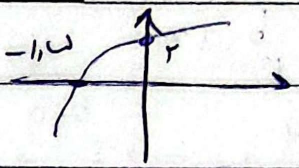
مهدی کاظمی یازدهم پسر B

SUBJECT Year: Month: Day:

۱- $y = 1 - \log_c^{(ax-b)}$ $b+c = -\frac{3}{2}$



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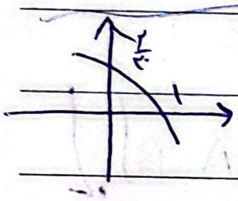
$0 = 1 - \log_c^{-1.5a-b} \to \log_c^{-1.5a-b} = 1 \to c = -1.5a - b \to c+b = -1.5a$

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

$2c^2 + 3c - 2 = 0$ $(c+2)(c-1) = 0$

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

۲- $f(x) = 1 + c \times 3^{a+bx}$



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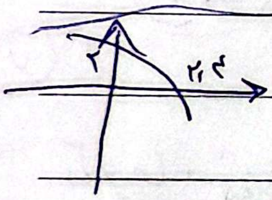
$0 = 1 + c \times 3^{a+b} \to -1 = c \times 3^{a+b}$ $3 = 3^b$

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

$1 - \frac{1}{9} = \frac{8}{9}$ ✓ $\leftarrow 1 + (-\frac{1}{9})$

۳- $y = c + \log_a^{(ax+b)}$



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$\begin{cases} c + \log_2^b = 2 \\ c + \log_2^{2.4a+b} = 0 \end{cases}$

$\log_a^{2.4a+b} - \log_a^b = -2 \to \frac{2.4a+b}{b} = a^{-2} = \frac{1}{2a} + 1$

$\frac{a}{b} = -\frac{2}{5}$ ✓

۴- $f(x) = \log_2(|x^2-2| - x) \to x^2 - 2 - x > 0$ $(x-2)(x+1) > 0$

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

$x^2 + x - 2 < 0$ -۲ ۱ - | + | -

$(-2, 1) \cup (-\infty, -\sqrt{2}) \cup (\sqrt{2}, +\infty)$

$(-\infty, 1)(2, \infty)$ ✓ $\begin{cases} I \\ II \to (-\sqrt{2}, 1) \\ I \; (-\infty, -\sqrt{2}) \cup (2, +\infty) \end{cases}$

۲

جواب

SUBJECT:

Year: Month: Day: Page : ( )

(۵) (۲)

$f(x)=2+2^{b-ax}$

$2+2^{b+a}=10 \longrightarrow 2^{b+a}=2^{3} \longrightarrow b+a=3$ $\quad 2+2^{b-a}=4 \to 2^{1}=2^{b-a}$

$b-a=1$

$\begin{cases} b+a=3 \\ b-a=1 \end{cases}$ $\quad 2b-a \to 2(2)-1=3$

$b=2, a=1$

(۶) (۲)

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

$0=-2+\frac{1}{2}^{A+B} \longrightarrow 2=2^{-A-B} \longrightarrow 2^{1}=2^{-A-B} \longrightarrow -A-B=1$

$2=-2+\frac{1}{2}^{2A+B} \longrightarrow 4=\frac{1}{2}^{2A+B} \longrightarrow 2^{2}=2^{-2A-B} \longrightarrow 2=-2A-B$

$f(x)=-2+\frac{1}{2}^{-x} \longrightarrow f(3) \longrightarrow -2+\frac{1}{2}^{-3} \to$ $\quad A=-1, B=0$

$-2+2^{3} \to -2+8 \to 6$

(۷) (۲)

$P=P_0 \times e^{k.t}$ $\quad P_2=\frac{8}{9}^{t}\cdot P_1 \longrightarrow \frac{1}{4}P_1=\frac{8}{9}^{t}\cdot P_1$

$\longrightarrow \frac{8}{9}^{t}=\frac{1}{4}+4^{-1}\ \log \to \log_{\frac{8}{9}}^{4}=t \to \frac{\log_5^{4}}{\log_5^{\frac{9}{8}}} \to \frac{\log_5^{3}+\log_5^{2}}{\log_5^{9}-\log_5^{8}}=$

$\frac{\frac{10}{14}+\frac{10}{24}}{\frac{20}{14}-\frac{30}{24}}=\frac{\frac{5}{7}+\frac{5}{12}}{\frac{10}{7}-\frac{15}{12}} \to \frac{\frac{95}{84}}{\frac{15}{84}}=\frac{95}{15}\times 45=285$

(۸) (۲)

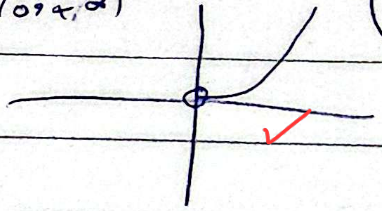
$M_2=\frac{96}{100}^{t} A_1$

$\frac{1}{3}A_1$ $\quad \frac{1}{3}=(\frac{96}{100})^{t} \longrightarrow \log \quad \log_{\frac{96}{100}}^{\frac{1}{3}}=t-\log_{\frac{96}{100}}^{3} \to \frac{1}{\log_3^{\frac{96}{100}}} \to$

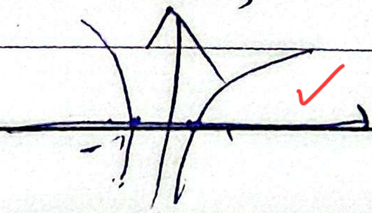
$\log_{\frac{96}{100}}^{3} \to \frac{\log_{10}^{3}}{\log_{10}^{\frac{96}{100}}} \to \frac{\log_{10}^{3}}{\frac{24}{9}}=24d$

(۱۰) (۲)

الف) $y=9^{\log_3^{x}} \to 3^{2\log_3^{x}}=x^2 \longrightarrow$ $\quad x>0 \quad R(0,+\infty)$



ب) $y=\log_x^{2} \to x^2>0$ $\quad R-\{0\}$



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$$\log_{\frac{۸}{۷}}^{۷} = t \rightarrow \frac{\log_{۳}^{۷}}{\log_{۳}^{\frac{۸}{۷}}} \rightarrow \frac{\frac{۱۰}{۶}}{\log_{۳}^{۸} - \log_{۳}^{۷}} = \frac{\frac{۱۰}{۶}}{۳\log_{۳}^{۲} - \frac{۱۰}{۶}} \rightarrow \frac{\frac{۱۰}{۶}}{۳ \times \frac{۱۰}{۱۲} - \frac{۱۰}{۶}} \quad ۲ \quad ۸$$

$$\frac{\frac{۵}{۳}}{۳ \times \frac{۵}{۸} - \frac{۵}{۳}}$$

$$۸ \xrightarrow{d} \times ۷ \rightarrow ۵۶$$