نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره ....۱۲.... کلاس ....۱۱......................

۱۵

$n^a = m$ $\log_{n^{a+1}} n^{2a+1} = \frac{2a+1}{a+1} = b \Rightarrow [b] = 1$ ✓ (۲)	۱
الف) $y = \sqrt{\frac{x}{\log_{\frac{1}{2}} x}}$ $x>0,\ x\neq 1,\ x<1 \Rightarrow 0<x<1 \to D_f : (0,1)$ ✓ (۲) $x^2 - x - 2 > 0 \Rightarrow x_1, x_2 = 2, -1 \Rightarrow$ + ۰ − ۰ + $x^2 \geq 1 \Rightarrow x \geq 1,\ x \leq -1$ $\Rightarrow D_f : (-\infty, -1) \cup (2, +\infty)$ ✓	۲
$\log_c a + \log_a c = 2$ ($\log_c a = t$) $t + \frac{1}{t} = 2 \Rightarrow t^2 - 2t + 1 = 0$ $(t-1)^2$ $1 \Rightarrow \log_c a = 1 \Rightarrow a = c$ ✓ (۲)	۳
$\log \frac{5}{3} = \frac{3}{1}$ $\log 9 = \frac{8}{1}$ $\log 15 = \frac{11}{1}$ $3x^2 + 8x - 11 \to (x + \frac{11}{3})(x - 1)$ $-\frac{11}{3}$, 1 $\Rightarrow \lvert x_1 - x_2 \rvert = \frac{14}{3}$ ✓ (۲)	۴
$\frac{\log_{2.5} 10}{\log_2 14} = \frac{\log_2 5 + \log_2 2}{\log_2 7 + \log_2 2}$ $\log_2 5 \cdot 10$ $= \frac{\log_2 5}{3.8}$ $= \frac{1}{1.4}$ ۲٫۸ (۱) (۱)	۵

۶ (۲)

$$\frac{\log_6 2}{\log_{10} 6} \to \frac{\log 2 + \log 3}{\log 10 + \log 6} \Rightarrow \frac{\frac{24}{14}}{\frac{20}{10}} = \frac{\frac{1}{2} \times 12}{\frac{1}{2} \times 40} = \frac{12}{20} = 0.6$$

۷ (۵)

$$\log_{18} 3 = m \Rightarrow \log \frac{6}{2} = m \Rightarrow \log 3 - \log 2 = m$$

$$\log_{12} 4 = \frac{1}{2}\log_{12} 4 = \frac{1}{2}(\log 4 + \log 3) = 1 + \frac{m}{2} = \frac{2+m}{2}$$

۸ (۲)

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

$m_1 = -1$ (غ ق ق) , $m_2 = \frac{1}{2}$

$$\log_8 4 = \log_{2^3} 2^2 = \frac{2}{3}$$

۹ (۲)

$$2^a = 3$$

$$8^{\frac{2}{3}} + 8^{\frac{2a}{3}} = b \Rightarrow 4 + 9 = b \Rightarrow b = 13$$

$$\log 100 = 2$$

۱۰ (۵)

$$\frac{C_a}{a} = 2 - \frac{2}{\log 4}$$

$$S_8 = 2S_4 = 2^{\frac{C}{2}} \qquad \frac{C}{a} = 2 - \frac{2}{\log 4} \to 2^{\frac{a}{2}\left(2 - \frac{2}{\log 4}\right)}$$

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$$\log_{12}^{10} = \frac{\log_2^{10}}{\log_2^{12}} = \frac{\log_2^5 + \log_2^2}{\log_2^3 + \log_2^2} = \frac{2+1}{2{,}8+1} = \frac{3}{3{,}8} = \boxed{\frac{15}{19}}$$

$$\log_2^5 = \frac{1}{\log_5^2} = 2$$

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$$\log_8^{18} = \frac{\log 18}{\log 8} = \frac{2\log 3 + \log 2}{3\log 2} = m \to \frac{\log 3}{\log 2} = \frac{3m-1}{2}$$

$$\log_4^{12} = 1 + \log_4^3 = 1 + \frac{\log 3}{2\log 2} = 1 + \frac{1}{2}\left(\frac{3m-1}{2}\right) = \boxed{\frac{3m+3}{4}}$$

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

$$\frac{1}{n_1+n_2} = \frac{1}{S} = \frac{4a}{b} = \frac{4a}{2a-c} = \log 4 = 2\log 2 \to \frac{2a}{2a-c} = \log 2$$

معکوس $\to$ $\frac{2a-c}{2a} = \log_2^{10} \to 1 - \log_2^{10} = \frac{c}{2a} \to 2 - \log_2^{100} = \frac{c}{a}$

$$(2^{-\frac{1}{8}})^{\frac{c}{a}} = (2^{\frac{c}{a}})^{\frac{-1}{8}} = (2^{2-\log_2^{100}})^{\frac{-1}{8}} = (\frac{4}{100})^{\frac{-1}{8}} = 5^{\frac{1}{4}} = \boxed{\sqrt[4]{5}}$$