

$$\log_n^m = a$$

$$\log_{mn}^m = b \rightarrow \log_{mn}^m + \log_{mn}^m = b$$

(۲) ①

$$\Rightarrow b = 1 + \frac{a}{1+a} \xrightarrow{a>0} [b] = \left[1 + \frac{a}{1+a} \right] \xrightarrow{[a] = 0} \left[1 + \frac{a}{1+a} \right] \xrightarrow{[a] = 0} \frac{\log_n^m}{\log_{mn}^m} = \frac{a}{\log_n^m + \log_n^m} = \frac{a}{a}$$

$$\Rightarrow [b] = 1 \quad \checkmark$$

$$\text{الف)} y = \sqrt{\frac{x}{\log_{\frac{1}{x}}^x}}$$

$$x > 0 \quad (I)$$

$$\frac{x}{\log_{\frac{1}{x}}^x} > 0 \quad \begin{cases} x=0 \\ x=1 \end{cases} \quad \text{33ع}$$

$$\frac{0}{\frac{0}{-}} + \frac{1}{\frac{1}{-}} = - \quad (II)$$

(۱،۷۵) ②

$$\Rightarrow D_f = (I) \cap (II) = (0, 1)$$

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

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

$$\frac{-1}{+} \frac{2}{-} \frac{+}{+}$$

$$(-\infty, -1) \cup (2, +\infty) \quad (I)$$

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

$$\frac{-1}{+} \frac{1}{+} \frac{+}{+}$$

$$(-\infty, -1] \cup [1, +\infty) \quad (II)$$

$$D_f = (I) \cap (II) = (-\infty, -1) \cup (2, +\infty) \quad \checkmark$$

$$\sqrt{x^2-1} \neq -1 \rightarrow \text{هولن برقرار است}$$

$$r \log_{\frac{1}{x}}^a + \log_{\frac{1}{a}}^{\sqrt{x}} = r \xrightarrow{x=9} x \log_{\frac{1}{x}}^a + \log_{\frac{1}{a}}^r = r$$

(۲) ③

$$\Rightarrow \log_{\frac{1}{r}}^a + \log_{\frac{1}{a}}^r = r \quad \frac{\log_{\frac{1}{r}}^a = \frac{1}{\log_{\frac{1}{a}}^r}}{\log_{\frac{1}{r}}^a = A} \quad A + \frac{1}{A} = r \rightarrow A = 1$$

$$\log_{\frac{1}{r}}^a = 1 \rightarrow a = r \quad \checkmark$$

$$-\log_{\frac{1}{r}}^{\frac{1}{r}} = \log_{\frac{1}{r}}^{\frac{1}{r}} - \log_{\frac{1}{r}}^{\frac{1}{r}} = 0.7 - 0.14 = 0.13$$

$$\log_{\frac{1}{r}}^{\frac{1}{r}} = \log_{\frac{1}{r}}^{\frac{1}{r}} - \log_{\frac{1}{r}}^{\frac{1}{r}} = 0.13 - 0.13 = 0$$

$$-\log_{\frac{1}{r}}^{\frac{1}{r}} = 2 \log_{\frac{1}{r}}^{\frac{1}{r}} = 0.14$$

$$-\log_{\frac{1}{r}}^{\frac{1}{r}} = \log_{\frac{1}{r}}^{\frac{1}{r}} + \log_{\frac{1}{r}}^{\frac{1}{r}} = 0.13 + 0.13 = 0.26$$

$$\rightarrow 0.14$$

$$\log_{\frac{1}{r}}^{\frac{1}{r}} = 0.13$$

$$\log_{\frac{1}{r}}^{\frac{1}{r}} = 0.14$$

(۲) ④

$$(\log_{\frac{1}{r}}^{\frac{1}{r}})^r + (\log_{\frac{1}{r}}^{\frac{1}{r}})^r - \log_{\frac{1}{r}}^{\frac{1}{r}} = 0 \rightarrow \frac{r}{10} \frac{r}{10} + \frac{r}{10} \frac{r}{10} - \frac{11}{10} = 0 \xrightarrow{\times 10} r^2 + r - 11 = 0$$

$$\Rightarrow r^2 + r - 11 = 0 \rightarrow (r-3)(r+11) = 0 \rightarrow \begin{cases} r=3 \rightarrow ① \\ r=-11 \rightarrow ② \end{cases} \xrightarrow{\Delta r} \frac{r}{3} - \left(\frac{11}{3} \right) = \left(\frac{14}{3} \right) \quad \checkmark$$

