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سوره و لوس

تفلیت و کلا

a) $\log_n^m = a$

$\log_{mn}^{m^2n} = b$

$[b] = ?$

$\log_{mn}^{m^2n} = \log_{mn}^{mn} + \log_{mn}^m = 1 + \log_{mn}^m$

$= 1 + \frac{1}{\log_n^m} = 1 + \frac{1}{\log_n^m + \log_m^{\hat{n}}} = 1 + \frac{1}{1 + \frac{1}{a}} = b$

جواب کسر متعکس از یکدیگر

$[b] = 1 + \left[\frac{1}{1 + \frac{1}{a}} \right] = 1$

Q) الف) $y = \sqrt{\frac{n}{\log \frac{1}{x}}}$

$\log \frac{1}{x} = 0 \rightarrow n = 1$

$n > 0, n \neq 1$

$\frac{n}{\log \frac{1}{x}} \geq 0 \Rightarrow \frac{0}{-} + \frac{1}{-} \Rightarrow D_f = (0, 1)$

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

$\text{Q} \cap \text{Q} \Rightarrow D_f = (-\infty, -1) \cup (2, +\infty)$

$n^2 - n - 2 > 0 \rightarrow (n - 2)(n + 1) > 0 \Rightarrow \frac{-1}{+} - \frac{2}{+} \Rightarrow (-\infty, -1) \cup (2, +\infty) \text{ ①}$

$\sqrt{n^2 - 1} + 1 \geq 0$

$n^2 - 1 \geq 0 \rightarrow n \geq 1 \quad n \leq -1$

$\frac{-1}{+} - \frac{1}{+} \Rightarrow (-\infty, -1] \cup [1, +\infty) \text{ ②}$

$$r \log_a^a + \log_a^{\sqrt{2}} = r \quad r=9 \quad (1)$$

$$r \log_a^a + \log_a^r = r$$

$$r \log_{r^r}^a + \frac{1}{\log_r^a} = r$$

$$\log_r^a + \frac{1}{\log_r^a} = r \rightarrow t + \frac{1}{t} = r$$

$$t^r + 1 - rt = 0$$

$$t^r - rt + 1 = 0$$

$$(t-1)^r = 0 \rightarrow t = 1$$

$$\log_r^a = 1 \rightarrow a = r$$

$$\log^{\frac{9}{r}} \approx 9t, \quad \log^r \approx 0.1r \quad (2)$$

$$(\log^{\frac{9}{r}}) x^r + (\log^9) x - \log 18 = 0$$

$$(\log^9 - \log^r) x^r + (r \log^r) x - (\log^r + \log^9) = 0$$

$$a+b+c=0 \rightarrow x=1$$

$$\log^{\frac{9}{r}} = 1 + \frac{11}{r} = \frac{12}{r}$$

$$\rightarrow x = \frac{c}{a} = \frac{-(\log^r + \log^9)}{\log^9 - \log^r}$$

$$\frac{-(\log^r + \log^{\frac{12}{r}})}{\log^{\frac{12}{r}} - \log^r} = \frac{-\log^r - \log^{\frac{12}{r}} + \log^r}{\log^{\frac{12}{r}} - \log^r - \log^r} = \frac{-0.1r - 1 + 0.1r}{1 - 0.1r - 0.1r}$$

$$= \frac{-1/1}{0.8} = \frac{-11}{r}$$

$$\log_{12}^{10} = ?$$

$$\log_2^2 = \frac{10}{2} = 5$$

$$\log_2^2 = 1.8, \log_2^5 = 2.1 \quad (4)$$

$$\log_{12}^{10} = \frac{\log_2^{10}}{\log_2^{12}} = \frac{\log_2^2 + \log_2^6}{\log_2^2 + \log_2^5}$$

$$= \frac{1 + 2}{1 + 2.1} = \frac{3}{3.1} = \frac{3 \times 10}{3.1 \times 10} = \frac{30}{31} = \frac{18}{19}$$

$$\log_2^2 = \frac{10}{14}$$

$$\log_2^2 = 1.4$$

$$\log_2^5 = 1.8$$

$$\log_{10}^9 = \frac{\log_2^9}{\log_2^{10}} = \frac{\log_2^2 + \log_2^7}{\log_2^2 + \log_2^8}$$

$$= \frac{1 + \frac{10}{14}}{1 + 1.8} = \frac{\frac{14}{14} + \frac{10}{14}}{2.8} = \frac{24}{28} = \frac{12}{14} = \frac{6}{7}$$

