آمار و احتمال ... -۲۵- یازدهم تجربی B

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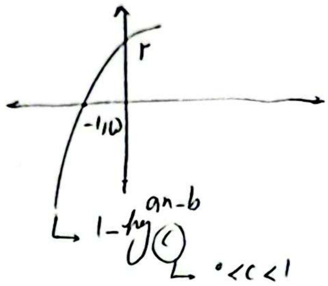

$y = 1-\log_c^{ax-b} \to 2 = 1-\log_c^{-b} \to \log_c^{-b} = -1$

$\to -b = \frac{1}{c} \to b = -\frac{1}{c}$ $\qquad \frac{c^2-1}{c} = -\frac{3}{2} \to 2c^2-2 = -3c \to 2c^2+3c-2=0$ ۱

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

$\hookrightarrow 1-\log_c^{ax-b}$ (c) $\hookrightarrow 0<c<1$

$0 = 1-\log_c^{1.5a-b} \to 1 = \log_c^{1.5a-b} \to b+c = 1.5a \to a = \cancel{-1}$ $\qquad \Rightarrow \cancel{(\frac{1}{2})-2} = (1)$

$1-\log_{\frac{1}{2}}^{-1.5a+2} = 0 \to -\frac{3}{2}a+2 = \frac{1}{2}, a=1$ $\qquad \frac{3}{2}\times 0-2 = -3$

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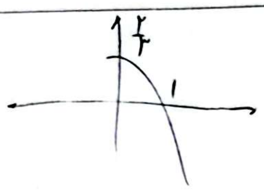

$f(x) = 1+c\times 3^{a+bx} \to -\frac{1}{3} = c\times 3^a \to -3^{-1} = c\times 3^a$

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

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

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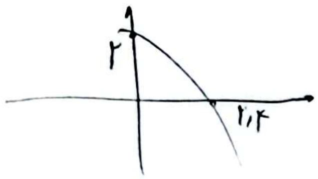

$\log_5^{ax+b}+c = y \to \log_5^{b}+c = 2 \to b = 5^{c-2} = (15a)5^{-2}$

$\hookrightarrow \log_5^{2.4a+b} = -c \to 2.4a+b = 5^{-c}$

$2.4a = -5^{c-2}+5^{c} = 5^c(-\frac{1}{25}+\frac{1}{5}) = \frac{12}{5}a$

$5^c(\frac{4}{25}) = \frac{12}{5}a \to 5^c = 15a$

$\frac{a}{b} = \frac{150}{(15a)5^{-2}} = \boxed{25}$

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

$\to x^2-2>x \to x^2-x-2>0 \to (x-2)(x+1)>0$ $\qquad$ $-1 \quad 2$: $+ \mid - \mid +$

$\hookrightarrow x^2-2<-x \to x^2+x-2<0 \to (x+2)(x-1)<0$ $\qquad$ $-2 \quad 1$: $+ \mid - \mid +$

$\Rightarrow D_f = (-\infty,-1)\cancel{\cup(1,+\infty)}$

$D_f: (-\infty,1)\cup(2,+\infty)$

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

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

$\to 2+2^{b-ax} = -x^2-3x+8 \to 2^{b-ax} = -x^2-3x+6 \xrightarrow{x=1} 2^{b-a} = -1-3+6 \to 2^{b-a} = 2^1 \to b-a=1$

$\begin{cases} b+a=3 \\ b-a=1 \end{cases} \to \begin{matrix} b=2 \\ a=1 \end{matrix}$ $\qquad 2b-a = 4-1 = \underline{\underline{3}}$

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

$y = x^2-x$

$\hookrightarrow^{x=2}$ $4-2 = -2+(\frac{1}{2})^{2A+B} \to 2^2 = 4 = 2^{-2A+B} \to 2 = -2A+B$

$\begin{cases} -1 = A+B \\ 2 = -2A+B \end{cases}$ $\quad -3 = 3A \to A=-1, \ B=0$

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

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$f(n) = m\left(\frac{8}{9}\right)^n$ ← مقدار اولیه

$\rightarrow m\left(\frac{8}{9}\right)^n = \frac{m}{6} \rightarrow \left(\frac{2^3}{3^2}\right)^n = \frac{1}{6} \rightarrow 3^{2n} = 6 \times 2^{3n} \rightarrow 3^{2n-1} = 2^{3n+1}$

$\rightarrow \log_5 3^{2n-1} = \log_5 2^{3n+1} \rightarrow (2n-1)\log_5 3 = (3n+1)\log_5 2 \rightarrow (2n-1)\frac{10}{14} = (3n+1)\frac{10}{24} \rightarrow 48n - 24 = 42n + 14 \rightarrow 6n = 38$

$n = \frac{38}{6} = \frac{19}{3}$

$n = \frac{19}{3}$ ساعت $= 380$ min

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$f(n) = m\left(\frac{7}{8}\right)^n = \frac{m}{7} \rightarrow \left(\frac{7}{8}\right)^n = \frac{1}{7} \rightarrow \frac{7^n}{2^{3n}} = 7^{-n} \rightarrow 7^{n+1} = 2^{3n}$

$\rightarrow \log_3 7^{n+1} = \log_3 2^{3n} \rightarrow (n+1)\log_3 7 = 3n\log_3 2 \rightarrow (n+1)\left(\frac{10}{6}\right) = 3n\left(\frac{10}{16}\right) \rightarrow 9n = 8n + 8 \rightarrow n = 8$ w $\rightarrow 8 \times 7 = 56$ روز

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$f(n) = m\left(\frac{96}{100}\right)^n \rightarrow m\left(\frac{96}{100}\right)^n = \frac{m}{4} \rightarrow \log\left(\frac{96}{100}\right)^n = \log\frac{1}{4} \rightarrow -\log 4 = -0.48 = n(\log 96 - 2)$

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$n(\log 3\times 2^5 - 2) = n(\log 3 + 5\log 2 - 2) = n(0.48 + 1.5 - 2) = -0.02n$

$n = \frac{-0.48}{-0.02} = \frac{48}{2} = 24$ روز

۳) $c + \log_5 (2.4a+b) = 0$ ① $\quad c + \log_5 b = 2$ ② $\quad$ ②−① $= \log_5 \frac{b}{2.4a+b} = 2$

$b = 60a + 25b \rightarrow \frac{a}{b} = -0.4$

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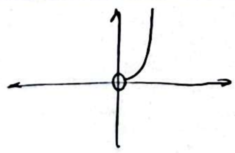
$y = 9^{\log_3 x} = x^{\log_3 9} = x^2 \rightarrow$

$\llcorner x > 0$



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$y = \log x^2 = 2\log x$

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