عسل طاهری   یازدهم ریاضی گروه C

سوال ۱ ←

$1-\log_c^{(ax-b)} \xrightarrow{x=0} 1-\log_c^{-b}=2 \to \log_c^{-b}=-1$

$\to c^{-1}=-b \to \frac{1}{c}=-b$

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

$\to a=+1 ,\ c-\frac{1}{c}=-\frac{3}{2} \to c=\frac{1}{2} ,\ b=2$

$\to (a+c)b=\boxed{-3}$

سوال ۲ ←

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

$1+c\times 3^{a+bx} \to 1+c\times 3^{a}=\frac{2}{3} \to c\times 3^{a}=-\frac{1}{3}$ $\xrightarrow{\div} 3^{b}=3$

$\to b=1$

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

$\to -\frac{1}{3}\times 3^{1\times x}+1 \to x=-1 \to -\frac{1}{9}+1=\boxed{\frac{8}{9}}$

سوال ۳ ←

$c+\log_5^{(ax+b)} \to c+\log_5^{(b)}=2$

$c+\log_5^{(2.4a+b)}=0 \xrightarrow{-} \log_5^{(b)}-\log_5^{2.4a+b}=2$

$\to \frac{b}{2.4a+b}=25 \to 60a+25b=b \to 60a=24b \to$

$\to a=\frac{24}{60}b \to \frac{a}{b}=\frac{24}{60}=\frac{4}{10}=\boxed{\frac{2}{5}}$

سوال ۴ ←

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

$\to x^2-2>0 \to x^2>2 \to x\geq\sqrt{2}$ و $x\leq-\sqrt{2}$ (۱)

$x^2-x-2>0 \to (x-2)(x+1)>0 \to -1<x$ یا $x>2$ (۲)

$\to (1)\cap(2) \to x<\sqrt{2}$ یا $x>2$ $\Rightarrow$ (۴) $-2<x<1$

(۳) $x^2-2<0 \to -\sqrt{2}<x<\sqrt{2}$

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

سوال ۱

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

$g(x)=-x^2-3x+8 \xrightarrow{x=1} y=4$

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

(1) $\to b-a=1$
(2) $\to b+a=3 \to 2b=4 \to b=2,\ a=1 \to 2(2)-1=\boxed{3}$

سوال ۲

$f(x)=-2+(\frac{1}{2})^{Ax+B} \to -2+(\frac{1}{2})^{A+B}=0 \to A+B=-1,\ x=2 \to 2A+B=-2$

$g(x)=x^2-x \to x=1,\ y=0 \ /\ x=2,\ y=2$

$\to A+B=-1$
$2A+B=-2 \to A=-1,\ B=0$

$\to -2+(\frac{1}{2})^{-x} \xrightarrow{x=3} -2+8=\boxed{6}$

سوال ۳

$(\frac{8}{9})^t=\frac{1}{6} \to \log_5 (\frac{8}{9})^t=\log_5 \frac{1}{6} \to t\log_5 \frac{8}{9}=-\log_5 6$

$\to \log_3 5=1.4 \to \log_5 3=\frac{5}{7}$

$\log_2 5=2.4 \to \log_5 2=\frac{5}{12}$

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

$\to t(3\times\frac{5}{12}-2\times\frac{5}{7})=-(\frac{5}{12}+\frac{5}{7}) \to t(-\frac{5}{28})=-(\frac{95}{84})$

$\to -5t=-\frac{95}{3} \to t=\frac{19}{3} \to$ ۶٫۳ تقریبا

سوال ۴

$(\frac{7}{8})^{\frac{t}{7}}=\frac{1}{7} \quad \log_3 (\frac{7}{8})^{\frac{t}{7}}=\log_3 (\frac{1}{7}) \to \log_3 \frac{7}{8}^{\,\frac{t}{7}}=\log_3 \frac{1}{7}$

$\to \frac{t}{7}(\log_3 7-\log_3 8)=-\log_3 7$

$\log_7 3=0.56 \to \log_3 7=\frac{9}{5},\ \log_2 3=1.6,\ \log_3 2=\frac{5}{8}$

$\to \frac{t}{7}(\log_3 7-3\log_3 2)=-\log_3 7 \to \boxed{t=84}$

سوال ۹ ←

$A = \frac{\text{غلظت}}{\text{اولیه}} \rightarrow f(t) = A\left(\frac{94}{100}\right)^t \rightarrow \frac{A}{3} = A\left(\frac{94}{100}\right)^t$

$\rightarrow \left(\frac{94}{100}\right)^t = \frac{1}{3} \rightsquigarrow \log\left(\frac{94}{100}\right)^t = \log\frac{1}{3}$

$\rightarrow t(\log 94 - \log 100) = \log\frac{1}{3} = -\log 3 \rightsquigarrow t(\log 3^2 \times 47 - 2) = \log 3$

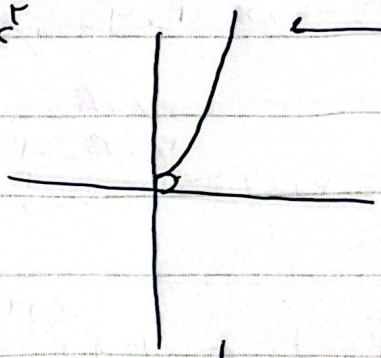
$\rightarrow t(2\log 3 + \log 47 - 2) = \log 3 \rightarrow t(0.954 + 1.672 - 2) = 0.477$

$\rightarrow t = 3.42$

سوال ۱۰ ←

$y = x^2 \rightarrow x^{\log_3 9} \rightarrow 9^{\log_3 x}$ ابتدا $y =$

$\hookrightarrow x > 0$



ب) $y = \log x^2 \rightsquigarrow 2\log x \rightarrow$

$D_f = R - \{0\}$