نام و نام خانوادگی ...محمد عرفان خدایی... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

$\log_n^m = a \Rightarrow \log_{mn}^{m^2n} = b \Rightarrow \log_{mn}^{mn} + \log_{mn}^{m} = b \Rightarrow 1+\log_{mn}^{m} = b$ $\Rightarrow \log_{mn}^{m} = \frac{1}{\log_m^{mn}} \Rightarrow 1+\frac{1}{\log_m^{mn}} = b \Rightarrow 1+\frac{1}{\log_m^m+\log_m^n} = b \Rightarrow 1+\frac{1}{1+\log_m^n} = b$ $\Rightarrow \log_n^m = a \Rightarrow \log_m^n = \frac{1}{a} \Rightarrow 1+\frac{1}{1+\frac{1}{a}} = b \Rightarrow 1+\frac{1}{\frac{a+1}{a}} = b \Rightarrow [b] = [\frac{a}{a+1}] = 1$	۱
الف) $y=\sqrt{\frac{x}{\log_{\frac{1}{2}}^{x}}} \Rightarrow \log_{\frac{1}{2}}^{x} \neq 0 \Rightarrow x \neq 1 \quad x=0 \quad \log_{\frac{1}{2}}^{x} = 0 \Rightarrow x=1 \quad \log_{\frac{1}{2}}^{x} \Rightarrow x>0$ $\frac{+\ \ 0\ \ -\ \ 1\ \ +}{}$ [illegible] $\Rightarrow \log_{\frac{1}{2}}^{x} \Rightarrow x<0$ نباید باشد $\Rightarrow D_f = 0<x<1$ ب) $y=\frac{\log_2^{(x^2-x-2)}}{\sqrt{x^2-1}+1} \Rightarrow \log_{4}^{(x^2-x-2)} \Rightarrow x^2-x-2 \Rightarrow (x-2)(x+1)>0 \Rightarrow \frac{+\ \ -1\ \ -\ \ 2\ \ +}{}\ I$ $\Rightarrow \sqrt{x^2-1}+1 \neq 0 \Rightarrow \sqrt{x^2-1} \geq 0 \Rightarrow x^2-1 \geq 0 \Rightarrow (x-1)(x+1) \geq 0 \quad \frac{+\ \ -1\ \ -\ \ 1\ \ +}{}\ II$ $\Rightarrow I \cap II = (-\infty,-1) \cup (2,+\infty)$	۲
$2\log_a^a + \log_a^{\sqrt{a}} = 2 \Rightarrow a=9 \Rightarrow 2\log_a^a + \frac{1}{2}\log_a^a = 2 \Rightarrow 2\log_a^a + \frac{1}{2\log_a^a} = 2$ $\Rightarrow \log_a^a = t \Rightarrow 2t+\frac{1}{2t} = 2 \Rightarrow \frac{4t^2+1}{2t} = 2 \Rightarrow 4t^2-4t+1=0$ $\Rightarrow (2t-1)^2 = 0 \Rightarrow t=\frac{1}{2} \Rightarrow \log_a^a = \frac{1}{2} \Rightarrow a=9 \Rightarrow a=9^{\frac{1}{2}} \Rightarrow a=3$	۳
$[\log\frac{5}{3}]x^2+(\log^9)x-\log^{15}=0 \Rightarrow [\log^5-\log^3]x^2+(2\log^3)-\log^5-\log^3$ $[1-\log^2-\log^3]x^2+(2\log^3)-1+\log^2-\log^3=0 \Rightarrow \log^3=0/48 \ ,\ \log^2=0/3$ $0/3x^2+0/8x-1/1=0 \Rightarrow 3x^2+8x-11=0 \Rightarrow (3x-3)(3x+11)=0 \Rightarrow x=1 \quad x=-\frac{11}{3}$ $\Rightarrow \|\alpha-\beta\| \Rightarrow \|1-(-\frac{11}{3})\| \Rightarrow \|\alpha-\beta\| = \|\frac{14}{3}\| \Rightarrow \|\alpha-\beta\| = \frac{14}{3}$	۴
$\log_2^7 = 2/8 \quad \log_5^2 = 0/5 \Rightarrow \log_{14}^{10} \Rightarrow \frac{\log_2^{10}}{\log_2^{14}} \Rightarrow \frac{\log_2^5+\log_2^2}{\log_2^7+\log_2^2}$ $\Rightarrow \frac{\log_2^5+1}{\log_2^7+1} \Rightarrow \log_2^5 = \frac{1}{0/5} \Rightarrow \frac{2+1}{2/8+1} = \frac{3}{3/8} = \frac{30}{38} = \frac{15}{19}$	۵