$$\log_{12}^{12} =$$

$$\log_{12}^{12} = m \quad (5)$$

$$\log_{12}^{12} = \log_{12}^{12} = \frac{1}{12} \log_2^{12} = \frac{1}{12} (\log_2^2 + \log_2^{10}) =$$

$$\frac{1}{12} (1 + 2 \log_2^2) = \frac{1}{12} + \frac{2}{12} \log_2^2 = m$$

$$\log_2^2 = \frac{(m - \frac{1}{12}) \cdot 12}{2} = \frac{12m - 1}{2}$$

$$\log \frac{1^r}{2} = \log \frac{1^r}{r} = \frac{1}{r} \log 1^r = \frac{1}{r} (r \log r + \log r)$$

$$= \frac{1}{r} (r + \log r) = 1 + \frac{1}{r} \left(\frac{r^m - 1}{r} \right) = 1 + \frac{r^m - 1}{r}$$

$$= 1 + \frac{r^m}{r} - \frac{1}{r} = \frac{r^m}{2} + \frac{r}{r} = \frac{r}{r} (m+1)$$

$$(9r)^{r_{n-1}} = \left(\frac{150}{r} \right)^{r^r} \log_{\wedge}^{(9_{n+1})} \quad (1)$$

$$\left(\frac{r}{a} \right)^{r_{n-1}} = \left(\frac{a^r}{r^r} \right)^{r^r} = \left(\frac{a}{r} \right)^{r^r}$$

$$\left(\frac{a}{r} \right)^{1-r_n} = \left(\frac{a}{r} \right)^{r^r} \rightarrow r^r = 1 - r_n$$

$$r^r + r_n - 1 = 0$$

$$a + c = b \rightarrow x = -1 \quad \text{Q. Q. 2}$$

$$x = \frac{-c}{a} = \frac{1}{r}$$

$$\log_{\wedge}^{9 \times \frac{1}{r} + 1} = \log_{\wedge}^r = \log_{r^r}^r = \frac{1}{r} \log_r^r = \frac{1}{r} \times r = \frac{r}{r}$$

$$\log_{r^r}^b = \frac{r}{r} (1+a), \quad \log_r^r = a \quad (2)$$

$$\log(rb - 1) = ?$$

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

$$\frac{1}{r} \log_r^b = \frac{r}{r} \log_r^4$$

$$\frac{1}{r} \log_r^b = \frac{1}{r} \log_r^4 \Rightarrow b = 4^r = r^4$$

$$\log(r \times r^4 - 1) = \log 100 = 2$$

$$-fan^r + bn + \frac{1}{r}c = 0$$

(10)

$$\log^r = \text{UB Nila ulanin, pake Cris}$$

$$a = \frac{b+c}{r}$$

$$\rightarrow ra = b+c$$

$$c = ra - b$$

$$\left(\frac{1}{\sqrt[r]{r}}\right)^{\frac{c}{a}} = p$$

$$\text{emb, pao} = \frac{-b}{a} = \frac{-b}{-ra} = \frac{b}{ra}$$

$$\frac{ra}{b} = \log^r = r \log^r \rightarrow \frac{ra}{b} = \log^r \rightarrow b = \frac{ra}{\log^r}$$

$$\frac{c}{a} = \frac{ra-b}{a} = r - \frac{b}{a} = r - \left(\frac{r}{\log^r}\right)$$

$$= r \left(1 - \frac{1}{\log^r}\right) = r \left(1 - \log^{\frac{10}{r}}\right)$$

$$\frac{1}{\sqrt[r]{r}} = \frac{1}{r^{\frac{1}{r}}} = r^{-\frac{1}{r}}$$

$$\left(r^{-\frac{1}{r}}\right)^{\frac{c}{a}} = \left(r^{-\frac{1}{r}}\right)^{r \left(1 - \log^{\frac{1}{r}}\right)} = \left(r^{-\frac{1}{r}}\right)^{r \left(\log^{\frac{10}{r}}\right)}$$

$$\left(r^{-\frac{1}{r}}\right)^{\log^{\frac{10}{r}} r} = r^{\log^{\frac{10}{r}} 14} = a^{\log^{\frac{10}{r}} 14} = a^{\log^{\frac{10}{r}} r} = a^{\frac{1}{r} \log^{\frac{10}{r}} r}$$

$$= a^{\frac{1}{r}} = \sqrt[r]{a} = 10$$