

$$\log_n^m = a \quad \log_{mn}^{m^2n} = b \quad [b] = ? \quad a > 0$$

$$\downarrow \quad \downarrow$$

$$m = n^a \quad b = \log_{mn}^{m^2n} = \log_{(n^a)n}^{(n^a)^2 n} = \log_{n^{a+1}}^{n^{2a+1}} \Rightarrow \frac{2a+1}{a+1} \log_n n$$

$$\frac{2a+1}{a+1} \Rightarrow \frac{a}{a+1} + 1 \Rightarrow 0 < \frac{a}{a+1} < 1 \Rightarrow 1 < \frac{a}{a+1} + 1 < 2 \Rightarrow 1 < b < 2 \Rightarrow [b] = 1$$

۱) $y = \sqrt{\frac{x}{\log \frac{1}{x}}}$ دامنه؟ $\Rightarrow y = \frac{\log \epsilon^{(x^2-x-2)}}{\sqrt{x^2-1}+1}$ دامنه؟

$$\frac{x}{\log \frac{1}{x}} > 0 \xrightarrow{x > 0} \log \frac{1}{x} > \log 1$$

$$x < 1 \rightarrow D_y = 0 < x < 1$$

$$x^2 - x - 2 > 0 \rightarrow x < -1 \text{ یا } x > 2$$

$$x^2 - 1 > 0 \rightarrow x < -1 \text{ یا } x > 1$$

بر استنتاج $D_y = (-\infty, -1) \cup (2, \infty)$

$$x \log_a^a + \log_{\sqrt{a}}^{\sqrt{a}} = 2 \quad x = a \quad a > 5$$

$$x \log_{\sqrt{a}}^a + \log_a^{\sqrt{a}} = 2$$

$$x \left(\frac{1}{\sqrt{a}}\right) \log_a^a + \frac{1}{\log_a^{\sqrt{a}}} = 2 \Rightarrow \left(t + \frac{1}{t} = 2\right) x t \Rightarrow t^2 - 2t + 1 = 0$$

$$(t-1)^2 = 0 \Rightarrow t = 1 \Rightarrow \log_a^a = 1 \Rightarrow a = 3 \quad 1 - \left(\frac{1}{3}\right) = \frac{2}{3}$$

اختلاف (مقیاسها): $\log 3 \approx 0.477, \log 2 \approx 0.301, \log 4 \approx 0.602$

$$\underbrace{(\log 3 - \log 2)}_a x^2 + \underbrace{(\log 2 + \log 3)}_b x - \underbrace{(\log 2 + \log 4)}_c = 0$$

$$a + b + c = 0$$

$$\hookrightarrow x = 1, \quad x = \frac{c}{a} = \frac{-(\log 2 + \log 4)}{\log 3 - \log 2} \Rightarrow -\frac{1.1}{0.177} \approx -3.14$$

$$\log_V^V = 1/18, \log_{\omega}^V = 0/\omega, \log_{18}^{10} = 5$$

$$\log_{18}^{10} \Rightarrow \frac{\log 10}{\log 18} \Rightarrow \frac{\log 2}{\log 18} \Rightarrow \frac{\log 2}{\log 2 + \log 9} \Rightarrow \frac{1}{1 + \log 9}$$

$$\Rightarrow \frac{1}{1 + 2/18} = \frac{1}{1 + 1/9} = \frac{9}{10}$$

$$\log_{\omega} 21\omega \geq \log_{\omega}^{\omega} = 1/4 \quad \log_{\omega}^{\omega} 25$$

$$\log_{\omega}^{\omega} \Rightarrow \frac{\log \omega}{\log \omega} \Rightarrow \frac{\log \omega \rightarrow \omega \times \omega}{\log \omega \rightarrow \omega \times \omega} \Rightarrow \frac{\log \omega + \log \omega}{\log \omega + \log \omega} \Rightarrow 1 + \frac{\log \omega}{\log \omega}$$

