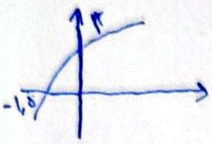
(1)



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

$b + c = -\frac{3}{2}$

$\to \log_{1/2}^{-1.5a+2} = 1 \to \frac{1}{2} = -1.5a + 2 \to a = 1$

$(a+c)b = (1+\frac{1}{2}) \times -2 = -3$ جواب

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

$\Rightarrow$ $c = -2$ غ ق ، $c = \frac{1}{2}$ ق $\Rightarrow -b = \frac{1}{1/2} \Rightarrow \boxed{b = -2}$

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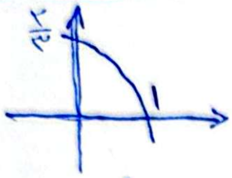
(2)



$f(0) = 1 + c \times 3^a = \frac{2}{3} \Rightarrow c \times 3^a = -\frac{1}{3}$

$f(1) = 1 + c \times 3^{a+b} = 0 \Rightarrow 1 + c \times 3^a \times 3^b = 0$

$\Rightarrow 3^b = 3 \Rightarrow \boxed{b = 1}$

$\to f(-1) = ? \Rightarrow 1 + c \times 3^{a-1} = 1 + c \times 3^a \times 3^{-1} = 1 - \frac{1}{3} \times \frac{1}{3} = 1 - \frac{1}{9} = \boxed{\frac{8}{9}}$

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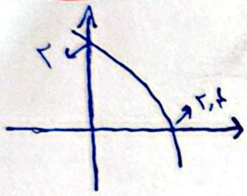
(3)



$2 = c + \log_5^b$

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

$\Rightarrow \log_5^{(2.4a+b)} - \log_5^b = -2$

$\to \log_5 \frac{2.4a+b}{b} = -2 \Rightarrow \frac{2.4a+b}{b} = \frac{1}{25} \Rightarrow \frac{2.4a}{b} = -\frac{24}{25} \Rightarrow \frac{a}{b} = -\frac{2}{5}$

$\Rightarrow \frac{a}{b} = ? = -\frac{2}{5} = \boxed{-0.4}$

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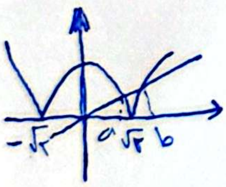
(4)

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

$x^2 - 2 = x \Rightarrow x^2 - x - 2 = 0$ < $x = -1$ ، $x = 2 \Rightarrow b = 2$

$-x^2 + 2 = x \Rightarrow x^2 + x - 2 = 0$ < $x = 1$ ، $x = -2$ $\Rightarrow a = 1$

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



$\Rightarrow (-\infty, a) \cup (b, +\infty) \Rightarrow a \Rightarrow 0 < a < \sqrt{2} \,,\; b > \sqrt{2}$

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(5)

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

$g(x) = -x^2 - 3x + 8$

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

$\Rightarrow \begin{cases} b + a = 3 \\ b - a = 1 \end{cases} \Rightarrow \begin{cases} b = 2 \\ a = +1 \end{cases}$

$2(2) - 1 = \boxed{3}$

(6)

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

$y = x^2 - x \Rightarrow y = x^2 - x \xrightarrow{x=1} y = 0 \rightarrow A(1,0)$

$f(2) = ? \quad y = x^2 - x \xrightarrow{x=2} y = 2 \Rightarrow B(2,2)$

$\Rightarrow \begin{cases} -2 + \frac{1}{2}^{A+B} = 0 \Rightarrow A+B = -1 \\ -2 + \frac{1}{2}^{2A+B} = 2 \Rightarrow 2A+B = -2 \end{cases} \Rightarrow A = -1,\ B = 0$

(7)

$m(t) = m\left(\frac{8}{9}\right)^t = \frac{1}{9}m = \left(\frac{8}{9}\right)^t = \frac{1}{9} \Rightarrow \frac{19}{3} \times 60 = 380\ min$

$\Rightarrow \log_5 \left(\frac{8}{9}\right)^t = \log_5 \frac{1}{9} \Rightarrow t \log_5 \left(\frac{8}{9}\right) = -\log_5 9$

$\log_3 5 = \frac{14}{10} = \frac{7}{5} \rightarrow \log_5 3 = \frac{5}{7} \Rightarrow t \log_5 \left(\frac{8}{9}\right) = -\log_5 9 \rightarrow t(\log_5 8 - \log_5 9) = -(\log_5 3 + \log_5 3)$

$\log_2 5 = \frac{24}{10} = \frac{12}{5} \rightarrow \log_5 2 = \frac{5}{12} \rightarrow t\left(\frac{35-40}{28}\right) = -\left(\frac{40+60}{84}\right) \Rightarrow t = \frac{19}{3}$

(8)

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

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

$\log_7 3 = 0.6 = \log_3 7 = \frac{5}{3}$

$\log_2 3 = 1.6 = \log_3 2 = \frac{5}{8} \qquad \Rightarrow \frac{t}{7}(\log_3 7 - 3\log_3 2) = -\log_3 7$

$\Rightarrow \frac{t}{7}\left(-\frac{5}{24}\right) = -\frac{5}{3} \Rightarrow \frac{t}{56} = 1 \Rightarrow \boxed{t = 56}$

(9)

$f(t) = A\left(\frac{96}{100}\right)^t = \frac{A}{3} \Rightarrow \left(\frac{96}{100}\right)^t = \frac{1}{3}$

$\Rightarrow \log\left(\frac{96}{100}\right)^t = \log \frac{1}{3} \Rightarrow t(\log 96 - \log 100) = -\log 3 \Rightarrow \log 2^5 + \log 3 - 2 = -\log 3$

$\rightarrow$ [illegible] $t(5 \times 0.3 + 0.48 - 2) = -0.48$

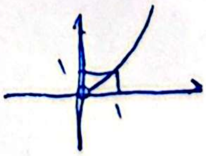
$\rightarrow t(1.5 + 0.48 - 2) = 0.48 \Rightarrow 0.02t = -0.48 \Rightarrow \boxed{t = 24}$

(10)

الف) $y = 9^{\log_3 x}$

یا $x^{\log_3 9} = \boxed{x^2}$

$\Rightarrow (0, +\infty)$



ب) $y = \log x^2$

$y = 2\log x$

$D = \mathbb{R} - \{0\}$