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$$\log_n^m = a \quad \log_{mn}^{m^2n} = b \quad a > 0 \quad [b] = ?$$

بازش $m=n=1$

$$\log_{\frac{1}{1}}^1 = \frac{1}{1} \log_1^1 = \left(\frac{1}{1}\right) \rightarrow \frac{1}{1} = b \rightarrow [b] = 1$$

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الف) $\sqrt{\frac{x}{\log \frac{1}{x}}}$

$$\log \frac{x}{1} \neq 0 \Rightarrow x \neq 1$$

$$\sqrt{\frac{x}{-\log x}} \rightarrow \frac{x}{-\log x} \geq 0 \Rightarrow x < 1 \rightarrow \text{مربع}$$

$$y = \frac{\log(x^2 - x - 1)}{\sqrt{x^2 - 1} + 1}$$

$$x^2 - x - 1 > 0 \rightarrow (x-1)(x+1)$$

$$\frac{-1 \pm \sqrt{1+4}}{2} \rightarrow (-\infty, -1) \cup (1, +\infty)$$

$$x^2 - 1 > 0 \rightarrow x^2 > 1 \rightarrow x < -1 \text{ یا } x > 1 \quad \text{①} \quad \text{②} \rightarrow (-\infty, -1) \cup (1, +\infty)$$

$$x \log_a^a + \log_a^a \sqrt{x} = 1 \rightarrow x = 9 \quad a = ?$$

$$x \log_a^a + \frac{1}{2} \log_a^a x \rightarrow \log_a^{a^x} + \log_a^{a^{\frac{x}{2}}} \rightarrow \log_a^{a^{5x}} = 1 \rightarrow \log_{9a}^{11a} = 1 \rightarrow (9a)^1 = 11a \rightarrow 9a^1 = 11a \rightarrow a = 1$$

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$$\log x = 0.1x \quad \log x = x$$

$$\left(\log \frac{a}{x}\right)^x + (\log 1)x - (\log 10) \rightarrow (\log_{10}^{10})^x (\log_{10}^1)^x (\log_{10}^3)^x + 1 \log^x x - \log^x 10$$

$$x^x - 0.1x^x - 0.1x^x + 0.11x^x - \log^{10} - \log^x - \log^x \rightarrow 0.11x^x + 0.11x^x - 1.1x^x =$$

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$$|x-3| = \frac{\sqrt{\Delta}}{|a|} \rightarrow \frac{\sqrt{4x^2 + 4(0.11x)(1.1x)}}{0.11} = \sqrt{\frac{0.48}{\frac{10}{10}}} = \frac{3\sqrt{4}}{\frac{10}{10}} \Rightarrow \frac{3\sqrt{4}\sqrt{10}}{\sqrt{4}\sqrt{10}} = \frac{3\sqrt{4}}{\sqrt{4}}$$

$$\log_0^r = 10 \rightarrow \frac{\log_{10}^r}{\log_{10}^0}, 10 \rightarrow \frac{\log_{10}^{10} - \log_{10}^0}{\log_{10}^{10} - \log_{10}^r} \rightarrow \frac{1 - \log_{10}^0}{1 - \log_{10}^r} = 0.1 \rightarrow 0.1 \cdot 10 - \frac{1}{10} \log_{10}^r = 1 - \log_{10}^r$$

$$\log_r^V = 1.1 \rightarrow \frac{\log_{10}^V}{\log_{10}^r} = \frac{\log_{10}^V}{\log_{10}^{10} - \log_{10}^0} \rightarrow \frac{\log_{10}^V}{1 - \log_{10}^0} = \frac{\log_{10}^V}{1 - \log_{10}^r} = 1.1$$

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$$\log_{\frac{10}{r}} = 1.0 \quad \log_{\frac{10}{r}} = 1.4 \quad \log_{\frac{10}{r}} = ?$$

$$\frac{\log_{\frac{10}{r}}}{\log_{\frac{10}{r}}} = ? = \frac{\log_{\frac{10}{r}} + \log_{\frac{10}{r}}}{\log_{\frac{10}{r}} + \log_{\frac{10}{r}}} = \frac{1 + 1.4}{1.4 + 1.4} = \frac{2.4}{2.8} = \frac{6}{7}$$

