

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

$$\frac{\log_{mn}^{mrn}}{\log_n^m} = \frac{\log_n^{mr} + \log_n^{\frac{r}{n}}}{\log_n^m + \log_n^{\frac{r}{n}}} = \frac{ra+1}{a+1} = 1 + \frac{a}{a+1} = b \quad [b] = 1 + \underbrace{\left[\frac{a}{a+1}\right]}_0 = 1$$

الف) $y = \sqrt{\frac{n}{\log \frac{n}{r}}}$ $\frac{n}{\log \frac{n}{r}} > 0$ $\frac{0}{-\frac{1}{r} + \frac{1}{r}} \Rightarrow D_f = (0, 1)$ $f' = 0_y$

$n > 0, \log \frac{n}{r} = 1 \Rightarrow -\log \frac{n}{r} \neq 0 \rightarrow n \neq 1$

ب) $y = \frac{\log_r (2r^2 - n - r)}{\sqrt{n^2 - 1} + 1}$ $n^2 - n - r > 0 \rightarrow (n+1)(n-r) > 0$

$\frac{-1}{+1} - \frac{1}{+1} \rightarrow (-\infty, -1) \cup (r, +\infty)$ $D_f = D_n \cap D_y = (-\infty, -1) \cup (r, +\infty)$

$\hookrightarrow \sqrt{n^2 - 1} + 1 \neq 0$ $\frac{-1}{+1} - \frac{1}{+1} \rightarrow (-\infty, -1] \cup [1, +\infty)$

$n^2 - 1 > 0 \quad (n+1)(n-1)$

اگر $x = a$ $r \log_a^a + \log \sqrt{a} = r$ $a = ?$

$r \log_a^a + \log \frac{r}{a} = r \Rightarrow \log_a^r + \log \frac{r}{a} = r \rightarrow \left(\log \frac{a}{r} \right) + \frac{1}{\log \frac{a}{r}} = r$

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

$\log^2 = 0, r$ $\log^r = 0, r$ $(\log \frac{r}{r})^{n^2} + (\log \frac{r}{r})^n - \log 10 = 0$

$\log 10 - \log^r = \log^{10} - \log^r - \log^r = 0, r$ $\log 9 \rightarrow r^r = r \log^r = 0, 1$

$\log 10 = \log^r + \log^{10} - \log^r = 0, r + 1 - 0, r = 1, 1$ $0, r n^2 + 0, 1 n - 1, 1 = 0$

$\div 10^{-1} \rightarrow r n^2 + 1 n - 11 = 0 \rightarrow \Delta = 4r + 132 = 192$

$|n_1 - n_2| = \frac{\sqrt{\Delta}}{|a|} = \frac{12}{r}$

$\log^v_r = r, 1$ $\log^r_a = 0, 2$ $\log_{10}^{10} = ?$

$\frac{1}{\log \frac{a}{r}} = \frac{1}{r} \rightarrow \log \frac{a}{r} = r$

$\frac{\log \frac{10}{r}}{\log \frac{r}{r}} = \frac{\log^r + \log^r}{\log^r + \log^r} \Rightarrow \frac{1+r}{1+r, 1} = \frac{r}{r, 1} = \frac{r_0}{r, 1} = \frac{10}{19}$

$$\log_{\frac{1}{\omega}} = 1,2 \quad \log_{\frac{1}{r}} = 1,4 \quad \log_{\frac{1}{\omega}} = ?$$

$$\frac{\log_{\frac{1}{\omega}}}{\log_{\frac{1}{\omega}} \frac{1}{\omega}} = \frac{r}{r} \Rightarrow \log_{\frac{1}{\omega}} = \frac{1}{\omega} \times \frac{r}{r} = \frac{1r}{\omega}$$

$$\log_{\frac{1}{\omega}} = \frac{\log_{\frac{1}{r}}}{\log_{\frac{1}{\omega}} \frac{1}{r}} = \frac{\log_{\frac{1}{r}} + \log_{\frac{1}{r}}}{\log_{\frac{1}{r}} + \log_{\frac{1}{r}}}$$

