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نام و نام خانوادگی: ... فرزند ... پاسخنامه تشریحی تکلیف شماره ۲۳ ... کلاس ...	
$\log_m^n = a \quad \log_{mn}^{mrn} = b \quad [b] = ?$ $\log_{mn}^{mrn} = \log_{mn}^{mn} + \log_{mn}^m = 1 + \frac{\log_n^m}{\log_n^{mn}} = 1 + \frac{a}{\log_n^m + \log_n^n} = 1 + \frac{a}{1+a}$ $\rightarrow b = 1 + \frac{a}{1+a} \rightarrow b = 1, \dots \rightarrow [b] = 1 \checkmark$	(۲) ۱
الف) $y = \sqrt{\frac{x}{\log_{\frac{1}{x}} x}}$ ۱) $x > 0$ ۲) $\frac{x}{\log_{\frac{1}{x}} x} > 0 \Rightarrow \log_{\frac{1}{x}} x > 0 \rightarrow x < 1$ ۳) $0 < x < 1 \checkmark$ ب) $y = \frac{\log_f^{(n^2-n-r)}}{\sqrt{x^2-1} + 1}$ $\frac{n^2-n-r}{\sqrt{x^2-1} + 1} > 0 \rightarrow (n-r)(n+1) > 0$ $\frac{-1}{+1} - \frac{r}{+1} > 0 \rightarrow n > 1 \leq n < -1 \rightarrow n \in (-\infty, -1) \cup (1, \infty) \checkmark$	(۲) ۲
$r \log_m^a + \log_a^{\sqrt{a}} = r \rightarrow r \log_m^a + \frac{1}{r} \log_m^a = r \rightarrow \frac{r}{\log_m^a} + \frac{\log_m^a}{r} = r$ $t + \frac{1}{t} = r \rightarrow t^2 - rt + 1 = 0 \rightarrow t_1 \rightarrow \frac{r}{\log_m^a} = 1 \rightarrow \log_m^a = r$ $m = a \rightarrow \log_a^a = r \rightarrow a = r \checkmark$	(۲) ۳
$\log^r = 1^r \quad \log^r = 1^r \quad \left[\log^{\frac{a}{r}} x^r + \log^a x - \log^{1a} \right]$ $\hookrightarrow \log^a = .v \quad \left\{ \log^{\frac{a}{r}} = .v \cdot .r = .r \quad \log^a = .1 \quad \log^{1a} = .r + .v = 1,1 \right.$ $\rightarrow .r x^r + .1 x - 1,1 = 0 \rightarrow r x^r + 1 x - 1,1 = 0 \rightarrow x^r + 1 x - 1,1 = 0$ $\rightarrow (x+1)(x-1) \rightarrow x_1 = \frac{r}{r}, -\frac{1}{r} \rightarrow \text{میان} = \frac{1}{r} \checkmark$	(۲) ۴
$\log_r^v = 2,1, \log_r^r = 1,5$ $\hookrightarrow \log_r^a = 2$ $\log_a^v = \frac{\log_r^v}{\log_r^a} = \frac{2,1}{2} = 1,05$ $\log_{14}^{14} = \log_a^v \cdot \log_a^r = .a + 1,5 = 1,9$ $\left\{ \log_a^1, \log_a^a + \log_a^{\frac{a}{r}} = 1,5 \right.$	(۲) ۵

$$\log_r^r = 1,4$$

$$\log_r^a = 1,8$$

$$\log_r^r \times \log_r^a = \log_r^a = 1,8 \times 1,4$$

$$\log_{10}^q = \frac{\log_r^q}{\log_r^{10}} = \frac{\log_r^r + \log_r^r}{\log_r^r + \log_r^a} = \frac{1 + 1,4}{1 + (1,4 \times 1,8)} = \frac{2,4}{1,4 \times 1,8} = \frac{240}{14 \times 18} = \frac{240}{252} = \frac{40}{100} \checkmark$$

$$\log_{10}^m = m \rightarrow m = \log_{10}^a + \log_{10}^r \rightarrow m = \log_{10}^a + \frac{1}{r} \rightarrow m - \frac{1}{r} = \frac{1}{r} \log_{10}^a$$

$$\log_r^m = \frac{r^{m-1}}{r} \rightarrow \log_r^r = \frac{r^{m-1}}{r}$$

$$\log_r^r = \log_r^r + \log_r^r = \frac{r^{m-1}}{r} + 1 = \frac{r^{m-1} + r}{r} \checkmark$$

$$\left(\frac{r}{r}\right)^{r^{m-1}} = \left(\frac{1,8}{10}\right)^{2^r} \rightarrow \left(\frac{r}{10}\right)^{r^{m-1}} = \left(\frac{10}{r}\right)^{r^{m-1}} \rightarrow r^{m-1} = r^{m-1} \rightarrow r^{m-1} + r^{m-1} = 2 \rightarrow r^{m-1} + r^{m-1} = 2 \rightarrow (m-1) \cdot 2 = 2 \rightarrow m-1 = 1 \rightarrow m = 2 \rightarrow \log_{10}^a = \frac{1}{r} \rightarrow \log_{10}^a = \frac{1}{2} \rightarrow \log_{10}^a = \frac{1}{2} \rightarrow \log_{10}^a = \frac{1}{2} \checkmark$$

$$\log_r^r = a \quad \log_{10}^b = \frac{r}{r} (1+a)$$

$$\rightarrow \log_{10}^b = \frac{r}{r} (1 + \log_r^r) = \log_r^b = r(\log_r^r) \rightarrow \log_r^b = \log_r^r$$

$$\rightarrow b = r^4 \rightarrow \log_{10}^{r^4} = \log_{10}^r = \frac{r}{r} \checkmark$$

$$-fa + b + \frac{1}{r}c = 0 \rightarrow \frac{fa}{b} = \log_r^f \quad \left\{ \begin{array}{l} ra = b + c \\ b = ra - c \end{array} \right.$$

$$\rightarrow \frac{fa}{b} = \log_r^f \rightarrow \frac{fa}{ra-c} = \log_r^f \rightarrow \frac{ra-c}{ra} = \log_r^f \rightarrow \frac{1}{r} - \frac{c}{ra} = \log_r^f$$

$$\rightarrow \frac{c}{ra} = \frac{1}{r} - \log_r^f \rightarrow \frac{c}{ra} = \log_r^r - \log_r^f = \log_r^{\frac{r}{f}} \rightarrow \frac{c}{a} = r(\log_r^{\frac{r}{f}})$$

$$\left(\frac{1}{r}\right)^{\frac{c}{a}} = r^{-\frac{1}{a}(\frac{c}{a})} \rightarrow r^{-\frac{1}{r}(\log_r^r)} = \left(r^{\log_r^{\frac{r}{f}}}\right)^{-\frac{1}{r}} = \left(1/r^{\log_r^{\frac{r}{f}}}\right)^{-\frac{1}{r}} = \left(\frac{1}{r}\right)^{-\frac{1}{r}} = \sqrt[r]{r} \checkmark$$