

(20)

توانیم با همکاران - یادداشت‌ها - نکات

$$\log_{nm}^m = \frac{\log_n^m}{\log_n^{nm}} = \frac{\log_n^m + \log_n^n}{\log_n^m + \log_n^n} = 1$$

$$\frac{r \log_n^m + 1}{\log_n^m + 1} = \frac{ra + 1}{a + 1} = b \quad (5)$$

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

$$a > 0 \rightarrow [b] = 0 + 1 = 1$$

الف)  $y = \sqrt{\frac{x}{\log_{\frac{1}{r}} x}}$   $x > 0$

$\frac{x}{\log_{\frac{1}{r}} x} > 0 \rightarrow \log_{\frac{1}{r}} x > 0$  یا  $\log_{\frac{1}{r}} x < 0$  و  $x > 1$  یا  $0 < x < 1$

با همکاران

$$\Rightarrow \log_{\frac{1}{r}} x > 0 \Rightarrow x < 1 \Rightarrow D_f = (0, 1) \quad (1)$$

ب)  $y = \frac{\log(x^r - x - r)}{\sqrt{x^r - 1} + 1}$   $x^r - 1 > 0 \Rightarrow x > 1$

$x^r > 1 \Rightarrow x > 1$  یا  $x < -1$  (2)

$$x^r - x - r \cdot 0 \Rightarrow (x - r)(x + 1) \cdot 0 \Rightarrow$$

$$\begin{array}{c} -1 \quad r \\ + | - | + \\ + | - | + \end{array}$$

$$\begin{array}{l} x < -1 \\ x > r \end{array} \quad \textcircled{P}$$

$$\textcircled{D}, \textcircled{P} \rightarrow D_f = (-\infty, -1) \cup (r, +\infty)$$

$$r \log_a x + \log_a \sqrt{x} = r \quad x=9$$

$$r \log_a 9 + \log_a 3 = r$$

$$\log_a 9 \rightarrow \log_a 3^2 = \frac{1}{r} \log_a 9 = \frac{1}{r \log_a 9}$$

$$\Rightarrow \frac{1}{r \log_a 9} + \log_a 3 = r \quad \log_a 3 = t$$

$$t + \frac{1}{t} = r \Rightarrow \frac{t^r + 1}{t} = r \Rightarrow t^r - r t + 1 = 0$$

$$(t - 1)^r = 0 \Rightarrow t = 1 \Rightarrow \log_a 3 = 1 \Rightarrow \boxed{a = 3}$$

$$\log_{\frac{9}{16}} = \log_a 9 - \log_a 16 = 0,5 - 0,4 = 0,1$$

$$\log_{\frac{1}{16}} = \log_a 1 - \log_a 16 = 1 - 0,4 = 0,6$$

$$\log_{10} 9 \rightarrow 10^r = 2 \log 3 = 2 \times 0,477 = 0,954$$

$$\log_{10} 18 \rightarrow 10^{1,1} = \log 2 + \log 9 = 0,301 + 0,954 = 1,255$$

$$\Rightarrow 0,301x^r + 0,954x - 1,255 = 0 \quad \times 10$$

$$301x^r + 954x - 1255 = 0 \quad \text{درجه اول} \rightarrow x^r + 1,177x - 4,17 = 0$$

$$(x+11)(x-10) = 0 \rightarrow x = \frac{10}{1} = 10$$

$$x = \frac{-11}{1} = -11$$

$$\text{اصناف} = 1 - \left(\frac{-11}{10}\right) = 1 + \frac{11}{10} = \frac{21}{10}$$

$$\log_{10}^r = \frac{\log_{10}^r}{\log_{10}^a} = \frac{1}{\log_{10}^a} = \frac{1}{r} \Rightarrow \log_{10}^a = r - a$$

$$\log_{10}^1 = \frac{\log_{10}^1}{\log_{10}^E} = \frac{\log_{10}^a + \log_{10}^r}{\log_{10}^V + \log_{10}^r} = \frac{r+1}{r,177+1} = 1$$

$$\frac{10}{10,177} = \frac{10}{19}$$

$$\log_{10}^1 = \frac{1}{\log_{10}^r} = 1,4 \Rightarrow \log_{10}^r = \frac{10}{14}$$

$$\log_a^y = \frac{\log_a^y}{\log_a^a} = \frac{\log_a^r + \log_a^u}{\log_a^r + \log_a^u} = \frac{3+1}{1+1}$$

$$= \frac{4}{2} = 2 = 0,4a$$

$$\log_a^m = m \Rightarrow \frac{r}{u} \log_a^m = m \Rightarrow \log_a^m = \frac{u}{r} m$$

$$\log_a^m + r \log_a^u = \frac{u}{r} m \Rightarrow r \log_a^u = \frac{u}{r} m - 1$$

$$\Rightarrow \log_a^u = \frac{u}{r} \frac{m-1}{r}$$

$$\log_a^m \rightarrow r \times u$$

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

$$(0,4)^{r-1} = (r \times a^{-1})^{r-1} = r^{r-1} \times a^{-r+1}$$

$$\left(\frac{1}{a}\right)^{2^r} = (a^u \times r^{-u})^{2^r} = a^{u \cdot 2^r} \times r^{-u \cdot 2^r}$$

$$\Rightarrow r^{2^r-1} = -u \cdot 2^r \Rightarrow u \cdot 2^r + r^{2^r-1} = 0$$

$$\Rightarrow x = -1, x = \frac{1}{u} \quad 9x+1 \cdot \Rightarrow 9x-1$$

$$\Rightarrow x = \frac{1}{9}$$

$$\log_{\frac{1}{\lambda}}(9x+1) = \log_{\frac{1}{\lambda}}(K) = \frac{\frac{1}{\lambda}}{\frac{1}{\lambda}} = \frac{1}{\lambda}$$

$$\log_{\frac{1}{\lambda}} b = \frac{1}{\lambda} \log_{\frac{1}{\lambda}} b = \frac{1}{\lambda} (1+a) \Rightarrow$$

$$\log_{\frac{1}{\lambda}} b = \frac{1}{\lambda} + \frac{1}{\lambda} a = \log_{\frac{1}{\lambda}} \lambda \times \lambda \times \lambda = \log_{\frac{1}{\lambda}} \lambda^3$$

$$\Rightarrow b = \lambda^3 \Rightarrow \lambda^3 - 1 = 0 \dots \log_{\frac{1}{\lambda}} = \frac{1}{\lambda}$$

$$-kax^r + bx + \frac{1}{r}c = 0 \quad \delta = \frac{-b}{a} = \frac{-b}{-ka} = \frac{b}{ka}$$

$$\log_{\frac{1}{\lambda}}^k = \frac{ka}{b} \Rightarrow \log_{\frac{1}{\lambda}}^r = \frac{ra}{b}$$

$$a = \frac{b+c}{r} \Rightarrow ra = b+c \Rightarrow c = ra - b$$

$$\frac{c}{a} = \frac{ra - b}{a} = r - \frac{b}{a} = r - r \log_{\frac{1}{\lambda}}^r =$$

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

$$= \frac{\left(\lambda^{-\frac{1}{r}}\right)^r}{\left(\lambda^{-\frac{1}{r}}\right)^{\log_{\frac{1}{\lambda}}^r}} = \frac{\lambda^{-1}}{\left(\lambda^{-\frac{1}{r}}\right)^{\log_{\frac{1}{\lambda}}^r}} = \left(\lambda^{-\frac{1}{r}}\right)^{-\frac{1}{\lambda}} = \lambda^{\frac{1}{r\lambda}}$$

kifet.ir

$$= \sqrt[r]{\lambda}$$