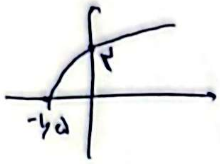
نام و نام خانوادگی: زراد مهری   شماره تکلیف: ۲۵   کلاس: سه شنبه ها گروه B دفتر ...

۱۹,۷۵

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



$\left|\begin{matrix}0\\2\end{matrix}\right. \rightarrow 2=1-\log_c^{-b} \rightarrow \log_c^{-b}=-1 \rightarrow -b=c^{-1} \rightarrow -b=\frac{1}{c}$

$\left|\begin{matrix}-\frac{3}{2}\\0\end{matrix}\right. \rightarrow -\frac{1}{c}+c=-\frac{3}{2} \xrightarrow{\times 2c} -2+2c^2=-3c \rightarrow 2c^2+3c-2=0$

$\times\ b=\frac{1}{2}\quad c=-2$

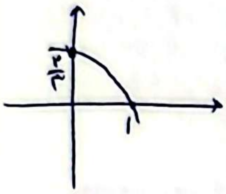
$\checkmark\ b=-2\quad c=+\frac{1}{2}$

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

$\boxed{a=1}$ ۱

(۲)

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



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

$\left|\begin{matrix}1\\0\end{matrix}\right. \rightarrow 0=1+c\times 3^{a+b} \rightarrow c\times 3^{a+b}=-1$

$\left|\begin{matrix}0\\\frac{2}{3}\end{matrix}\right. \rightarrow \frac{2}{3}=1+c\times 3^{a} \rightarrow c\times 3^{a}=-\frac{1}{3}$

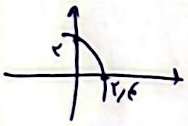
$\xrightarrow{\text{تقسیم}} \frac{\cancel{c}\times 3^{a}}{\cancel{c}\times 3^{a+b}}=\frac{-\frac{1}{3}}{-1}=\frac{1}{3}$

$b=1 \leftarrow \frac{1}{3^b}=\frac{1}{3}$ ۲

(۲)

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

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



$\left|\begin{matrix}0\\2\end{matrix}\right. \rightarrow 2=c+\log_5^{b} \rightarrow c=2-\log_5^{b}$

$\left|\begin{matrix}2/4\\0\end{matrix}\right. \rightarrow 0=c+\log_5^{2/4a+b} \rightarrow c=-\log_5^{2/4a+b}$

$\rightarrow 2-\log_5^{b}=-\log_5^{2/4a+b}$

(۲) ۳

$\rightarrow 2=\log_5^{b}-\log_5^{2/4a+b} \rightarrow 2=\log_5^{\frac{b}{2/4a+b}} \rightarrow \frac{b}{2/4a+b}=5^2 \rightarrow 60a-25=b$

$\rightarrow 60a=24b \rightarrow \frac{a}{b}=\frac{-24}{60}=\boxed{-\frac{2}{5}}$

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

$\rightarrow |x^2-2|-x>0 \rightarrow x>\sqrt{2} \rightarrow x^2-2-x>0 \rightarrow \begin{matrix}-1 & & 2\\ + & - & +\end{matrix} \rightarrow (2,+\infty)$

$\rightarrow x<\sqrt{2} \rightarrow -x^2+2-x>0 \rightarrow \begin{matrix}-2 & & 1\\ - & + & -\end{matrix} \rightarrow (-2,1)$ ۴

$(-\infty,1)$

$\xrightarrow{\cup} D=(\cancel{-2},1)\cup(2,+\infty)$

۱,۷۵

$f(x)=2+2^{b-ax}$ ، $g(x)=-x^2-3x+8$ ، $x=1$ ، $f(-1)=10$

$\rightarrow 2+2^{b-ax}=-1-3+8 \rightarrow 2^{b-ax}=2 \rightarrow b-a\cancel{x}=1$ ، $2b=4 \rightarrow b=2, a=1$ ۵

(۲)

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

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

$f(x) = -2 + \left(\frac{1}{2}\right)^{Ax+B} \quad , \quad y = x^2 - x \qquad x=1 , x=2$

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

$$\boxed{f(4) = -2+\left(\frac{1}{2}\right)^{-4} = -2+2^4 = 14}$$

د ۶

$$P = P_0 \times \left(\frac{8}{9}\right)^t \rightarrow \frac{1}{2}P_0 = P_0 \times \left(\frac{8}{9}\right)^t \rightarrow \frac{1}{2} = \left(\frac{8}{9}\right)^t$$

$$\rightarrow \log_5^{\frac{1}{2}} = \log_5^{\left(\frac{8}{9}\right)^t} \rightarrow -\log_5^{2} = t\log^{\frac{8}{9}} \rightarrow (\log_5^{3} + \log_5^{2}) = t(3\log_5^{2} - 2\log_5^{3})$$

د ۷

$$\rightarrow -\left(\frac{1.0}{1.4}+\frac{1.0}{2.4}\right) = t\left(3\times\frac{1.0}{2.4} - 2\times\frac{1.0}{1.4}\right) \rightarrow t = \frac{-\left(\frac{5}{7}+\frac{5}{12}\right)}{\left(\frac{5}{8}-\frac{1.0}{7}\right)} = \frac{19}{3} = \boxed{38.0}$$

$$P = P_0 \times \left(1 - \frac{125}{1000}\right)^t \rightarrow \frac{1}{2}P_0 = P_0 \times \left(\frac{7}{8}\right)^t \rightarrow \log^{\frac{1}{2}} = \log^{\left(\frac{7}{8}\right)^t}$$

$$\rightarrow t = \frac{\log\frac{1}{2}}{\log\frac{7}{8}} = \frac{\log^1 - \log^2}{\log^7 - 3\log^2} = \frac{0 - \frac{1.0}{6}}{\frac{1.0}{6} - 3\times\frac{1.0}{17}} = 8 \text{ هفته}$$

د ۸

$$8 \times 7 = \boxed{\text{۵۶ روز}}$$

$$\left(\frac{100-4}{100}\right)^t = \frac{1}{3} \rightarrow \left(\frac{24}{25}\right)^t = \frac{1}{3} \xrightarrow{\text{معکوس}} \left(\frac{25}{24}\right)^t = 3 \longrightarrow \log^{\left(\frac{25}{24}\right)^t} = \log^3$$

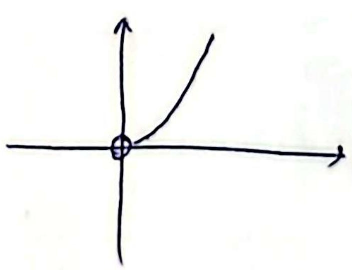
$$\rightarrow t\log^{\frac{25}{24}} = \log^3 \rightarrow t = \frac{\log^3}{\log\frac{25}{24}} = \frac{\log^3}{2\log^5 - \log^{24}} = \frac{\log^3}{2(\log^{10} - \log^2) - (\log^3 + 3\log^2)}$$

د ۹

$$\rightarrow = \frac{\log^3}{2(1-0/3) - (0/48+0/9)} = \frac{\log^3}{1/4 - 1/38} = \boxed{\text{۲۴ روز}}$$

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

$D = x > 0$



ب) $y = \log_x^2 \qquad D = \mathbb{R} - \{0\}$

د ۱۰