جزوه تشریحی تکلیفی سری بیست و چهارم کلاس A

Subject:
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سوال ۱:

$f(x) = 3^{An+B}$ $\quad x = 2^n$, $n = 1, 2$

$3^{An+B} = n^2 \rightarrow 3^{A+B} = 1 \rightarrow A+B = 0$

$3^{2A+B} = 9 \rightarrow 2A+B = 2 \rightarrow -A-B = 0$

$2A+B = 6$

$2A = 2 \rightarrow A = 1 \quad B = -1$

$f(x) = 3^{n-1}$

نقطه تلاقی تابع f با محور y ها $\leftarrow n = 0$

$3^{0-1} = \frac{1}{3}$

سوال ۲:

$\log_2^{(4^n+16)} = n+3 \qquad 2^{n+2} = 2^{2n} + 16$

$(2^n)^2 - 8 \times 2^n + 16 = 0 \xrightarrow{2^n = t} t^2 - 8t + 16 = 0 \rightarrow (t-4)^2 = 0$

$t = 4 \quad t = 4$

$2^x = 4 \rightarrow \log_2^4 = x$

$2^x = 4 \rightarrow \log_2^4 = x \rightarrow \log_2^4 + \log_2^4 = \log_2^{4 \times 4} = \log_2^{16}$

سوال ۳:

$(\log_{21}^3)^2 + \log_{21}^{147} \log_{21}^{343}$

$\frac{147}{3} = 49$

$(\log_{21}^3)^2 + (\log_{21}^3 \times \log_{21}^{49}) = 4$

$4 - (\log_{21}^3)^2$

سوال ۴:

$\log_2(n^2 - 4n + 1) + 2\log_2(1-x) = 0 \qquad \log_3^{(-x)} = ?$

$2, 1-x > 0 \quad x < 1$

$\log_2(n-1)^2 = 2\log_2(1-n) + 2\log_2(1-n) = 0 \rightarrow 4\log_2(1-n) = 0$

Arman

$2\log_2|n-1|$

$n < 1$

$\log_2^9 = 2$

$10 = (1-n)$

$9 = -n$

سوال ۵:

$\log_2^{(n^2+2n+4)} + \log_2^{(n-2)} = 3$

$(n-2)(n^2+2n+4)$

$\log_2 = 3 \rightsquigarrow n^3 - 8 = 8 \rightsquigarrow n^3 = 16$

$n = \sqrt[3]{16}$

$\log_{2\sqrt{2}}^{n} = \log_{2^{\frac{3}{2}}}^{\sqrt[3]{16}} = \frac{\frac{4}{3}}{\frac{3}{2}} \log_2^2 = \frac{\frac{4}{3}}{\frac{3}{2}} = \frac{4}{3} \times \frac{2}{3} = \frac{8}{9}$

سوال ۶:

$\log(2-n) - \log \frac{1}{(n-2)^2} = 3 \qquad \log_{\sqrt{2}}^{(-8)} = ?$

$\log \frac{2-n}{\frac{1}{(n-2)^2}} = 3 \rightsquigarrow \log_{10}^{-(n-2)^3} = 3 \rightarrow -(n-2)^3 = 10^3$

$-(n-2) = 10 \rightsquigarrow n = -8 \qquad \log_{\sqrt{2}}^{8} = \frac{3}{\frac{1}{2}} \log_2^2 = 6$

سوال ۷:

$3^{x^2-2} = 81^x \qquad \log_4^{(n-2)} = ?$

$3^{x^2-2} = 3^{4x} \rightsquigarrow x^2 - 2 = 4x \rightsquigarrow x^2 - 4x - 2 = 0$

$\Delta = 16 + 8 = 24 \qquad \frac{4 \pm \sqrt{24}}{2} \quad \begin{matrix} 2+\sqrt{6} \\ 2-\sqrt{6} \end{matrix}$

$\log_4^{n-2} = \log_4^{2+\sqrt{6}-2} = \frac{1}{2}$

سوال ۸:

$\log_{2^3}^2 = \frac{\omega}{8} \qquad \log_{16}^8 = ? \qquad \frac{\log_2^8}{\log_3^{16}} = \frac{3\log_2^2}{\log_3^4 + \log_3^4} = \frac{3 \times \frac{\omega}{8}}{\frac{16}{8} + \frac{\omega}{8}} = \frac{\frac{3\omega}{8}}{\frac{24}{8}} = \frac{\omega}{7}$

سوال ۹:

$\log_{2^4}^3 = 0.8 \qquad \log_{16}^6 = ? \qquad \frac{\frac{1}{2}\log_2^2 + \log_2^3}{\log_2^4 + \log_2^3} = \frac{0.5 + 0.8}{1 + 0.8} = \frac{1.3}{1.8} = \frac{13}{18}$

موضوع: ایران شریفی تاریخ: / /

سوال ۱۰: $\frac{b}{a} = ?$

$(a\log 2)x^2 + ax + b\log 2 = 0 \quad x = -1$

$(a+b)\log 2 - a = 0$

$(a+b)\log 2 = a \rightsquigarrow (1+\frac{b}{a})\log 2 = 1 \rightsquigarrow 1+\frac{b}{a} = \log 2^{-1}$

$\frac{b}{a} = \log 2^{\frac{1}{2}} - 1 \rightsquigarrow \sqrt{2}^{\log 2^{10}} = 1 \rightarrow \frac{1}{2^2}(\log 2^{10} - 1)$

$\frac{(2^{\log 2^{10}})^{\frac{1}{2}}}{2^{\frac{1}{2}}} = \frac{(10^{\log 2^2})^{\frac{1}{2}}}{2^{\frac{1}{2}}} = \left(\frac{10}{2}\right)^{\frac{1}{2}} = \sqrt{5}$