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$$\log_{10}^{4} = \frac{\log_{2}^{4}}{\log_{2}^{10}} \Rightarrow \frac{\log_{2}^{2} + \log_{2}^{2}}{\log_{2}^{2} + \log_{2}^{5}} \Rightarrow \log_{2}^{a} \Rightarrow \frac{\log_{2}^{2}}{\log_{2}^{2}} \Rightarrow \log_{2}^{5} = 1/4 \Rightarrow \frac{1}{\log_{5}^{2}} = 1/4$$

$$\Rightarrow \log_{5}^{2} = \frac{10}{14} \Rightarrow \log_{2}^{a} = \frac{\frac{10}{14}}{\frac{10}{14}} = 1/4 \Rightarrow \log_{10}^{4} = \frac{1+1/4}{1/4+1/4} = 0/4$$

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$$\log_{8}^{18} = m \Rightarrow \frac{1}{2}\log_{2}^{18} = m \Rightarrow \log_{2}^{18} = 3m \Rightarrow \log_{2}^{2} + 2\log_{2}^{3} = 3m \Rightarrow \log_{2}^{3} = \frac{3m-1}{2}$$

$$\log_{6}^{12} \Rightarrow \frac{1}{2}\log_{2}^{12} \Rightarrow \frac{1}{2}\left(\log_{2}^{3} + 2\log_{2}^{2}\right) \Rightarrow \frac{1}{2}\left(2 + \frac{3m-1}{2}\right) \Rightarrow \log_{6}^{12} = \frac{3m+3}{4}$$

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$$(0/5)^{12\alpha-1} = \left(\frac{12\alpha}{8}\right)^{\alpha^2} \Rightarrow \left(\frac{1}{2}\right)^{12\alpha-1} = \left(\frac{3\alpha}{2}\right)^{3\alpha^2} \Rightarrow 3\alpha^2 = 1-12\alpha \Rightarrow 3\alpha^2+12\alpha-1=0 \Rightarrow (3\alpha+1)(3\alpha-1)$$

$$\Rightarrow \alpha=-1 \quad \alpha=\frac{1}{3} \Rightarrow \log_{\frac{1}{2}}^{9\alpha+1} \Rightarrow \alpha=-1 \Rightarrow 9(-1)+1<0 \Rightarrow \text{غ ق ق}$$

$$\Rightarrow \alpha=\frac{1}{3} \Rightarrow \log_{8}^{\frac{1}{2}} \Rightarrow \frac{1}{3}\log_{2}^{2} = \frac{1}{3}$$

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

$$\Rightarrow \frac{1}{3}\log_{2}^{b} = \frac{1}{3}\left(\log_{2}^{6}\right) \Rightarrow \log_{2}^{b} = 2\log_{2}^{6} \Rightarrow \log_{2}^{b} = \log_{2}^{6^2} \Rightarrow b = 36$$

$$\Rightarrow \log(2b-8) \Rightarrow \log(3^{\alpha}\times 6^{\alpha}-8) \Rightarrow \log_{10}^{2} = 2$$

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$$-5\alpha^2+6\alpha+\frac{1}{2}c=0 \Rightarrow \frac{1}{\alpha+\beta} = \log^{4} \Rightarrow \frac{1}{\frac{-b}{a}} = \log^{4} \Rightarrow -\frac{a}{b} = \log^{4} \Rightarrow \frac{c+a}{b} = 2\log^{4}$$

$$\Rightarrow \frac{12\alpha}{b} = \log^{4} \Rightarrow c+b = 12\alpha \Rightarrow \frac{c+b}{b} = \log^{4} \Rightarrow \frac{c}{b}+1 = 1-\log^{\omega} \Rightarrow \frac{c}{b} = -\log^{\omega}$$

$$\Rightarrow \frac{\frac{c}{b}}{\frac{12\alpha}{b}+\log^{2}} = \frac{-\log^{\omega}}{\log^{2}} \Rightarrow \frac{c}{12\alpha} = -\frac{\log^{\omega}}{\log^{2}} \Rightarrow \frac{c}{12\alpha} = -\log_{2}^{\omega} \Rightarrow \frac{c}{\alpha} = -12\log_{2}^{\omega}$$

$$\Rightarrow \left(\frac{1}{\sqrt{2}}\right)^{-12}\log_{2}^{\omega} \Rightarrow \left(2^{-\frac{1}{8}}\right)^{-12}\log_{2}^{\omega} \Rightarrow (\omega)^{-12}\log_{2}^{2^{-\frac{1}{8}}} \Rightarrow (\omega)^{\frac{1}{8}} \Rightarrow \sqrt[8]{\omega}$$