

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

$$\log_{mn}^{m^n} = \frac{\log_n^{m^n}}{\log_n^{mn}} = \frac{\log_n^m + \log_n^n}{\log_n^m + \log_n^n} = \frac{a+1}{a+1} = b$$

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

$$y = \sqrt{\frac{x}{\log \frac{1}{x}}} \rightarrow \log \frac{1}{x} > 0 \rightarrow \frac{1}{x} > 1 \rightarrow x < 1$$

$$\Rightarrow D_f = (0, 1)$$

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

$$\begin{aligned} x^2 - x - 2 > 0 &\rightarrow \frac{-1 \pm \sqrt{1+8}}{2} = \frac{-1 \pm 3}{2} \\ x^2 - 1 > 0 &\rightarrow x > 1 \vee x < -1 \\ \sqrt{x^2 - 1} \neq -1 &\rightarrow x > 1 \end{aligned}$$

$$\Rightarrow D_f = (-\infty, -1) \cup (1, +\infty)$$

$$r \log_a^a + \log_a^{\sqrt{a}} = r, a = 9 \rightarrow a = ?$$

$$r \log_a^a + \log_a^{\sqrt{a}} = r \rightarrow \log_a^a + \log_a^{\sqrt{a}} = r \rightarrow \log_a^a + \frac{1}{\log_a^a} = r \rightarrow \log_a^a = t, t + \frac{1}{t} = r$$

$$t^2 - rt + 1 = 0 \rightarrow (t-1)^2 = 0 \rightarrow t = 1 \rightarrow \log_a^a = t = 1 \rightarrow a = 3$$

$$(\log \frac{10}{x})^2 + (\log 9)^2 - \log 10 = 0, \log x = 0, \log 9 = 0, \log 10 = 0$$

$$\log \frac{10}{x} = \log 10 - \log x \rightarrow (\log 10 - \log x)^2 + 0 - \log 10 = 0 \rightarrow \log 10 - \log x = 1 \rightarrow \log x = \log 10 - 1 = 0 \rightarrow x = 10$$

$$(1 - 0, 3 - 0, 4) x^2 + 0, 1 x - 1 + 0, 3 = 0, 8$$

$$= 0, 3 x^2 + 0, 1 x - 1, 1 = 0$$

$$x \rightarrow 3x^2 + 1x - 11 = 0 \rightarrow x = 1$$

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

$$\log \frac{10}{x} = r, \log \frac{10}{x} = 0, \log \frac{10}{x} = 0$$

$$\log \frac{10}{x} = \frac{\log \frac{10}{x}}{\log \frac{10}{x}} = \frac{\log \frac{10}{x} + \log \frac{10}{x}}{\log \frac{10}{x} + \log \frac{10}{x}} = \frac{1 + r}{1 + r, 1} = \frac{r}{r, 1}$$

$$\log \frac{10}{x} = \frac{1}{\log \frac{10}{x}} = r$$

سوال (4) =

$$\log r = \frac{1}{\frac{\log r}{r} \cdot \frac{1}{\omega}} = \frac{\omega}{r} \star$$

سوال (۷) :-

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

سوال ۸ :-

$$\log_a a^{n+1} = \frac{n+1}{1} \log_a a = n+1$$

سوال ④ = ۷

$$\log (m_b - 1) \frac{b = 4}{\log 1.1} = \sqrt{4}$$

سوال (۱۵) = ۴

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