۲۰

حسن طاهری

سوال ۱ ←

$f(1)=g(1) \rightarrow e^{A+B}=1 \rightarrow A+B=0 \rightarrow A=-B$

$f(2)=g(2) \rightarrow e^{2A+B}=e^{-B} \rightarrow 2A+B=-B \rightarrow 2B=-2A \rightarrow B=-1$

$A=1$

$f(x)=e^{x-1} \rightarrow f(0)=e^{-1}=\frac{1}{e}$

سوال ۲ ←

$\log_{2}^{(x^2+1)}(x+3)=\log_{2}^{(x^2+1)}(x^2+1) \rightarrow x+3=x^2+1 \rightarrow x^2-x-2=0$

$(x-2)(x+1) \rightarrow x=2 \quad x=-1$

$\log_{2}^{(x^2+1)}(x+3)=\log_{2}^{5}$

سوال ۳ ←

$\log_{2}^{(x^2+1)}(x+3)=\log_{2}^{5} \rightarrow x^2+1=5 \rightarrow x^2=4 \rightarrow x=\pm 2$

$x=2 \rightarrow \log_{2}^{5}+\log_{2}^{5}=\log_{2}^{25}$

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سوال ۴ ← ج

$\log(x-2) - \log\frac{1}{(x-2)^2} = 4 \rightarrow \log(x-2) - \log(x-2)^{-2} = 4$

$\rightarrow \log(x-2)^3 = 4 \rightarrow \log(x-2) = \frac{4}{3}$

$\rightarrow x-2 = 10^{\frac{4}{3}} \rightarrow x = 10^{\frac{4}{3}} + 2$

سوال ۵ ← ب

$\log_{x-2}(x-2)^3 = 3 \rightarrow \log_{x-2}(x-2)^{\frac{3}{2}} = \frac{3}{2}$

$\rightarrow \log_{x-2}\sqrt{x-2} = \frac{3}{2} \rightarrow \sqrt{x-2} = (x-2)^{\frac{3}{2}}$

$\rightarrow x-2 = x-2 \rightarrow$ همواره برقرار است

سوال ۶ ← ب

$\log_{\frac{1}{2}}(x-1) + \log_{\frac{1}{2}}(x-3) = -3 \rightarrow \log_{\frac{1}{2}}(x-1)(x-3) = -3$

$\rightarrow (x-1)(x-3) = \left(\frac{1}{2}\right)^{-3} \rightarrow x^2 - 4x + 3 = 8$

$\rightarrow x^2 - 4x - 5 = 0 \rightarrow (x-5)(x+1) = 0$

$\rightarrow x = 5, -1$ (غ ق ق)

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