$$= \frac{1+1,4}{1,4+1,4} = \frac{2,4}{2,8} = \frac{4}{7} = \frac{1r}{\omega} = 0,4\omega$$

$$\log_{\frac{1}{\omega}} = m \quad \log_{\frac{1}{r}} = ?$$

$$\log_{\frac{1}{\omega}} = \frac{1}{r} \log_{\frac{1}{r}} = \frac{1}{r} \times (\log_{\frac{1}{r}} + \log_{\frac{1}{r}}) = \frac{1}{r} (r \log_{\frac{1}{r}} + 1) \rightarrow \frac{r}{r} \log_{\frac{1}{r}} = m - \frac{1}{r}$$

$$\Rightarrow \log_{\frac{1}{r}} = \frac{r}{r} m - \frac{1}{r} \quad \frac{1}{r} \log_{\frac{1}{r}} = \frac{1}{r} (r \log_{\frac{1}{r}} + \log_{\frac{1}{r}}) = \frac{1}{r} (r + \frac{r}{r} m - \frac{1}{r})$$

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

$$(0, r)^{r_n-1} = (\frac{1}{\omega})^{r_n-1} \log_{\frac{1}{\omega}} (r_n+1)$$

$$(\frac{r}{\omega})^{r_n-1} = (\frac{\omega}{r})^{r_n-1} \Rightarrow (\frac{\omega}{r})^{1-r_n} = (\frac{\omega}{r})^{r_n} \quad r_n r + r_n - 1 = 0 \quad r_n = -1 \quad r_n = \frac{1}{r}$$

$$x = \frac{1}{r} \rightarrow \log_{\frac{1}{\omega}} = \frac{r}{r} \log_{\frac{1}{r}} = \frac{r}{r}$$

$$\log_{\frac{1}{r}} = a \quad \log_{\frac{1}{\omega}} = \frac{r}{r} (1+a) \quad \log_{\frac{1}{\omega}} (r_b-1)$$

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

$$\log_{\frac{1}{r}} = \log_{\frac{1}{r}} \rightarrow b = r$$

$$\log_{\frac{1}{\omega}} (10^{\omega}-1) = (r)$$

$$\left(\frac{1}{\sqrt{r}}\right)^{\frac{c}{a}} = ? \quad C, b \text{ و } a \text{ و } \log_{\frac{1}{r}} - \frac{r}{r} + b + \frac{1}{r} c = 0 \text{ على وجه التحديد}$$

$$\frac{r}{b} = \frac{r}{b} = r \log_{\frac{1}{r}} \Rightarrow \frac{r}{b} = \log_{\frac{1}{r}} \rightarrow b = \frac{r}{\log_{\frac{1}{r}}}$$

$$\frac{b+c}{r} = a \rightarrow c = ra - b \quad \frac{c}{a} = \frac{ra-b}{a} = r - \frac{b}{a} = r - \left(\frac{r}{\log_{\frac{1}{r}}} \times \frac{1}{a}\right) = r - \frac{r}{\log_{\frac{1}{r}}}$$

$$r \left(1 - \frac{1}{\log_{\frac{1}{r}}}\right) = r - r \log_{\frac{1}{r}} = r - \log_{\frac{1}{r}}^{100} \quad \frac{1}{\sqrt{r}} = (r^{-\frac{1}{2}})^{r \log_{\frac{1}{r}}^{100}} = (r^{-\frac{1}{2}})^{\frac{r}{\log_{\frac{1}{r}}^{100}}}$$

$$r^{-\frac{1}{2} \log_{\frac{1}{r}}^{100}} = \log_{\frac{1}{r}}^{100} \rightarrow \log_{\frac{1}{r}} = \log_{\frac{1}{r}} = \frac{1}{2} \log_{\frac{1}{r}} = \sqrt{a}$$