باز هم سر

معین نصری

کتابخانه

$$\log_{14}^{10} = \frac{\log_r^{10}}{\log_r^{14}} = \frac{\log_r^{\frac{1}{\log_{10}^r}} + \log_r^{\frac{1}{\log_{14}^r}}}{\log_r^{\frac{1}{\log_{10}^r}} + \log_r^{\frac{1}{\log_{14}^r}}} = \frac{\frac{1}{\log_{10}^r} = \frac{1}{\frac{1}{\log_{10}^r}}}{\frac{1}{\log_{10}^r} + \log_r^{\frac{1}{\log_{14}^r}}} = \frac{1}{1 + \log_r^{\frac{1}{\log_{14}^r}}} = \frac{1}{1 + \frac{1}{\log_{14}^r}} = \frac{\log_{14}^r}{\log_{14}^r + 1}$$

$$\log_r^V = 211$$

$$\log_{\Delta}^r = 0.15$$

(2) (5)

$$\log_{10}^r = \frac{\log_r^r}{\log_r^{10}} = \frac{\log_r^{\frac{1}{\log_{10}^r}} + \log_r^{\frac{1}{\log_{10}^r}}}{\log_r^{\frac{1}{\log_{10}^r}} + \log_r^{\frac{1}{\log_{10}^r}}} = \frac{1 + \frac{1}{\log_{10}^r}}{1 + \frac{1}{\log_{10}^r}} = \frac{1}{1 + \frac{1}{\log_{10}^r}} = \frac{\log_{10}^r}{\log_{10}^r + 1}$$

$$\log_r^{\Delta} = 115$$

$$\log_r^r = 116$$

(2) (4)

$$= \frac{13}{20} = 0.65 \checkmark$$

$$\log_{\Delta}^{11} = m \rightarrow \frac{\log_{\Delta}^{11}}{\log_{\Delta}^{\Delta}} = m \rightarrow \log_{\Delta}^{11} = \frac{r}{\Delta} m \Rightarrow r \log_{\Delta}^r = \frac{r}{\Delta} m - \frac{1}{\Delta}$$

$$\log_{\Delta}^r = \frac{rm - 1}{r}$$

(2) (7)

$$\log_{\Delta}^{11} = \log_{\Delta}^{\frac{1}{\Delta}} + \log_{\Delta}^{\frac{r}{\Delta}}$$

$$\Rightarrow \frac{r(m+1)}{\Delta} \checkmark$$

$$\left(\frac{r}{\Delta}\right)^{ru-1} = \left(\frac{120}{\Delta}\right)^{ur} \rightarrow \left(\frac{r}{\Delta}\right)^{ru-1} = \left(\frac{\Delta}{r}\right)^{ur} \rightarrow \left(\frac{r}{\Delta}\right)^{ru-1} = \left(\frac{r}{\Delta}\right)^{-ru}$$

$$\Rightarrow ru-1 = -ru \rightarrow ru + ru - 1 = 0 \rightarrow (u-1)(u+r) = 0$$

$$\log_{\Delta}^{(u+1)} = \log_{\Delta}^{\frac{1}{\Delta}} + \log_{\Delta}^{\frac{r}{\Delta}} = \left(\frac{r}{\Delta}\right) \checkmark$$

$$u \rightarrow \begin{matrix} 1 \rightarrow \left(\frac{1}{r}\right) \\ -r \rightarrow -1 \end{matrix}$$

(2) (1)

$$\log_{\Delta}^b = \frac{r}{\Delta} (1+a) \rightarrow \log_{\Delta}^b = r + ra \xrightarrow{a = \log_{\Delta}^r} \log_{\Delta}^b = r + r \log_{\Delta}^r$$

$$\log_{\Delta}^{\frac{b}{r}} = r \rightarrow \frac{b}{r} = \Delta \rightarrow b = r\Delta \checkmark \log_{\Delta}^{(rb-1)} = \log_{\Delta}^{(b\Delta-1)} = (2) \checkmark$$

(2) (9)

$$-ra^r + b^r + \frac{1}{r}c = 0$$

If $\frac{a}{b} = \frac{c}{a}$

$$\frac{1}{ab} = \frac{1}{a} = \log^c \rightarrow \log^c = \frac{ca}{b} \rightarrow \boxed{\log^r = \frac{ra}{b}} \rightarrow \log^{\frac{1}{r}} = \frac{b}{ra} \quad (2)$$

$$ra = b + c \rightarrow b = ra - c^*$$

$$\xrightarrow{*} \log^{\frac{1}{r}} = \frac{ra - c}{ra} \rightarrow \log^{\frac{1}{r}} - \log^{\frac{1}{r}} = \frac{-c}{ra} \rightarrow r \log^{\frac{1}{r}} = -\frac{c}{a}$$

$$\left(\frac{1}{\sqrt[r]{r}}\right)^{\frac{c}{a}} \rightarrow \left(r^{-\frac{1}{r}}\right)^{\frac{c}{a}} \rightarrow \left(r^{-\frac{c}{a}}\right)^{\frac{1}{r}} \Rightarrow \left(r^{\log^{\frac{1}{r}}}\right)^{\frac{1}{r}} = (\omega^r)^{\frac{1}{r}} = \omega^{\frac{1}{r}} = \sqrt[r]{\omega} \quad \checkmark$$