درسا صادقی

۱)

$$2^{(A(1)+B)} = 1 \longrightarrow A+B=0$$

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

$$\begin{cases} -A-B=0 \\ 4A+B=2 \end{cases} \Rightarrow 3A=2 \Rightarrow \begin{cases} A=1 \\ B=-1 \end{cases}$$

$$f(x) = 2^{x-1} \longrightarrow y=\frac{1}{2} \longrightarrow \left(0, \frac{1}{2}\right)$$

۲)

$$\log_2^{(x^2+15)} = x+2 \longrightarrow 2^{x+2} = x^2+15 \longrightarrow 2^{2x+1} \times 2^{x} = x^2+15$$

$$2^{3x} = x^2+15$$

$$x^2-8x+15=0$$

$$(x-3)(x-5)=0 \Rightarrow x=3, 5$$

$$\log_2^{15} = \log_2^{3} + \log_2^{5}$$

$$2^{3x}=x^2 \longrightarrow \log_2^{x^2} = 3x$$

$$2^{3x}=5^{x^2} \longrightarrow \log_2^{5^{x^2}} = 3x$$

۳)

$$\log_{12}^{3} = t$$

$$\left(\log_{12}^{3}\right)^2 + \left(\log_{12}^{4} + \log_{12}^{3}\right)\left(2\log_{12}^{2} + \log_{12}^{3}\right)$$

$$\log_{12}^{4} = \log_{12}^{12} - \log_{12}^{3} \longrightarrow t^2 + (2-t)(2+t)$$

$$t^2 + 4 - t^2 = 4$$

۴)

$$\log^{(x^2-2x+1)} + 2\log^{(1-x)} = 5$$

$$\log^{(1-x)^2} \longrightarrow 2\log^{1-x} + 2\log^{1-x} = 4\log^{1-x}$$

$$\log_{10}^{1-x} = 1 \longrightarrow 10 = 1-x$$

$$x=-9$$

$$\log^{(x-2)} = 2$$

$$\log^{(x^2+2x+4)} + \log^{(x-2)} = 2$$

$$\log_2^{x^3-8} = 3 \longrightarrow x^3-8 = 8 \longrightarrow x=\sqrt[3]{16}$$

۵)

$$\log^{(x-2)(x^2+2x+4)} = 2$$

$$\log_{\frac{1}{3}}^{2} = \log_{3^{-1}}^{2} = -\log_3^2$$

$$A = \log_2^3 \log_3^4$$

3)

4)

1)

سوال 6)

11)