$, $x > 0$ $\longrightarrow x^{\log_3 9} = x^2$ ۱۰-



ب) $\log x^2 = 2\log_{10} x$



$\log x$



$2\log_{10} x$