

$$2 \log_{mn}^m + \log_{mn}^n \leq b$$

(1)

$$\log_n^m + \log_n^n = \log_n^{mn} \leq a+1 \Rightarrow \log_{mn}^n \leq \frac{1}{a-1}$$

$$\log_m^n + \log_m^m \leq \log_m^{mn} \leq \frac{1}{a-1} \Rightarrow \log_{mn}^m \leq \frac{a}{a-1}$$

$$\frac{2a}{a-1} + \frac{1}{a-1} \leq \frac{2a+1}{a-1} \leq b \quad \frac{a-1}{a+1} < \frac{2a+1}{a-1} < \frac{2a+3}{a-1}$$

$$\Rightarrow [b] \leq 1$$

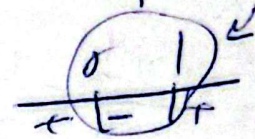
(2)

$$\text{الف) } n \geq 3$$

$$-\frac{n}{\log_r n} \geq$$

$$\frac{n}{\log_r n} \leq$$

$$I \cap J \rightarrow \{0, 1\}$$



$$[-0.5, 1]$$

ب)

$$n^{n-1} \geq 0 \quad n \geq 1 \leq n \leq -1$$

$$n^{n-1} - n^{-1} \geq 0 \quad (n-1)(n+1) \geq 0 \quad \frac{-1}{n-1} \leq$$

$$D \leq (0, -1) \cup (1, \infty)$$

(3)

$$2 \log_7^a + \log_7^{\sqrt{a}} \leq c \Rightarrow \log_7^a + \log_7^{\sqrt{a}} \leq c \quad \log_7^a = t$$

$$t + \frac{1}{\sqrt{t}} \leq c \Rightarrow t^2 - ct + 1 \leq 0 \Rightarrow (-1) \Rightarrow \log_7^a = 1 \Rightarrow a \leq 7$$

(4)

$$\log \frac{a}{p} + \log q = \log a \leq \log n \Rightarrow a \leq n$$

$$n_1 \leq 1$$

$$n_2 \leq \frac{c}{a} \leq \frac{-\log a + \log n}{\log a - \log p} = \frac{\sqrt{c} + \sqrt{c}}{\sqrt{c} - \sqrt{c}} = \frac{-11}{\sqrt{c}}$$

$$1 - (-\frac{11}{\sqrt{c}}) = \frac{c}{\sqrt{c}}$$







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$\mu_{n+1} - \mu_n = \frac{1}{n} - \frac{1}{n+1} = \frac{1}{n(n+1)}$

$\mu_{n+1} - s$

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