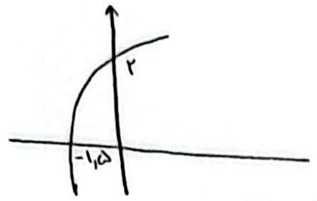
پارسی عباسیان   یازدهم دختر C   تألیف ۲۵

1)



$\hookrightarrow 1-\log_{c}^{ax-b}$

$\quad c \hookrightarrow 0<c<1$

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

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

$\to 2c^2-2=-3c$

$2c^2+3c-2=0$

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

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

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

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

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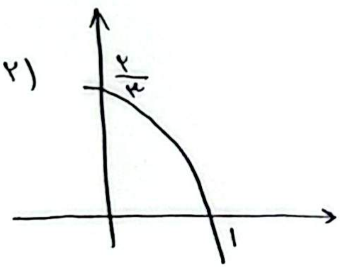
2)



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

$f(-1) \to$ $\quad \hookrightarrow -1=c\times 3^{a+b}$

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

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

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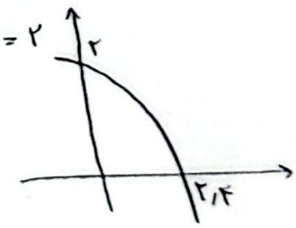
3) $c+\log_{5}^{2.4a+b}=0$ (I) $\qquad c+\log_{5}^{b}=2$ (II) $\qquad$ II $-$ I $=\log_{5}^{\frac{b}{2.4a+b}}=2$



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

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4) $f(x)=\log_{4}^{(|x^2-2|-x)}$ $\to$ $|x^2-2|-x>0 \to |x^2-2|>x$ $\begin{cases} x^2-2>x \\ x^2-2<-x \end{cases}$

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

$x^2-x-2>0 \qquad (x-2)(x+1)>0$

-1		2	
$+$	$-$		$+$

$x^2+x-2<0$

$(x+2)(x-1)<0$

-2		1	
$+$	$-$		$+$

۵)

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

$$g(x) = -x^2 - 3x + 8 \longrightarrow 2 + 2^{b-ax} = -x^2 - 3x + 8$$

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

$$\boxed{b - a = 1}$$

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

۶.

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

$$\xrightarrow{x=1} 2 = 2^{-(A+B)} \longrightarrow 1 = -(A+B) \longrightarrow -1 = A + B$$

$$\xrightarrow{x=2} 4 - 2 = -2 + \left(\frac{1}{2}\right)^{2A+B} \longrightarrow 2^2 = 4 = 2^{-2A+B} \longrightarrow 2 = -2A + B$$

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

$$f(x) = -2 + \left(\frac{1}{2}\right)^{-x} \longrightarrow f(3) = -2 + 2^3 = 6$$

۷.

$$f(x) = m\left(\frac{8}{9}\right)^x \longrightarrow m\left(\frac{8}{9}\right)^x = \frac{m}{6} \longrightarrow \left(\frac{2^3}{3^2}\right)^x = \frac{1}{6} \longrightarrow 3^{2x} = 6 \times 2^{3x}$$

$$3^{2x-1} = 2^{3x+1} \longrightarrow \log_5 3^{2x-1} = \log_5 2^{3x+1} \longrightarrow (2x-1)\log_5 3 = (3x+1)\log_5 2$$

$$(2x-1)\frac{10}{14} = (3x+1)\frac{10}{24} \longrightarrow 48x - 24 = 42x + 14$$

$$6x = 38 \longrightarrow x = \frac{38}{6} = \frac{19}{3}$$

۸.

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

$$\log_3 7^{x+1} = \log_3 2^{3x} \longrightarrow (x+1)\log_3 7 = 3x \log_3 2 \longrightarrow (x+1)\frac{10}{6} = 3x\left(\frac{10}{14}\right)$$

$$\frac{10x + 10}{6} = \frac{30x}{14} \longrightarrow 140x + 140 = 180x$$

$$20x = 140 \longrightarrow x = 8$$ [illegible] $$8 \times 7 = 56$$ [illegible]

۹) $f(x) = M\left(\frac{۹۴}{۱۰۰}\right)^x = \frac{M}{۳} \longrightarrow \log\left(\frac{۹۴}{۱۰۰}\right)^x = \log\frac{۱}{۳} \longrightarrow -\log ۳$

$-۰٫۴۸ = -\log ۳ \longrightarrow x(\log ۹۴ - ۲)$

$x(\log ۳ \times ۲^۵ - ۲) = x(\log ۳ + ۵\log ۲ - ۲) = x(۰٫۴۸ + ۱٫۵ - ۲) = -۰٫۰۲x$

$x = \frac{-۰٫۴۸}{-۰٫۰۲} = \frac{۴۸}{۲} = ۲۴$ day

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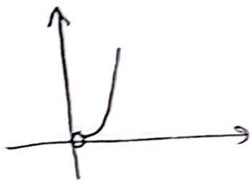
۱۰) $y = ۹^{\log_۳ x} = x^{\log_۳ \cancel{۹}} \to x^۲$, with ۲ written below the struck ۹

↳ $x > ۰$



$y = \log x^۲ = ۲\log x$

$D_f = \mathbb{R} - \{۰\}$