نام و نام خانوادگی ......آیدا ملک‌صالحی...... پاسخنامه تشریحی تکلیف شماره ......۲۴..... کلاس ...یازدهم تجربی A....

۱۹,۵

شماره	پاسخ	نمره
۱	$\frac{2\log_{\alpha n}^{m} + \log_{\alpha n}^{n}}{\log_{\alpha n}^{m} + \log_{\alpha n}^{n}} = \frac{2a+1}{a+1} = 1 + \frac{a}{a+1} \xrightarrow{a>0} 1 < 1+\frac{a}{a+1} < 2$ $[b] = 1$	۲
۲	$y = \sqrt{\frac{x}{\log_{\frac{1}{2}}^{x}}}$ $x > 0 \quad (\log^{x})$ $x \neq 1 \quad (\log_{\frac{1}{2}}^{x} \neq 0)$ $\frac{x}{\log_{\frac{1}{2}}^{x}} \geq 0 \xrightarrow{x>0} \log_{\frac{1}{2}}^{x} > 0$ $x < 1$ $D_f = (0,1)$ $y = \frac{\log_{4}^{(x^2-x-2)}}{\sqrt{x^2-1}+1}$ $x^2 - 1 \geq 0 \quad x \geq 1 \quad x \leq -1$ $x^2 - x - 2 > 0 \quad (x-2)(x+1) > 0$ (ریشه‌ها 2 و -1) $x > 2$ $x < -1$ $D_f = (-\infty, -1) \cup (2, +\infty)$	۲
۳	$2\log_{9}^{a} + \log_{a}^{3} = 2$ $\Rightarrow \log_{3}^{a} + \log_{a}^{3} = 2$ $\log_{3}^{a} = t \quad \log_{a}^{3} = \frac{1}{t}$ $t + \frac{1}{t} - 2 = 0 \xrightarrow{\times t \neq 0} t = 1$ $\log_{3}^{a} = 1 \quad a = 3$	۲
۴	$(\log 8 - \log 5)x^2 + 2\log 3\, x - \log 5 - \log 3 = 0$ $0/3x^2 \quad + 0/18x \quad -1,1$ $\log 5 = 1 - \log 2 = 0,7$ $3x^2 + 18x - 11 = 0$ $\Delta x = \frac{\sqrt{196}}{3} = \frac{14}{3}$	۲
۵	$\frac{\log 10}{\log 14} = \frac{\log 2 + \log 5}{\log 2 + \log 7}$ (با $\log 5 = 2\log 2$ و $\log 7 = 2,8\log 2$) $\Rightarrow \frac{3\log 2}{3,8\log 2} = \frac{15}{19}$ $\frac{\log 7}{\log 2} = 2,8 \rightarrow \log 7 = 2,8\log 2 \quad \frac{\log 2}{\log 5} = 0,5 \quad \log 5 = 2\log 2$	۲

۶ (۲)

$$\frac{\log 4}{\log 10} = \frac{\log 2^3 + \log 3^2}{\log 6 + \log 5} = \frac{3\log 2 + 2\log 3}{\log 6 + \log \frac{10}{2}} = \frac{3\log 2 + 2\log 3}{\log 6 + \log 10 - \log 2} = \frac{3\log 2 + 2\log 3}{\log 6 + 1 - \log 2} = \frac{3\log 2 + 2\log 3}{2\log 2 + \log 3} = 0,48$$ ✓

$$\frac{\log 5}{\log 2} = 48 \rightarrow \log 5 = 48\log 2$$

$$\frac{\log 6}{\log 2} = 49 \rightarrow \log 6 = \frac{49}{48}\log 3$$

۷ (۲)

$$\log_8 18 \quad 8 = 2^3 \rightarrow \frac{1}{3}\log_{2^3} 9 \times 2^2 + \frac{1}{3}\log_{2^3} 2^2 = \frac{2}{3}\log_2 3 + \frac{1}{3} = m \Rightarrow \log_2 3 = \frac{3m-1}{2}$$

$$\log_4 12 \rightarrow \frac{1}{2}\log_2 4 + \frac{1}{2}\log_2 3 = 1 + \frac{3m-1}{4} = \frac{3m+3}{4}$$ ✓

۸ (۲)

$$(0,4)^{3m-1} = \left(\frac{2}{5}\right)^{-3m^2} \rightarrow -3m^2 = 3m-1 \Rightarrow 3m^2 + 3m - 1 = 0$$

$m \to -1$ ✗ → داخل $\log$ تعریف نمی‌شود

$m \to \frac{1}{3}$ ✓

$$\log_8^{9\left(\frac{1}{6}\right)+1} = \log_{2^3}^{2^2} = \frac{2}{3}$$ ✓

۹ (۲)

$$\frac{1}{3}\log_2 b = \frac{2}{3}(1+a) \Rightarrow \log_2 b = 2 + 2a \qquad \log_{2^3} 8^a \rightarrow 2^a = 3$$

$$2^{2+2a} = b \qquad 2^2 \times (2^a)^2 = b$$

$$4 \times 9 = b \Rightarrow b = 36$$

$$\log_{10}^{(2\times 5^a)-1} = \log_{10}^{100} = 2$$ ✓

۱۰ (۱٫۲۵)

$$\frac{1}{\alpha+\beta} = \frac{4a}{b} = \log 4 = 2\log 2 \Rightarrow \frac{b}{a} = \frac{2}{\log 2}$$

$$b + c = 2a \rightarrow c = 2a - b \rightarrow \frac{c}{a} = \frac{2a-b}{a} = 2 - \frac{b}{a}$$

$$\left(\frac{1}{\sqrt{2}}\right)^{\frac{c}{a}} = 2^{-\frac{1}{8}\left(\frac{c}{a}\right)} \rightarrow -\frac{1}{8}\left(2 - \frac{2}{\log 2}\right) = -\frac{1}{4} + \frac{1}{4\log 2} = \frac{1 - \log 2}{4\log 2}$$

$$2^{\left(\frac{1-\log 2}{4\log 2}\right)}$$

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$$a = \frac{b+c}{2} \rightarrow b = 2a - c$$

$$\frac{1}{x_1 + x_2} = \frac{1}{S} = \frac{4a}{b} = \frac{\cancel{4}^{2}a}{2a-c} = \lg 4 = \cancel{2}\lg 2 \rightarrow \frac{2a}{2a-c} = \lg 2$$

معکوس $\rightarrow$ $\frac{2a-c}{2a} = \lg_2 10 \rightarrow 1 - \lg_2 10 = \frac{c}{2a} \rightarrow 2 - \lg_2 100 = \frac{c}{a}$

$$(2^{-\frac{1}{8}})^{\frac{c}{a}} = (2^{\frac{c}{a}})^{-\frac{1}{8}} = (2^{2-\lg_2 100})^{-\frac{1}{8}} = (\frac{4}{100})^{-\frac{1}{8}} = \sqrt[4]{5}$$