$$\frac{\log_{\frac{10}{r}}}{\log_{\frac{10}{r}}} = \frac{\log_{\frac{10}{r}} - \log_{\frac{10}{r}}}{\log_{\frac{10}{r}} - \log_{\frac{10}{r}}} = \frac{1.4 - 1.4}{1.4 - 1.4} = \frac{0}{0}$$

$$\log_{\frac{10}{r}} = 1.4 \rightarrow \log_{\frac{10}{r}} = 1.4$$

$$\log_{\frac{10}{r}} = m \quad \log_{\frac{10}{r}} = ? \rightarrow \log_{\frac{10}{r}} + \log_{\frac{10}{r}} \rightarrow \frac{r}{r} \log_{\frac{10}{r}} + \frac{1}{r} \log_{\frac{10}{r}} = \frac{r}{r} \log_{\frac{10}{r}} + \frac{1}{r} = m$$

$$\log_{\frac{10}{r}} = \log_{\frac{10}{r}} + \log_{\frac{10}{r}} \rightarrow 1 + \frac{1}{r} \log_{\frac{10}{r}}$$

$$\rightarrow 1 + \frac{1}{r} \left(\frac{r m - 1}{r} \right)$$

$$\rightarrow 1 + \frac{r m - 1}{r} \rightarrow \frac{r m - 1 + r}{r} \rightarrow \frac{r m + 1}{r}$$

$$(1/r)^{r n - 1} = \left(\frac{1/r}{\lambda} \right)^{r n - 1} \quad \log_{\frac{10}{r}} = ?$$

$$\left(\frac{1}{r} \right)^{r n - 1} = \left(\frac{1}{r} \right)^{r n - 1} \Rightarrow r n - 1 = -r n + 1$$

$$r n - 1 + r n - 1 \rightarrow 2 r n - 2 \rightarrow 2 r n - 2 = 0 \rightarrow r n = 1 \rightarrow n = \frac{1}{r}$$

$$\log_{\frac{10}{r}} = X$$

$$\log_{\frac{10}{r}} \Rightarrow \frac{r}{r} \log_{\frac{10}{r}} = \left(\frac{r}{r} \right)$$

$$\log_{\frac{10}{r}} = a \quad \log_{\frac{10}{r}} = \frac{r}{r} (1 + a) \quad \log_{\frac{10}{r}} = ?$$

$$\log_{\frac{10}{r}} = \frac{r + r a}{r} \Rightarrow \frac{r + r a}{r} = b \rightarrow r + r a = b$$

$$r a = r \rightarrow r a = r \rightarrow r a = r \rightarrow r a = r$$

$$\rightarrow \log_{\frac{10}{r}} = \log_{\frac{10}{r}} = \log_{\frac{10}{r}}$$

$$\log_{\frac{10}{r}} = \frac{a}{b} \rightarrow \frac{a}{b} = \frac{a}{b} \rightarrow \frac{a}{b} = \log_{\frac{10}{r}} \quad \frac{a}{b} = \log_{\frac{10}{r}} \rightarrow \frac{\log_{\frac{10}{r}}}{r}$$

$$\log_{\frac{10}{r}} = \frac{r + r a}{r} \Rightarrow \frac{r + r a}{r} = b \rightarrow r + r a = b$$

$$\log_{\frac{10}{r}} = \frac{r + r a}{r} \Rightarrow \frac{r + r a}{r} = b \rightarrow r + r a = b$$

$$\log_{\frac{10}{r}} = \frac{r}{r} \log_{\frac{10}{r}} = \frac{r m - 1}{r}$$

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

$$y_a^a = A \quad \frac{r}{A} + \frac{1}{r} A = r \rightarrow A^r - rA + r = 0 \rightarrow A = r \quad (r)$$

$$r = y_a^a \rightarrow a = a^r \rightarrow a \begin{cases} a = r \checkmark \\ a = -rx \end{cases}$$

$$y^a = ,v \quad y^a = ,\Lambda \quad y^{1a} = 1,1 \quad y^{\frac{a}{r}} = ,r \quad (r)$$

$$\rightarrow ,r a^r + ,\Lambda a - 1,1 \rightarrow \begin{cases} n_1 = 1 \\ a_r = \frac{-1,1}{,r} \end{cases} \rightarrow a_1 - a_r = \frac{1r}{r}$$

$$\frac{y_r^a + y_r^r}{y_r^v + y_r^r} = \frac{r+1}{r,\Lambda+1} = \frac{1a}{1r} \quad (a)$$