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در مسائل اول - با توجه به قضیه A

$[b] = ?$

$a > 0$

$\log_{mn}^{m^n} = b \quad \log_n^m = a$ (10)

$$\frac{\log_{mn}^{m^n}}{\log_n^{mn}} = \frac{r \log_n^{nr} + \log_n^n}{\log_n^m + \log_n^n}$$

$$= \frac{ra+1}{a+1} = 1 + \frac{a}{a+1} = b$$

(5)

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

$$\sqrt{\frac{n}{\log_n \frac{1}{r}}}$$

$$\frac{n}{\log_n \frac{1}{r}} > 0$$

$$= \frac{0}{1} + \frac{1}{0} = \infty$$

(20)

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

$$n > 0, \log_{r-1}^n \Rightarrow -\log_r n = 0 \Rightarrow n = 1$$

(5)

$$\frac{\log_e (n^2 - n - 2)}{\sqrt{n^2 - 1} + 1}$$

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

$$\Rightarrow (-\infty, -1) \cup (2, \infty)$$

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

$$n^2 - 1 > 0 \Rightarrow (n+1)(n-1) > 0 \Rightarrow (-\infty, -1) \cup (1, \infty)$$

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

$$a \neq 0, n \neq a \in r \log_n^a + \log_a^{\sqrt{n}} = r$$

(20)

$$r \log_n^a + \log_a^{\sqrt{n}} = r \Rightarrow \log_n^a + \log_a^{\sqrt{n}} = r \Rightarrow \log_n^a + \frac{1}{\log_n^a} = r$$

(5)

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

$$\log^0 - \log^r = \log^1 - \log^2 - \log^3 = \dots, \log^9 = r \log^r = 0, 1$$

(20)

$$\log^1$$

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

(5)

$$0,1^2 \lambda^2 + 0,1 \lambda \gamma - 1,1 = 0 \xrightarrow{\div 10^{-1}} \lambda^2 + \lambda \gamma - 11 = 0$$

$$\Delta = 4\varepsilon + 142 = 192$$

$$|n_2 - n_1| = \frac{\sqrt{\Delta}}{|a|} = \frac{1\varepsilon}{1}$$

$$\log_{1\varepsilon}^1? \quad \log_{1\varepsilon}^2 = 1, \log_{1\varepsilon}^3 = 2, \log_{1\varepsilon}^4 = 3 \text{ (سوال 5)}$$

$$\frac{\log_{1\varepsilon}^{10}}{\log_{1\varepsilon}^{2 \times 5}} = \frac{\log_{1\varepsilon}^2 + \log_{1\varepsilon}^5}{\log_{1\varepsilon}^2 + \log_{1\varepsilon}^5} = 1 \quad \downarrow \quad \frac{1}{\log_{1\varepsilon}^2} = \frac{1}{2} \Rightarrow \log_{1\varepsilon}^2 = 2$$

$$\frac{1+2}{1+2,18} = \frac{3}{3,18} = \frac{10}{38} = \frac{10}{19}$$

$$\log_{12}^4? \quad \log_{12}^2 = 1,4 \quad \log_{12}^3 = 1,5 \text{ (سوال 6)}$$

$$\log_{12}^4 = \frac{\log_{12}^4}{\log_{12}^2} = \frac{\log_{12}^2 + \log_{12}^2}{\log_{12}^2 + \log_{12}^2} = 1 \quad \downarrow \quad \log_{12}^2 = \frac{3}{2} \text{ (5)}$$

$$= \frac{1 + 1,4}{2,4 + 1,4} = \frac{2,4}{3,8} = \frac{24}{38} = \frac{12}{19}$$

$$\log_{12}^{12} = \frac{12}{2} \log_{12}^2 = 6 \log_{12}^2 = 6 \times \frac{3}{2} = 9 \text{ (سوال 7)}$$

$$\log_{12}^{12} = \frac{12}{2} \log_{12}^2 = \frac{1}{2} \times (\log_{12}^3 + \log_{12}^9) = \frac{1}{2} (2 \log_{12}^3 + 1)$$

$$= \frac{1}{2} \log_{12}^3 = m - \frac{1}{2} \Rightarrow \log_{12}^3 = \frac{1}{2} m - \frac{1}{2}$$

$$\frac{1}{2} \log_{12}^{12} = \frac{1}{2} (2 \log_{12}^2 + \log_{12}^8) = \frac{1}{2} (2 + \frac{1}{2} m - \frac{1}{2}) = \frac{1}{2} + \frac{1}{4} m$$

$$\frac{1}{2} (1+m)$$

Arman

4/5/1

$$\log_{\lambda} (a_{n+1})$$

$$(0, \varepsilon) = \left(\frac{1}{\lambda}\right)^{n^r} \quad (\text{سوال ٨}) \checkmark$$

$$\log_{\lambda} \varepsilon = \frac{r}{\lambda} \log_{\lambda} \frac{1}{\lambda} = \frac{r}{\lambda}$$

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

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

$$\Rightarrow r n^r + r n - 1 = 0 \quad (5)$$

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

$$(n+r)(n-1) = 0$$

$$n = -1, \frac{1}{r}$$

$$\log_{\lambda} (b-1) : \log_{\lambda} b = \frac{r}{\lambda} (1+a) \log_{\lambda} \frac{1}{\lambda} = a \quad (\text{سوال ٩}) \checkmark$$

$$\log_{\lambda} (101-1) = \frac{r}{\lambda}$$

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

$$\log_{\lambda} b = r + r \log_{\lambda} \frac{1}{\lambda} \quad (5)$$

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

$$\Rightarrow \log_{\lambda} \frac{1}{\lambda} = \log_{\lambda} b \Rightarrow b = \frac{1}{\lambda}$$

$$\log_{\lambda} \frac{1}{\lambda} = \frac{\varepsilon a}{b} = r \log_{\lambda} \frac{1}{\lambda} \Rightarrow \frac{r a}{b} = \log_{\lambda} \frac{1}{\lambda} \Rightarrow b = \frac{r a}{\log_{\lambda} \frac{1}{\lambda}} \quad (\text{سوال ١٠})$$

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

$$\frac{c}{a} = \frac{r a - b}{a} = r - \frac{b}{a} = r - \left(\frac{r a}{\log_{\lambda} \frac{1}{\lambda}} \times \frac{1}{a}\right) = r - \frac{r}{\log_{\lambda} \frac{1}{\lambda}} = r \left(1 - \frac{1}{\log_{\lambda} \frac{1}{\lambda}}\right)$$

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

Arman

$$\left(\mu^{-\frac{1}{\varepsilon}} \log^{\frac{1}{\varepsilon}} \mu \right)^{\frac{1}{\varepsilon}} = \mu^{\frac{1}{\varepsilon}} \log^{\frac{1}{\varepsilon}} \mu \rightarrow \mu^{\frac{1}{\varepsilon}} \log^{\frac{1}{\varepsilon}} \mu = \mu^{\frac{1}{\varepsilon}} \log^{\frac{1}{\varepsilon}} \mu$$

$$= \sqrt{\mu}$$