$$\Rightarrow \frac{1/4 \times \omega}{\omega} = \omega/4\omega$$

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$$\log_{\omega}^{\omega} = m \quad \log_{\omega}^{\omega} 25$$

$$\log_{\omega}^{\omega} \Rightarrow \log_{\omega}^{\omega} + \log_{\omega}^{\omega} \Rightarrow 1 + \frac{1}{\omega} \log_{\omega}^{\omega}$$

$$\frac{1}{\omega} \log_{\omega}^{\omega} = m \Rightarrow \log_{\omega}^{\omega} = \omega m \Rightarrow \log_{\omega}^{\omega} + \log_{\omega}^{\omega} = \omega m \Rightarrow \log_{\omega}^{\omega} = \frac{\omega m - 1}{\omega}$$

$$\Rightarrow 1 + \frac{1}{\omega} (\omega m - 1) \Rightarrow \frac{\omega m + \omega}{\omega} = \frac{\omega}{\omega} (m + 1)$$

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$$(\log_{\omega}^{\omega})^{\omega-1} = \left(\frac{\omega}{\omega}\right)^{\omega-1} \quad \log_{\omega}^{\omega} 25$$

$$\downarrow$$

$$\left(\frac{\omega}{\omega}\right)^{\omega-1} = \left(\frac{\omega}{\omega}\right)^{\omega-1} \Rightarrow \omega-1 = -\omega \Rightarrow \omega^2 + \omega - 1 = 0 \Rightarrow \omega = -1$$

$$\omega = -1 \Rightarrow \log_{\omega}^{\omega} 25$$

$$\omega = \frac{1}{\omega} \Rightarrow \log_{\omega}^{\omega} \Rightarrow \frac{\omega}{\omega} \log_{\omega}^{\omega} \Rightarrow \left(\frac{\omega}{\omega}\right)$$

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$$\log_{\omega}^{\omega} = a \quad \log_{\omega}^{\omega} b = \frac{\omega}{\omega} (1+a) \quad \log_{\omega}^{\omega} (\omega b - 1) = 5$$

$$\hookrightarrow \omega = \omega^a \quad \hookrightarrow b = \omega^{\frac{\omega}{\omega} (1+a)} \Rightarrow b = \omega^{\omega (1+a)} = \omega^{\omega a} \times \omega^{\omega}$$

$$b = \omega^{\omega} \times \omega^{\omega} = \omega^{\omega} \Rightarrow \log_{\omega}^{\omega} (\omega \times \omega^{\omega} - 1) = \log_{\omega}^{\omega} 100 = \omega$$

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$$-a\omega^{\omega} + b\omega + \frac{1}{\omega} c = 0$$

$$\omega a = b + c \Rightarrow b = \omega a - c$$

$$\frac{1}{\omega + \omega} = \frac{1}{5} = \frac{a}{b} = \frac{a}{\omega a - c} = \log_{\omega}^{\omega}$$

$$\frac{\omega a}{\omega a - c} = \log_{\omega}^{\omega} \Rightarrow \frac{\omega a - c}{\omega a} = \log_{\omega}^{\omega} \rightarrow 1 - \frac{c}{\omega a} = \log_{\omega}^{\omega}$$

$$\omega - \log_{\omega}^{\omega} 100 = \frac{c}{a} \Rightarrow \left(\frac{1}{\omega}\right)^{\frac{c}{a}} = \left(\frac{1}{\omega}\right)^{\frac{c}{a}} \left(\omega^{-\frac{1}{\omega}}\right)^{\frac{c}{a}} = \omega^{\left(\omega - \log_{\omega}^{\omega}\right) \frac{1}{\omega}}$$

$$\left(\frac{\omega}{\omega}\right)^{-\frac{1}{\omega}} \Rightarrow \left(\frac{c}{100}\right)^{-\frac{1}{\omega}} \Rightarrow \left(\frac{c}{100}\right)^{\frac{1}{\omega}} \Rightarrow \omega^{\frac{1}{\omega}} \Rightarrow \sqrt[\omega]{\omega}$$

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